SPECIAL MEETING

August 19, 1925.

The Common Council of the City of Indianapolis met in the Council Chamber, August 19, 1925, at 7:30 p. m., in special session, President Ben H. Thompson in the chair, pursuant to the following call:

August 19, 1925.

To the Members of the Common Council,
Indianapolis, Indiana.
Gentlemen:

You are hereby notified that there will be a special meeting of the Common Council held in the Council Chamber on August 19, 1925, at 7:30 o'clock p. m., the purpose of such meeting being to receive communications from the Mayor or City Controller of said city and for the introduction of an ordinance appropriating money for the purpose of defraying the current expenses of the City Government for the use of the several departments thereof for the fiscal year beginning January 1, 1926, and ending December 31, 1926, and for the introduction of an ordinance fixing the annual tax and fixing the rate of tax levy and levies of tax for the City of Indianapolis for the year 1925, payable in 1926, and for further consideration and passage of all ordinances now pending before the Common Council.

Respectfully,
BEN H. THOMPSON,
President.

I, John W. Rhodehamel, Clerk of the Common Council of the City of Indianapolis, Indiana, do hereby certify that I have served the above and foregoing notice to each and every member of the Common Council prior to the time of meeting, pursuant to the rules.

JOHN W. RHODEHAMEL,
City Clerk.

Which was read.

Present: The Hon. Ben H. Thompson, President of the Common Council, and seven members, viz.: Messrs. Bernd, Bramblett, Buchanan, Clauer, King, Ray and Wise.

Absent: Mr. Claycombe.

COMMUNICATIONS FROM THE MAYOR.

August 17th, 1925.

To the President and Members of the Common Council of the City of Indianapolis, Indiana:
Gentlemen:

I would recommend for your approval General Ordinance No. 72, 1925, an ordinance fixing and establishing the annual rate of

taxation and tax levy for the year 1925 for the City of Indianapolis, Indiana, and for such fund for which a separate tax levy is authorized by law, to be collected and expended in the year 1926, and fixing a time when this ordinance shall take effect. This above mentioned tax levy is attached for your inspection.

Respectfully submitted,
S. L. SHANK,
Mayor.

August 17th, 1925.

To the President and Members of the Common Council of the City of Indianapolis, Indiana:

Gentlemen:

I hereby send to you Appropriation Ordinance No. 28, 1925, covering the appropriations asked for in the Budget for year 1926, also copy of Budget as made up by different departments under this administration and finally approved by me. I have requested the Boards and Heads of Departments to make their recommendations just as low as possible and still keep up the progress of the city.

STATEMENT OF TAX LEVY FOR 1925, PAYABLE IN 1926.

General City Purposes	$ .575
City Sinking Fund	.05
Police Pension	.005
Firemen Pension	.005
School Health	.01
Park, General	.08
Park, District Bond Fund	.0575
Recreation Fund	.015
Track Elevation	.02
Tuberculosis Fund	.005
Sanitation Bond Fund	.04
Sanitation Maintenance	.005
Board of Health	.09
World War Memorial Bond Fund	.015
Thoroughfare Plan Fund	.005
Street Resurfacing	.02
Flood Prevention	.015
Total	$1.0625

Also Fifty Cents on each Poll for General Purposes.

I have gone over this Budget with Mr. Hogue, City Controller, very carefully and this levy gives every department more than they had last year and yet I have tried my best to bring it down still lower but cannot. I want to give the in-coming Mayor enough money to transact the business of Indianapolis without trouble.

The one cent increase to the Park Board was given to them for maintenance of the new playgrounds and two new golf links, one in Brightwood and one below Garfield Park. The Recreation Department looks after these playgrounds after the Park Board puts them in proper shape.

I believe that the amount received from the above levy is sufficient to run Indianapolis in just as efficient and economical manner

as in 1925, and I hope you will give this Budget favorable consideration.

Very truly yours,
S. L. SHANK,
Mayor.

August 17th, 1925.

Honorable Samuel Lewis Shank,
Mayor,
City of Indianapolis, Indiana.

My Dear Sir:

I submit herewith for your consideration, estimates of the amounts of money necessary for the operation of the several departments of the City of Indianapolis, Indiana, for the year 1926, including the following separate taxing units of the city:

Department of Public Parks	$560,990.88
Recreation Department	101,353.00
Sanitation Department	423,500.00
Board Public Health and Charities	625,000.00
Tuberculosis Fund	38,477.37
School Health Fund	79,800.00

The estimates submitted by the different boards and departments under them in General Fund were carefully gone over at a meeting with you, the Mayor and same finally approved by you as follows:

Mayor's Office	$ 9,975.00
City Clerk	6,540.00
Common Council	6,140.00
Controller's Office	216,140.00
Barret Law	14,000.00
Legal Department	27,170.00
City Plan Commission	21,100.00
Department of Public Purchase	15,970.00
Board of Public Works	1,462,059.90
Board of Public Safety	2,552,259.72
Total for General Fund	$4,331,354.62
Grand Total, including Separate Units above designated	$6,160,475.87

I firmly believe that the above designated amounts of money will be sufficient for the various departments to operate in the same efficient manner they have in 1925, considering the fact that the increased valuation over 1925 at the same tax levy as 1925 will bring the various departments more money. The increased levy will amount to approximately $2,000.00 more on the cent than the levy brought in 1925.

Attached you will find a statement of the tax levy for 1926, as made up on an estimated valuation of $650,000,000.00.

Respectfully submitted,
JOS. L. HOGUE,
City Controller.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Recapitulation of Budget for General Fund for 1926.

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Mayor's Office		$ 9,975.00				
City Clerk		6,540.00				
Common Council		6,140.00				
Controller's Office		216,140.00				
Barrett Law		14,000.00				
	$ 341,001.00	252,795.00				
Legal Dept.	$ 32,030.00	$ 27,170.00				
City Plan Commission	25,650.00	21,100.00				
Public Purchase	15,970.00	15,970.00				
Board of Public Works	1,378,515.45	1,462,059.90				
Board of Public Safety	2,362,481.21	2,552,259.72				
Grand total of General Fund 1926	$4,155,647.66	$4,331,354.62				
Total of entire budget for the year 1926—						
Total of General Fund	$4,155,647.66	$4,331,354.62				
Recreation Dept.	93,000.00	101,353.00				
Park Board	554,677.32	560,990.88				
Sanitation Dept.	358,245.25	423,500.00				

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Bd. of Public Health and Charities	598,905.00	625,000.00				
Tuberculosis Fund	30,000.00	38,477.37				
School Health Fund	63,000.00	79,800.00				
Grand total of entire Budget for 1926	$5,853,475.23	$6,160,475.87				

Under 1925 Budget these Departments were combined and known as Finance Dept.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department—Mayor's Office. Prepared by Flo M. Peckman

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Service—Personal—							
Salaries and Wages—Regular—							
Mayor $7,500.00	7,500.00	7,500.00	7,500.00			7,500.00	7,500.00
Secretary 2,000.00	2,000.00	2,000.00	2,000.00			2,000.00	2,000.00
Stenographer 1,200.00	1,200.00	1,200.00			1,200.00		
Total Item No. 11.....	10,700.00	10,700.00	9,500.00		1,200.00	9,500.00	9,500.00
Services Contractional—							
Communication and Transportation—							
Postage 200.00							
Telephones and							
Telegraph 162.14							
Total Item No. 21.....	182.14		200.00			200.00	200.00
Repairs—							
Repairs of Equipment 2.80....							
Total Item No. 25.....	280.00		25.00			25.00	25.00
Supplies—							
Office 43.71							
Total Item No. 36.....	43.71		250.00			250.00	250.00
Grand Total .....$	10,928.65	$ 10,700.00	$ 9,975.00	$ 475.00	$ 1,200.00	$ 9,975.00	$ 9,975.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department of City Clerk. Prepared by John Ambuhl

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
City Clerk .....1@3,000.00		3,000.00	3,000.00			3,000.00	3,000.00
Deputy City Clerk....2@2,000.00		4,000.00					
Deputy City Clerk....1@1,800.00		1,800.00					
Deputy City Clerk....1@1,500.00		1,500.00					
Stenographer (introduced ordin.)			2,000.00			1,200.00	1,200.00
Total Item No. 11.....	10,299.83	10,300.00	4,200.00		6,100.00	4,200.00	4,200.00
Services Contractual—							
Communication and Transportation—							
Postage 115.00							
Telegraph and Telephone.. 159.50							
Total Item No. 21.....	274.50		75.00	75.00		75.00	75.00
Printing and Advertising—							
Advertising and publication of notices 1,566.86							
Printing (other than office) 1,933.15							
Total Item No. 24.....	3,500.01	2,000.00	2,000.00			2,000.00	2,000.00
Repairs—							
Repairs of equipment..... 10.98							
Total Item No. 25.....	10.98		65.00	65.00		65.00	65.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Office 1,764.37							
Total Item No. 36.....	1,764.37		200.00	200.00		200.00	200.00
Properties—							
Equipment—							
Furniture and fixtures.... 278.50							
Office 75.90							
Total Item No. 72.....	354.40						
Grand Total	$16,204.09	$ 12,300.00	$6,540.00	$340.00	$6,100.00	$6,540.00	$6,540.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Common Council.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Councilmen .....9@5,400—5,399.95		5,400.00	5,400.00			5,400.00	5,400.00
Sergeant-at-Arms 400.00— 400.00		400.00	400.00			400.00	400.00
Stenographer .... 240.00— 240.00		240.00	240.00			240.00	240.00
Total Item No. 11.....	6,039.95	6,040.00	6,040.00			6,040.00	6,040.00
Salaries and Wages—Temporary—							
Bailiff—Coun. Investigator 440.00							
Reporter—Coun. Investigator $405							
Total Item No. 12.....	845.00						
Other Compensations—							
Attorney fees—Council							
Investigator 3,335.00							
Total Item No. 13.....	3,335.00						
Services—Contractual—							
Services—Other Contractual—							
All other contractual							
(Council Investigator) 61.50							
Total Item No. 26—.....	61.50						
Supplies—							
Office							
Total Item No. 36.....			100.00	100.00		100.00	100.00
Grand Total	$10,281.45	$6,040.00	$ 6,140.00	$ 100.00		$ 6,140.00	$ 6,140.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Prepared by J. L. Hogue
Department Controller's Office—Administration Organization Unit

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
City Controller 4,000.00		4,000.00	4,000.00			4,000.00	4,000.00
Deputy City Controller..2,500.00		2,500.00	2,500.00			2,500.00	2,500.00
Bookkeeper 2,000.00		2,000.00	2,000.00			2,000.00	2,000.00
License Clerk 1,800.00		1,800.00	1,800.00			1,800.00	1,800.00
Stenographer 1,200.00		1,200.00	1,200.00			1,200.00	1,200.00
Stenographer 1,080.00		1,080.00	1,200.00	120.00		1,200.00	1,200.00
Clerk—Extra 416.38							
Sinking Fund Com.....2@ 100.00		200.00	200.00			200.00	200.00
Athletic Com., Asst. Secy.372.09		400.00	400.00			400.00	400.00
Total Item No. 11.....	13,568.47	13,180.00	13,300.00	120.00		13,300.00	13,300.00
Services—Contractual—							
Communication and Transportation—							
Freight, Exp. and Drayage 5.52			25.00	25.00		25.00	25.00
Postage, Includes $15.00							
Athletic Com..... 482.38		500.00	300.00		200.00	300.00	300.00
Telephone and Telegraph 3.80			15.00	15.00		15.00	15.00
Traveling Expense..... 499.65		500.00	500.00			500.00	500.00
Total Item No. 21.....	991.35	100.00	840.00	40.00	200.00	840.00	840.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Printing and Advertising—							
Adv. and Publication..... 146.84							
Printing (other than office) 178.45							
Total Item No. 24.....	325.29		400.00			200.00	200.00
Repairs—							
Repairs to Equipment..... 88.58							
Total Item No. 25.....	83.58		150.00			25.00	25.00
Supplies—							
Office 3,487.54							
Total Item No. 36.....	3,487.54						
Current Charges—			5,000.00			5,000.00	5,000.00
Insurance and Prem..... 25.00							
Total No. 51.....	25.00		150.00			1,500.00	1,500.00
Refunds, Awards and Indemnities 397.38							
Total Item No. 53.....	397.38	300.00	400.00	100.00		200.00	200.00
Rents 20.70							
Total Item No. 54.....	20.70	20.00	25.00	5.00			
Subscription and Dues.. 50.00							
Total Item No. 55.....	50.00	25.00	25.00			25.00	25.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Controller's Division
Prepared by J. L. Hogue

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
	18,954.31	14,525.00	21,640.00	265.00	200.00	21,090.00	21,090.00
Current Obligations—							
Interest—							
Int. on Bonded Debt.....163,717.94		175,000.00				185,000.00	185,000.00
Int. on Temp. Loan..... 9,043.70			185,000.00	10,000.00			
Total Item No. 61.....	172,761.64	175.000.00	185,000.00	10,000.00			
Grants and Subsidies..... 10,000.00							
Total Item No. 62.....	10,000.00	10,000.00	10,000.00			10,000.00	10,000.00
Payment on Temp.Loans 800,000.00							
Total Item No. 63.....	800,000.00						
Properties—							
Equipment							
Office 108.50							
Total Item No. 72.....	108.50						
Expense of Primary and							
Election		80,000.00	125.00	125.00	80,000.00	50.00	50.00
Grand Total 1,001,824.45		279,525.00	$216,765.00	$10,390.00	$80,200.00	$216,140.00	$216,140.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unit Barrett Law
Department Controller's Division
Prepared by J. L. Hogue

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Bookkeeper 1,800.00		1,800.00	1,800.00			1,800.00	1,800.00
Stenographer 1,080.00		1,080.00	1,080.00			1,080.00	1,080.00
Clerk 1,500.00		1,500.00	1,500.00			1,500.00	1,500.00
Clerk 1,320.00		1,320.00	1,320.00			1,320.00	1,320.00
Clerk (2 added in 1925)....1,500.00		1,500.00	3,000.00			3,000.00	3,000.00
		1,500.00					
Clerk 1,800		1,800.00	1,800.00			1,800.00	1,800.00
Total Item No. 11.....	7,500.00	10,500.00	10,500.00			10,500.00	10,500.00
Services—Contractual—							
Communication and Transportation—							
Freight, Exp. and Drayage 1.00							
Postage 600.00			1,100.00	1,100.00		600.00	600.00
Total Item No. 21.....	601.00		1,100.00	1,100.00		600.00	600.00
Printing and Advertising—							
Printing (other than office) binding 116.81							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Total Item No. 24	116.81						
Repairs—			400.00	400.00		300.00	300.00
Repairs to equipment 207.52							
Total Item No. 25	207.52						
Supplies—			150.00	150.00		100.00	100.00
Office 2,340.91							
Total Item No. 36	2,340.91						
Properties—			3,000.00	3,000.00		2,000.00	2,000.00
Equipment, Furniture and Fixtures 131.35							
Office 896.60			1,000.00**	1,000.00		500.00	500.00
Total Item No. 72	1,027.95		1,200.00*	1,200.00			
Rent—							
Total Item No. 54			75.00	75.00			
Grand Total	$11,794.19	$10,500.00	$17,425.00	$6,925.00		$14,000.00	$14,000.000

*New files included in this amount.
*New adding machine included in this amt.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department City Plan Commission
Prepared by M. Victor

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal	15,719.16						
Salaries and Wages—							
Attorney			2,700.00				
Engineer			3,000.00			3,000.00	3,000.00
Secretary			3,000.00			3,000.00	3,000.00
Asst. Secretary			1,800.00			1,800.00	1,800.00
Draftsman—4 at $1,800.00			7,200.00			7,200.00	7,200.00
Draftsman—1 at $1,620.00			1,620.00			1,620.00	1,620.00
Temporary Salary and Wages—			200.00			200.00	200.00
Other Compensations	3,577.18		2,400.00			2,400.00	2,400.00
Total Item No. 1	19,296.34	23,600.00	21,920.00		1,680.00	19,220.00	19,220.00
Services—Contractual—							
Communication and Transportation	1,387.25		1,700.00				
Postage and Adv.	592.30		1,000.00			750.00	750.00
Repairs	26.25		30.00			30.00	30.00
Total Item No. 2	2,015.80	300.00	2,730.00	2,430.00		780.00	780.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Auto Supplies	53.09						
Office Supplies	1,088.41		350.00			350.00	350.00
General Supplies	206.09		650.00			650.00	650.00
Total	1,347.59	950.00	1,000.00	50.00		1,000.00	1,000.00
Current Charges—							
Dues, etc.							
Total Item No. 55	24.40	300.00	50.00		250.00	50.00	50.00
Properties—							
Equipment	75.38	500.00	50.00		450.00	50.00	50.00
Total Item No. 72	75.38	500.00					
Grand Total	$22,759.51	$25,650.00	$25,750.00	$2,480.00	$2,380.00	$21,100.00	$21,100.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department of Law. Prepared by B. Reid

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Corporation Counsel—$5,000.00....		5,000.00	5,000.00				
City Attorney—4,000.00.....		4,000.00	4,000.00				
Asst. City Attorney—$2,500.00....		2,500.00	2,500.00				
Asst. City Attorney—$1,200.00....		1,200.00	1,200.00				
City Prosecutor—$1,500.....		1,500.00	1,500.00				
Stenographer—1,200.00		1,200.00	1,200.00				
Stenographer—$1,320.00		1,320.00	1,320.00				
Total Item No. 11.....	16,478.73	16,720.00	16,720.00			16,720.00	16,720.00
Other Personal Service—$5,753.80 (Perk-Bemis, Attys.)							
Total Item No. 13.....	5,753.80	5,000.00			5,000.00		
Services—Contractual—							
Communication and Transportation—							
Freight, Exp. & Drayage$1.65....							
Postage—$40.00							
Telephone and Telegraph—$6.45..							
Total Item No. 21.....	48.10	50.00	50.00			50.00	50.00
Printing and Advertising—							
Printing (other than office)—$9.30							
Total Item No. 24.....	9.30	65.00	65.00			65.00	65.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Repairs—							
Repairs of Equipment—$18.50.....							
Total Item No. 25.....	18.50	25.00	25.00			25.00	25.00
Supplies—							
Office — $173.87.....							
Total Item No. 36.....	173.87	200.00	200.00			200.00	200.00
Current Charges—							
Refunds, Awards and Indemnities—$24,178.68							
Total Item No. 53.....	24,178.68	9,900.00	9,800.00		100.00	9,800.00	9,800.00
Subscriptions and Dues—$13.80.....							
Total Item No. 55.....	13.80	10.00	10.00			10.00	10.00
Properties—							
Equipment—							
Furniture and Fixtures—$10.20..							
Office — $287.65.....							
Total Item No. 72.....	297.85	300.00	300.00			300.00	300.00
	$46,972.63	$32,270.00	$27,170.00		$5,100.00	$27,170.00	$27,170.00

CITY OF INDIANAPOLIS

Departmental Estimate for 1926 Budget

Department Public Purchase

Prepared by Opal M. Priest.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Personal Services—							
Purchasing Agent—$4,999.92		5,000.00	5,000.00			5,000.00	5,000.00
Asst. Pur. Agent—$1,999.92		2,000.00	2,000.00			2,000.00	2,000.00
Clerk—$1,775.00		1,800.00	1,800.00			1,800.00	1,800.00
Inspector and Storekeeper, $1,800		1,800.00	1,800.00			1,800.00	1,800.00
Bookkeeper—$1,200.00		1,200.00	1,200.00			1,200.00	1,200.00
Stenographer—$1,020.00		1,020.00	1,020.00			1,020.00	1,020.00
Clerk—$887.50		900.00	900.00			900.00	900.00
Clerk—$900.00		900.00	900.00			900.00	900.00
Total of No. 11	14,582.34	14,620.00	14,620.00				
Contractual Services—							
Communication and Transportation—							
Freight and Express—44c							
Postage—$250.00							
Tele., Tolls & Telegrams—$45.71							
Total of No. 21	296.15	550.00	500.00		50.00	500.00	500.00
Printing and Advertising—							
Adv. and Public Notices—$44.11							
Total of No. 24	44.11		50.00	50.00		50.00	50.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Office							
Total of No. 36.....	1,319.79	800.00	550.00		250.00	550.00	550.00
Properties							
Equipment—							
Furniture and Fixtures—$155.70							
Office Equipment—$236.67.....							
Total of No. 72.....	392.37		250.00	250.00		250.00	250.00
Grand Total	$16,634.76	$15,970.00	$15,970.00	$300.00	$300.00	$15,970.00	$15,970.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Recapitulation of Board of Public Works—							
Administration			527.050.00			492,550.00	492,550.00
Public Buldings			67,134.00			49,534.00	49,534.00
Assessment Bureau			14,820.00			8,920.00	8,920.00
Municipal Garage			73,250.00			51,900.00	51,900.00
City Engineer			702,092.00			620,311.00	620,311.00
Street Commissioner			291,718.40			238,844.90	238,844.90
			676,064.40			1,462,059.90	1,462,059.90

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Public Works.
Organization Unit Administration
Prepared by Hendricks Kenworthy.

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
President of Board, 1 at $3,000....			3,000.00			3,000.00	3,000.00
Members Board, 2 at $2,500.....			5,000.00			5,000.00	5,000.00
Clerk of Board, 1 at $1,500.....			1,500.00			1,500.00	1,500.00
Stenographer-Clerk, 1 at $1,800..			1,800.00			1,800.00	1,800.00
Asst. Clerk, 1 at $1,500.....			1,500.00				
Asst. Clerk, 1 at $1,200.....			1,200.00			1,200.00	1,200.00
Record Clerk, 1 at $1,200.....			1,200.00			1,200.00	1,200.00
Bond Clerk, 1 at $1,000.....			1,000.00			1,000.00	1,000.00
Total Item No. 11.....	14,418.23	14,700.00	16,200.00	1,500.00		14,700.00	14,700.00
Other Compensations—							
Expert Services, $1,768.....							
Abstracts, $57.25.....							
Total Item No. 13.....	1,825.25		1,200.00			1,200.00	1,200.00
Services—Contractual—							
Communications & Transportation—							
Postage, $50.00.....							
Telephone and Telegph., $7,122.94							
Total Item No. 21.....	7,172.94		5,000.00		2,172.94	5,000.00	5,000.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Heat, Light, Power and Water—							
Furnishing Water—$265,000.....							
Total Item No. 22.....	265,000.00	340,000.00	435,000.00	95,000.00		410,000.00	410,000.00
Printing and Advertising—							
Advertising and Publication							
Notices—$21,367.07							
Total Item No. 24.....	21,367.07	10,000.00	15,000.00	5,000.00		10,000.00	10,000.00
Repairs—							
Repairs to Equipment—$25.88.....							
Total Item No. 25.....	25.88		50.00			50.00	50.00
Services Other Contractual—							
Assmts. Against City Indpls.							
Property—$38,853.23							
Trans. and Recording—$313.90....							
Total Item No. 26.....	39,167.13		35,000.00			35,000.00	35,000.00
Supplies—							
Office Supplies—$966.29.....							
Total Item No. 36.....	966.29		1,000.00			1,000.00	1,000.00
Current Charge—							
Insurance and Prem.—$1,112.78..							
Total Item No. 51.....	1,112.78	1,500.00	1,500.00			1,500.00	1,500.00

A—Asst. Clerk for State Industrial Board.

Note on Item No. 2! savi·g due to changing telephone system by order of Board of Public Works.

Note on Item No. 224 an additional $74,757.26 paid in 1925 for 1924, service P. S. C. granted increase .0125 to .0133 per inch effective Jan. 1, 1925, and Water Co additional million inch feet of main per year. Water service for 1925 cost $375,000 making a shortage of $35,000.00 which are provided for in 1926 Budget. Note on Item 24. Saving of over $6,000.00 per yerr due to Board having law changed on publication for final hearing. Item No. 24 transfer of $6,000.00 to legal advertising being made for 1925; making total of $16,000.00.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Works
Organization Unit Administration
Prepared by Hendricks Kenworthy

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Refunds, Awards and Indemnities—							
531 Arroneous Assessments—$555.00							
532 Asst. against State of Ind. Property—$6,567.89							
533 Judgment against City of Indpls.—$8,359.05							
534 St. Opening benefits against City—$3,440.00							
535 Irregular Assmts. against City—$3,573.50							
Total Item No. 53	22,495.44		15,000.00			12,000.00	12,000.00
Rents—Fire Tower—$2,000.00							
Total Item No. 54	2,000.00	2,000.00	2,000.00			2,000.00	2,000.00
Properties—Equipment—							
725 Office Equipment—$102.20							
Total Item No. 72	102.20		100.00			100.00	100.00
Grand Total	$375,653.21	$368,200.00	527,050.00	101,500.00	2,172.94	492,550.00	492,550.00
*As shown by totals.				158,850.00*			

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Public Works
Organization Unit of Public Buildings
Prepared by Hendricks Kenworthy

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—			1,500.00				
Custodian City Hall—1 at $1,500			1,200.00				
Cust'd'n Tom'n Hall—1 at $1,200							
Cust'd'n and Engineer			1,800.00			1,800.00	1,800.00
City Hall—1 at $1,800.....			1,200.00			1,200.00	1,200.00
Day Fire'n City Hall....1 at $1,200							
Night Firm'n City Hall—			1,200.00			1,200.00	1,200.00
1 at $1,200			2,160.00			2,160.00	2,160.00
Elev. Opr. City Hall—2 at $1,080			1.080.00			1,080.00	1,080.00
Night Wtch'mn C. H.—1 at 1,080			1,920.00			1,920.00	1,920.00
Tele. Opr. City Hall—2 at $960....			6,480.00			6,480.00	6,480.00
Janitors City Hall—6 at $1,080....			2,880.00			2,880.00	2,880.00
Janitors, Tom. Hall—3 at $960..			1,680.00			1,680.00	1,680.00
Attendants Com. Stn.—2 at $840			1,440.00			1,440.00	1,440.00
Matrons Com. Sta.—2 at $720.....			24,540.00			21,840.00	21,840.00
Total Item No. 11.....	24,611.38	24,540.00					
Services—Contractual—							
Heat, Light, Power and Water—							
221 Furn. Elec. Current—							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
2211 City Hall—$1,537.13.....							
2212 Comfort Station—$281.24....							
2213 Pumping Station							
222 Furnishing Gas							
2221 City Hall—$149.08.....							
2222 Tomlinson Hall—$134.48.....							
223 Furnishing Heat—							
2231 Comfort Station—$96.75....							
2232 Tomlinson Hall—$3,723.09..							
Total Item No. 22.....	5,921.77		14,500.00		12,000.00	12,000.00	
Repairs—							
251 Repairs to Bldg. Structures—							
2511 City Hall—$11,374.66.....							
2516 Other Bldgs.—$6,161.87.....							
252 Repairs to Equipment—							
2521 City Hall—$635.92.....							
2522 Comfort Station—$518.12....							
Total Item No. 25.....	18,690.57		20,000.00		10,000.00	10,000.00	
Services Other Contractual—							
261 Inspection—							
2611 City Hall Elev.—$276.....							
262 Clock & Directory Services City Hall—$218							
Total Item No. 26.....	494.00		494.00		494.00	494.00	
Supplies—Fuel and Ice—							
321 Coal, City Hall—$1,967.51....							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
322 Ice							
$4,354.09 cost of year's service; difference paid out of F. G. U. L. fund; $3,000 cost of one year. $6,513.36 cost of heating season 1924-1925. Item 2511 includes new roof to City Hall, $10,068.00. $1.967.51							
3221 City Hall—$328.74.....							
3222 Tomlinson Hall—$9.80.....							
Total Item No. 32.....	2,306.05		2,500.00		2,000.00	2,000.00	
Supplies—Continued—							
Institutional and Medical—							
342 Laundry							
3421 City Hall—$1,281.96.....							
3422 Comfort Station—$544.69....							
3423 Tomlinson Hall—$195.91.....							
Total Item No. 34.....	2,022.56		2,000.00		1,000.00	1,000.00	
Supplies—General—							
381 Light Bulbs—							
3811 City Hall—$134.15.....							
3812 Comfort Station—$5.67.....							
3813 Tomlinson Hall—$66.45.....							
Total Item No. 38.....	206.27		200.00		150.00	150.00	
Materials—							
Building Materials—							
411 City Hall—$469.42.....							
412 Comfort Station—$12.62.....							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
413 Tomlinson Hall—$28.87.....							
414 Other Buildings—$1,169.77....							
Total Item No. 41.....	1,680.68		1,800.00		1,000.00	1,000.00	
Repair Parts—							
451 Parts of Equip.—$25.00.....							
Total Item No. 45.....	25.00		100.00		50.00	50.00	
Properties—							
Equipment—							
721 Furniture and Fixtures—							
7211 City Hall—$387.15.....							
7212 Tomlinson Hall.....							
7213 Comfort Station.....							
Total Item No. 72.....	387.15		1,000.00		1,000.00	1,000.00	
Grand Total	56,345.43	24,540.00	67,134.00		49,534.00	49,534.00	

Item No. 7212 should have $500 in 1925 for chairs—Tomlinson Hall.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Public Works.
Organization Assessment Bureau
Prepared by Hendricks Kenworthy.

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Personal Services—						
Salary and Wages—Regular—			1,800.00			
Chief Clerk—1 at $1,800			1,020.00		1,020.00	1,020.00
Transfer Clerk—1 at $1,020			10,800.00		7,200.00	7,200.00
Clerks—7 at $1,200			13,620.00	*3,120.00	8,220.00	8,220.00
Total Item No. 11	11,802.21	10,500.00				
Services—Contractural—						
Communications and Transportation—						
211 Frt., Exp. & Drygs—$3.00						
212 Postage—$110.00						
Total Item No. 21	113.00		300.00		150.00	150.00
Printing and Advertising—						
242 Printing other than Office Supplies—$126						
243 Photographing, Blue Printing—$33.90						
Total Item No. 24	159.90		150.00		100.00	100.00
Supplies—						
Office—$374.52						
Total of Item No. 36	374.52		400.00		200.00	200.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Repair Parts—							
451 Parts of Equip.—$36.91.....							
Total of Item No. 45.....	36.91		50.00			50.00	50.00
Properties—							
Equipment—							
725 Office—$312.00.....							
Total of Item No. 72....	312.00		300.00			200.00	200.00
Grand Total	12,798.54	10,500.00	14,820.00	3,120.00		8,920.00	8,920.00

Additional $3,120.00 needed for balance of 1925.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unite Municipal Garage.
Prepared by Harry Newby.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Garage Supt.—1 at $2,600	2,311.13	2,300.00	2,600.00	300.00		2,600.00	2,600.00
Garage Foreman—1 at $2,000	1,691.56	1,680.00	2,000.00	320.00		2,000.00	2,000.00
Clerk and Stockman—1 at $1,500	1,500.00	1,500.00	1,500.00			1,500.00	1,500.00
Garage Chauffeur—1 at $1,320	1,210.09	1,320.00	1,320.00			1,320.00	1,320.00
Garage Washer—1 at $1,080	1,080.00	1,080.00	1,080.00			1,080.00	1,080.00
Total Item No. 11	7,793.38	7,880.00	8,500.00			8,500.00	8,500.00
Salaries and Wages—Temporary—							
Garage Mechanics—8 at 65c		12,000.00	14,500.00			10,000.00	10,000.00
Garage Helper—2 at 55c		3,000.00	3,100.00			3,000.00	3,000.00
Total Item No. 12	14,185.04	15,000.00	17,600.00	2,600.00		13,000.00	15,000.00
Services—Contractual—							
Communication and Transportation—							
Frt., Exp. and Drayage							
Postage—$7.50							
Telephone and Telgph.—$175.18							
Total Item No. 21	182.68						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Heat, Power, Light & Water—							
Electric Current—$2.85.00		650.00	200.00			100.00	100.00
Heat—$727.57		1,500.00					
Total Item No. 22	1,013.17	2,150.00	1,700.00			1,700.00	1,700.00
Printing and Advertising—							
Adv. and Pub. Notices—$4.34							
Total Item No. 24	4.34		25.00				
Repairs—							
Repairs to Bldgs. and Structures—							
Repairs to Equip.—$3,697.95							
Total Item No. 25	3,697.95	10,000.00	4,500.00			4,000.00	4,000.00
Services Other Contractual—							
Lettering Cars—$122.25							
Total Item No. 26	122.25	1,000.00	1,000.00				
Supplies—							
Fuel and Ice—							
Coal—$19.00							
Ice—$24.79							
Total Item No. 32	43.79		50.00				
Garage and Motor—							
Gasoline—$14,343.50		20,000.00					
Oil—$1,291.92		6,000.00					
Tires and Tubes—$6,452.06		5,000.00					

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Other Garage and Motor Supplies—$1,268.02							
Total Item No. 33	23,355.50	31,000.00	31,000.00			20,000.00	20,000.00
Office Supplies—$50.75							
Total Item No. 36	50.75		50.00			25.00	25.00
Supplies—General—							
Bulbs—$79.72							
Total Item No. 38	79.72		100.00			50.00	50.00
Material—Repair Parts—							
Parts of Equip.—$7,424.49							
Parts of Structure							
Total Item No. 45	7,424.49		8,000.00			4,000.00	4,000.00
Current Charge—							
License—$8.00							
Total Item No. 52	8.00		25.00			25.00	25.00
Properties—Equipment—							
Furn. and Fixtures—$35.00							
Motor Equipment							
Garage—$122.09							
Automobile—$3,050.00							
Office Equipment—$45.00							
Other Equipment							
Total Item No. 72	3,252.09	500.00	500.00			500.00	500.00
Grand Total	61,213.15	67,530.00	73,250.00	5,720.00		51,900.00	51,900.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Public Works.
Organization Unit Civil City Engineer.
Prepared by F. C. Lingenfelter

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
City Civil Eng neer, 1 at $3,500..	3,500.00	3,500.00	3,500.00			3,500.00	3,500.00
Asst. Civil Engineer, 1 at $3,600..	3,000.00	3,000.00	3,600.00f	600.00		3,600.00	3,600.00
Asst. Civil Engineer, 2 at $2,400..	4,699.98	4,800.00	4,800.00			4,800.00	4,800.00
Jr. Asst. Civil Eng'r, 2 at $2,160	4,320.00	4,320.00	4,320.00			4,320.00	4,320.00
Sr. Office Aid, 2 at $1,800.....	3,600.00	5,400.00	3,600.00		1,800.00	3,600.00	3,600.00
Sr. Office Aid, 3 at $1,500.....	5,137.51	4,500.00	4,500.00			4,500.00	4,500.00
Sr. Field Aid, 4 at $1,800.....	6,700.00	7,200.00	7,200.00			7,200.00	7,200.00
Field Aid, 2 at $1,500.....		6,000.00	3,000.00		3,000.00	3,000.00	3,000.00
Jr. Field Aid, 16 at $1,200.....	18,718.20	7,200.00	19,200.00	12,000.00		7,200.00	7,200.00
Jr. Office Aid, 5 at $1,320.....	10,643.31	6,600.00	6,600.00			6,600.00	6,600.00
Cheif Clerk, 1 at $1,800.....	1,800.00	1,800.00	1,800.00			1,800.00	1,800.00
Clerk, 1 at $1,200.....	1,790.00	2,400.00	1,200.00		1,200.00	1,200.00	1,200.00
						51,320.00	51,320.00
Flood Prevention Dept.—							
Jr. Asst. Engineer, 2 at $2,160....	2,520.00	2,160.00	4,320.00	2,160.00		2,160.00	2,160.00
Sr. Office Aid, 1 at $1,800.....	1,800.00	1,800.00	1,800.00			1,800.00	1,800.00
Jr. Office Aid, 2 at $1,320.00.....	1,858.99	1,320.00	2,640.00	1,320.00		1,320.00	1,320.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Sr. Field Aid, 1 at $1,800	1,800.00	1,800.00	1,800.00			1,800.00	1,800.00
Jr. Field Aid, 3 at $1,200	3,486.66	4,800.00	3,600.00		1,200.00	3,600.00	3,600.00
Sr. Inspector, 2 at $1,500	505.00		3,000.00	3,000.00			
						10,680.00	10,680.00
Inspector's Department—							
Chief Inspector, 1 at $2,000	2,000.00	2,000.00	2,000.00			2,000.00	2,000.00
Sr. Inspector, 2 at $1,800	5,035.00	3,600.00	3,600.00			3,600.00	3,600.00
Jr. Inspector, 2 at $1.320	4,176.32	6,600.00	2,640.00		3,960.00	2,640.00	2,640.00
Stenographer, 1 at $1,080		1,080.00	1,080.00				
Inspectors, 7 mo., 42 at $1,200	36,543.36	19,200.00	29,400.00	10,200.00		19,200.00	19,200.00
Inspectors, 6 at $1,200			7,200.00	7,200.00			
						27,440.00	27,440.00
Laboratory Department—							
Chemical Engineer, 1 at $3,600	3,040.00	3,040.00	3,600.00f	560.00		3,600.00	3,600.00
Asst. Chem Engineer, 1 at $1,800	1,800.00	1,800.00	1,800.00			1,800.00	1,800.00
Sr. Chemical Aid, 1 at $1,400	1,399.89	1,400.00	1,400.00			1,400.00	1,400.00
Jr. Chemical Aid, 1 at $1,320	1,320.00	1,320.00	1,320.00			1,320.00	1,320.00
Jr. Inspector, 6 mo., 1 at$1,200	1,166.66	1,200.00	600.00		600.00	600.00	600.00
						8,720.00	8,720.00
Asphalt Plant Department—							
Supt. of Plant, 1 at $2,000		a	2,000.00	2,000.00			
Asst. Supt., 1 at $1,620	c	1,620.00b	1,620.00			1,620.00	1,620.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Asphalt Repair Dept.—					3,240.00		
		b3,240.00			2,000.00		
	2,000.00	a2,000.00	3,000.00		2,250.00	3,000.00	3,000.00
Foreman, 2 at $1,500	2,742.67	5,250.00	1,500.00	1,800.00		1,320.00	1,320.00
Foreman, 6 mo., 2 at $1,500		1,325.00					
						4,320.00	4,320.00
Brick and Block Dept.—							
Foreman, 1 at $1,500	2,196.32	2,200.00	1,500.00		700.00	1,500.00	1,500.00
Cement Walk & Curb Dept.—							
Foreman, 1 at $1,500	839.66	1,320.00	1,500.00	180.00		1,320.00	1,320.00
Street Lighting—							
Superintendent, 1 at $1,620.00	1,620.00	1,620.00	1,620.00			1,620.00	1,620.00
Total Item No. 11	141,759.53	128,410.00	147,860.00			108,540.00	108,540.00
Services—Personal—							
Salaries and Wages—Temporary—							
Asphalt Plant Dept.—							
Plant Engineer, 1 at 60c per hr.							
Mixerman, 1 at 60c per hr.							
Drum Fireman, 1 at 45c per hr.							

f Salary increase G. O. No. 24, 1925.

f Salary increase per General Order No. 23.

c Foreman at $1,620 in 1925 budget.

a Asst. Street Commissioner changed in 1925 to superintendents at 1925.

b 1925 appropriation provides for two assistant superintendents at 1925.

a Transferred from asphalt repair department to asphalt plant department in 1925.

b Replaced by one assistant superintendent in asphalt plant department at $1,620, 1926 budget.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Kettleman, 1 at 50c per hr.....							
Laborers, 8 at 45c per hr.....	11,581.44	10,753.00	8,800.00		1,953.00	8,800.00	8,800.00
Asphalt Repair Department—							
Rollerman, 2 at 60c per hr.....							
Truck Driver, 4 at 60c per hr.....							
Markers, 4 at 55c per hr.....							
Rakers, 6 at 60c per hr.....							
Tampers, 6 at 55c per hr.....							
Shovelers, 4 at 55c per hr.....							
Laborers, 30 at 45c per hr.....							
Watchman, 2 at $2.50 night.....	47,053.11	49,059.00	39,448.00		9,611.00	39,448.00	39,448.00
Brick and Block Dept.—							
Laborers, 14 at 45c per hr.....	7,478.35	6,527.00	8,820.00	2,293.00		6,527.00	6,527.00
Cement Walk & Curb Dept.—							
Laborers, 7 at 45c per hr.....							
Finisher, 1 at 70c per hr.....	4,851.34	4,916.00	5,100.00	184.00		4,916.00	4,916.00
Total Item No. 12.....	70,964.24c	71,255.00	62,168.00			59,691.00	59,691.00
Services—Contractual—							
Communication and Transportation—							
C. C. E. Office Postage, $105.....							
C. C. E. Office Car Tickets, $410							
C. C. E. Office Telegraph, $9.10....							
Team Hire—							
2176 Asphalt Repair Department							
2177 Brick and Block Department							
2178 Cement Walk & Curb Dept.			17,105.00			15,000.00	15,000.00
Total Item No. 21.....	524.10						

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Heat, Light, Pawer, Water—							
Furn. Elec. Current, $258,601.08..							
Furnishing Gas, $10,283.24.....							
Total Item No. 22.....	268,884.32	272,775.00	382,587.00	109,812.00		375,000.00	375,000.00
Printing and Advertising—							
Printing other than office supplies, $780							
Photographing and blue printing, $1,449.44							
Total Item No. 24.....	2,229.44		1,200.00			700.00	700.00
e This amount includes $13,438.00 for teams, 1925 budget.							
g $16,580.00 for teams in 1926. This was included in Item No. 12 in previous year's budget.							
Services—Contractual—							
Repairs to Equip.—$1,961.46.....							
Total Item No. 25.....	1,961.46		2,015.00			1,500.00	1,500.00
Services—Other Contractual—							
Gas, Lights, Maintenance (Welsbach) $15,556.57.....							
Royalties Asphalt Surface Heater							
Total Item No. 26.....	15,556.57		20,752.00			18,000.00	18,000.00
Supplies—Fuel and Ice—							
Coal, $2,314.68	2,314.68						
Total Item No. 32.....	2,314.68		2,550.00			2,000.00	2,000.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Garage Motor—							
Oil, $221.05							
Total Item No. 33	221.05		225.00			200.00	200.00
Laboratory, $374.59							
Total Item No. 35	374.59		375.00			300.00	300.00
Office, $1,160.27							
Total Item No. 36	1,160.27		2,400.00			2,000.00	2,000.00
Supplies—General—							
Engineering Stakes, $776.82							
Total Item No. 38	776.82		550.00			500.00	500.00
Material—							
Building Material, $73.06							
Total Item No. 41	73.06		75.00			50.00	50.00
Street and Alley Material—							
Asphalt Plant—							
Asphalt, $40,870.73							
Stone Dust							
Yellow Sand							
Gray Sand							
Brick and Block Dept., $7,035.91							
Paving Brick							
Wooden Block							
Gravel							
Tar Oil							
Cement Walk, Curb Dept. $3,580.09							
Total Item No. 43	51,486.73		51,280.00			31,280.00	31,280.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Material—							
General Material—							
Laboratory Material, $101.20.....							
Street Sign Material, $9.40.....							
Total Item No. 44.....	110.60		1,000.00			500.00	500.00
Repair Parts—							
Parts of Equipment, $562.17.....							
Total Item No. 45.....	562.17		50.00			50.00	50.00
Properties—							
Equipment—							
Furniture, Fixtures, $5.50.....							
Motor							
Asst. Engineer Auto.....							
Asphalt Repair Truck.....							
Office Equipment, $153.15.....							
Other Equipment							
C. C. Engineer Office, $696.80.....							
Laboratory Dept., $613.39.....							
Asphalt Plant Dept., $4444.03.....							
Asphalt Repair Dept., $185.58.....							
Brick and Block Dept., $47.64.....							
Cement Walk & Curb, $375.50....							
Total Item No. 72.....	2,521.59		9,900.00			5,000.00	5,000.00
Distributed in above item in 1926 request		323,350.00					
Grand Total	561,517.22	523,015.00	702,092.00	179,077.00		620,311.00	620,311.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Explanation of 1925 appropriation of ledger accounts to balance request for increase for 1926.							
Electric, Gas and Vapor Lights, App. 1925		272,775.00					
Less Salary Superintendent		1,620.00					
		271,155.00					
Asphalt Plant M. & S.		30,005.00					
Cement, Walk & Curb Dept. M. & S.		1,800.00					
Brick and Block, M. & S.		7,200.00					
Asphalt St. Repair, M. & S.		5,800.00					
Street Sign Maintenance		500.00					
Maps and Plat		500.00					
C. C. E. Office Maintenance		4,740.00					
C. C. E. Laboratory, M. & S.		1,650.00					
		323,350.00					

Item No. 7242 auto for engineer $1,500—request for 1926.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Public Safety.
Recapitulation.
Prepared by R. R. Boyers.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Board of Public Safety—							
Administration	24,550.02	22,919.00	26,014.00	3,145.00	50.00	19,700.00	19,700.00
Building Department	43,044.93	46,430.00	45,630.00	200.00	1,000.00	41,180.00	41,180.00
East Market	14,366.69	14,670.00	14,670.00			14,670.00	14,670.00
Dog Pound	3,662.38	3,340.00	3,500.00	160.00		3,500.00	3,500.00
Weights and Measures	10,886.97	9,837.00	9,740.00		97.00	9,740.00	9,740.00
Fire Department	1,136,931.47	1,209,734.25	1,285,181.47	84,468.25	9,021.03	1,255,353.97	1,255,353.97
Fire Prevention	19,964.00	21,466.25	23,971.50	2,821.25	316.00	23,971.50	23,971.50
Police Department	1,014,988.05	1,065,019.50	1,146,804.25	81,784.75		1,110,353.00	1,110,353.00
Electrical Department	63,101.47	73,703.21	84,787.81	11,084.60		73,791.25	73,791.25
Grand Total	2,331,495.98	2,467,119.21	2,640,299.03	183,663.85	10,484.03	2,552,259.72	2,552,259.72
Services—Personal—							
Salaries and Wages—Regular—							
Commissioners, 3 at $1,200	3,600.00	3,600.00	3,600.00			3,600.00	3,600.00
Secretary, 1 at $2,500	2,499.99	2,500.00	2,500.00			2,500.00	2,500.00
Clerk, 1 at $1,500	1,500.00	1,500.00	1,500.00				
Surgeon, 1 at $1,600	1,599.89	1,600.00	1,600.00			1,600.00	1,600.00
Asst. Surgeon, 1 at $1,000	1,000.01	1,000.00	1,000.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Veterinary, 1 at $864	864.00	864.00	864.00				
Stenographer, 1 at $1,080	1,080.00	1,080.00	1,500.00	420.00		1,500.00	1,500.00
Total Item No. 11	13,145.92	12,144.00	12,564.00	420.00		9,200.00	9,200.00
Services—Contractual—							
Communication and Transportation—							
Postage, $30.00							
Telephone and Telegph., $11,919..							
Total Item No. 21	11,949.00	10,075.00	12,675.00	2,600.00		10,000.00	10,000.00
Repairs—							
Repairs to Equipment							
Total Item No. 25	35.48		50.00	50.00		25.00	25.00
Other Contractual—							
All Others—Badges							
Total Item No. 26	218.00	250.00	300.00		50.00	200.00	200.00
Supplies—							
Institutional and Medical—							
Medical, Surgical & Dental, $68.77							
Total Item No. 34	68.77	100.00	125.00	25.00		75.00	75.00
Office Supplies—							
Total Item No. 36	108.85	350.00	300.00	50.00		200.00	200.00
Properties—							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Equipment—							
Office Equipment, $26.00.....							
Total Item No. 72.....	26.00						
Total of Administration.....	24,550.02	22,919.00	26,014.00	3,145.00	50.00	19,700.00	19,700.00
Increase due to raise in salary.							
Increase due to phone.							
New sub-division.							
Increase on badges.							
New sub-division.							

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Public Safety.
Administration Unite Fire Department.
Prepared by J. J. O'Brien.

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—						
Salaries and Wages—Regular—						
Chief, at $4,000	4,000.00	4,000.00	4,000.00		4,000.00	4,000.00
1st Asst. Chief, 2 at $3,182.50	6,000.00	6,306.00	6,365.00	59.00	6,365.00	6,365.00
Battalion Chfs, 10 at $2,582.50	21,600.00	22,702.00	25,825.00	3,123.00	25,825.00	25,825.00
Aides to Chief (Lieut.) 2 at $2,182.50	3,600.00	3,783.00	4,365.00	582.00	4,365.00	4,365.00
Aides to Batt. Chief (Chauf.) 10 at $1,982.50	18,000.00	18,918.00	19,825.00	907.00	19,825.00	19,825.00
Captains, 44 at $2,382.50	96,800.00	101,737.00	104,830.00	3,093.00	104,830.00 (Changed from 61 Lieuts. to 5)	104,830.00
Lieutenants, 61 at $2,182	126,000.00	128,223.00	133,132.50	4,909.50	128,767.50	128,767.50
Engineers, 4 at $1,982.50	10,800.00	7,566.00	7,930.00	364.00	7,930.00	7,930.00
Chauffeurs, 117 at $1,982.50	210,600.00	211,881.00	231,952.50	20,071.50	227,987.50 (Changed from 117 Chauf. to 1)	227,987.50
1st Grade Men, 296 at 1,916.25	495,438.75	525,331.00	567,210.00	41,879.00	559,545.00 (Changed from 296 1st Grade to 1)	559,545.00
1st Grade Men, 9 at $1,733.75	15,603.75		118,807.50	9,480.25	114,975.00 (Changed from 62 Substitutes)	114,975.00

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Sub. (1st Gde) 62 at $1,916.25	67,550.00	109,327.25	1,224,242.50	84,468.25		1,204,415.00 10,000.00	1,204,415.00 10,000.00
Total Item No. 11	1,075,992.50	1,139,774.25				1,194,415.00	1,194,415.00
Services—Contractual— Communication and Transportation— Frt., Exp. and Drayage, $65.75 Total Item No. 21	65.75		65.75			65.75	65.75
Heat, Light, Power and Water— Furn. Elec. Current, $3,875.09 Furn. Gas, $234.23 Total Item No. 22	4,109.32		4,109.32			4,109.32	4,109.32
Printing & Advertising— Printing (other than office), $315.00 Total Item No. 24	315.00		315.00			315.00	315.00
Repairs— Repairs and Equip., $5,699.05 Total Item No. 25	5,699.05		5,699.05			5,699.05	5,699.05
Services—Other Contractual— All other, $287.45 Total Item No. 26	287.45		287.45			287.45	287.45
Supplies—Fuel and Ice— Coal, $7,533.45 Ice, $22.75 Kerosene, $72.09			7,628.29			7,628.29	7,628.29

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Total Item No. 32	7,628.29						
Garage and Motor—							
Gasoline, $6,654.50							
Oil, $870.73							
Tires and Tubes, $3,640.21							
All other, $3,785.42			14,950.86			14,950.86	14,650.86
Total Item No. 33	14,950.86						
Institutional and Medical—							
Clothing and Household, $2,195.06			2,195.06			2,195.06	2,195.06
Total Item No. 34	2,195.06						
Office Supplies, $826.23			826.23			826.23	826.23
Total Item No. 36	826.23						
General Supplies—							
Lamp Bulbs and Gas Mantles, $319.57							
All other, $2,676.81			2,996.38			2,996,38	2,996.38
Total Item No. 38	2,996.38						
Materials—							
Building, $3,574.76			3,574.76			3,574.76	3,574.76
Total Item No. 41	3,574.76				9,021.03		
General, $2,731.01		69,960.00	2,731.01			2,731.01	2,731.01
Total Item No. 44	2,731.01						
Repair Parts—							
Parts of Equip.—$6,757.02							
Total Item No. 45	6,757.02		6,757.02			6,757.02	6,757.02

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Current Charges—							
Subscription and Dues, $4.00..							
Total Item No. 55.....	4.00		4.00			4.00	4.00
Properties—							
Equipment—							
Furn. and Fixtures, $945.64..							
Other Equip.——$7,853.15.....							
Total Item No. 72.....	8,798.79		8,798.79			8,798.79	8,798.79
Grand Total	1,136,931.47	1,209,734.25	1,285,181.47	84,468.25	9,021.03	1,255,353.97	1,255,353.97

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department of Public Safety
Organized Unit Fire Prevention.
Prepared by John J. O'Brien.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
2nd Asst. Chief, $3,062.50	2,880.00	2,972.00	3,062.50	90.50		3,062.50	3,062.50
Chief Inspector (Capt.) $2,382.50	2,200.00	2,292.00	2,382.50	90.50		2,382.50	2,382.50
Secretary (Lieut.) $2,182.00	1,733.75	2,092.00	2,182.50	90.50		2,182.50	2,182.50
Inspectors (1st Grade)							
7 at $1,916.25	12,136.25	12,780.25	13,413.75	633.50		13,413.75	13,413.75
Stenographer (1st Gde.) 1,916.25			1,916.25	1,916.25		1,916.25	1,916.25
Total Item No. 11	18,950.00	20,136.25	22,957.50	2,821.25		22,957.50	22,957.50
Other Compensations—							
Appraisers, $60.00							
Total Item No. 13	60.00		60.00			60.00	60.00
Services—Contractual—							
Communication & Transportation—							
Postage, $25.00							
Street Car Tickets, $50.00							
Total Item No. 21	75.00		75.00			75.00	75.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Printing and Advertising—							
243 Photographing and Blue Printing, $26.00							
Total Item No. 24	26.00		26.00			26.00	26.00
Repairs—							
Repairs of Equipment, $12.50							
Total Item No. 25	12.50		12.50			12.50	12.50
Supplies		1,330.00					
Fuel and Ice—							
Ice, $6.50					316.00		
Total Item No. 32	6.50		6.50			6.50	6.50
Office, $465.93							
Total Item No. 36	465.93		465.93			465.93	465.93
General Supplies—							
All Other, $63.44							
Total Item No. 38	63.44		63.44			63.44	63.44
Materials—							
General, $37.93							
Total Item No. 44	37.93		37.93			37.93	37.93
Properties—							
Equipment—							
Furn. and Fixtures, $266.70							
Total Item No. 72	266.70		266.70			266.70	266.70
Fire Prevention—Grand Total	19,964.00	21,466.25	23,971.50	2,821.25	316.00	23,971.50	23,971.50

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unit—Police Department.
Prepared by Oscar J. Queisser.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
1925 Budget		953,359.50					
March 1925 Additional App'n		47,610.00					
1 Chief of Police, $4.000			4,000.00			4,000.00	4,000.00
2 Inspectors at $3,282.50			6,565.00			6,565.00	6,565.00
1 Supervisor at $3.282.50			3,282.50			3,282.50	3,282.50
10 Captains at $2,582.50			25,825.00			12,912.50	12,912.50
						(Changed from 10 Captains to 5)	
21 Lieutenants at $2,382.50			50,032.50			23,825.00	23,825.00
						(Changed from 21 Lieutenants to 10)	
32 Sergeants at $2,182.50			69,840.00			54,562.50	54,562.50
						(Changed from 32 Sergeants to 25)	
56 Detectives at $2,182.50			122,220.00			109,125.00	109,125.00
						(Changed from 56 Detectives to 50)	
78 Traffic at $1,982.50			154,635.00			138,775.00	138,775.00
						(Changed from 78 Traffic to 70)	
11 Motorcycle at $1,982.50			21,807.50			21,807.50	21,807.50
41 Motor Police at $1,982.50			81,282.50			81,282.50	81,282.50
3 Turnkeys at $1,982.50			5,947.50			5,947.50	5,947.50
11 Wagonmen at $1,935.00			21,285.00			21,285.00	21,285.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
7 1st Year Patrol at $1,733.50.....			12,134.50			12,134.50	12,134.50
218 2nd year Patrol at $1,916.25..			417,742.50			488,643.75	488,643.75
						(Changed from 218 2d Year Patrol to 255)	
1 Court Bailiff at $1,782.50.....			1,782.50			1,782.50	1,782.50
1 Probation Officer at $2,182.50..			2,182.50			2,182.50	2,182.50
1 Woman Sergeant at $2,182.50....			2,182.50			2,182.50	2,182.50
21 2nd year Women Pat. at $1,916.25			40,241.25			40,241.25	40,241.25
1 1st year Woman Patrol at $1,733.50			1,733.50			1,733.50	1,733.50
1 Secretary at $2,582.50.....			2,582.50			2,582.50	2,582.50
2 Repairmen at $1,200.00.....			2,400.00			2,400.00	2,400.00
1 Hostler at $1,080.00.....			1,080.00			1,080.00	1,080.00
7 Janitors at $960.00.....			6,720.00			6,720.00	6,720.00
Total Item No. 11.....	949,371.05	1,000,969.50	1,057,504.26	56,534.75		1,045,053.00	1,045,053.00
Salaries and Wages—Temporary—			1,000.00				
Total Item No. 12.....			1,000.00				
Other Compensations, $500.00 ..							
Total Item No. 13.....			500.00			200.00	200.00
Services—Contractual—							
Communication and Transportation—							
Postage, $261.00							
Tele. and Telegph., $230.26.....							
Total Item No. 21.....	491.26		1,000.00			800.00	800.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Light, Heat, Power and Water—							
Furn. Elec. Current, $3,704.08.....							
Furnishing Heat, $4,265.52.....							
Total Item No. 22.....	7,969.60		11,000.00			10,000.00	10,000.00
Printing and Advertising—							
Other than Office, $962.99.....							
Total Item No. 24.....	962.99		1,000.00			800.00	800.00
Repairs—							
Repairs of Equip., $9,326.03.....							
Total Item No. 25.....	9,326.03		12,000.00			10,000.00	10,000.00
Other Contractual—							
All other Contractual (prisoners' meals) $5,705.76.....							
Total Item No. 26.....	5,705.76		6,500.00			5,500.00	5,500.00
Supplies—							
Food (Milk at Speedway) 31.....	11.64		20.00			20.00	20.00
Fuel—							
Coal, 95.91							
Ice, $130.00							
Kerosene, $20.98							
Total Item No. 32.....	246.89		300.00			300.00	300.00
Garage and Motor—							
Gasoline, $11,619.39.....							
Oil, $1,621.57							
Tires and Tubes, $2,754.25.....							
Other Garage and Motor							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies, $1,947.29.....							
Total Item No. 33.....	17,942.50		30,000.00			27,000.00	27,000.00
Institutional and Medical—							
Laundry and Cleaning, $853.62....							
Total Item No. 34.....	853.62		1,000.00			700.00	700.00
Office Supplies, $2,489.15.....							
Total Item No. 36.....	2,489.15		3,000.00			2,500.00	2,500.00
General Supplies—							
Elec. Light, Blbs. & Gas Mantles, $515.29.....							
All Other Supplies, $2,103.83.....							
Stable Harness, $47.20.....							
Stable Forage, $1,103.80.....							
Stable—Other, $49.70.....							
Total Item No. 38.....	3,819.82		4,000.00			3,000.00	3,000.00
Materials—							
Building, $213.67.....							
Total Item No. 41.....	213.67		500.00			500.00	500.00
General Materials, $1,364.88.....							
Total Item No. 44.....	1,364.88		1,500.00			1,000.00	1,000.00
Repair Materials (Parts)—							
Parts of Equip.,$579.85.....							
Total Item No. 451.....	579.85		750.00			750.00	750.00
Current Charges—							
Licenses, $2.00							
Total Item No. 52.....	**2.00**		2.00			2.00	2.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Rents, $25.00							
Total Item No.54.....	25.00		1,208.00			1,208.00	1,208.00
Subscriptions and Dues, $14.00....							
Total Item No. 55.....	14.00		20.00			20.00	20.00
Properties—Equipment—							
Furn. and Fixtures, $267.45.....							
Motor, $7,625.00.....							
Office, $600.00							
Other, $5,105.89.....							
Total Item No. 72.....	13,598.34		14,000.00			1,000.00	1,000.00
All Appropriations for 1925							
Except Salaries.....		64,050.00		25,250.00			
			Additional increases other than for salaries in 1926 request.				
Grand Total for Police Dept.....1,014,988.05		1,065,019.50	1,146,804.25	81,784.75		1,110,353.00	1,110,353.00

CITY OF INDIANAPOLIS
Department Board of Public Works.
Prepared by Hendricks Kenworthy.
Organization Unit Electrical Department.
Prepared by John Barry.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
1 Electrical Engineer		3,600.00	3,600.00			3,600.00	3,600.00
1 General Foreman		2,200.00	2,582.50	382.50		2,582.50	2,582.50
8 Repairmen		14,000.00	15,860.00	1,460.00		15,860.00	15,860.00
1 Instrument Repairman		1,800.00	1,982.50	182.50		1,982.50	1,982.50
1 Cable Splicer		1,800.00	1,982.50	182.50		1,982.50	1,982.50
1 Asst. Cable Splicer		1,733.76	1,916.25	182.49		1,916.25	1,916.25
1 Groundman		1,320.00	1,320.00			1,320.00	1,320.00
12 Signal Operators		20,805.00	22,995.00	2,190.00		22,995.00	22,995.00
2 Relief Signal Operators		3,467.50	3,832.50	365.00		3,832.50	3,832.50
Total Item No. 11	49,684.51	51,126.26	56,071.25	4,944.99		56,071.25	56,071.25
Services—Contractual—							
Communication and Transportation—							
Postage, $14.00							
Street Car Tickets, $10.00							
Total Item No. 21	24.00		20.00			20.00	20.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Printing and Advertising—							
Photographing and Blue Printing, $44.20							
Total Item No. 24	44.20		100.00			100.00	100.00
Repairs—							
Repairs of Equip., $538.29							
Total Item No. 25	538.29		1,000.00			500.00	500.00
Supplies—		8,336.25					
Garage and Motor Supplies		14,240.70					
Gasoline, $478.53							
Oil, $28.00							
Tires and Tubes, $273.73							
Other Garage and Motor Supplies, $80.47							
Total Item No. 33	860.73		1,460.00			1,000.00	1,000.00
Office Supplies, $281.05							
Total Item No. 36	281.05		700.00			500.00	500.00
General Supplies—							
Elec. Light Blbs. and Gas Mantles, $9.24							
All Other Gen. Supplies, $30.20							
Total Item No. 38	39.44		130.00			100.00	100.00
Materials—							
General Materials, $6,482.92							
Total Item No. 44	6,482.92		10,000.00			8,000.00	8,000.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Repair Parts—							
Parts of Equip., $286.56.....							
Total Item No. 45.....	286.56		2,806.56			2,000.00	2,000.00
Properties—Equipment—							
Motor, $331.72							
Other Properties, $4,528.05.....							
Total Item No. 72.....	4,859.77		12,500.00			5,500.00	5,500.00
1925 Budget appropriations for "Tools and Equipment" and "Materials and Supplies" covered all divisions in the 1926 Request, other than salaries and wages.				6,139.61—Increases other than on salaries.			
Grand Total	63,101.47	73,703.21	84,787.81	11,084.60		73,791.25	73,791.25

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unit Weights and Measures.
Prepared by Mary F. Riddle.

		1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—								
Salaries and Wages—Regular—								
Chief Inspector, 1 at $1,800		1,800.00	1,800.00	1,800.00			1,800.00	1,800.00
Deputy Inspectors, 5 at $1,320		6,597.00	6,600.00	6,600.00			6,600.00	6,600.00
Total Item No. 11		8,397.00	8,400.00	8,400.00			8,400.00	8,400.00
Services—Contractual—								
Communication and Transportation—								
Postage, $2.50								
St. Car Tickets, $10.00								
Total Item No. 21		12.50		25.00			25.00	25.00
Printing and Advertising—								
Printing, other than office $114.38								
Total Item No. 24	*	114.38		125.00			125.00	125.00
Repairs—								
Repairs of Equipment, $65.50								
Total Item No. 25		65.50		110.00			110.00	110.00
Supplies—								
Garage and Motor								
Gasoline, $291.09								

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Tires and Tubes, $140.20		1,437.00				
Other, $2.35						
Total Item No. 33	433.64		500.00		500.00	500.00
Office Supplies—						
Sundry, $52.72						
Total Item No. 36	52.72		50.00		50.00	50.00
General Supplies—						
Other, $256.06						
Total Item No. 38	256.06		275.00		275.00	275.00
Materials—						
Repair Parts—						
Parts of Equipment, $78.00						
Total Item No. 45	78.00		100.00		100.00	100.00
Current Charges—						
Subscription and Dues, $4.00						
Total Item No. 55	4.00		5.00		5.00	5.00
Properties—Equipment—						
Motor, $1,110.00						
Other, $363.17						
Total Item No. 72	1,473.17		150.00		150.00	150.00
Grand Total of Wghts & Meas.	10,886.97	9,837.00	9,740.00	97.00	9,740.00	9,740.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Public Works.
Organization Unite Street Commissioner.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
1. Personal—Service—							
11. Superintendent, $3,000	3,000.00		3,000.00			3,000.00	3,000.00
Asst. Supt., $2,000.....	2,000.00		2,000.00			2,000.00	2,000.00
Inspectors, 4 at $1,500.....	6,000.00		6,000.00			6,000.00	6,000.00
Barn Foreman, $1,200.....	1,200.00		1,200.00			1,200.00	1,200.00
Chief Clerk, $1,680.....	1,680.00		1,680.00			1,680.00	1,680.00
Clerk and Timekeeper, $1,500.....	1,500.00		1,500.00			1,500.00	1,500.00
Typist, $1,000.....	1,000.00		1,000.00			1,000.00	1,000.00
Sewer Department—							
Sewer Foremen (part time)							
4 at $110 per mo.....	5,280.00						
Unimproved Street Dept.—			5,280.00			5,280.00	5,280.00
Foremen, 3 (part time).....	3,960.00						
City Yard Dept.—			3,960.00			3,960.00	3,960.00
Foreman, $1,320	1,320.00						
12. Sewer Dept. Wages—Temporary—			1,320.00			1,320.00	1,320.00
Pumpermen, 2 at $27 per wk.....							
Light Truck, 6 at 55c per hr.....							
Laborers, 18 at 50c per hr.....							
Dumpman, 1 at $4 per wk.....							
Unimproved Street Wages—Temporary—			20,000.00			20,000.00	20,000.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Heavy Truck, 5 at 60c per hr. (part time)							
Light Truck, 7 at 55c per hr.							
Tractors, 7 at 55c per hr.							
Graders, 7 at 55c per hr.							
Maintainers, 2 at 55c per hr.							
Hoisting Engineer, $40 per wk.							
Laborers, 20 at 50c per hr.							
City Yards Department—							
Watchman, $21 per wk.			20,000.00			20,000.00	20,000.00
Red Light Man, $21 per wk.							
Emergency Man, 50c per hr.							
Yard Labor, 50c per hr.							
Blacksmith, 2 at 65c per hr.							
Carpenter Department—			8,900.00			8,900.00	8,900.00
Foreman, 1 at $1.20 per hr.							
Carpenter, 2 at $1.00 per hr.							
Laborer, 50c per hr.							
Truck Driver, 55c per hr.							
Painter, $1.05 per hr.							
12. Wages—Temporary—Continued—							
Weed Cutting—							
15 Laborers at 40c hr (pt. time)..			500.00			500.00	500.00
Sprinkling Dept., Road Oil—							
Truck Drivers, 60c per hr. (part time)			1,000.00			1,000.00	1,000.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Laborers, 3 at 50c per hr.....							
Street Cleaning Wages—Temporary—							
Harness Maker, 1 at 65c per hr....			1,624.40			1,624.40	1,624.40
Stock Keeper, 1 at 50c per hr.....			1,404.00			1,400.00	1,400.00
Truck Foreman, 1 at 65c per hr.			1,800.00			1,800.00	1,800.00
Stablemen, 3 at 50c per hr.....			4,368.00			4,300.00	4,300.00
Teamsters, 33 at 50c per hr.....			22,000.00			20,000.00	20,000.00
Lt. Truck Drivers, 12 at 55c hr....			10,000.00			8,000.00	8,000.00
Heavy Truck Dr., 12 at 60c hr....			10,000.00			8,000.00	8,000.00
Paners-Broomers and Laborers, 125 at 45c per hr.....			55,000.00			45,000.00	45,000.00
Helpers on Flusher, 6 at 50c hr....			3,000.00			2,500.00	2,500.00
Helpers on Dirt Trks, 7 at 45c hr.			4,000.00			3,000.00	3,000.00
2. Services—Contractual—							
21. Communication and Transportation—							
Unimproved Street Department—							
3 Teams at 90c per hr.....			2,551.50			1,500.00	1,500.00
Sewer Dept.—Teams—							
1 Team at 90c per hr.....			2,000.00			1,500.00	1,500.00
212. Postage—							
Office Department—							
1,000 Postage Stamps at 2c.....			70.00			50.00	50.00
2,500 Postage Stamps at 2c.....			538.00			500.00	500.00
214. Telephone and Telegraph—			6,847.00			4,000.00	4,000.00
217. Team Hire							
22. Heat, Light, Power & Water—							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
221.			600.00			600.00	600.00
24. Printing and Advertising....							
241. Adv. Publication Notices....			25.00			25.00	25.00
25. Repairs—							
251. Repair to Bldg. & Structure			1,100.00			1,100.00	1,100.00
252. Repair to Equipment.....							
Repair to Typewriter			25.00			15.00	15.00
Repair to Equipment—							
252. Unimproved St. Dept.....			1,100.00			1,000.00	1,000.00
Sewer Dept.			50.00			25.00	25.00
Sprinkling Dept. —.....			50.00			25.00	25.00
City Yard Dept.			175.00			100.00	100.00
3. Supplies—							
32. Fuel and Ice.....							
321 Coal and Ice.....			455.50			455.50	455.50
323 Kerosene							
City Yard Dept.							
9448 Gal.			1,100.00			800.00	800.00
33. Garage and Motor—							
331 City Yard Gasoline.....							
332 Oils			6,500.00			5,000.00	5,000.00
Unimproved St. Dept.							
1 Can Arctic Grease.....							
24-lb. Ironside Goble Grease.....							
25-lb. Texaco Goble Grease.....			15.00			10.00	10.00
333. City Yard Dept.—							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
49 bbl. Tractor Oil.....							
1 bbl. Polarine							
334. Other Garage and Motor Supplies—			1,500.00			800.00	800.00
36 Office Supplies, Supt. Sts.....			400.00			350.00	350.00
38 Supplies—General			200.00			200.00	200.00
381 Light Bulbs.....							
382 Other Supplies.....			40.00			40.00	40.00
Carpenter Dept.							
Sewer Dept.			400.00			200.00	200.00
383 Forage							
384 Electrical Supplies.....							
385 Harness Supplies.....							
386 Other Supplies.....							
4. Materials—			17,950.00			12,000.00	12,000.00
41. Buildings							
Carpenter Dept.							
42. City Yard Dept. Sewer.....			2,700.00			2,000.00	2,000.00
Sewer Dept.			5.00			5.00	5.00
43. St. and Alley Materia.....			6,000.00			5,000.00	5,000.00
Sprinkling, Road Oil.....			15,100.00			10,100.00	10,100.00
Unimproved St., Cinder and Gravel							
44. Material—General			200.00			200.00	200.00
City Yard Dept.							
Fountain and Wells.....			1,000.00			500.00	500.00
45. Repair to Parts—			50.00			50.00	50.00
451. Parts of Equipment.....							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Parts of Equip.—Sewer Dept.....			1,600.00			1,200.00	1,200.00
Parts of Equip.—Unimproved St.			350.00			300.00	300.00
Parts of Equip.—City Yards.....			1,000.00			500.00	500.00
5. Current Charges—			200.00			150.00	150.00
54. Rental and Taxes.....							
City Yard Rent and Taxes.....			650.00			650.00	650.00
Rent 2 Barns.....			360.00			300.00	300.00
7. Properties—							
71. Bldg. Struc. Improvement—							
711. Mo. & Ky. Av. Reprs. Railing			1,500.00				
712. Cement Bridges.....			2,000.00			500.00	500.00
713. N. York St. Bridges.....			1,500.00				
714. Bridges, 10th & White River			6,000.00				
724. Motor Equip. Sewer Dept....			1,600.00			965.00	965.00
Motor Equip.—Carpenter Dept.....			100.00				
Motor Equip.—City Yard.....			1,900.00			500.00	500.00
Motor Equip.—Weed Cutting.....			100.00			100.00	100.00
Motor Equip.—Foun. & Wells.....			25.00			25.00	25.00
726. Other Equipment			3,500.00			2,500.00	2,500.00
						238,844.90	238,844.90

CITY OF INDIANAPOLIS
Department Board of Public Safety
Organization Unit Dog Pound
Prepared by R. R. Boyers

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Pound Keeper, 1 at $1,120.....	1,120.00	1,120.00	1,120.00			1,120.00	1,120.00
Dep. Pound Keeper, 1 at $1,020..	1,011.52	1,020.00	1,020.00			1,020.00	1,020.00
Total Item No. 11.....	2,131.53	2,140.00	2,140.00			2,140.00	2,140.00
Services—Contractual—							
Communication and Transportation—							
Frt., Exp., & Drayage, $3.68.....							
Tele. and Telegph., $54.00.....							
Total Item No. —.....	57.68		60.00			60.00	60.00
Heat, Light, Power & Water—							
Furn. Elec. Current, $50.30.....							
Total Item No. 22.....	50.30		50.00			50.00	50.00
Repairs—							
Repairs of Equipment, $26.53.....							
Total Item No. 25.....	26.53		20.00			20.00	20.00
Supplies—							
Fuel and Ice—							
Coal, $141.25							
Total Item No. 32.....	141.25		150.00			150.00	150.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Garage and Motors—							
Gasoline, $133.71.....							
Tires and Tubes, $49.75.....							
Total Item No. 33.....	183.46		200.00			200.00	200.00
Institutional and Medical—		1,200.00					
Laundry and Cleaning, $90.00.....							
Med., Surg., & Dental, $154.37....							
Total Item No. 34.....	244.37		200.00			200.00	200.00
Office Supplies, $18.25.....							
Total Item No. 36.....	18.25		20.00			20.00	20.00
General Supplies—							
All Others, $253.55.....							
Total Item No. 38.....	253.55		200.00			200.00	200.00
Materials—							
Building, $175.15							
Total Item No. 41.....	175.15		75.00			75.00	75.00
Repairs—							
Parts of Equipment, $44.31.....							
Total Item No. 45.....	44.31		25.00			25.00	25.00
Current Charges—							
Rents, $330.00							
Total Item No. 54.....	330.00		360.00			360.00	360.00
Properties—Equipment—							
All Others, $6.00.....							
Total Item No. 72.....	6.00						
	3,662.38	3,340.00	3,500.00	160.00		3,500.00	3.500.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unit East Market.
Prepared by R. R. Boyers.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—Extra Hall & Market Master,		250.00	250.00			250.00	250.00
1 at $2,000.00—$1,999.92....		2,000.00	2,000.00			2,000.00	2,000.00
Asst. Market Master,							
1 at $1,500.00—$1,500.00.....		1,500.00	1,500.00			1,500.00	1,500.00
Watchman, 2 at $900.00—$1,800.		1,800.00	1,800.00			1,800.00	1,800.00
Janitors, 6 at $960.00—$5,760.00..		5,760.00	5,760.00			5,760.00	5,760.00
Extra Janitor, 1 at $120.00—$120		120.00	120.00			120.00	120.00
Matron, 1 at $240.00—241.00.....		240.00	240.00			240.00	240.00
Total Item No. 11.....	11,420.92	11,670.00	11,670.00			11,670.00	11,670.00
Services—Contractual—							
Heat, Light, Power & Water—							
Furn. Elec. Current, $2,304.38.....							
Total Item No. 22.....	2,304.38	2,300.00	2,300.00			2,300.00	2,300.00
Repairs—							
Repairs of Equipment, $13.75.....							
Total Item No. 25.....	13.75		25.00			25.00	25.00
Other Contractual—							
All Other, $8.75.....	8.75						
Total Item No. 26.....	8.75		30.00			30.00	30.00

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Fuel and Ice—							
Ice, $18.90							
Total Item No. 32	18.90		30.00			30.00	30.00
Garage and Motor—							
Oil, $3.00							
Total Item No. 33	3.00		5.00			5.00	5.00
Institutional and Medical—							
Laundry and Cleaning, $153.56							
Total Item No. 34	153.56	700.00	165.00			165.00	165.00
Office Supplies, $70.50							
Total Item No. 36	70.50		75.00			75.00	75.00
General Supplies—							
Light Blbs. & Gas Mtls., $61.34							
All Other, $166.10							
Total Item No. 38	227.44		235.00			235.00	235.00
Materials—							
Building, $121.94							
Total Item No. 41	121.94		120.00			120.00	120.00
Properties—Equipment—							
All Others, $23.25							
Total Item No. 72	23.25		15.00			15.00	15.00
Total, East Market	14,366.69	14,670.00	14,670.00			14,670.00	14,670.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unit Building Department.
Prepared by R. R. Boyers.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
—Extra—		1,000.00			1,000.00		
Building Commissioner, 1 at $3,600.00——$3,600.00.....		3,600.00	3,600.00			3,600.00	3,600.00
Asst. Com., 1 at $3,300.00—$3,300		3,300.00	3,300.00			3,300.00	3,300.00
Plan Exam., 1 at $2,700—$2,655..		2,700.00	2,700.00			2,700.00	2,700.00
Chief Insp., 1 at $2,500—$2,499.96		2,500.00	2,500.00			2,500.00	2,500.00
Chief Clerk, 1 at $2,100—$2,100..		2,100.00	2,100.00			2,100.00	2,100.00
1st. Asst. Clk., at $1,950—$1,852.47..		1,950.00	1,950.00			1,950.00	1,950.00
2d Asst. Clk., 1 at $1,800—$1,800....		1,800.00	1,800.00			1,800.00	1,800.00
Bookk'p'r, 1 at $1,800—$1,524.19		1,800.00	1,800.00			1,800.00	1,800.00
Stenographer, 1 at $1,200—$1,200		1,200.00	1,200.00			1,200.00	1,200.00
Bldg. Inspr., 6 at $2,000—$1,3816.31		14,400.00	14,400.00			10,000.00	10,000.00
Chief Smoke Inspector, 1 at $3,000.00—$3,008.34.....		3,000.00	3,000.00			3,000.00	3,000.00
1st Asst. Smoke Inspector, 1 at $2,400.00—$2,058.33.....		2,400.00	2,400.00			2,400.00	2,400.00
Elevator Inspector, 1 at $2,400.00—$2,058.33.....		2,400.00	2,400.00			2,400.00	2,400.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Board of Electrical Examiners—							
1 Chairman, at $60.00—$60.00.....		60.00	60.00			60.00	60.00
Members, 3 at $60.00—$180.00..		180.00	180.00			180.00	180.00
Secretary, 1 at $240.00—$240.00..		240.00	240.00			240.00	240.00
Total Item No. 11.....	41,952.93	44,630.00	43,630.00		1,000.00	39,230.00	39,230.00
Services—Contractual—							
Communication and Transportation—							
Postage, $45.00							
Total No. 21.....	45.00		100.00	100.00		50.00	50.00
Printing and Advertising—							
Photographing and Blue Printing, $9.72							
Total No. 24.....	9.72	1,000.00	1,025.00	25.00		1,025.00	1,025.00
Repairs—							
Repairs—Equipment, $27.40.....							
Total No. 25.....	27.40		75.00	75.00		75.00	75.00
Supplies—							
Garage and Motor—							
Gasoline, $227.97							
Oil, $28.00							
Tires and Tubes, $9.30.....							
Total No. 33.....	265.27						
Office, $628.13.....							
Total No. 36.....	628.13	800.00	800.00			800.00	800.00

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Materials—						
Repair Parts—						
Parts of Equipment, $70.73.....						
Total No. 45.....	70.73					
Properties—Equipment—						
All Other, $45.75.....						
Total No. 72.....	45.75					
Total, Building Dept.....	43,044.93	46,430.00	45,630.00	200.00	1,000.00	41,180.00	41,180.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unit Administration.
Department Recreation.
Prepared by Cora E. Hartman.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Office and Administration—							
Director	3,236.08	3,500.00	3,500.00				
Dramatic Director	1,882.00	2,000.00	1,800.00		200.00		
Asst. Dramatic Director	1,454.67	1,500.00	1,440.00		60.00		
Supervisor of Girls' Work	1,320.00	1,320.00	1,320.00				
Stenographer	900.00	900.00	900.00				
Attorney	1,333.29	1,400.00	1,400.00				
Clerk	300.00	300.00	300.00				
Auditor	360.00	360.00	360.00				
Storekeeper	413.00	420.00	420.00				
Playground Foreman	1,800.00	1,800.00	1,800.00				
Playgrounds—							
Matrons at $60 per mo	1,942.33		2,500.00				
Matrons at $50.00 per mo	4,079.44		6,900.00				
Instructors at $90 per mo	1,080.00		1,080.00				
Instructors at $75 per mo	185.00		450.00				
Instructors at $60 per mo	4,531.00		6,800.00				
Instructors at $50 per mo	9,324.28		12,875.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Custodian at $75 per mo.....	850.00		900.00				
Custodian at $60 per mo.....	150.00		420.00				
Life Guards at $75 per mo.....	1,554.67		3,200.00				
Life Guards at $60 per mo.....	622.00		1,720.00				
Watchman at $105 per mo.....	1,302.00		1,615.00				
Watchmen at $60 per mo.....	1,440.00		1,980.00				
Field Secretary	312.50		312.50				
Locker Boys at $50 per mo.....	216.66		670.00				
School Playygrnd Cstdn at $35..	1,031.27		1,715.00				
School Superv. at $125 per mo....	333.33		375.00				
Appropriations for 1925.....		48,960.00			5,760.00		
Total Item No. 11.....	41,953.52	62,460.00	56,440.00		6,020.00	46,440.00	46,440.00
Salaries and Wages—Temporary—							
General Labor—Weekly—							
Laborers	8,044.00		8,200.00				
Truck Drivers	1,564.80		1,600.00				
Carpenter	1,497.60		1,550.00				
Electricians	35.62		150.00				
Watchmen	392.00		1,456.00				
Total Item No. 121.....	11,534.02	10,000.00	12,956.00	2,956.00			
Theatrical Payroll—Weekly.....		14,000.00					
Actors	9,567.50		9,600.00				
Electrician	995.25		1,000.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Flyman	856.75		875.00				
Carpenter	1,359.00		1,375.00				
Property Man	1,386.00		1,400.00				
Total Item No. 12	25,698.52	24,000.00	27,206.00	3,206.00		24,000.00	24,000.00
Services—Contractual—							
Communication and Transportation—							
Frt., Drayage & Exp., $775.00							
Postage, $40.00							
St. Car Tickets, $75.00							
Telephone, $147.00							
Traveling Expenses, $200.00							
Total Item No. 21	876.02	725.00	1,237.00	512.00		725.00	725.00
Heat, Light and Water—							
Electricity, $500.00							
Gas, $15.00							
Water, $1,500							
Total Item No. 22	511.21	4,000.00	2,015.00		1,985.00	2,015.00	2,015.00
Printing and Advertising—							
Printing, $10.00							
Photographing and Blue Printing, $6.00							
Total Item No. 24	6.08	20.00	16.00		4.00	16.00	16.00
Repairs—							
Repair of Buildings, $1,500							
Total Item No. 25	259.75	3,000.00	1,500.00		1,500.00	1,500.00	1,500.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Other Contractual—							
Other Services, $75.00.....							
Total Item No. 26.....	47.15	100.00	75.00		25.00	75.00	75.00
Supplies—Fuel—	69,352.25	94,305.00	88,489.00	3,718.00	9,534.00	74,771.00	74,711.00
Coal, $300.00							
Total Item No. 32.....	242.72	300.00	300.00			300.00	300.00
Garage and Water—							
Gasoline, $4.50.00.....							
Oil, $150.00							
Tires and Tubes, $350.00.....							
Other Garage Supplies, $200.00....							
Total Item No. 23.....	1,321.05	2,000.00	1,150.00		850.00	1,150.00	1,150.00
Office—							
Printing, Stationery and Supples, $250.00							
Total Item No. 36.....	146.74	150.00	250.00	100.00		250.00	250.00
Supplies—General—							
Community House Supplies, $750							
382 Baseballs & Bats, $500.....							
Volley Balls, $500.....							
Basket Balls, $200.....							
Foot Balls, $100.....							
Playground Balls, $50.....							
General Supplies, $700.....							
Theatre Supplies, $4,500.....							
Total Item No. 38.....	8,618.75	5,100.00	7,300.00	2,200.00		5,100.00	5,100.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Materials—Building—							
Lumber, Paint, Etc., $625.....							
Total Item No. 41.....	274.51	750.00	625.00		125.00	625.00	625.00
General—							
Tan Bark, $1,000.....							
Miscellaneous, $400.....							
Total Item No. 44.....	1,240.26	1,950.00	1,400.00		550.00	1,400.00	1,400.00
Repair Parts—							
Parts of Equipment, $750.....							
Total Item No. 45.....	692.95	1,000.00	750.00		250.00	750.00	750.00
	81,889.25	105,555.00	100,264.00	6,018.00	11,309.00	84,346.00	84,346.00
Current Charges—							
Insurance and Premiums—							
Insurance on Motors, $50.....							
Insurance on Buildings, $400.....							
Total Item No. 51.....	366.93	500.00	450.00		50.00	450.00	450.00
Refunds, Awards & Indemnities—							
Award, acct. injury, $1,000.....							
Total Item No. 53.....	1,515.00		1,000.00	1,000.00		1,000.00	1,000.00
Rents—							
Y.M.C.A. Pool (colored) $100....							
Towels and Cabinet, $12.....							
Total Item No. 54.....	107.00		112.00	112.00		112.00	112.00
Subscriptions and Dues—							
Magazines and Period., $20.....							
Total Item No. 55.....	12.90	15.00	20.00	5.00		20.00	20.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Properties—							
Buildings, Structures & Improvements—							
Buildings, $20,500							
Apparatus, $6,000							
Total Item No. 71	4,482.20	15,500.00	26,500.00	11,000.00		15,000.00	15,000.00
Equipment—							
Furn. and Fixtures, $75							
Other Equipment, $350							
Total Item No. 72	652.83	591.70	425.00		166.70	425.00	425.00
Grand Total, Recreation Dept.	89,026.10	122,161.70	128,771.00	18,135.00	11,525.70	101,353.00	101,353.00
Services—Personal—							
Salaries and Wages—Regular—							
Office and Adminstration—							
Superintendent	5,222.11	5,500.00				%	
Asst. Superintendent	3,600.00	3,800.00	5,500.00			5,500.00	5,500.00
Secretary	1,680.00	1,920.00	3,720.00		80.00	3,720.00	3,720.00
Auditor	1,680.00	1,920.00	1,800.00		120.00	1,800.00	1,800.00
Asst. Auditor	1,200.00	1,320.00	1,800.00		120.00	1,800.00	1,800.00
Attorney	2,666.57	2,800.00	1,320.00			1,320.00	1,320.00
Land Agent	1,800.00	1,800.00	2,800.00			2,800.00	2,800.00
Field Secretary	1,500.00	1,500.00			1,800.00		
Assessment Bureau					1,500.00		
Chief Clerk	2,400.00	2,400.00					
Transfer Clerk	1,004.23	1,020.00	2,400.00			2,400.00	2,400.00
Clerks, 2 at $1,500	3,600.00	3,600.00	1,020.00			1,020.00	1,020.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Engineering Dept.—			3,000.00		600.00	3,000.00	3,000.00
Asst. Engineer	3,600.00	3,600.00					
Chief Draftsman	2,400.00	2,400.00	3,600.00			3,600.00	3,600.00
Office Aid—Class B	1,093.00	4,320.00	2,400.00			2,400.00	2,400.00
Levelman or Fld. Aid,			1,500.00		2,820.00	1,500.00	1,500.00
1 at $1,800 (Class D)		1,800.00					
1 at $1,500 (Class C)			1,800.00			1,800.00	1,800.00
Field Aids, 3 at $1,200 (Class A)	2,440.00	9,400.00					
1 at $1,800 (Class D)			5,100.00		4,300.00	5,100.00	5,100.00
Inspectors, 1 at $1,500 (Class C)	2,683.34	13,860.00	4,620.00		9,240.00	4,620.00	4,620.00
1 at $1,320 (Class B)							
Various Parks—Custodians, Etc.—							
Nurseryman	1,680.00	1,920.00	2,400.00	480.00		2,400.00	2,400.00
St. Forestry Inspector	1,800.00	1,800.00	1,800.00			1,800.00	1,800.00
Chief Florist—Greenhouse		1,920.00	2,000.00	80.00		2,000.00	2,000.00
1 at $1,600							
Florists—Greenhouse, 5 at $1,500	10,620.00	8,700.00	9,100.00	400.00		9,100.00	9,100.00
1 at $2,272							
Const. Foreman, 1 at $1,800	3,372.00	3,800.00	4,072.00	272.00		4,072.00	4,072.00
Shop Foreman	1,872.00	1,872.00	1,872.00			1,872.00	1,872.00
Hostler, Riverside Park	1,200.00	1,200.00	1,200.00			1,200.00	1,200.00
1 at $1,380							
Storehouse Foreman, 1 at $1,200	2,497.00	2,520.00	2,580.00	60.00		2,580.00	2,580.00
Chas. E. Coffin, Golf Instructor and Course Mgr.		720.00	720.00			720.00	720.00

	Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Chas. E. Coffin, Golf Clerk ..... (6 mo. at $100.00)		1,800.00	1,800.00			1,800.00	1,800.00
Chas. E. Coffin, Golf Custodian ... (6 mo. at $50.00)	3,436.67	900.00	900.00			900.00	900.00
Golf, No. 1 Instructor.....			600.00	600.00		600.00	600.00
South Grove Golf Instructor and Course Mgr.	1,248.00	1,248.00	1,248.00			1,248.00	1,248.00
Matrons— 1 at $900—Garfld Shelter Hse. 1 at $900—Ples. Run Golf Shel. 1 at $525—S. Grove Cse. 7 mo.	2,232.50	2,325.00	2,325.00			2,325.00	2,325.00
Pleasant Run Golf Instructor.....	600.00	600.00	600.00			600.00	600.00
Custodians in Other Parks.....	20,195.66	23,285.00	22,800.00		485.00	22,800.00	22,800.00
Total Item No. 11.....	89,323.08	117,570.00	98,397.00	1,892.00	21,065.00	98,397.00	98,397.00
General Labor—Weekly		216,131.70					
Laborers	146,951.07		170,000.00			170,000.00	170,000.00
Watchmen	20,791.00		15,000.00			15,000.00	15,000.00
Teams	9,766.50		20,200.00			20,200.00	20,200.00
Mechanic, Municipal Garage.....	1,900.50		2,000.00			2,000.00	2,000.00
Stenographer to Attorney.....	500.00		520.00			520.00	520.00
Total Item No. 12.....	179,909.07	216,131.70	207,720.00		8,411.70	207,720.00	207,720.00
Other Compensations—							
Landscape Architect	2,499.84	2,500.00	2,500.00			2,500.00	2,500.00
Legal Fees	250.00		500.00	500.00		500.00	500.00
Appraisers	2,465.00		1,000.00	1,000.00		1,000.00	1,000.00
Total Item No. 13.....	5,214.84	2,500.00	4,000.00	1,500.00		4,000.00	4,000.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Contractual—							
Communication and Transportation—							
Freight, Express and Drayage, $175							
Postage, $200.00							
Car Tickets, $150							
Telephone and Telegph., $2,000							
Traveling Expense, $500							
Total Item No. 21	2,459.44	2,800.00	3,025.00	225.00		3,025.00	3,025.00
Heat, Light, Power and Water—							
New Installation, $13,619.08							
Elec. Current, Present $60,000.00							
Water, $10,000.00	67,707.69	83,000.00	83,619.08	619.08		83,619.08	83,619.08
Printing and Advertising—							
Advertising and Publication of Notices, $1,000							
Printing, $750.00							
Photographing and Blue Printing, $175.00							
Total Item No. 24	1,619.03	1,850.00	1,925.00	75.00		1,925.00	1,925.00
Repairs—							
Repairs of Buildings, $500							
Repair of Equipment, $1,000							
Total Item No. 25	468,52	3,000.00	1,500.00		1,500.00	1,500.00	1,500.00
	346,801.67	426,851.70	400,186.08	4,311.08	30,976.70	400,186.08	400,186.08

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—(Other Contractual)—							
Laundry Work, $400							
Music, $2,100							
Other Miscellaneous, $15,000							
Total Item No. 26	6,028.76	10,000.00	17,500.00	7,500.00		17,500.00	17,500.00
Supplies—Fuel—							
Coal, $5,000							
Total Item No. 32	3,818.35	5,000.00	5,000.00			5,000.00	5,000.00
Garage and Motor—							
Gasoline, $2,800							
Oil, $700							
Tires and Tubes, $1,000							
Other Garage Supplies, $700							
Total Item No. 33	4,429.24	7,100.00	5,200.00		1,900.00	5,200.00	5,200.00
Office—							
Printing, Stationery and Supplies, $1,000							
Total Item No. 36	773.14	450.00	1,000.00	550.00		1,000.00	1,000.00
Supplies—General—							
Stable, $100							
Feed, $2,000							
Seeds, Plants, and Spraying Materials, $2,500							
Miscellaneous, $5,000							
Total Item No. 38	8,077.55	14,500.00	9,600.00		4,900.00	9,600.00	9,600.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Materials—Building—							
Lumber, Paints, Etc., $4,500.....							
Total Item No. 41.....	4,132.73	9,800.00	4,500.00		5,300.00	4,500.00	4,500.00
Sewer—							
Pipe, Cement, Etc., $1,000.....							
Total Item No. 42.....	160.70	2,250.00	1,000.00		1,250.00	1,000.00	1000.00
Street and Alley—							
Road Oil, Sand, Gravel, $20,500..							
Crushed Stone, $3,000.....							
Patching Materials, $6,000.....							
Total Item No. 43.....	19,958.99	29,500.00	29,500.00			29,500.00	29,500.00
	394,181.13	505,451.70	473,486.08	12,361.08	44,326.70		
Materials—General—							
Miscellaneous, $1,500							
Total Item No. 44.....	1,286.36	1,700.00	1,500.00		200.00	1,500.00	1,500.00
Repair Parts—							
Parts for Equipment, $2,000.....							
Total Item No. 45.....	1,833.77		2,000.00	2,000.00		2,000.00	2,000.00
Current Charges—							
Insurance and Premiums—							
Insurance on Bldgs. and							
Motors, $3,700							
Total Item No. 51.....	3,549.15	3,000.00	3,700.00	700.00		3,700.00	3,700.00

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Refunds, Awards, Indemnities—							
Industrial Claim and Benefit Award, $1,500							
Total Item No. 53	1,455.50		1,500.00	1,500.00		1,500.00	1,500.00
Rents—							
Tool Houses, $500							
Option Leases, Park Property, $4,354.80							
Taxes, Barret Law, Leased Property, $900							
Total Item No. 54	4,261.47	5,704.80	5,754.80	50.00		5,754.80	5,754.80
Subscriptions and Dues—							
Membership State Park Association, $75							
Magazines, $25.00							
Total Item No. 55	78.60	90.00	100.00	10.00		100.00	100.00
Current Obligations—							
Taxes and Barrett Law—							
Barrett Law, $6,600							
Total Item No. 64	6,637.00	6,600.00	6,600.00			6,600.00	6,600.00
Properties—							
Bldgs., Structure and Improvements—							
Other Buildings, $20,000							
Bldgs., Com. Sta., $20,000							
Bridges, $5,000							
Total Item No. 71	1,450.40	15,000.00	45,000.00	30,000.00		45,000.00	45,000.00

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Equipment—							
Furn. & Fixtures, $200							
Other Equipment, $21,350							
Total Item No. 71	9,592.71	17,130.82	21,350.00	4,219.18		21,350.00	21,350.00
Grand Total	424,326.09	554,677.32	560,990.88	50,840.26	44,526.70	560,990.88	560,990.88

Indianapolis, Indiana,
July 23rd, 1925.

Mr. Joseph L. Hogue,
City Controller,
Indianapolis.

Dear Sir—This is to certify that the Department of Public Parks by its Board of Park Commissioners of the city of Indianapolis, Indiana, at its regular meeting on July 23, 1925, adopted the following Resolution, to-wit:

"BE IT RESOLVED, by the Board of Park Commissioners, Department of Public Parks, of the City of Indianapolis, Indiana, at its regular meeting on July 23, 1925, has this day fixed and does hereby fix the tax levies, for its General Fund and for playground and recreation purposes, and for Special tax levy for the Park District Bond Fund, for Sinking Fund purposes" of said department, upon all the property both real and personal, on and located within the territorial limits of the park district of the city of Indianapolis, Indiana, for the year 1925, payable in 1926, as follows, to-wit:

1st. For the General Fund of said Department, a tax levy of Eight (8) cents upon each One Hundred (100.00) Dollars of valuation of such taxable property.

2nd. For Playground and Recreation purposes a tax levy of Two (2) cents upon each One Hundred ($100.00) Dollars valuation of such taxable property.

3rd. A Special tax levy for the "Park District Bond Fund," for Sinking Fund purposes, of Five and Three-Fourth (5¾) cents upon each One Hundred ($100.00) of valuation of such taxable property.

Each of the aforesaid levies shall be in addition to all other taxes of said city.

The Department of Public Parks, by its Board of Park Commissioners claims that the special tax levy is not covered by the Budget Law and not subject to review by any authority whatsoever, and Section 27 of Chapter 144 of the Acts of 1919 so specifies the same as a special tax levy and authorizes the Board to certify the same direct to the County Auditor, as late as October 1, 1925, when the Budget Section of the tax law requires all appeals to the State Tax Board to be filed with the County Auditor not later than the fourth Monday in September of each year.

The "Several Tax Levies" mentioned in the Budget Section does not include special and statutory levies where a different form of procedure is authorized other than the Budget form of procedure and where there is really no reason for a budget thereon, the amount of the Bond, interest and principal due and the special tax levy to raise the same being the simplest kind of a mathmatical calculation.

However as a courtesy to the Council we hereby furnish a detailed statement to the amount of Bond Principle and interest payments due in the year 1926, and attach a copy of the same to this certificate, and beg to state that we have also certified direct to the County Auditor

said Special Tax Levy made by the Board for the "Park District Bond Fund," for Sinking Fund purposes.

Respectfully submitted,
DEPARTMENT OF PUBLIC PARKS,
CITY OF INDIANAPOLIS.
By Board of Park Commissioners,
EMSLEY W. JOHNSON,
Vice-President.
A. M. M'GUIRE
FRANK S. MANLY,
Members of the Board.

Attest:
Mary E. Griffin, Secretary of the Board.

Bonds of—

Issue	Interest July 1, 1926	Interest Jan. 1, 1927	Principal Jan. 1, 1927	Total	Where Payable
1920	$ 2,520.00	$ 2,520.00	$ 6,000.00	$ 11,040.00	City Treas.
No.					
1,1921	551.25	551.25	1,000.00	2,102.50	City Treas.
2,1921	2,580.00	2,580.00		5,160.00	Union Trust
2,000	Date of maturity Aug.22-26		86,750.00	86,750.00	Union Trust
3,1921	1,457.50	1,457.50	3,000.00	5,915.00	Union Trust
4,1921	450.00	450.00		900.00	Union Trust
4,	Date of maturity Dec. 15-26		15,412.50	15,412.50	Union Trust
5,1921	1,912.50	1,912.50	5,000.00	8,825.00	City Treas
6,1921	247.50	247.50	500.00	995.00	City Treas.
7,1921	880.00	880.00	2,000.00	3,760.00	City Treas.
8,1921	213.75	213.75	500.00	927.50	City Treas.
9,1921	303.75	303.75	500.00	1,107.50	City Treas.
10,1921	783.75	783.75	1,500.00	3,067.50	City Treas.
11,1921	326.25	326.25	500.00	1,152,50	City Treas.
1,1922	1,800.00	1,800.00	60,000.00*	3,600.00	City Treas.
2,1922	1,125.00	1,125.00	45,000.00**	2,250.00	City Treas.
3,1922	2,475.00	2,475.00	5,000.00	9,950.00	City Treas.
1,1923	1,800.00	1,800.00	4,000.00	7,600.00	City Treas.
2,1923	3,450.00	3,450.00	6,000.00	12,900.00	City Treas.
3,1923	5,775.00	5,775.00	11,000.00	22 550.00	City Treas.
4,1923	900.00	900.00	1,000.00	2 800.00	City Treas.
5,1923	725.00	725.00	1,000.00	2,450.00	City Treas.
6,1923	3,100.00	3,100.00	4,000.00	10 200.00	City Treas.
7,1923	475.00	475.00	1,000.00	1,950.00	City Treas.
1 1924	9.750.00	9.750.00	10,000.00	29.500.00	City Treas.
2,1924	2,550.00	2,550.00	3,000.00	8,100.00	City Treas.
3,1924	13,650.00	13,650.00	14,000.00	41,300.00	City Treas.
4,1924	2,175.00	2,175 00	3,000.00	7,350.00	City Treas.
5,1924	21,546.00	5,985.00	7,000.00	34,531.00	City Treas.
1,1925	5,050.40	1,800.00	2,000.00	8,850.00	City Treas.
2 1925	2,954.00	1,260.00	2,000.00	6,214.00	City Treas.
3,1925	1,255.64	630.00	1,000.00	2,865.64	City Treas.
	$92,762.29	$71,651.25	$197,662.50	$362,076.04	

*Matures 6-1-27
**Matures 6-17-27

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Prepared by Aulta Lewis.
Department Sanitation.

	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Administration—		24,100.00				
Ash and Garbage Collection.....		274,255.60				
Sewage Disposal Plant.....		175,000.00				
Night Soil Plant and Incinerator..		10,380.00				
Improvement and Maintenance of Lands and Roads.....		3,000.00				
Garbage Reduction Plant.....		15,000.00				
Total		501,735.60				

The levy of 5.5c for the Sanitation Department figured on an approximate valuation of $652,000.00 would bring the Department—

Approximately	$358,500.00
Estimate of revenue from Reduction Plant.....	75,000.00
	$423,500.00
The Department is asking for	$501,735.60
They would receive	423,500.00
	$ 78,235.60

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Organization Unite Ash and Garbage.
Prepared by Aulta Lewis.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Salaries—Personal—							
Salaries and Wages—Regular—							
Superintendent, $3,600		2,480.00	3,600.00	1,120.00			
Cost Clerk, $1,560		1,075.00	1,800.00	725.00			
Clerk, $1,200		827.00	1,200.00	373.00			
Inspector, $1,800		1,240.00	1,800.00	560.00			
Inspector, $1,800		1,240.00	1,800.00	560.00			
Inspector, $1,800		1,240.00	1,800.00	560.00			
Garage, $6 474.50		6,100.00	8,175.00	2,075.00			
Trailer Yard, $7,610.12		7,150.00	9,615.00	2,465.00			
Ash Col., inc. Teams, $60,269.50		52,850.00	75,750.00	22,900.00			
Garb. Col. inc. Teams, $48,532.95		42,600.00	66,671.26	24,071.26			
Dumps, $3,660.09		3,450.00	4,625.—	1,175.00			
Misc. (office) $2,084.06		1,965.00	2,640.00	675.00			
Total Item No. 11	140,386.46	122,217.00	179,476.26	57,259.26			
Salaries & Wages—Temp., $129.97							
Total Item No. 12		118.00			118.00		
Services—Contractual—							
Communication and Transportation—							
Postage, $20.00		19.00	25.85	6.85			

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Tele. and Telegrph., $883.00.....		830.00	1,000.00	170.00			
Total Item No. 21.....	903.00	849.00	1,025.85	176.85			
Heat, Light, Power & Water—							
Furn. Elec. Current, $569.04.....							
Total Item No. 22.....	569.04	535.00	730.00	195.00			
Printing and Advertising—							
Printing (other than office) $352.00							
Total Item No. 24.....	.352.00	332.00	452.00	120.00			
Supplies—Fuel and Ice—							
Coal, $569.04							
Total Item No. 32.....	569.04	535.00	1,140.00	605.00			
Garage and Motor—							
Gasoline, $10,691.68		9,631.00	13,575.00	3,944.00			
Oils, $1,414.85		1,325.00	1,620.00	295.00			
Tires and Tubes, $5,049.29.....		4,750.00	6,500.00	1,750.00			
Other Garage and Motor Supplies, $591.73		565.00	760.00	195.00			
Total Item No. 33.....	17,747.55	16,271.00	22,455.00	6,184.00			
Office Supplies, $116.06.....							
Total Item No. 36—.....	116.06	100.00	136.00	36.00			
Supplies—General—							
Stockroom, $2,934.05.....							
Total Item No. 38.....	2,934.05	2,780.00	3,780.00	1,000.00			

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Prepared by Aulta Lewis.
Department Sanitation.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Service—Personal—							
Salaries and Wages—Regular—							
Commissioner		4,950.00	7,200.00	2,250.00			
Clerk		1,240.00	1,800.00	560.00			
Stenographer		825.00	1,200.00	375.00			
Legal Services			2,400.00	2,400.00			
Total Item No. 11		7,015.00	12,600.00	5,585.00			
Other Compensations—							
Patent Litigation							
Total Item No. 13			10,000.00	10,000.00			
Service—Contractual—							
Communication and Transportation—							
Postage, $178.50							
Tele. and Telegph., $86.50							
Total Item No. 21	265.00	265.00	444.00	179.00			
Supplies—							
Office							
Total Item No. 36		626.00	1,056.00	429.00			
		7,906.00	24,100.00	16,193.00			

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Repair Parts—							
Parts of Equipment, $14,524.28....							
Total Item No. 45.....	14,524.28	12,628.00	17,190.00	4,562.49			
Current Charges—							
Awards and Indemnities, $1,870..							
Total Item No. 53.....	1,870.00	1,760.00	1,870.00	110.00			
Properties—Equipment—							
Motor							
Total Item No. 72.....	43,612.41	23,375.00	46,000.00	24,825.00	2,200.00		
Grand Total	223,718.61	181,500.00	274,255.60	95,073.60	2,318.00		

CITY OF INDIANAPOLIS
Organization Unit Night Soil and Incineration.
Organization Sewage Disposal Plant.
Prepared by Aulta Lewis.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Grit Chambers			2,160.00				
Pumping and Clarification			15,360.00				
Activated Treatment			10,800.00				
Sledge and Night Soil			8,480.00				
Laboratory			7,500.00				
Power Production			19,600.00				
Administration			10,000.00				
Inspection			5,000.00				
Total Item No. 11			78,900.00				
Salaries and Wages—Temporary—							
Total Item No. 12			22,880.00				
Services—Contractual—							
Heat, Light, Power and Water							
Total Item No. 22			1,390.00				
Supplies—							
Fuel and Ice—							
Coal							
Total Item No. 32			49,275.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	Mayor	City Controller
Supplies—General—							
Grit Chambers			250.00				
Sledge Treatment			1,000.00				
Laboratory			2,250.00				
Power Plant			1,800.00				
Administration			3,680.00				
Stockroom			3,905.00				
Total Item No. 38			12,885.00				
Materials—							
Pepair Parts			520.00				
Parts of Equipment			520.00				
Total Item No. 451			1,200.00				
Pumping Station			1,500.00				
Activated Sledge			900.00				
Sledge Treatment			1,800.00				
Power Production			3,750.00				
Stockroom							
Total Item No. 45			9,150.00				

CITY OF INDIANAPOLIS
Organization Unit Administration.
Prepared by Aulta Lewis.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
Total Item No. 11		3,980.00	6,000.00	2,020.00			
Supplies—							
Garage and Motor Supplies—							
Oils							
Total Item No. 33		1,790.00	2,700.00	910.00			
Materials—							
General Material—							
Stockroom							
Total Item No. 44		1,105.00	1,680.00	575.00			
Improvement and Maintenance of Lands—							
Services—Personal—							
Salaries and Wages—Regular—							
Total Item No. 11		5,729.00	2,500.00		3,229.00		
Supplies—							
Supplies—General—							
Stockroom							
Total Item No. 38		1,146.00	500.00		646.00		

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Garbage Reduction Plant—							
Services—Personal—							
Salaries and Wages—Personal—							
Total Item No. 11	32,625.35		51,250.00				
Services—Contractual—							
Heat, Light, Power & Water—							
Furn. Elec. Current, $2,578.32							
Total Item No. 22	2,578.32		4,040.00				
Supplies—							
Supplies—General—							
Stockroom							
Total Item No. 38	3,927.36		6,175.00				
Fuel and Ice—							
Coal							
Total Item No. 321	15,134.27		23,800.00				
Garage and Motor—							
Gasoline							
Total Item No. 33	3,005.89		4,725.00				
Materials—							
Repair Parts—							
Parts of Equipment							
Total Item No. 45	8,949.78		14,050.00				

Organization Unit Administration.
Organization Bond Fund.
Prepared by Aulta Lewis.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Current Obligations—							
Interest—							
Issue of May 25, 1918—							
Jan., 1927— 2,925.00							
July, 1926— 2,925.00			5,850.00				
Issue of Feb. 14, 1921—			9,000.00				
Issue of Feb. 14, 1921—Feb. 1926—							
Dec. 21, 1921—Dec.— 10,500.00							
Dec. 21, 1921—Dec.— 10,500.00			21,000.00				
Issue of Dec. 30, 1921— 7,500.00							
Issue of Dec. 30, 1921— 7,500.00			15,000.00				
Issue of July 1, 1922— 10,575.00							
Issue of July 1, 1922— 10,575.00			21,150.00				
Issue of Jan. 1, 1923— 17,955.00							
Issue of Jan. 1, 1923— 17,955.00			35,910.00				
Issue of May 1, 1923— 8,100.00							
Issue of May 1, 1923— 8,100.00			16,200.00				
Issue of May 1, 1924— 13,230.00							
Issue of May 1, 1924— 13,230.00			26,460.00				
Issue of Nov. 15, 1924— 18,375.00							
Issue of Nov. 15, 1924— 5,625.00			24,000.00				
Total Item No. 61			174,570.00				

	Mayor	City Controller	Decrease Under 1925 Appropriations	Increase Over 1925 Appropriations	1926 Request	1925 Appropriations
Debt Payments—						
Bonds—						
Issue of May 25, 1918—			10,000.00			
Issue of July 1, 1922—			10,000.00			
Issue of Jan. 1, 1923—			19,000.00			
Issue of May 1, 1923—			7,500.00			
Issue of May 1, 1924—			12,000.00			
Issue of Nov. 15, 1924—			5,000.00			
Total Item No. 81.....					63,500.00	
Grand Total—Bond Dept.....					238,070.00	

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit T. B. Prevention

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
1 Supervisor	1,800.00		1,800.00				
3 Nurses at $1,500	4,500.00		4,500.00				
3 Nurses at $1,380	4,140.00		6,000.00				
1 Nurse	1,200.00		1,200.00				
3 Nutrition Nurses at $1,500	4,500.00		6,000.00				
1 Nutrition Director	1,500.00		1,500.00				
5 Nutrition Physicians at $1,500	7,500.00		7,500.00				
4 T. B. Clinicians at $900 (Part Time)	3,600.00		3,600.00				
1 Dairy Inspector	1,200.00		1,200.00				
2 Laundresses at $36	72.00		72.00				
1 Janitor	180.00		180.00				
1 Fresh Air Cook (9 mo.)	360.00		360.00				
1 Fresh Air Cook (9 mo.)	252.00		252.00				
Total Item No. 11	30,804.00		34,164.00				
Salaries and Wages—Temporary—							
Services—Contractual—							
Communication and Transportation—							
Frt., Exp. and Drayage	$10.02						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Postage							
Street Car Tickets	800.00						
Telephone and Telegraph	354.00						
Transportation Allowance							
Traveling Expenses	84.86						
Total Item No. 21	1,248.88		1,248.88				
Heat, Light, Power & Water—							
Electric Current	.30						
Gas	6.00						
Heat							
Water	17.60						
Total Item No. 22	23.90		23.90				
Printing and Advertising—							
Advertising and Publications	1.32						
Photographing & Blue Printing							
Printing, other than office	117.35						
Total Item No. 24	118.67		118.67				
Repairs—							
Repairs of Bldg. & Structures—							
Repairs of Equipment	26.31						
	32,221.76		226.31 35,781.76				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit T. B. Clinic

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Food for Nutrition Clinic—							
Bakery Products	22.50						
Butter, Eggs & Cheese	19.70						
Canned Goods	35.13						
Fruits and Vegetables—Fresh							
Meats, Poultry, Fish—Fresh							
Milk, Cream & Ice Cream	21.10						
Other Food Supplies	2,58						
Total Item No. 31	101.01		100.00				
Fuel and Ice—							
Coal	6.00						
Ice							
Total Item No. 32	6.00		15.00				
Institutional & Medical—							
Clothing and Household	34.49						
Laundry and Cleaning	6.80						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Medical, Surgical & Dental	980.67						
Other Ins. & Med. Supplies							
Total Item No. 34	1,021.96		1,021.96				
Office	77.33						
Total Item No. 36	77.33						
Supplies—General—							
Light Globes	3.65						
Total Item No. 38	3.65		3.65				
Materials—							
Building							
General	1.00						
Repair Parts							
Parts of Equipment							
Parts of Structures							
Total Item No. 4	1.00		150.00				
Current Charges—							
License							
Rewards, Refunds & Indemnities							
Rents	616.00						
Subscriptions & Dues							
Total Item No. 5	616.00		1,030.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Properties—							
Bldgs., Struc. & Improvements—							
Building & Fixed Equipment.....							
Other Structures							
Equipment							
Furniture & Fixtures.....	19,20						
Instruments, Med., Surg. & Lab..							
Other Equipment							
Total Item No. 72.....	19.20		375.00				
	34,067.91		38,477.37			38,477.37	38,477.37

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Sub Activity School Health.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Personal—Regular							
1 Supervisor of Nurses	1,800.00		1,800.00				
30 Nurses at $1,500	45,000.00		45,000.00				
14 Nurses at $1,380	19,320.00		21,000.00				
8 School Physicians at $1,500	12,000.00		12,000.00				
Salaries and Wages—Temporary—							
Total Item No. 1	78,120.00		79,800.00			79,800.00	79,800.00
Increase after one year of service.							

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit Child Hygiene.

	Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries and Wages—Regular—							
1 Director of Clinic	3,600.00		3,600.00				
7 Nurses at $1,500	10,500.00		10,500.00				
3 Nurses at $1,300	3,960.00	(8)	12,000.00				
1 Dental Asst., at $1,080	1,080.00		1,200.00				
2 Dental Assts., at $1,020	2,040.00		2,160.00				
1 Stenographer	1,080.00		1,200.00				
1 Med. Clinician (part time)	780.00		780.00				
2 Med. Clin. at $520 (part time)	1,040.00		1,040.00				
4 Med. Clin. at $250 (part time)	1,040.00	(12)	3,120.00				
3 Dental Clin. at $780	2,340.00		2,340.00				
5 Dental Clin at $520	2,600.00		2,600.00				
5 Dental Clin. at $260	1,300.00	(10)	1,300.00				
Total Item No. 11	31,360.00		41,840.00				
Salaries and Wages—Temporary—							
Services—Contractual—							
Communication and Transportation—							
Freight, Express & Drayage	1.22						
Postage							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Street Car Tickets							
Telephone & Telegraph	210.00						
Transportation Allowance							
Traveling Expenses							
Total Item No. 21	211.22		1,926.00				
Heat, Light, Power & Water—							
Electric Current—							
Gas	12.03						
Heat							
Water							
Total Item No. 22	12.03		15.00				
Printing and Advertising—							
Advertising and Publication							
Printing, other than office	108.86						
Photographing & Blue Ptg.	9.51		280.00				
Total Item No. 24	118.37						
Repairs—							
Repairs of Bldgs. & Structures—							
Repairs of Equipment	5.35						
Total Item No 25	5.35		45.00				
Services—Other Contractual—							
Supplies—							
Food							
Milk, Cream & Ice Cream	3,214.11						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Other food supplies.....	94.40						
Total Item No. 31.....	3,308.51		2,892.00				
Page total	35,015.48		46,998.00				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit Child Hygiene

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Fuel and Ice							
Coal							
Ice							
Total Item No. 32			17.00				
Institutional & Medical—							
Clothing & Household	73.86						
Laundry & Cleaning	191.00						
Medical, Surgical & Dental	586.06						
Other Institutional & Medical	21.41						
Total Item No. 34	872.33		7,344.74				
Office	86.65						
Total Item No. 36	86.65		106.00				
Supplies—General—							
Materials—							
Building							
General							
Repair Parts							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Parts of Equipment							
Parts of Structures.....							
Total Item No 4.....			200.00				
Current Charges—							
Insurance & Premiums—							
License							
Refunds, Awards & Indemnities..							
Rents	1,848.00						
Subscriptions & Dues.....	8.00						
	1,856.00		1,919.00				
Properties—							
Buildings, Structures & Improvements—							
Buildings & Fixed Equipment.....							
Other Structures							
Equipment							
Furniture & Fixtures.....	12.00						
Ins. Med. & Surg. & Dental.....	325.35						
Office							
Other Equipment							
Total of Item No. 72.....	337.35		1,251.00				
	38,167.81		57,835.74				

CITY OF INDIANAPOLIS

Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit Health Office.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller:	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Prest. Health Commissioners....	500.00	500.00	500.00				
3 Members of Health Commission	300.00	300.00	300.00				
1 City Sanitarian—Secy. to Health Commission	5.500.00	5,500.00	5,500.00				
1 Bacteriologist (part time).....	1,800.00	1,800.00	1,800.00				
1 Technician	1,020.00	1,020.00	1,020.00				
1 Chemist	2,700.00	2,700.00	2,700.00				
1 Chief Clerk—Vital Statistician	2,400.00	2,400.00	2,400.00				
1 Stenographer	1,380.00	1,380.00	1,380.00				
1 Typist	1,200.00	1,200.00	1,200.00				
1 Typist	960.00	960.00	960.00				
1 Clerk	1,080.00	1,080.00	1,080.00				
1 Night Clerk.....	900.00	900.00	900.00				
1 Telephone Operator.....	1,020.00	1,020.00	1,020.00				
21 Sanitary Insps. at $1,200.....	25.200.00	25,200.00	25,200.00				
2 Plumbing Insptrs. at $2,100.....	4,200.00	4,200.00	4,200.00				
1 Attorney	2,100.00	2,100.00	2,100.00				
2 Food Insptrs at $1,380.....	2,760.00	2,760.00	2,760.00				
3 Food Insptrs. at $1,200.....	3,600.00	3,600.00	3,600.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
2 Milk & Dairy Insptrs. at $1,200	2,400.00	2,400.00	2,400.00				
1 Chief of Meat Inspector.....	2,000.00	2,000.00	2,000.00				
1 Chief of Meat Inspector.....	1,500.00	1,500.00	1,500.00				
5 Chief Meat Insptrs. at $1,200..	6,000,00	6,000.00	6,00000				
1 Contagious Disease Physician..	1,800.00	1,800.00	1,800.00				
1 Contagious Disease Physician..	2,500.00	2,500.00	2,500.00				
Salaries & Wages—Temporary....	130.00	830.00	830.00	70^.00*			
Total Item No. 1.....	74,950.00	75,650.00	75,650.00				
Services—Contractual—							
Communication & Transportation—							
Freight, Express and Drayage....	24.80	24.80					
Postage	512.00	512.00					
Street Car Tickets.....	5,400.00	5,400.00					
Telephone &Telegraph	528.90	528.90					
Transportation Allowance	1,329.83	1,329.83					
Traveling Expenses	63.37	63.37					
Total Item No. 21.....	7,858.90	7,858.90	7,858.90				
Printing and Advertising—							
Advertising and Publication.....	39.57	39.57					
Printing, other than office.....	1,726.94	1,726.94					
Photographing & Blue Printing..	29.55	29.55					
Total Item No. 24.....	1,796.06	1,796.06	1,796.06				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	Mayor	City Controller
Repairs—							
Repairs of Equipment—							
Repairs to Auto Equipment.....	194.50	194.50					
Repairs, other Equipment.....	181.25	181.25					
Total Item No. 25.....	375.75	375.75	375.75				
	84,980.71	85,680.71	85,680.71				

*Emergency Smallpox Cases.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit Health Office
Activity Dept. Public Health and Charities.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Supplies—							
Food—For Quarantines—							
Bakery Products	835.00						
Butter, Eggs & Cheese	700.14						
Canned Goods	100.00						
Fruits & Vegetables—Fresh	200.10						
Meats, Poultry & Fish—Fresh	1,010.10						
Milk, Cream & Ice Cream	400.01						
Other Food Supplies	200.00						
Total Item No. 31	3,445.35		3,445.35				
Fuel & Ice—							
Coal	279.37						
Ice	292.75						
Total Item No. 32	572.12		572.12				
Garage & Motor—							
Gasoline	968.42						
Oil	149.42						

Mayor	City Controller	Decrease Under 1925 Appropriations	Increase Over 1925 Appropriations	1926 Request	1925 Appropriations
Tires and Tubes			417.45		
Other Garage and Motor Supplies			153.36		
Total Item No. 33			1,688.65		1,688.65
Institutional & Medical—					
Clothing & Household			3.41		
Laundry and Cleaning			10.52		
Medical, Surgical & Dental					
Medical Supplies			12,502.54		
Dental Supplies			28.00		
Glasses for School Children			590.90		
Other Institutional & Medical			853.61		
Total Item No. 34			13,988.98		13,988.98
Laboratory—					
Chemical Supplies			133.76		
Food and Milk Samples			87.11		
Total Item No. 35			220.87		350.00
Office			1,048.98		
Total Item No. 36			1,048.98		1,000.00
Supplies—General			182.89		
Total Item No. 38			182.89		182.89

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Materials—							
Building—General	25.00						
Repair Parts							
Parts of Equipment							
Parts of Structures							
Total Item No. 4	25.00		225.00				
Current Charges—							
License	15.00						
Refunrs, Awards & Indemnities	355.00						
Rents (I. U. S. M.)	4,714.50						
Subscription & Dues	38.00						
Total of Item No. 5	5,122.50		408.00				
	111,275.05		107,541.70				
Current Obligations—							
Interest	6,288.00						
Grants & Subsidies							
Payments & Temporary Loans							
Total Item No. 6	6,288.00		3,500.00				
Properties—Equipment—							
Furniture and Fixtures	128.77						
Instruments—Med., Surg. & Lab.							
Motor	783.44						
Office							
Other Equipment							
Total Item No. 72	912.12		1,000.00				
	118,475.26		112,041.70				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital.
Activity Dept. Public Health and Charities.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Superintendent	4,000.00		4,000.00				
1 Resident Physician	1,800.00		2,400.00*				
1 Resident Surgeon			1,000.00**				
½ Officers							
1 Financial Secretary	1,560.00		1,560.00				
1 Bookkeeper	840.00		840.00				
1 Admitting Clerk	900.00		900.00				
1 Stock Ledger Clerk	720.00		720.00				
1 Historian	1,020.00		1,020.00				
1 Stenographer	600.00		600.00				
1 Stenographer	960.00		960.00				
1 Office Supervisor	960.00		960.00				
1 Asst. Office Supervisor	840.00		840.00				
1 Relief Operator	660.00		660.00				
1 Day Operator	780.00		780.00				
1 Mail Clerk	600.00		600.00				
1 Night Clerk	960.00		960.00				
1 Errand Clerk	540.00		540.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
1 Evening Clerk	300.00		300.00				
1 Relief Clerk	180.00		180.00				
—Social Service—							
1 Director	1,500.00		1,800.00				
1 Stenographer	960.00		960.00				
1 Social Worker	1,320.00		1,320.00				
1 Social Worker	1,200.00		1,200.00				
1 Social Worker	960.00		1,200.00				
—Flower Mission—							
1 Orderly	300.00		300.00				
1 Cook	360.00		360.00				
—Medical—							
1 Anesthetist	1,800.00		1,800.00				
1 Pharmacist	1,500.00		1,500.00				
25 Internes at $150.00	3,750.00		3,750.00				
—Pest House—							
2 Keepers at $600.00	1,200.00		1,200.00				
—Training School—							
20 Orderlies at $720.00	14,400.00		14,400.00				
3 Janitors at $720.00	2,160.00		2,160.00				
6 Maids at $600.00	3,600.00		3,600.00				
—Maintenance & Repair—							
4 Yard Men at $720.00	2,880.00		2,880.00				
1 Painter	1,680.00		1,680.00				
1 Painter	1,500.00		1,500.00				
Total	59,290.00		61,430.00				

*All increases recommended by superintendent.
**Appointed new position.

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
2 Carpenters at $1,500.00	3,000.00		3,000.00				
2 Policemen at $1,020.00	2,040.00		2,040.00				
2 Watchmen at $720.00	1,440.00		1,440.00				
1 Business Manager	2,500.00		2,500.00				
1 Storekeeper	1,260.00		1,800.00				
1 Storekeeper Helper	780.00		780.00				
1 Storekeeper Helper	720.00		720.00				
1 Wall Washer	1,140.00		1,140.00				
1 Millwright	840.00		840.00				
1 Timekeeper	480.00		480.00				
—Housekeeping—							
1 Housekeeper	1,200.00		1,200.00				
1 Asst. Housekeeper	840.00		840.00				
1 Linen Woman	840.00		840.00				
2 Sewing Women at $660.00	1,320.00		1,320.00				
z21 Household Maids at $600.00	12,600.00		12,600.00				
2 Window Washers at $840.00	1,680.00		1,680.00				
12 Janitors at $720.00	8,640.00		8,640.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
—Dietary—							
1 Dietitian	1,620.00		1,620.00				
1 Asst. Dietitian	1,080.00		1,200.00				
1 Asst. Dietitian	960.00		1,080.00				
37 Diet Kitchen Helpers, Waitresses, Diet Kitchen Maids at $420	15,540.00		15,540.00				
6 Porters at $720	4,320.00		4,320.00				
1 Chef	1,200.00		1,200.00				
Total Item No. 11	125,330.00		128,250.00				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Contractual—							
Communication & Transportation—							
Freight, Express & Drayage	435.95						
Postage	390.13						
Street Car Tickets							
Telephone and Telegraph	4,589.30						
Transportation Allowance	562.46						
Traveling Expenses	36.89						
Total Item No. 21	6,014.73		4,726.08				
Heat, Light, Power & Water—							
Electric Current	709.93						
Gas	2,122.08						
Heat							
Water	4,225.89						
Total Item No. 22	7,057.90		2,832.01				
Printing & Advertising—							
Adv. & Publication Notices	127.28						

	Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Printing, other than office	2,024.63						
Photographing & Blue Printing	34.92						
Total Item No. 24	2,186.83		2,100.00				
Repairs—							
Repairs of Building	982.06						
Repairs of Equipment	610.36						
Total Item No. 25	1,592.42		1,600.00				
Services—Other Contractual—							
Supplies—Food—							
Bakery Products	7,292.05						
Butter, Eggs & Cheese	5,765.48						
Canned Goods	20,797.65						
Fruits & Vegetables—Fresh	12,488.14						
Meats, Poultry & Fish—Fresh	27,505.15						
Milk, Cream & Ice Cream	26,118.90						
Other Food Supplies	14,301.05						
Total Item No. 31	114,268.42		90,500.00				
Fuel & Ice—							
Coal	1,090.25						
Ice	4,361.40						
Total	5,451.65		3,000.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Institutional & Medical—							
Clothing & Household	11,005.68						
Laundry & Cleaning	5,129.82						
Medical, Surgical & Dental	36,152.06						
Other Institutional & Medical	2,275.54						
	54,563.10		48,135.50				
Page Total	316,465.05		281,143.59				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Office	2,057.99						
Total Item No. 36	2,057.99		2,000.00				
Supplies—General	1,020.52						
Electric Light Globes	717.25						
Forage	37.15						
Total Item No. 38	1,774.92		1,774.92				
Materials—							
Building	2,609.57						
Sewer							
Street and Alley							
General	115.54						
Repair Parts							
Parts of Equipment	39.53						
Parts of Structures							
Total Item No. 4	2,764.64		2,139.53				
Current Charges—							
Insurance & Premiums	2,156.71						
License							

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Refunds, Awards & Indemnities							
Rents							
Subscriptions & Dues	78.00						
Total Item No. 5	2,234.71		1,578.00				
Properties—							
Buildings, Structures & Improvements—							
Building & Fixed Equipment							
Other Structures							
Equipment—							
Furniture & Fixtures	8,903.81						
Instruments, Med., Surg. & Lab.	101.50						
Live Stock							
Motor	7,269.51						
Office							
Other Equipment	489.36						
Total Item No. 7	16,764.18		1,500.00				
Total Page	342,061.49		290,136.04				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Foreman	960.00		1,500.00				
1 Mechanic	960.00		1,500.00				
1 Driver	768.00		1,000.00				
2 Drivers at $720	1,440.00		2,240.00				
Total Item No. 11	4,128.00		6,240.00				
Salaries & Wages—Temporary—							
Services—Contractual—							
Communication & Transportation—							
Freight, Express & Drayage	.74						
Total Item No. 21	.74		5.00				
Repairs—							
Repairs of Equipment	945.54						
Total Item No. 25	945.54		500.00				
Supplies—							
Garage & Motor—							
Gasoline	1,564.64						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Oil	262.22						
Tires & Tubes	847.98						
Other Garage & Motor Supplies..	430.87						
Total Item No. 33	3,105.71		3,105.71				
Supplies—General							
Total Item No. 38	14.40						
Materials—							
Repair Parts							
Parts and Equipment	61.69						
Total Item No. 45	61.69		61.69				
Properties—							
Equipment—							
Motor							
Other Equipment	244.44						
	244.44		6,150.00				
Page Total	8,500.52		16,062.40				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Chief Engineer	2,100.00		2,400.00				
1 Electrician	1,320.00		1,320.00				
3 Engineers at $1,140	3,420.00		3,420.00				
4 Firemen at $1,020	4,080.00		4,080.00				
1 Boilerman	1,020.00		1,020.00				
1 Pipe Fitter	1,170.00		1,170.00				
1 Plumber	1,170.00		1,170.00				
1 Plumber	1,500.00		1,500.00				
Total Item No. 11	15,780.00		16,080.00				
Salaries & Wages—Temporary	57.90						
Services—Contractual—							
Communication & Transportation							
Freight, Express & Drayage	14.00						
Total Item No. 21	14,00		14.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Repairs—							
Repairs of Bldgs. & Structures....	393.45						
Repairs of Equipment.....	187.00						
Total Item No. 25.....	580.45		401.00				
Fuel & Ice Supplies—							
Fuel and Ice							
Coal	38,773.27						
Total Item No. 32.....	38,773.27		33,773.27				
Power Plant—							
Oil	279.82						
Total Item No. 37.....	279.82		300.00				
Supplies—General	1,474.90						
Total Item No. 38.....	1,474.90		1,474.90				
Materials—							
General	1,194.41						
Repair Parts							
Parts of Equipment.....	93.93						
	1,288.34						
Properties—Equipment—							
Other Equipment	8.16						
Total Item No. 7.....	8.16		1,093.93				
Page Total	58,256.84		53,137.10				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health
Organization Unit City Hospital

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Supervisor	1,320.00		1,320.00				
1 Investigator	720.00		720.00				
1 Nurse	1,500.00		1,500.00				
1 Druggist	1,320.00		1,320.00				
1 Investigator	1,500.00		1,500.00				
1 Janitor	1,140.00		1,140.00				
2 Physicians at $1,800	3,600.00		3,600.00				
1 Information Clerk	600.00		600.00				
3 Externes at $360	1,080.00		1,080.00				
1 Dispensary Asst.	144.00		400.00				
Total Item No. 11	12,924.00		12,924.00				
Salaries & Wages—Temporary—							
Total City Dispensary	12,924.00		12,924.00				
—HOSPITAL LABORATORY—							
Services—Personal—							
Salaries & Wages—Regular—							
1 Laboratory Technician	1,800.00		1,800.00				
1 Laboratory Technician	900.00		600.00				

Mayor	City Controller	Decrease Under 1925 Appropriations	Increase Over 1925 Appropriations	1926 Request	1925 Appropriations
1 Laboratory Technician			600.00		600.00
1 Stenographer			480.00		480.00
1 Orderly			780.00		780.00
1 Maid			432.00		432.00
1 Pathologist			1,500.00		1,500.00
Total Item No. 11			6,492.00		6,492.00
Services—Contractual—					
Printing & Advertising					
Printing, other than off. supplies			55.00		
Total Item No. 24			55.00		
Repairs—					
Repairs of Equipment			3.90		
Total Item No. 25			3.90		55.00
Institutional and Medicinal—					
Clothing & Household					
Laundry & Cleaning					
Medical, Surgical & Dental			852.68		
Other Inst. & Medical Supplies					
Total Item No. 34			852.68		500.00
Supplies—General—					
Forage			260.39		
Total Item No. 38			260.39		200.00
Page Total			7,663.97		7,247.00

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit City Hospital.

	1924 Expenditure	1925 Expenditure	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Materials—							
General—							
Repair of Parts							
Parts of Equipment	129.52						
Parts of Structures							
Total Item No. 45	129.52		100.00				
Properties—							
Equipment—							
Furniture and Fixtures	701.69						
Ins.—Medical, Surg. & Lab.	246.85						
Linen Stock							
Other Equipment							
Total Item No. 72	948.54		950.00				
Total of Hospital Laboratory	8,742.03		8,297.00				
—HOSPITAL LAUNDRY—							
Services—Personal—							
Salaries & Wages—Regular—							
1 Foreman	1,600.00		1,600.00				
1 Tumblers Operator	864.00		864.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
1 Washman	864.00		864.00				
1 Extractor Operator	864.00		864.00				
1 Linen Hauler	705.00		705.00				
1 Forelady	600.00		600.00				
27 Ironers, Pressers, etc. at $396	10,692.00		10,692.00				
Total Item No. 11	16,189.00		16,189.00				
Services—Contractual—							
Printing & Advertising—							
Printing	50.00						
Total Item No. 24	50.00		50.00				
Repairs—							
Repairs of Equipment	213.58		500.00				
Total Item No. 25	213.58						
Supplies—							
Institutional & Medical—							
Laundry and Cleaning	2,470.25						
Total Item No. 34	2,470.25		3,000.00				
Supplies—General	13.54						
Total Item No. 38	13.54						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Materials—							
Building	22,91						
General	47.50						
Repair Parts							
Parts of Equipment	53.38						
Total Item No. 4	123.79		123.79				
Properties—Equipment—							
Furniture and Fixtures	29.83						
Other Equipment	27.30						
Total Item No. 72	57.13		10,000.00				
Page Total of Laundry	19,117.29		29,862.79				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.
Organization Unit City Hospital.

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Supt. of Nurses	2,400.00		2,400.00				
1 Supt. of Nurses Asst	1,500.00		1,500.00				
1 Supt. of Nurses Asst	1,200.00		1,200.00				
1 Theoretical Instructor	1,500.00		1,500.00				
1 Practical Instructor	1,320.00		1,320.00				
1 Night Supervisor	1,320.00		1,320.00				
1 Night Supervisor	1,200.00		12,000.00				
12 Ward Supvrs. at $1,200	14,400.00		14,400.00				
3 Ward Supvrs. at $1,080	3,240.00		3,240.00				
1 Ward Supervisor	1,500.00		1,500.00				
1 Matron	300.00		300.00				
29 Student Nurses at $144	4,176.00		5,000.00				
24 Student Nurses at $120	2,880.00		2,880.00				
31 Student Nurses at $96	2,976.00		5,500.00				
Total Item No. 11	39,912.00		43,260.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Contractual—							
Communication & Transportation—							
Freight, Express & Drayage.....	2.50						
Postage							
Total Item No. 21.....	2.50						
Printing & Advertising—							
Advertising & Pub. Notices.....							
Printing, other than office.....	525.94						
Photographing & Blue Printing							
Total Item No. 24.....	525.94		650.00				
Repairs—							
Repairs of Equipment.....							
Services, other Contractual.....	34.00						
	34.00						
Supplies—							
Institutional & Medical—							
Clothing & Household.....	235.20						
Laundry & Cleaning.....							
Medical, Surgical & Dental.....	27.86						
Other Ins. & Medical Supplies....	477.08						
Total Item No. 34.....	740.14		700.00				
Supplies—General	39.50						
Total Item No. 38.....	39.50						

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Current Charges—							
Subscription & Dues	11.75						
Total Item No. 55	11.75		30.00				
Properties—Equipment—							
Furniture & Fixtures							
Other Equipment							
Total Item No. 72			1,200.00				
Page Total	41,265.83		45,840.00				

CITY OF INDIANAPOLIS
Departmental Estimate for 1926 Budget
Department Board of Health.

	Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller	Mayor
Services—Personal—							
Salaries & Wages—Regular—							
1 Radiologist	1,800.00		1,800.00				
1 X-Ray Technician	840.00		840.00				
1 X-Ray Technician			1,500.00				
1 Stenographer			1,000.00				
1 Janitor			720.00*				
Total Item No. 11	2,640.00		5,860.00				
Services—Contractual—							
Heat, Light, Power & Water—							
Furnishing Electric Current	22.87		35.00				
Total Item No. 22	22.87						
Supplies—							
Institutional—							
Plates and Films	1,993.16						
Other X-Ray Supplies							
Total Item No. 34	1,993.16		4,250.00				

	1924 Expenditure	1925 Appropriations	1926 Request	Increase Over 1925 Appropriations	Decrease Under 1925 Appropriations	City Controller:	Mayor
Material—General—							
Repair Parts							
Parts of Equipment							
Total Item No. 4			100.00				
Properties—Equipment—							
Furniture & Fixtures							
Other Equipment							
Total Item No. 72			360.00				
Page Total	4,656.03		10,605.00				

*Modern equipment has been installed requiring additional expense.

INTRODUCTION OF APPROPRIATION ORDINANCES.

By the Mayor:

APPROPRIATION ORDINANCE NO. 28, 1925.

AN ORDINANCE appropriating moneys for the purpose of defraying current expenses of the City Government of the City of Indianapolis, Indiana, and for the use of the several executive departments thereof, for the fiscal year, beginning January 1st, 1926, and ending December 31, 1926, including all outstanding claims and obligations, and fixing a time when the same shall take effect. Repealing all General, Special, Appropriation and other ordinances in any manner in conflict.

Be It Ordained by the Common Council of the City of Indianapolis, Indiana:

Section 1. That there be and is hereby appropriated out of the funds of the City of Indianapolis, Indiana, for the purpose of defraying expenses of said city and for the use of the several executive departments thereof, for the fiscal year, beginning January 1st, 1926, and ending December 31st, 1926, including all outstanding claims and obligations existing on the first day of said fiscal year for the following sums of money for the different departments of said city and for the several purposes are hereinafter set forth:

ORGANIZATION UNIT—Office of Mayor.

OFFICE OF MAYOR:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	Mayor		$7,500.00
	Secretary		2,000.00
2.	Services—Contractual.		
	21. Communication and Transportation		200.00
	25. Repairs		25.00
3.	Supplies.		
	36. Office		250.00
	Total: Office of Mayor		$9,975.00

ORGANIZATION UNIT: City Clerk

CITY CLERK:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1. City Clerk at	$3,000.00	$3,000.00
	1. Stenographer at	1,200.00	1,200.00
2.	Services—Contractual.		
	21. Communication and Transportation		$ 75.00
	24. Printing and Advertising		2,000.00
	25. Repairs		65.00
3.	Supplies.		
	36. Office		200.00

ORGANIZATION UNIT: Common Council

COMMON COUNCIL:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	9 Councilmen at $600.00		$5,400.00
	1 Sergeant-at-arms		400.00
	1 Stenographer		240.00
3.	Supplies.		
	36. Office		100.00
	Total: Common Council		$6,140.00

DEPARTMENT: Finance

ORGANIZATION UNIT: City Controller

CITY CONTROLLER'S OFFICE:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 City Controller at	$4,000.00	$4,000.00
	1 Deputy City Controller at	2,500.00	2,500.00
	1 Bookkeeper at	2,000.00	2,000.00
	1 License Clerk at	1,800.00	1,800.00
	1 Stenographer at	1,200.00	1,200.00
	1 Stenographer at	1,200.00	1,200.00
	2 Sinking Fund Com. at	100.00	200.00
	Asst. Sec. Athletic Com. at	400.00	400.00
2.	Services—Contractual.		
	21. Communication and Transportation		840.00
	24. Printing and Advertising		200.00
	25. Repairs		25.00
3.	Supplies.		
	36. Office		5,000.00
5.	Current Charges.		
	51. Insurance and Premiums		1,500.00
	53. Refunds, Awards and Indemnities		200.00
	55. Subscriptions and Dues		25.00
6.	Current Obligations.		
	61. Interest		185,000.00
	62. Grants and Subsidies		10,000.00
7.	Properties.		
	72. Equipment		50.00
	Total: City Controller's Office		$216,140.00

DEPARTMENT: City Controller

ORGANIZATION UNIT: Barrett Law Division

BARRETT LAW DIVISION:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Bookkeeper at	$1,800.00	$1,800.00
	1 Stenographer at	1,080.00	1,080.00
	1 Clerk at	1,500.00	1,500.00
	1 Clerk at	1,320.00	1,320.00

	2 clerks at	1,500.00	3,000.00
	1 Clerk at	1,800.00	1,800.00
2.	Services—Contractual.		
	21. Communication and Transportation		600.00
	24. Printing and Advertising		300.00
	25. Repairs		100.00
3.	Supplies.		
	36. Office		2,000.00
7.	Properties.		
	72. Equipment		500.00
	Total Barrett Law Division		$14,000.00

ORGANIZATION UNIT: Public Purchase

PUBLIC PURCHASE DEPARTMENT:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Purchasing Agent at	$5,000.00	$5,000.00
	1 Asst. Purchasing Agent at	2,000.00	2,000.00
	1 Clerk at	1,800.00	1,800.00
	1 Inspector and Storekeeper at	1,200.00	1,200.00
	1 Bookkeeper at	1,200.00	1,200.00
	1 Stenographer at	1,020.00	1,020.00
	1 Clerk at	900.00	900.00
	1 Clerk at	900.00	900.00
2.	Services—Contractual.		
	21. Communication and Transportation		500.00
	24. Printing and Advertising		50.00
3.	Supplies.		
	36. Office		550.00
4.	Properties.		
	72. Equipment		250.00
	Total: Public Purchase		$15,970.00

ORGANIZATION UNIT: Legal Department

LEGAL DEPARTMENT:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Corporation Counsel at	$5,000.00	$5,000.00
	1 City Attorney at	4,000.00	4,000.00
	1 Asst. City Attorney at	2,500.00	2,500.00
	1 Asst. City Attorney at	1,200.00	1,200.00
	1 City Prosecutor at	1,500.00	1,500.00
	1 Stenographer at	1,200.00	1,200.00
	1 Stenographer at	1,320.00	1,320.00
2.	Services—Contractual.		
	21. Transportation and Communication		50.00
	24. Printing and Advertising		65.00
	25. Repairs		25.00
3.	Supplies.		
	36. Office		200.00
5.	Current Charges.		

	53. Refunds, Awards and Indemnities		9,800.00
	55. Subscriptions and Dues		10.00
7.	Properties.		
	72. Equipment		300.00
	Total: Legal Department		$27,170.00

ORGANIZATION UNIT: City Plan Commission

CITY PLAN COMMISSION:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Engineer at	$3,000.00	$3,000.00
	1 Secretary at	3,000.00	3,000.00
	1 Asst. Secretary at	1,800.00	1,800.00
	4 Draftsmen at	1,800.00	7,200.00
	1 Draftsman at	1,620.00	1,620.00
	12. Temporary Salaries and Wages		200.00
	13. Other Compensations		2,400.00
2.	Services—Contractual.		
	24. Printing and Advertising		750.00
	25. Repairs		30.00
3.	Supplies.		
	33. Garage and Motor		350.00
	Office		650.00
5.	Current Charges.		
	55. Subscriptions and Dues		50.00
7.	Properties.		
	72. Equipment		50.00
	Total: City Plan Commission		$21,100.00

DEPARTMENT: Board of Public Works

ORGANIZATION UNIT: Administration

ADMINISTRATION:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 President at	$3,000.00	$3,000.00
	2 Members at	2,500.00	5,000.00
	1 Clerk at	1,500.00	1,500.00
	1 Stenographic Clerk at	1,800.00	1,800.00
	1 Asst. Clerk at	1,200.00	1,200.00
	1 Record Clerk at	1,200.00	1,200.00
	1 Bond Clerk at	1,000.00	1,000.00
	13. Other Compensations		1,200.00
2.	Services—Contractual.		
	21. Communication and Transportation		5,000.00
	22. Heat, Light, Power and Water		410,000.00
	24. Printing and Advertising		10,000.00
	25. Repairs		50.00
	26. Services—Other Contractual.		35,000.00
3.	Supplies.		
	36. Office		1,000.00
5.	Current Charges.		
	51. Insurance and Premiums		1,500.00

	53. Refunds, Awards and Indemities		12,000.00
	54. Rents		2,000.00
7.	Properties.		
	72. Equipment		100.00
	Total: Administration		$492,550.00

DEPARTMENT: Board of Works
ORGANIZATION UNIT: Public Buildings

PUBLIC BUILDINGS:

1.	Services—Personal.			
	11. Salaries and Wages, regular.			
	1	Custodian and Engineer, City Hall at	$1,800.00	$1,800.00
	1	Day Fireman at City Hall at	1,200.00	1,200.00
	1	Night Fireman at City Hall at	1,200.00	1,200.00
	2	Elevator Operators at City Hall at	1,080.00	2,160.00
	1	Night Watchman, City Hall at	1,080.00	1,080.00
	2	Telephone Operators at	960.00	1,920.00
	6	Janitors, City Hall at	1,080.00	6,480.00
	3	Janitors, Tomlinson Hall at	960.00	2,880.00
	2	Attendants, Comfort Station at	840.00	1,680.00
	2	Matrons, Comfort Station at	720.00	1,440.00
2.	Services—Contractual.			
	22. Heat, Light, Power and Water			12,000.00
	25. Repairs			10,000.00
	26. Other Contractual			494.00
3.	32. Fuel and Ice			2,000.00
	34. Institutional and Medical			1,000.00
	38. Supplies—General			150.00
4.	Materials.			
	41. Building			1,000.00
	45. Repair Parts			50.00
7.	Properties.			
	72. Equipment			1,000.00
	Total: Public Buildings			$49,534.00

DEPARTMENT: Board of Works
ORGANIZATION UNIT: City Civil Engineer

CITY CIVIL ENGINEER:

1.	Services—Personal.			
	11. Salaries, Wages, regular.			
	City Civil Engineer	1 at	$3,500.00	$3,500.00
	Asst. Civil Engineer	1 at	3,600.00	3,600.00
	Asst. Civil Engineer	2 at	2,400.00	4,800.00
	Jr. Asst. Civil Engineer	2 at	2,160.00	4,320.00
	Sr. Office Aid	2 at	1,800.00	3,600.00
	Sr. Office Aid	3 at	1,500.00	4,500.00
	Sr. Field Aid	4 at	1,800.00	7,200.00
	Jr. Field Aid	14 at	1,200.00	7,200.00
	Field Aid	2 at	1,500.00	3,000.00
	Jr. Office Aid	5 at	1,320.00	6,600.00
	Chief Clerk	1 at	1,800.00	1,800.00
	Clerk	1 at	1,200.00	1,200.00

	Flood Prevention Department:			
	Jr. Asst. Engineer	2 at	2,160.00	2,160.00
	Sr. Office Aid	1 at	1,800.00	1,800.00
	Jr. Office Aid	1 at	1,320.00	1,320.00
	Sr. Field Aid	1 at	1,800.00	1,800.00
	Jr. Field Aid	3 at	1,200.00	3,600.00
	Inspectors' Department:			
	Chief Inspector	1 at	2,000.00	2,000.00
	Sr. Inspector	2 at	1,800.00	3,600.00
	Jr. Inspector	2 at	1,320.00	2,640.00
	Inspectors, 7 months	37 at	1,200.00	19,200.00
	Laboratory Department:			
	Chemical Engineer	1 at	3,600.00	3,600.00
	Asst. Chemical Engineer	1 at	1,800.00	1,800.00
	Sr. Chemical Aid	1 at	1,400.00	1,400.00
	Jr. Chemical Aid	1 at	1,320.00	1,320.00
	Jr. Inspector, 6 months	1 at	1,200.00	600.00
	Asphalt Plant Department:			
	Supt. of Plant	1 at	1,620.00	1,620.00
	Asphalt Plant Repair Department:			
	Foreman	2 at	1,500.00	3,000.00
	Foreman, 6 months	2 at	1,500.00	1,320.00
	Brick and Block Department:			
	Foreman	1 at	1,500.00	1,500.00
	Cement Walk and Curb Department:			
	Foreman	1 at	1,320.00	1,320.00
	Street Lighting Department:			
	Superintendent	1 at	1,620.00	1,620.00
	12. Salaries, Wages, temporary			59,691.00
2.	Services—Contractual.			
	21. Communication and Transportation			15,000.00
	22. Heat, Light, Power and Water			375,000.00
	24. Printing and Advertising			700.00
	25. Repairs			1,500.00
	26. Services other than Contractual			18,000.00
3.	Supplies.			
	32. Fuel and Ice			2,000.00
	33. Oil			200.00
	35. Laboratory			300.00
	36. Office			2,000.00
	38. Supplies, General			500.00
4.	Material.			
	41. Building Material			50.00
	43. Street and Alley Material			31,280.00
	44. General Material			500.00
	45. Repair Parts			50.00
7.	Properties.			
	72. Equipment			5,000.00
	Grand Total: City Civil Engineer			$620,311.00

DEPARTMENT: Board of Works
ORGANIZATION UNIT: Assessment Bureau

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	Transfer Clerk	1 at $1,020.00	$1,020.00
	Clerk	6 at 1,020.00	7,200.00
2.	Services—Contractual.		
	21. Communication and Transportation		150.00
	24. Printing and Advertising		100.00
3.	Supplies.		
	36. Office		200.00
4.	Repair Parts.		
	45. Parts and Equipment		50.00
7.	Properties.		
	72. Equipment		200.00
	Grand Total: Assessement Bureau		$8,920.00

DEPARTMENT: Board of Public Works
ORGANIZATION UNIT: Municipal Garage
MUNICIPAL GARAGE:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Garage Superintendent at	$2,600.00	$2,600.00
	1 Garage Foreman at	2,000.00	2,000.00
	1 Garage Clerk and Stockman at	1,500.00	1,500.00
	1 Garage Chauffeur at	1,320.00	1,320.00
	1 Garage Washer at	1,080.00	1,080.00
	12. Salaries and Wages, temporary.		13,000.00
2.	Services—Other Contractual.		
	21. Communication and Transportation		100.00
	22. Heat, Light, Power and Water		1,700.00
	25. Repairs		4,000.00
3.	Supplies		
	33. Garage and Motor		20,000.00
	36. Office		25.00
	38. General		50.00
4.	Materials.		
	45. Repair Parts		4,000.00
5.	Current Charges.		
	52. Licenses		25.00
7.	Properties.		
	72. Equipment		500.00
	Total: Municipal Garage		$51,900.00

DEPARTMENT: Board of Public Works
ORGANIZATION UNIT: Street Commissioner
DEPARTMENT OF PUBLIC SERVICE:

1.	Service—Personal.		
	11. Superintendent at	$3,000.00	$3,000.00
	Asst. Superintendent at	2,000.00	2,000.00
	Inspectors 4 at	1,500.00	6,000.00

	Barn Foreman at 1,200.00	1,200.00
	Chief Clerk at 1,680.00	1,680.00
	Clerk and Timekeeper at 1,500.00	1,500.00
	Typist at 1,000.00	1,000.00
	Sewer Department:	
	4 Sewer Foremen, part time at .....$110.00 Mo.	5,280.00
	Unimproved Street Department:	
	Foreman, 3 part time	3,960.00
	City Yard Department:	
	Foreman at $1,320.00	1,320.00
	12. Sewer Department, Wages, Salary, temporary.	
	Pumpermen, 2 at $27.00 week	
	Light Truck, 6 at 55c hour	
	Laborers, 18 at 50c hour	
	Dumpman, 1 at $4.00 week	20,000.00
	Unimproved Street:	
	Heavy Truck, 5 at 60c hour, part time	
	Light Truck, 7 at 55c hour	
	Tractors, 7 at 55c hour	
	Graders, 7 at 55c hour	
	Maintainers, 2 at 55c hour	
	Hoisting Engineer at $40.00 week	
	Laborers, 20 at 50c hour	20,000.00
	City Yards Department:	
	Watchman at $21.00 week	
	Emergency Man at 50c hour	
	Red Light Man at $21.00 week	
	Yard Laborer at 50c hour	
	Blacksmith at 65c hour	8,900.00
	Carpenter Department:	
	Foreman, 1 at $1.20 hour	
	Carpenters, 2 at $1.00 hour	
	Laborer at 50c hour	
	Truck Driver at 55c hour	
	Painter at $1.05 hour	10,000.00
	Weed Cutting Department:	
	Laborers, part time, 15 at 40c hour.....	500.00
	Sprinkling Department:	
	Truck Drivers, part time, at 60c hour	
	Laborers, 3 at 50c hour	1,000.00
	Street Cleaning Department:	
	Harness Maker, 1 at 65c hour	1,624.40
	Stock Keeper, 1 at 50c hour	1,400.00
	Truck Foreman, 1 at 65c hour	1,800.00
	Stablemen, 3 at 50c hour	4,300.00
	Teamsters, 33 at 50c hour	20,000.00
	Light Truck Drivers, 12 at 55c hour	8,000.00
	Heavy Truck Drivers, 12 at 60c hour	8,000.00
	Panner, Broomer and Laborers, 125 at 45c hour....	45,000.00
	Helpers on Flusher, 6 at 50c hour	2,500.00
	Helpers on Dirt Trucks, 7 at 45c hour	3,000.00
2.	Service—Contractual.	
	21. Communication and Transportation	7,550.00
	22. Heat, Light, Power and Water	600.00
	24. Printing and Advertising	25.00
	25. Repairs	2,265.00

3. Supplies.		
32. Fuel and Ice		1,255.50
33. Garage and Motor		6,160.00
36. Office Supplies Supt. Streets		200.00
38. Supplies, General		12,280.00
4. Materials.		
41. Buildings, Carpenter Department		2,000.00
42. City Yard and Sewer Department		5,005.00
43. Street and Alley Material, Road Oil, Etc.		10,300.00
44. Material, General		550.00
45. Repairs to Parts		2,150.00
5. Current Charges.		
54. Rental and Taxes		950.00
7. Properties.		
71. Buildings, Structures Improvement		4,590.00
Grand Total: Department Public Safety		$238,844.50

DEPARTMENT: Public Safety
ORGANIZATION UNIT: Administration

ADMINISTRATION:

1. Service—Personal.		
11. Salaries and Wages, regular.		
3 Commissioners at $1,200.00		$3,600.00
1 Secretary at $2,500.00		2,500.00
1 Surgeon at $1,600.00		1,600.00
1 Stenographic Clerk at $1,500.00		1,500.00
2. Services—Contractual.		
21. Communication and Transportation		10,000.00
25. Repairs		25.00
26. Other Contractual		200.00
3. Supplies.		
34. Institutional and Medical		75.00
36. Office		200.00
Total: Administrative		$19,700.00

DEPARTMENT: Public Safety
ORGANIZATION UNIT: Fire Department

FIRE DEPARTMENT:

1. Services—Personal.			
11. Salaries and Wages, regular.			
1	Chief at	$4,000.00	$4,000.00
2	First Asst. Chiefs at	3,182.50	6,365.00
10	Battalion Chiefs at	2,582.50	25,825.00
2	Aides to Chief (Lieut.) at	2,182.50	4,365.00
10	Aides to Batt. Chiefs (Chauffeur) at	1,982.50	19,825.00
44	Captains at	2,382.50	104,830.00
59	Lieutenants at	2,182.50	128,767.50
4	Engineers at	1,982.50	7,930.00
115	Chauffeurs at	1,982.50	227,987.50

292	First Grade Men at	1,916.25	559,545.00
60	Substitutes (1st Grade) at	1,916.25	114,975.00
	Total		$1,204,415.00
	Less $10,000.00 Forfeits		10,000.00
	Net total		$1,194,415.00
2.	Services—Contractual.		
21.	Communication and Transportation		65.75
22.	Heat, Light, Power and Water		4,109.32
24.	Printing and Advertising		315.00
25.	Repairs		5,699.05
26.	Services—Other Contractual		287.45
3.	Supplies.		
32.	Fuel and Ice		7,628.29
33.	Garage and Motor		14,950.86
34.	Institutional and Medical		2,195.06
36.	Office Supplies		826.23
38.	General Supplies		2,996.38
4.	Materials.		
41.	Building		3,574.76
44.	General		2,731.01
45.	Repair Parts		6,757.02
5.	Current Charges.		
55.	Subscription and Dues		4.00
7.	Properties.		
72.	Equipment		8,798.79
	Grand Total: Fire Department		$1,255,353.97

DEPARTMENT: Public Safety
ORGANIZZATION UNIT: Fire Prevention

FIRE PREVENTION:

1.	Services—Personal.		
11.	Salaries and Wages, regular.		
1	Second Asst. Chief at	$3,062.50	$3,062.50
1	Chief Inspector (Captain) at	2,382.50	2,382.50
1	Secretary (Lieutenant) at	2,182.50	2,182.50
7	Inspectors (1st Grade) at	1,916.25	13,413.75
1	Stenographer (1st Grade) at	1,916.25	1,916.25
13.	Other Compensations		60.00
2.	Services—Contractual.		
21.	Communication and Transportation		75.00
24.	Printing and Advertising		26.00
25.	Repairs		12.50
3.	Supplies.		
32.	Fuel and Ice		6.50
36.	Office		465.93
38.	General Supplies		63.44
4.	Materials.		
44.	General		37.93
7.	Properties.		
72.	Equipment		266.70
	Grand Total		$23,971.50

DEPARTMENT: Public Safety
ORGANIZATION UNIT: Police Department

POLICE DEPARTMENT:

1.	Services—Personal.			
	11.	Salaries and Wages, regular.		
		1 Chief of Police at	$4,000.00	$4,000.00
		2 Inspectors at	3,282.50	6,565.00
		1 Supervisor at	3,282.50	3,282.50
		5 Captains at	2,582.50	12,912.50
		10 Lieutenants at	2,382.50	23,825.00
		25 Sergeants at	2,182.50	54,562.50
		50 Detectives at	2,182.50	109,125.00
		70 Traffic at	1,982.50	138,775.00
		11 Motorcycle at	1,982.50	21,807.50
		41 Motor Police at	1,982.50	81,282.50
		3 Turnkeys at	1,982.50	5,947.50
		11 Wagonmen at	1,935.00	21,285.00
		7 First Year Patrolmen at	1,733.50	12,134.50
		255 Second Year Patrolmen at	1,916.25	448,643.50
		1 Court Bailiff at	1,782.50	1,782.50
		1 Probation Officer at	2,182.50	2,182.50
		1 Woman Sergeant at	2,182.50	2,182.50
		21 Second Year Women Patrol at	1,916.25	40,241.25
		1 First Year Woman Patrol at	1,733.50	1,733.50
		1 Secretary at	2,582.50	2,582.50
		2 Repairmen at	1,200.00	2,400.00
		1 Hostler at	1,080.00	1,080.00
		7 Janitors at	960.00	6,720.00
	13.	Other Compensations		200.00
2.	Services—Contractual.			
	21.	Communication and Transportation		800.00
	22.	Heat, Light, Power and Water		10,000.00
	24.	Printing and Advertising		800.00
	25.	Repairs		10,000.00
	26.	Other Contractual		5,500.00
3.	Supplies.			
	31.	Food		20.00
	32.	Fuel and Ice		300.00
	33.	Garage and Motor		27,000.00
	34.	Institutional and Medical		700.00
	36.	Office Supplies		2,500.00
	38.	General Supplies		3,000.00
4.	Materials.			
	41.	Building		500.00
	44.	General		1,000.00
	45.	Repair Parts		750.00
5.	Current Charges.			
	52.	Licenses		2.00
	54.	Rents		1,208.00
	55.	Subscriptions and Dues		20.00
7.	Properties.			
	72.	Equipment		1,000.00
	Total: Police Department			$1,110,353.00

DEPARTMENT: Public Safety
ORGANIZATION UNIT: Electrical Department

ELECTRICAL DEPARTMENT:

1.	Services—Personal.			
	11. Salaries and Wages, regular.			
	1	Electrical Engineer at	$3,600.00	$3,600.00
	1	General Foreman at	2,582.50	2,582.50
	8	Repairmen at	1,982.50	15,860.00
	1	Instrument Repairman at	1,982.50	1,982.50
	1	Cable Splicer at	1,982.50	1,982.50
	1	Asst. Cable Splicer at	1,916.25	1,916.25
	1	Groundman at	1,320.00	1,320.00
	12	Signal Operators at	1,916.25	22,995.00
	2	Relief Signal Operators at	1,916.25	3,832.50
2.	Services—Contractual.			
	21. Communication and Transportation			20.00
	24. Advertising and Printing			100.00
	25. Repairs			500.00
3.	Supplies.			
	33. Garage and Motor Supplies			1,000.00
	36. Office Supplies			500.00
	38. General Supplies			100.00
4.	Materials.			
	44. General			8,000.00
	45. Repair Parts			2,000.00
7.	Properties.			
	72. Equipment			5,500.00
	Total: Electrical Department			$73,791.25

DEPARTMENT: Public Safety
ORGANIZATION UNIT: Weights and Measures

WEIGHTS AND MEASURES DEPARTMENT:

1.	Services—Personal.			
	11. Salaries and Wages, regular.			
	1	Chief Inspector at	$1,800.00	$1,800.00
	5	Deputy Inspectors at	1,320.00	6,600.00
2.	Services—Contractual.			
	21. Communication and Transportation			25.00
	24. Printing and Advertising			125.00
	25. Repairs			110.00
3.	Supplies.			
	33. Garage and Motor			500.00
	36. Office Supplies			50.00
	38. General Supplies			275.00
4.	Materials.			
	45. Repair Parts			100.00
5.	Current Charges.			
	55. Subscriptions and Dues			5.00
7.	Properties.			
	72. Equipment			150.00
	Total: Weights and Measures			$9,740.00

DEPARTMENT: Board of Safety
ORGANIZATION UNIT: City Dog Pound

CITY DOG POUND:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Pound Keeper at	$1,120.00	$1,120.00
	1 Deputy Pound Keeper at	1,020.00	1,020.00
2.	Services—Contractual.		
	21. Communication and Transportation		60.00
	22. Heat, Light, Power and Water		50.00
	25. Repairs		20.00
3.	Supplies.		
	32. Fuel and Ice		150.00
	33. Garage and Motors		200.00
	34. Institutional and Medical		200.00
	36. Office Supplies		20.00
	38. General Supplies		200.00
4.	Materials.		
	41. Building		75.00
	45. Repair Parts		25.00
5.	Current Charges.		
	54. Rents		360.00
	Total: City Dog Pound		$3,500.00

DEPARTMENT: Public Safety
ORGANIZATION UNIT: Building Department

BUILDING DEPARTMENT:

1.	Services—Personal.		
	11. Salaries and Wages, regular.		
	1 Building Commissioner at	$3,600.00	$3,600.00
	1 Asst. Building Commissioner at	3,300.00	3,300.00
	1 Plan Examiner at	2,700.00	2,700.00
	1 Chief Inspector at	2,500.00	2,500.00
	1 Chief Clerk at	2,100.00	2,100.00
	1 Asst. Clerk at	1,950.00	1,950.00
	1 Second Asst. Clerk at	1,800.00	1,800.00
	1 Bookkeeper at	1,800.00	1,800.00
	1 Stenographer at	1,200.00	1,200.00
	5 Building Inspectors at	2,000.00	10,000.00
	1 Chief Smoke Inspector at	3,000.00	3,000.00
	1 Asst. Chief Smoke Inspector at	2,400.00	2,400.00
	1 Elevator Inspector at	2,400.00	2,400.00
	Board of Electrical Examiners.		
	1 Chairman at	60.00	60.00
	3 Members at	60.00	180.00
	1 Secretary at	240.00	240.00
2.	Services—Contractual.		
	21. Communication and Transportation		50.00
	24. Printing and Advertising		1,025.00
	25. Repairs		75.00
3.	Supplies.		
	36. Office		800.00
	Total: Building Department		$41,180.00

ORGANIZATION UNIT: East Market

EAST MARKET:

1.	Services—Personal.			
	11.	Salaries and Wages, regular—Extra		$ 250.00
	1	Market Master & Cus. Tom. Hall	$2,000.00	$2,000.00
	1	Asst. Market Master	1,500.00	1,500.00
	2	Watchmen	900.00	1,800.00
	6	Janitors	960.00	8,760.00
	1	Extra Janitor	120.00	120.00
	1	Matron	240.00	240.00
2.	Services—Contractual.			
	22.	Heat, Light, Power and Water		$2,300.00
	25.	Repairs		25.00
	26.	Other Contractual		30.00
3.	Supplies.			
	32.	Fuel and Ice		30.00
	33.	Garage and Motor		5.00
	34.	Institutional and Medical		165.00
	36.	Office Supplies		75.00
	38.	General Supplies		235.00
4.	Materials.			
	41.	Building		120.00
7.	Properties.			
	72.	Equipment		15.00
		Total: East Market		$14,670.00
		Grand Total for Entire Budget as set out above		$4,331,354.00

Section 2. All General, Special, Appropriation and other ordinances in conflict in any manner are herewith repealed. This section shall not be in force and effect until on and after January 1st, 1926.

Section 3. This ordinance shall be in full force and effect from and after its passage.

Which was read a first time and referred to the Committee on Finance.

INTRODUCTION OF GENERAL AND SPECIAL ORDINANCES.

By the Mayor:

GENERAL ORDINANCE NO. 72, 1925.

AN ORDINANC fixing and establishing the annual rates of taxation and tax levies for the year 1925 for the City of Indianapolis for each fund for which a separate tax levy is authorized by law to be collected and expended in the year 1926, and fixing a time when th's ordinance shall take effect.

Be it Ordained by the Common Council of the City of Indianapolis, Indiana:

Section 1. That there be and is hereby levied and assessed upon all real estate and improvements and all personal property of whatsoever description, notes, bonds, stocks, choses in action of every kind and character in the City of Indianapolis, Indiana, as assessed and returned for taxation in said city for the year 1925, and a tax

of Fifty-seven and one-half cents ($.575) for General Purposes on each One Hundred ($100) Dollars valuation of such taxable property; also Fifty Cents ($.50) on each poll for General Purposes; also a tax levy of Five Cents ($.05) for the City Sinking Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Five Mills ($.005) for the Police Pension Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Five Mills ($.005) for the Firemen Pension Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of One Cent ($.01) for School Health Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Eight Cents ($.08) for Park General Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of One Cent Five Mills ($.015) for Recreation Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Two Cents ($.02) for Track Elevation Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Five Mills ($.005) for Tuberculosis Fund upon each One Hundred $(100) Dollars valuation of such taxable property; also a tax levy of Five Cents Five Mills ($.055) for Sanitation Maintenance Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Five Three-quarter ($.0575) Cents for Park District Bond Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Four Cents ($.04) for Sanitation Bond Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Nine Cents ($0.9) for the Board of Health Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of One Cent Five Mills ($.015) for the World War Memorial Bond Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Five Mills ($.005) for the Thoroughfare Plan Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of Twe Cents ($.02) for Street Resurfacing Fund upon each One Hundred ($100) Dollars valuation of such taxable property; also a tax levy of One Cent Five Mills ($.015) for the Flood Prevention Fund upon each One Hundred ($100) Dollars valuation of such taxable property; all of which levies are duly authorized by specified laws.

Section 2. That the Auditor of Marion County, Indiana, be and is hereby ordered and directed to place all such tax levies upon the property tax duplicates and the County Treasurer of such county ex-officio City Treasurer be and is hereby ordered and directed to collect same for the City of Indianapolis and each of said departments thereof, and make due report thereof, as provided by law.

Section 3. This ordinance shall be in full force and effect from and after its passage.

Which was read a first time and referred to the Committee on Finance.

INTRODUCTION OF MISCELLANEOUS BUSINESS.

On motion of Mr. Ray, President Thompson appointed the following committee to investigate the Department of Public Works: Messrs. Ray, King and Bernd.

President Thompson announced that a public hearing would be held on General Ordinance No. 72, 1925, and Appropriation Ordinance No. 28, 1925, in the Council Chamber on September 7, 1925, at 7:00 oclock p. m.

ORDINANCES ON SECOND READING.

Mr. Wise called for General Ordinance No. 46, 1925, for second reading. It was read a second time.

By Mr. Wise:

Mr. President:

I move that General Ordinance No. 46, 1925, be amended to read as follows:

INTRODUCTORY

During the early part of 1922 our Hon. Mayor, Samuel Lewis Shank, appointed a committee with the Commissioner of Buildings as Chairman to make recommendations for the codification of all of the Building Ordinances of the City of Indianapolis, Indiana. The Committee met four or five times and made conclusive reports to the effect as follows:

First. That the present building code was so written that it was hard to understand, difficult to enforce and ambiguous in many of its rules.

Second. That a rewriting and codification of the subject matter of the old code was absolutely necessary.

Third. That all of the latest engineering data on building construction should be used as near as possible as submitted by the Committee.

Fourth. That the protection of human life is foremost and strict provisions should be provided for exits in order that the loss of life due to fires and panic would be a minimum.

Fifth. That the vast wealth of property is second in importance only to the protection of human life and that this wealth should be protected by engineering design and fire-resisting construction within reasonable limits; that the approximate life of a useful building is in the neighborhood of fifty years; that the construction should be ample to produce a building sufficient in strength and so protected against the ravages of fire, temperature changes and water that the life of the building would be about fifty years, and would not be excessive in cost. It was realized by the Committee that our floor

load regulations were entirely excessive except in a few instances, that the depth of foundations and the thickness of walls was in many cases unreasonable and that these factors increased the cost of a building unnecessarily.

Therefore, the Committee recommended a complete rewriting of the code and codification in order that an ordinance would be produced which would be sufficient, workable, and easy to understand.

The task of rewriting such an ordinance and buiding code consulting all of the engineering authority and reports of other municipalities, the Bureau of Standards and the Engineering Societies was almost an unlimited task; however, after three years of reading, writing and editing, the following Code is submitted with the hope that the same is a step forward in buliding codes.

Every piece of data available has been studied and mention is hereby given to the reports of the Bureau of Standards, The American Society of Mechanical Engineers, The American Society of Electrical Engineers, The National Fire Protection Association, The American Society of Heating and Ventilating Engineers, The University of Purdue, The University of Illinois, The Indiana State Building Council, The Indiana Architects Association, The Portland Cement Association, The American Institute of Steel Construction, and the Engineering Staff of the Bureau of Buildings of Indianapolis.

GENERAL ORDINANCE NO. 46, 1925.

AN ORDINANCE creating in the City of Indianapolis, Indiana, the office of the Commissioner of Buildings under the Department of Public Safety; creating certain positions under the Commissioner of Buildings sufficient to strictly enforce the provisions of this ordinance; defining the qualifications of such positions; fixing the salaries thereof; providing for an examination of applicants for certain positions; providing for an Examining Board to examine all applicants for certain positions, defining their qualifications and duties; providing for an oath of office; providing for a building code of construction and use; consisting of divisions, parts and sections of parts; requiring permits, permit fees and reinspection fees; providing for an inspection of all equipment of combustion; providing fire prevention inspection, providing for a brand and date on concrete blocks, defining the quality of all materials used in building or structure construction; regulating all matters concerning, affecting or pertaining to the location, construction, alteration, covering, repairs, or additions to, remodeling, removal, ownership, use or occupation of all buildings, parts of buildings or appurtenances thereto or therein and structures of every nature including a group of definitions; also regulating the construction and use of all improvements, machinery, equipment, elevators, equipment of combustion, fixtures, advertising displays, electric wiring, piping of all descriptions, and all appliances and appurtenances used in connection with such buildings, parts of buildings or structures, installed therein or thereon; providing for the closing, the condemning and the stopping of the use or construction thereof, the razing and the wreckage of the same, and the removal of the wreckage; providing for fire protection; providing for the use of the streets during building construction, and the regulation of storage of petroleum products, explosives, inflammable materials or liquids used or stored on any premises within said City; providing for the abatement of smoke, declaring smoke a nuisance and a detriment to public health; repealing all ordinances and parts of ordinances in

conflict herewith; providing a penalty for the violation of the provisions thereof and declaring a time when the same shall take effect. *Be it Ordained by the Common Council of the City of Indianapolis, Indiana;* That,

SECTION 1—DEFINITIONS:

Certain words in this ordinance are defined for the purpose thereof as follows: Words used in the present tense include the future: words in the masculine gender include the feminine and neuter: the singular number includes the plural and the plural the singular; the word "Person" includes a corporation or partnership as well as a natural person; the word "Building" includes the word structure, article or device.

ACCESSIBLE:

Not permanently closed in by the structure or finish of the building. (See readily accessible.)

ACCESSORY BUILDING:

Any building or structure that is an adjunct to or is used in conjunction with the principal building on any premises shall be known as an accessory building; including outhouses.

ADJUSTABLE SPEED MOTOR:

One in which the speed can be varied gradually over a considerable range, but when once adjusted remains practically unaffected by the load, such as shunt motors designed for a variation of field strength.

ADVERTISING DISPLAY:

Any letter, figure, character, mark, point, plane, design, picture, stroke, stripe, line autograph, trademark, name of illuminating device, which shall be so placed, attached, erected, fastened, or manufactured in any manner whatsoever, so that the same is used for the attraction of the public to any place, subject, person, firm, corporation, article, machine, play, show, vaudeville, public performance or merchandise whatsoever for gain or profit.

ALLEY:

Any public thoroughfare which does not exceed fifteen (15) feet in width between property lines shall be considered an alley.

ALTERATIONS:

Any change, addition or modification in construction or grade of occupancy.

AMUSEMENT HALL:

Same as Public Assembly.

APARTMENT:

One or more rooms occupied, or suitable to be occupied, or intended to be occupied as a residence for one (1) family. A family may consist of two (2) or more persons.

APARTMENT HOUSE:

Same as tenement house.

APPENDAGES:

Dormer windows, porches, cornices, mouldings, bay or oriel windows, balconies, flagpoles, cupolas, domes, canopies, towers, spires, monitors, ventilators, or any other accessory projecting from a building and a part thereof.

APPROVED:

A device, material or construction which has been approved by the Commissioner of Buildings as a result of tests or investigations made under his direction; or approval issued by him upon satisfactory evidence of competent and impartial tests or investigations conducted by others.

APPURTENANCES TO A BUILDING:

Any appendage, article, device, mechanism, awning, elevator, partition, wiring, piping, plumbing, radiator or any other part or thing attached or constructed to, into or onto any building or structure and not a structural part of the building as a whole.

AREA OF A BUILDING:

The area of the horizontal cross section at the ground level measured to the center of party walls or fire walls, and to the outside of other walls.

AREAWAY:

An open sub-surface or sub-grade space adjacent to a building for lighting or ventilation of cellars or basements.

ARTIFICIAL LUMBER:

A manufactured product approved for use as a substitute for a lumber; may be combustible or incombustible.

ASH PIT:

That space underneath the grates for the reception of refuse from the grates.

ASSEMBLY HALL:

Any hall or room capable of seating one hundred (100) or more persons.

ATTIC STORY:

A story situated wholly or partly in the roof.

AUTOMATIC FIRE DOOR:

(a) A door which closes automatically by means of a device operated by heat.

(b) A door which closes automatically as the elevator leaves the floor level.

BASEMENT:

A space designed to be used under any building the finished ceiling of which is at least nine (9) feet above the finished floor thereof and is partly, but not more than five (5) feet above the level of the curb or established grade. No family shall sleep in any basement unless the ceiling is at least four and one-half (4½) feet above the established grade.

BEARING WALL:

A wall which supports any load other than its own weight.

BAY WINDOW:

A rectangular, curved or polygonal window which projects from the remainder of the enclosing wall.

BILLBOARDS:

Any article, device, box, wall, bridge, pole, building, fence, shed or structure which shall have attached thereto any temporary or permanent advertising display of any area whatsoever which advertising display shall be attached thereto by any pasting process.

BOARDING HOUSE:
Any building or structure within whose walls any person or persons sell or offer for sale to the public, meals by the day or by the week.

BOILER FLUE:
That passageway, over four (4) inches in internal diameter, which carries the heated gases from the combustion chamber through the boiler to the smoke flue in a fire tube boiler; or carries the water to be heated in a water tube boiler.

BOILER, LOW PRESSURE:
A boiler designed to carry not more than fifteen (15) pounds gauge pressure.

BOILER TUBE:
That passageway not over four (4) inches in internal diameter, which carries the heated gases from the combustion chamber through the boiler to the smoke flue in a fire tube boiler; or carries water to be heated in a water tube boiler.

BRANCH CIRCUIT:
That portion of the wiring system extending beyond the final set of fuses or circuit breakers protecting it, and at points on which current is taken to supply fixtures, lamps, heaters, motors and current consuming devices generally.

BREECHING:
A passageway which conducts the heated gases and products of combustion from the boiler to the flue.

BULKHEAD OR PENTHOUSE:
A structure erected on the roof of a building for the purpose of enclosing stairways to the roof, elevator machinery, water tanks, ventilating apparatus, exhaust chambers or other building equipment machinery or janitor quarters. When used only for the above mentioned purposes, such structures need not be considered in determining the height of the building.

BUILDING:
Any structure erected by art and fixed upon or in the soil, composed of several pieces and designed for use in the position in which so fixed.

BUILDING LINE:
A line formed by the intersection of the outer plane of the enclosing walls of a building and the surface of the ground.

CABINET—ELECTRIC:
An enclosure designed either for surface or flush mounting, and provided with a frame, matt or trim, in which swinging doors are hung. (See cutout box.)

CABLE—ELECTRIC:
A stranded conductor (single-conductor cable) or a combination of conductors insulated from one another (Multiple-conducted cable).

CAR DOOR OR GATE—ELEVATOR:
A door or gate in the elevator car.

CAR GATE ELECTRIC CONTACT—ELEVATOR:
An electrical device the purpose of which is to prevent the nor-

mal operations of the car, except by the use of a car leveling device, or master emergency switch, unless the car is in the closed position.

CAR LEVELING DEVICE, AUTOMATIC—ELEVATOR:

An apparatus the purpose of which is to move the car automatically toward the landing level from either direction and to maintain the car platform at the landing during loading or unloading.

CAR LEVELING DEVICE, NON-AUTOMATIC—ELEVATOR:

An apparatus the purpose of which is to adjust the car toward the landing level from either direction during loading or unloading. A leveling device, however, may also be used for the emergency operation of the car.

CAR SLING—ELEVATOR:

The supporting frame to which the car platform, upper and lower sets of guide shoes and the hoisting cables are usually attached.

CELLAR:

A space designed to be used under any building the ceiling of which is not over five (5) feet above the curb or established grade or the ceiling of which is less than nine (9) feet above the floor thereof. No family shall sleep in any cellar.

CEMENT MORTAR:

See Mortar.

CEMENT PLASTER:

A plaster composed of one (1) part Portland Cement, not more than three (3) parts sand, and tempered when necessary by not more than twenty-five (25) per cent by volume of hydrated lime and combined with hair or other binder when necessary.

CEMENT-TEMPERED PLASTER:

A lime plaster tempered with not less than twenty (20) per cent of Portland Cement.

CHIMNEY MOUTH:

That opening of a chimney into the atmosphere the greatest distance above the grade line.

CHURCH:

Any building or structure or part thereof designed and used and dedicated for religious services and the worship of God. A community house is not a church.

CLEARANCE—ELEVATOR:

The vertical distance which an elevator car and sling can travel above the limits of the top overtravel without striking any part of the overhead structure. Clearance at the bottom of the hoistway is the vertical distance between any obstruction in the hoistway extension below the bottom terminal landing and the lowest point on the understructure of the car sling, exclusive of the safeties, guide brackets or shoes when the car is resting on the bumpers or buffers when fully compressed. Clearance on the sides of the hoistway is the horizontal distance between any point of the elevator car exclusive of the car sling or suspension frame, and the hoistway enclosure or any projection into the hoistway.

COMMISSIONER OF BUILDINGS:

Where the phrase Commissioner of Buildings is used in this Code it shall also include any of the authorized assistants of the Commissioner of Buildings, except the authorized assistant shall

not be permitted to exercise discretionary power vested by this ordinance in the Commissioner of Buildings.

COMMUNITY HOUSE:

An assembly hall used for bazaars, athletics and various meetings, the purpose of which is to serve the general community interest. Such an assembly hall may or may not have fixed seats. Such building may be used at times for religious services.

COMPLETE COMBUSTION:

That combustion in which all carbon and hydrogen entering into the process are burned to carbon dioxide and water.

CONCEALED:

Rendered permanently inaccessible by the structure or finish of the building.

CONCRETE—DRY:

"Dry concrete" is concrete that contains a minimum percentage of water and must be tamped or rammed into a form in order to produce the proper shape.

CONCRETE BLOCK:

Any mixture of Portland cement, water, grit and broken stone or sand and gravel or combination thereof or other approved materials formed or cast into a definite shape with hollow spaces and designed to be laid in mortar in any structure or building.

CONCRETE BLOCK—DRY:

Any concrete block made by hand or machine which will hold its physical shape upon removal of the forms, which forms are removed within a few minutes after the tamping or ramming is completed.

CONCRETE BLOCK—WET:

Any concrete block made by hand or machine which will not hold its physical shape upon removal of the forms, if the forms are removed within a few minutes after the forming is completed.

CONDUCTOR—ELECTRIC:

A wire or cable suitable for carrying an electric current.

COURT:

An open unoccupied space, other than a yard, on the same lot with a building. A court not extending to the street or yard is an inner court. A court extending to the street or yard is an outer court. The bottom of a court in all buildings except an apartment house may be above the grade line.

CURB:

The curb level or established grade at the center of the principal front of the building, fronting on one (1) street, or in the case of a building fronting on two (2) or more streets, the curb level at the center of the front facing on the highest curb shall be taken, unless the highest curb is more than ten (10) feet higher than the lowest curb, in which case the average level of the two (2) curbs shall be taken.

CURTAIN WALL:

Non-bearing wall between columns or piers, which is not supported by beams or girders at each story.

CUTOUT BOXES—ELECTRIC:

An enclosure designed for surface mounting and having swinging doors or covers secured directly to and telescoping with the walls of the box proper. (See Cabinet.)

DANCE HALL:
A public assembly hall without fixed seats.

DEFLECTING ARCH:
An arrangement or parts within the furnace or combustion chamber designed for the purpose of preventing the gases from the fire box from striking the boiler before combustion is complete.

DEPTH OF A LOT:
The distance from the property line of the street, back and to the property line of the alley, corporation or utility right of way, or the distance back from the property line of the street to the next inside property line. The depth of a lot for corner lots shall be taken as the distance measured from the property line of the street on the short dimension of the lot to the next inside property line, alley or utility right of way.

DISCONNECTING SWITCH—ELECTRIC:
A switch which is intended to open a circuit only after the load has been thrown off by some other means.

DIVISION WALL:
Any interior load bearing wall in a building.

DOUBLE DUPLEX DWELLING:
Any building designed and used as the home or residence of four (4) families living separately from each other, with no halls, porches or stairways in common. Two duplexes separated with a party wall which may not extend through the roof.

DOUBLE DWELLING:
Two (2) dwellings placed under one (1) roof and divided from each other by a party wall which may or may not extend through the roof, and occupied as the home or residence of two (2) families living separately from each other with no parts of the building or porches in common. Each family may live in one (1) or more stories.

DOUBLE HOUSES:
Same as double dwelling.

DRAFT:
That unbalanced pressure which causes the movement of gases.

DRY CLEANING:
Any building structure or part thereof used for the cleaning of materials where inflammable liquids are employed in the cleansing process.

DUMB WAITER:
Hoisting and lowering mechanism equipped with a car, the floor area of which does not exceed nine (9) square feet, whose compartment height does not exceed four (4) feet, the capacity of which does not exceed five hundred (500) pounds and which is used exclusively for carrying small packages and freight. May be either a power or hand machine.

DUPLEX DWELLING:
Any building designed as and used for the home of two (2) families living separate from each other with no porches, halls or entrances in common, with one (1) family living within the first story and the other family living within the second story.

DUSTPROOF:
So constructed or protected that an accummulation of dust will not interfere with its successful operation.

DUST TIGHT:
So constructed that dust will not enter.

DWELLING:
(a) A residence building designed for or used as the home or residence of not more than one (1) family.
(b) Any building which houses one (1), two (2), three (3) or four (4) families living separately from each other with no yard, halls or porches in common shall be considered a dwelling.

ELEVATOR:
A hoisting and lowering mechanism equipped with a car or platform which moves in guides in a substantially vertical direction. This includes dumb waiters, escalators and all other such devices.

ELEVATOR, AUTOMATIC BUTTON-CONTROL:
An elevator the operation of which is controlled by buttons in such a manner that all landing stops are automatic.

ELEVATOR—CAR OR PLATFORM:
The load carrying unit including its supporting and guiding frame and enclosure.

ELEVATOR, DOUBLE BELTED:
An elevator in which the machine is connected to a separate source of power, such as shafting, by two (2) belts or similar means and in which the directions of motion is changed without reversal of the prime mover.

ELEVATOR—ELECTRIC:
An elevator in which the motion of the car is obtained by power from an electric motor directly applied to the elevator machinery.

ELEVATOR—FREIGHT:
An elevator used for carrying freight, on which the operator and the persons necessary only for loading and unloading are permitted to ride.

ELEVATOR—GRAVITY:
An elevator which is operated by hand or gravity and which is used for the lowering of freight by gravity.

ELEVATOR—HAND:
An elevator which is operated by hand or gravity and which has no other power attached.

ELEVATOR—HYDRAULIC ELEVATOR:
An elevator in which the motion of the car is obtained by liquid under pressure.

ELEVATOR—MACHINE:
The machinery and its equipment used in lowering and raising the elevator car or platform.

ELEVATOR—PASSENGER:
An elevator on which passengers including employees other than those specified in the definition of freight elevator, are permitted to ride.

ELEVATOR—PLATFORM:
An elevator the platform of which is suspended or supported at one (1) or more points at or below the platform level.

ELEVATOR—POWER:
An elevator in which the motion of the car is obtained by applying energy other than hand or gravity.

ELEVATOR—SIDEWALK:
A freight elevator of the platform type the hatch opening of which is located either partially or wholly outside the building.

ELEVATOR—SINGLE BELTED:
An elevator in which the machine is connected to a reversible motor, engine or turbine by a belt or other similar means.

ELEVATOR—STEAM:
An elevator in which the motion of the car is obtained by a steam engine directly applied to the elevator machinery.

EMERGENCY RELEASE:
A device the purpose of which is to make inoperative electric contacts or hoistway-door interlocks in case of emergency. A Master Switch.

ENCLOSED—ELECTRIC:
Surrounded by a case which will prevent accidental contact of a person with live parts.

ENCLOSURE—INCLOSURE:
Confined with four (4) fire walls or other approved walls.

ENCLOSURE WALL:
See panel wall, curtain wall.

ESCALATOR:
A moving inclined continuous stairway or runway used for raising or lowering of passengers.

EXISTING BUILDING:
A completed building or structure or one (1) for which a permit has been issued previous to the date on which this Code goes into effect.

EXTERIOR WALL:
Any outside wall or vertical enclosure of a building other than a party or division wall.

NOTE—Sidewalk elevators having a travel exceeding thirty (30) feet shall conform to the requirements of power freight elevators.

FACTORY:
A building or portion thereof, designed or used to manufacture or assemble goods, wares or merchandise, the work being performed wholly, or principally by machinery.

FACTORY YARD:
A plot containing an assemblage of buildings served by an isolated plant, or by a sub-station, or by a master service and permitting access from building to building within the yard.

FAMILY:
Two or more persons living together shall be defined as a family.

FILMS:
See Moving Picture Films.

FILM—HIGHLY INFLAMMABLE:
Any Nitro-Cellulose compound of cotton dissolved in nitric acid, or any highly inflammable motion picture film.

FILM—SLOW BURNING:
Any Acetate-Cellulose compound consisting of cotton dissolved in acetic acid or any film with slow burning qualities.

FIRE BOX:
A vessel which contains the fire.

FIRE DOOR:
A door, frame and sill which will successfully resist a fire one (1) hour and has been approved.

FIRE EXIT PARTITION:
A sub-dividing partition built for the purpose of protecting life by providing an area of refuge.

FIRE PLACE:
An opening in a chimney of sufficient size to receive heating devices or to permit the combustion of fuel.

FIRE PROOF—FIRE-RESISTIVE:
As used in this Code, except as elsewhere prescribed by tests for particular types of construction, refers to materials or construction not combustible in the temperatures of ordinary fires and which will withstand such fires without serious impairment of their usefulness for at least one (1) hour.

FIRE RESISTING:
Same as fire proof.

FIRE SHUTTER:
A shutter which will successfully resist a fire for one (1) hour and has been approved.

FIRE TUBE BOILER:
A device for transferring heat through a vessel the outside of which is in contact with water or its products.

FIRE WALL:
A wall built for the purpose of restricting the area subject to the spread of fire.

FIRE WINDOW:
A window frame sash, and glazing which will successfully resist a fire for one (1) hour and has been approved. No single pane in a fire window shall exceed seven hundred and twenty (720) sq. inches.

FIXED SEATS:
Seats permanently fastened to the floor.

FLUE:
That passageway which conducts the heated gases from the breeching through the structural parts of a building and the chimney or stack. In cases where a large chimney or stack is an integral structure, the breeching may be continued from the boiler through the walls of the building housing the boiler to the chimney or stack.

FOOTING:
The part of a foundation adjacent to the earth which transmits the structural loads to the same.

FOUNDATION:
That portion of a wall below the level of the street curb, or established grade. That portion of a wall below the level of the

bottom of the first tier of floor beams or joists. That portion below a column or columns which transfers the structural loads to the footing or footings.

FOUNDATION WALL OF PIER:

Any wall or pier built below the curb level or below the tier of joists or beams nearest to that level.

FULL-AUTOMATIC DOOR OR GATE—ELEVATOR:

A door or gate which is opened and closed automatically, directly or indirectly, by the motion of the elevator car.

FULL EXTENSION FURNACE:

Is a furnace built entirely in front of the boiler setting.

FURNACE SPACE:

That space between the grates and the boiler shell or the furnace arch.

FURNACE, WARM AIR FURNACE OR HEATING PLANT:

Warm air furnace heating plants, to which this Code refers, shall consist of one or more warm air furnaces, enclosed within casings, together with the necessary appurtenances thereto, consisting of warm air pipes and fittings, cold air or circulating pipes, boxes and fittings, smoke pipes and fittings, registers, borders and face plates; the same being intended for heating buildings in which they may be installed.

GARAGE:

(a) That portion of a structure in which a motor vehicle containing volatile inflammable liquid in its fuel storage tank is stored, housed or kept.

(b) All that portion of such structure that is on, above or below the space mentioned in (a), which is not separated therefrom by tight unpierced fire-walls and fire proof floors, or other approved fire retardents.

GARAGE—PRIVATE:

Any building or structure intended to be occupied between fire or division walls in whole or in part as a shelter for one (1), two (2), three (3) or four (4) motor vehicles whose tanks contain inflammable liquid.

GARAGE—PUBLIC:

(a) A building or structure in which are housed for rent, care, demonstration, storage, sales and repairing for profit, motor vehicles or other wheeled machines which contain inflammable liquid tanks for fuel or power; also any building or room used for the dismantling of motor vehicles for profit where inflammable liquid is used for cleaning of parts of such motor vehicles; also all parts of such buildings and all adjoining structures, or buildings not cut off from the part used for aforesaid purposes by an unpierced fire wall.

(b) Any building or structure divided into more than four (4) compartments or housing more than four (4) automobiles between firewalls for the purpose of renting or using such compartment for the shelter of motor vehicles, which vehicles contain inflammable liquid tanks.

(c) Any building or structure or part thereof used for the purpose of storing, care or repairing of more than four (4) motor vehicles which contain inflammable liquid tanks.

(d) Cars shall not be stored on combustible floors.

GAS CONSUMING DEVICE:
Any stove, water heater, iron, garage heater, hot plate, lighting fixture or unit, furnace, blow-pipe, radiant heater, artificial logs, or any other article that uses gas either within the article or by means of the article.
This includes devices using gas generated from inflammable liquids.

GRADE:
(a) The average level of any square foot of ground space above the level of the sea.
(b) The division between the general plane of any lot or tract of ground and the atmosphere above.

GRADE OF BUILDING:
The use for which any building is designed or occupied shall in this code be termed grade for the purpose of construction only.

GRADE—ESTABLISHED:
The grade of a lot or terrain established pursuant to this Building Code.

GRATES:
That arrangement of parts which support the fuel.

GUARDED:
Covered, shielded, fenced, enclosed or otherwise protected, by means of suitable covers or casings, barriers, walls or screens, mats or platform, to remove the liability of dangerous contact or approach by persons or objects to a point of danger.

GYPSUM BLOCK:
Tile or blocks, composed of gypsum and not to exceed five (5) per cent by weight of combustible fibre binding material; or a mixture of crushed cinders and gypsum, commonly called "cinder plaster blocks."

HEIGHT OF A BUILDING:
The vertical distance from the curb level to the top of the highest point of the roof beams in the case of flat roofs, or to the average height of the gable in the case of roofs having a pitch of more than twenty (20) degrees with the horizontal plane. When a building faces two (2) or more streets having different grades, the measurement shall be taken at the middle of a facade on the street having the greatest grade. When a building does not adjoin a street the measurement shall be taken from the average level of the ground adjoining such building. In measuring the height of a wall, the height of the parapet above the top of the roof beams shall not be included.

HIGH PRESSURE BOILER:
One designed to carry over fifteen (15) pounds gauge pressure.

HOISTWAY-DOOR ELECTRIC CONTACT—ELEVATOR:
An electrical device the purpose of which is to prevent the normal operations of the car;
(a) Unless only that hoistway door opposite which the car is standing is within two (2) inches of the fully closed position (Door Unit System); or
(b) Unless all hoistway doors are within two (2) inches of the fully closed position.

(c) The contact shall not prevent the movement of the car when the emergency master release switch hereinafter described is in temporary use or when the car is being moved by a car-leveling device.

HOISTWAY DOOR OR GATE—ELEVATOR:

The door or gate in the enclosure of the elevator at any landing.

HOISTWAY DOOR INTERLOCK—ELEVATOR:

A device the purpose of which is:

First, to prevent the movement of the car;

(a) Unless only the hoistway door opposite to which the car is standing, is closed and locked (Door Unit System); or

(b) Unless all hoistway doors are closed and locked (Hoistway Unit System); and

Second, to prevent the opening of a hoistway door from the landing side.

(a) Unless the car is standing at rest at that landing, or,

(b) Unless the car is coasting past the landing with its car control mechanism in the stop position.

The interlock shall not prevent the movement of the car when the emergency release herein described is in temporary use or when the car is being moved by a car leveling device. A hoistway door or gate shall be considered closed and locked when within four (4) inches of full closure, if at this position and any other up to full closure the door or gate cannot be opened from the landing side more than four (4) inches. Interlocks may permit the starting of the elevator when the door is within four (4) inches or less of full closure, provided that the door can again be opened up to four (4) inches from full closure from any position within this range except that of full closure.

HOISTWAY ENCLOSURE—ELEVATOR:

Any substantially vertical structure which separates the hoistway, either wholly or in part, from the floors or landings through which the hoistway extends.

HOOPED COLUMNS:

Reinforced concrete columns in which the vertical reinforcing is secured by means of continuous spiral hooping reinforcement.

HOT AIR FURNACE:

An arrangement of parts designed with an ash pit, grates, combustion chamber and flue to heat air instead of water.

HOTEL:

Any building or structure or part thereof, which is used in whole or in part for the accommodation of transient lodgers; and which has a public register and office where an attendant is present at all times. No cooking or serving of meals shall be permitted in a hotel except in the public dining halls or appurtenances thereto.

HOUSE:

See Dwelling.

HYBRID BUILDING:

Any building the construction of which comes under more than one classification in this Code.

INCLINED HOISTWAY.

A hoistway used for raising or lowering materials or passengers whose angle with the horizontal is less than ninety degrees (90°). Includes roller coasters or similar devices.

INCOMBUSTIBLE:
Materials or construction which will not ignite and burn when subjected to fire of temperatures usually found in burning buildings.

IDEPENDENTLY OPERATED DOOR OR GATE—ELEVATOR:
A door or gate which is opened and closed manually or by power from a source in no way derived from the motion of the elevator car.

INFLECTION—POINT OF:
The point on a structural member where the moment is zero in changing from positive to negative moment.

ISOLATED:
(a) Having no lateral support. (Used in reference to the structural part of a building.)
(b) Located at a greater distance than eight (8) feet from any property which can be built upon. (Used in reference to any building or structure.)
(c) Not readily accessible to persons unless special means of access are used.

ISOLATED PLANT:
A private electrical installation deriving energy from its own generator driven by a prime mover.

LANDING—ELEVATOR:
That portion of a floor, balcony or platform used to receive and discharge passengers or freight.

LEGAL DEPTH OF FOUNDATION:
The depth below the established grade that the owner of any building or structure shall be responsible for the safety of his building during the construction of any building or structure or any adjacent premises.

LENGTH OF A BUILDING OR LOT:
Its greatest horizontal dimensions.

LIVE LOAD:
All loads other than dead loads. All partitions, which are subject to removal or rearrangement shall be considered as live loads.

LODGING HOUSE:
Same as Tenement House.

LOT—CORNER:
A lot situated at the junction of two (2) streets, or of a street and public alley not less than ten (10) feet in width.

LOT—FRONT OF:
In a gore or triangular lot, the rear is opposite the front.
The front of a lot is that boundary line which borders on the street. In the case of a corner lot, the front shall be taken as that property line bordering on a street which is at right angles, or as near as possible, to the long dimension of the lot.

LOT—INTERIOR:
A lot other than a corner lot is an interior lot.

LOT—REAR OF:
The rear of a lot is the side opposite to the front. In the case of a triangular or gore lot the rear shall be the boundary line not bordering on a street.

LUMBER DIMENSIONS:

Where dimensions of lumber are used in this Code they refer to market lumber dimensions unless otherwise specified.

MASONRY:

Materials of Building Construction that are fixed into position by the use of mortar placed by hand with a trowel or other device.

MASONRY BOND:

A bond used in masonry construction which bond is of the same structural material as the construction itself and has equal strength with the strongest material used in the said construction and used to distribute forces.

MEZZANINE:

A partly low story or subordinate story, introduced between the floor and ceiling of a story.

MILL CONSTRUCTION—WOOD:

Slow burning timber construction.

MINOR STAGE:

A stage of not over one thousand (1,000) square feet in area and equipped with not over one (1) set of fire-proofed stage scenery, footlights, fire-proofed drop curtain. The sum of the area of scenery and drop curtain shall not exceed eight hundred (800) square feet.

MORTAR:

(1) Portland cement mortar used to lay up masonry work shall be mixed in the proportion:

Pure water; 1-cement: 3-sand; mixed, by volume, hydrated lime or lime putty may be added to an amount not exceeding ten (10) per cent, by volume, of the Portland cement.

(2) Cement and lime mortar shall be mixed in the proportion as follows:

Pure water; 1-cement; 1-lime; 6-sand; mixed, by volume.

(3) Lime mortar shall be mixed in the proportions as follows:

Pure water; 1-lime; 3-sand; mixed, by volume.

(4) Clear pure water shall be used in all mortars sufficient to permit the mortar to be workable. All water shall be free from acids, oils and alkalies.

MOVING PICTURE FILMS:

Any film or strip of thin celluloid on which is photographed or reproduced a series of pictures or photographs differing slightly from one another and designed to be used in a machine that projects the difference in density of the photographs onto a place surface of reflecting medium by the use of an intense light.

MOVING PICTURE PERFORMANCE:

A gathering of one hundred (100) or more persons who have assembled to witness the reproduction of a moving picture.

MOVING PICTURE SHOW:

A public assembly room or hall which will not hold more than eight hundred (800) persons assembled for a moving picture performance.

MOVING PICTURE THEATER:

Any public assembly hall which will hold more than eight hundred (800) persons, and is equipped with apparatus for the reproduction of moving pictures.

NON-ACCESSORY DWELLING:
The principal dwelling, or the dwelling on the front of any lot.
NON-ACCESSORY BUILDING:
The principal building on any premises.
OCCUPIED:
Occupied, to be occupied, or intended, arranged or designed to be occupied.
OFFICE BUILDING:
One used for professional or clerical purposes, but not for manufacturing, storage or sale of goods, except by sample; also excepting the first story which may be used for mercantile purposes. No part of such building shall be used for living purposes except by the janitor's family.
OIL BURNING FURNACE:
An arrangement of parts designed to burn oil and which may be used in a hot air furnace or under a water tube or fire tube boiler.
OPEN PORCH:
Any open space attached to a building or structure over which a roof is arranged and which has one or more permanently open side walls. See Sun Porch.
OUTHOUSES:
All structures not exceeding eight (8) feet in height, nor more than two hundred and fifty (250) square feet in area, inclusive of sheds.
OUTLET—ELECTRIC:
A point on the wiring system at which current is taken to supply fixtures, lamps, heaters, motors and current consuming devices generally.
OVERTRAVEL—ELEVATOR:
Overtravel of elevators at the top of the hoistway is the distance which the empty car or platform will travel above the top terminal landing under normal running conditions, until stopped by automatic means independent of the manual car control.
Overtravel at the bottom of the hoistway is the distance available for the car platform to travel below the lower terminal landing without any part of the car construction being obstructed, except by the bumpers or buffers installed in the pit. The movement of the car necessary to fully compress the bumpers or buffers may be included in the overtravel at the bottom.
OWNER:
Any person, firm or corporation owning or controlling real property; this includes a duly authorized agent or attorney, guardians, conservators or trustees.
PANEL OF FLAT SLAB:
The area of the floor slab included by four (4) columns.
PANELBOARD—ELECTRIC:
A panel containing busses and fuses with or without switches for the control of light, heat or power circuits of small individual as well as aggregate capacity and usually placed in or against a wall or partition and accessible only from the front.
PANEL OR ENCLOSURE WALL:
An exterior non-bearing wall in skeleton structures built between columns or piers and supported at each story.

PARAPET WALL:
That portion of any wall which extends above the roof line and bears no load except as it may serve to support a tank.

PARTY WALL:
A wall used or adapted for joint service between two (2) buildings.

PARTITION WALL:
A non-bearing wall within a building.

PLASTER BOARD—FIBRE:
A board consisting of an intimate mixture of gypsum plaster composition and a fibrous binding material.

PLUMBING:
Is the science of installing in buildings the pipes, fixtures and other apparatus for bringing in the water supply and removing liquid and water carried wastes.

PLUMBING SYSTEM OF A BUILDING:
Includes the water supply distributing pipes; the fixtures and fixture traps; the soil, waste and vent pipes; the building drain and building sewer; the storm water drainage, with their devices, appurtenances and connections, all within or adjacent to the building.

PLUMBING WATER SERVICE PIPE:
The pipe from the water main to the building served.

PLUMBING WATER DISTRIBUTION PIPES:
Those which convey water from the service pipe to the plumbing fixtures pipes.

PLUMBING FIXTURES:
Receptacles intended to receive and discharge water, liquid or water carried wastes into a drainage system with which they are connected.

PLUMBING TRAP:
Is a fitting or device so constructed as to prevent the passage of air or gas through a pipe without materially affecting the flow of sewage or waste water through it.

PLUMBING TRAP SEAL:
The vertical distance between the crown weir and the dip of the trap.

PLUMBING VENT PIPE:
Any pipe provided to ventilate a building drainage system and to prevent trap siphonage and back pressure by equalizing air pressure.

PLUMBING LOCAL VENTILATING PIPE:
A pipe through which foul air is removed from a room or fixture.

PLUMBING SOIL PIPE:
A pipe which conveys the discharge of water closets, with or without the discharge from other fixtures, to the building drain.

PLUMBING WASTE PIPE AND SPECIAL WASTE:
Any pipe which receives the discharge of any fixture, except water closets, and conveys the same to the building drain, soil or waste stacks. When such pipe does not connect directly with a building drain or soil stack, it is termed a special waste.

PLUMBING MAINS OF ANY SYSTEM OR HORIZONTAL, VERTICAL OR CONTINUOUS PIPING:

That part of such systems which receives the wastes, vent or back vents, from fixture outlets or traps, direct or through branch pipes.

PLUMBING BRANCHES:

That part of the system which extends horizontally at a slight grade, with or without lateral or vertical extensions or vertical arms from the main, to receive fixture outlets not directly connected to the main.

PLUMBING STACK:

A general term for any vertical line of soil, waste or vent piping.

PLUMBING BUILDING DRAIN:

That part of the lowest horizontal piping of a building drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of any building and conveys the same to the building sewer.

PLUMBING BUILDING SEWER:

That part of the horizontal piping of a building drainage system extending from the building drain to its connection with the main sewer or Septic system, and which conveys the drainage of one building site and which shall be one size larger than the building drain and which shall not be less than six inches in diameter except that the building sewer may be continued the same size as the building drain if cast iron soil pipe with caulked lead joints is used.

PLUMBING SIZES AND LENGTHS:

The given caliber or size of pipe is for a nominal internal diameter, except that brass pipe other than iron pipe size, is measured by its outside diameter. The developed length of a pipe is its length along the center line of pipe and fittings.

PLUMBING DEAD ENDS:

An unvented branch leading from a soil, waste, vent, building drain, or building sewer, which is terminated at a developed distance of two (2) feet or more by means of a cap, plug or other fitting not used for admitting water to the pipe.

PORCH:

A floor space attached to a residence building which is arranged with or without a roof, including a terrace.

PROPERTY LINE:

(a) The border line between two plats of land.

(b) The border line between a plat of land and a public thoroughfare.

PUBLIC ASSEMBLY:

More than one hundred (100) people grouped in any building or part of a building for educational, ritualistic, political, dining, entertainment or any other purpose whatsoever.

PUBLIC ASSEMBLY—CAPACITY OF:

(a) The capacity of any assembly hall with fixed seats shall be computed by calculating six (6) square feet of floor area per person.

(b) The capacity of any assembly with movable seats shall be computed by calculating eight (8) square ft. of floor area per person.

PUBLIC ASSEMBLY HALL:

Any building or part of any building designed to be used or occupied or which is now occupied or used as a place of public assembly.

PUBLIC HALL:

A hall, corridor or passageway not within an apartment.

PUBLIC HALLWAY:

A hall, corridor or passageway used in common by the occupants of a building which serves as a means of communication for the public between an entrance to any story of a building and the various rooms, apartments or spaces in that story. A public hall.

PUBLIC HIGHWAY—PUBLIC THOROFARE:

Any street, alley or any place designated for the use of the public for either pedestrian or vehicular traffic.

QUALIFIED PERSON:

One familiar with the construction and operation of the apparatus and the hazards involved.

READILY ACCESSIBLE:

Able to be reached quickly without climbing over or removing obstructions or resorting to chair, box or portable ladder.

REFRACTORY LINING:

Lining for stacks, chimneys, fire places, furnaces or combustion chambers, made either of brick or tile manufactured from high temperature resisting refractories.

RAMP:

A continuous runway between floors or levels of any building or structure and constructed on an angle with the horizontal.

RAMP RISE:

The inches of rise of the surface or face of the ramp per foot of horizontal run.

RETAINING WALL.

Any wall constructed to support a body of earth or to resist lateral thrust.

SEATS—MOVABLE:

Seats which are connected together in groups not to exceed thirteen (13) seats per group and are not permanently fastened to the floor.

SEATS—FIXED:

Seats permanently fastened to the floor.

SERVICE—ELECTRIC:

That portion of the supply conductors which extends from the street main to the service switch of the building supplied.

SHED:

A roofed structure open on one or more sides.

SIGNS—STREET:

Any advertising display of any area whatsoever which shall have any of its parts suspended or extended over the public highway six (6) inches beyond the property line.

SIGNBOARDS:

Any article, device, box, wall bridge, pole, building, fence, shed or structure which shall have attached thereto any temporary or

permanent advertising display which display shall be attached thereto by any method except pasting.

SKYLIGHT:

Any cover or enclosure placed above roof openings for the admission of light.

SKELETON CONSTRUCTION:

A form of building construction where all external and internal loads and stresses are transmitted to the foundations by a rigidly connected framework of metal or reinforced concrete, and the enclosing walls are supported by girders at each story.

SLOW BURNING CONSTRUCTION:

Heavy timber construction with masonry walls.

SMOKE DENSITY SCALE:

That for the purpose of regulating the emission of smoke from smoke producing equipment or any appurtenances thereto within the City of Indianapolis, and to determine by comparison the degree of darkness of smoke so emitted, a color scale of measurement shall be and the same is hereby adopted as follows: One thickness of gray glass of sufficient capacity to cut off sixty (60) per cent of the light from a flame having the lighting power of sixteen (16) candles, shall be taken as the basis of the said scale, and four thicknesses of said glass shall be known and designated as No. one (1) scale.

SOFFIT:

The lower horizontal face of anything, as, for example, the under side of a finished stairs or the under face of an arch where its thickness is seen. The under side or supports of a cornice.

SMOKE HOUSE:

A fireproof room or structure designed to smoke foods.

SPANDREL BEAM:

The outside beam of a building in skeleton construction supporting part of the floor load in addition to the panel wall above it.

SPECIAL PERMISSION:

The written consent of the Commissioner of Buildings.

STACK OR CHIMNEY:

That structure or part of a structure partly exposed to the atmosphere which contains a flue, duct or passageway for the gases and products of combustion from the combustion equipment.

STAGE:

Any raised portion used as an adjunct to a public assembly hall for the purpose of directing the attention of the occupants of the hall to any person, thing, picture, animal, apparatus, production, music, or any object whatsoever.

STAGE FLOOR:

That part of the stage which is immediately behind the footlights and of equal width to the stage opening back to the wall of the building.

STAGE—MAJOR:

Any stage that has fly drops; actors; paraphernalia or unfireproofed wooden stage floor, or more than one set of stage scenery either fireproofed or otherwise.

STAGE—MINOR:

See Minor Stage.

STAGE OPENING:
The clear unobstructed space between the supports for the proscenium arch in theaters or that space between the side walls or posts of the stage in other public assembly halls.

STAIR:
All the flights of steps and landings between two or more successive floor levels.

STAIRWAY—CONTINUOUS:
One extending unbrokenly from the exit level to the most remote story or roof served thereby.

STAIR—DOUBLE WIDTH FLIGHT:
One wide enough for two (2) persons to travel side by side or in double file, usually six feet or over in width.

STAIR FLIGHT:
An unbroken succession of steps between landings.

STAIR FLOOR LANDING:
That part of any floor within the stairway enclosures which is used in passing from one flight to another.

STAIR—HALF SPACE LANDING:
A landing where the flight changes direction approximately one hundred and eighty (180) degrees.

STAIR HALL:
Any part of a floor space through which it is necessary to pass in order to ascend or descend any stairway, and which is separated from any floor space by an approved wall.

STAIR LANDING:
A level space larger than a tread between two (2) flights of a stair.

STAIR—QUARTER-SPACE LANDING:
A landing where the flight changes direction approximately ninety (90) degrees.

STAIR—MULTIPLE WIDTH FLIGHT:
A combination of two (2) or more flights.

STAIR—RISE:
The vertical distance between the tops of the adjacent treads, or between the top of the tread and the adjacent landing.

STAIR RISER:
The vertical part of a stair step.

STAIR RUN:
The shortest horizontal distance between like points of risers, or between corresponding points of adjacent treads.

STAIR STEP:
One tread and one riser.

STAIR TREAD:
The horizontal part of a stair step.

STAIRWAY:
All the flights and landings together with the enclosing walls or partitions and the doors leading thereto and therefrom, extending from the exit level to and including all stories served by such stairs.

STAIR WELL:
The space within which the stairs are built and closed off from the open floors.

STAIR WINDER:
A tread that is wider at one end than at the other.

STAYED COLUMNS:
Reinforced concrete columns in which the vertical reinforce- quarter inch (¼) or larger stays.

STORY:
That part of any building comprised between any floor and the floor or roof next above. In case any floor or the combined area of floors or mezzanines at any one level extends over forty (40) per cent of the horizontal area, included within the outside party, fire or division wall at that level the same shall be considered as a floor for the purpose of determining story heights. Any basement or cellar the ceiling of which is more than five (5) feet above the established grade is the first story.

STRUCTURE:
Includes the term building, appurtenance, wall, platform, staging or floor used for standing or seating purposes; a shed, fence, outhouse, advertising display or billboard on public or private property or space, constructed by art on, above or below the grade of a public highway.

SUN PORCH:
Any room or porch attached to a building or structure which has two or more side walls composed of fifty per cent glass area between the floor line and ceiling line. If said fifty per cent glass area is placed in removable sash which are removed during the three summer months the said sun porch shall also be classed as an open porch during these three months.

SWITCHBOARD—ELECTRIC:
A large, single panel, frame or assembly of panels, on which are mounted, on the face or back of both, switches, fuses or other automatic protective devices, busses and usually instruments. Switchboards are generally used in generating stations, substations or isolated plants for the direct control of energy derived from generators or transforming apparatus.

TENEMENT HOUSE:
Any house or building or portion thereof, which is rented, leased, let or hired out, to be occupied, or is occupied or is intended, arranged or designed to be occupied as the home or residence of two (2) or more families living independently of each other (which family may consist of one (1) or more persons) and having a common right in the halls, stairways, yard, cellar, water closets, lodging houses and flat houses, but does not include hotels unless cooking is done in the suite of rooms or rooms occupied by the lodgers, and including dwelling houses occupied or intended to be occupied as the home or residence of a family, if built in continuous rows of more than two (2) houses, if the halls, stairways, yard, cellar, water supply wells and cistern, water closets or privies, or any of them are used in common, shall be deemed to be tenement houses and shall be subject to all the provisions of this Code.

TEMPORARY ADVERTISING DISPLAY:
Any advertising display of combustible material; or any advertising display erected with the understanding that the same is to be removed within sixty (60) days from the day of erection.

TEMPORARY CONSTRUCTION:
Any construction lighter or designed with stresses in excess of those named in this Code shall be known as temporary construction.

TEMPORARY BUILDING:
Any building which is built with the view of razing within one year from the date of completion. Such a building shall be designed with the same stresses as for a permanent structure.

TENEMENT HOUSE—FIREPROOF:
A tenement house the walls of which are constructed of brick, stone, cement, iron or other hard incombustible material, and in which there are no wood beams or lintels, and in which the floors, roofs, stair halls and public halls are built entirely of brick, stone, cement, iron or other hard incombustible material, and in which no woodwork or other inflammable material is used in any of the partitions, furrings or ceilings. But, this definition shall not be construed as excluding elsewhere than in the stair halls or entrance halls, the use of wooden floorings on top of the fireproof floors or the use of wooden sleepers, nor as prohibiting wooden handrails or treads of hardwood not less than two (2) inches thick, nor wooden doors and trim.

THEATER:
All buildings which contain a major stage or part of any building hereafter erected, altered or used for theatrical, moving picture or operatic purposes or for public entertainment of any kind, where a stage or platform with stage scenery, footlights or appurtenances or any part of either or any of them are employed. Exception: Where minor stages are permitted.

TILE AND JOIST CONSTRUCTION:
A system of floor construction which consists of concrete joists four (4) inches or more in width, with fillers between of terra cotta tile, metal, gypsum or like materials.

TOTALLY ENCLOSED MOTOR—ELECTRIC:
A motor which is so completely enclosed by integral or auxiliary covers as to practically prevent the circulation of air through the interior. Such a motor is not necessarily air tight.

TRACTION MACHINE—ELEVATOR:
An elevator machine in which the motion of the car is obtained by means of traction between the driving drum, sheave or sheaves and the hoisting cables.

TRAVEL—ELEVATOR:
The vertical distance from the lowest to the highest landing of an elevator or dumb waiter.

USED GOODS OR MATERIALS:
All used or second hand lumber, parts of machinery, building materials, manufactured materials, old iron, old rags, old paper, automobile parts; refuse from any manufacturing process whatsoever, boxes, barrels or any combustible substance or fiber.

ULTIMATE STRENGTH:
The stress in material at the breaking point.

VENTILATED:
Provided with a means to permit circulation of the air, sufficiently to remove an excess of heat, fumes, vapors or foul air.

WALL SIGNS—ELECTRIC:

Any advertising display of any area whatsoever, with electric lamp outline or exposed glass backed up by electric lamps which has all its parts maintained within six (6) inches of the property line and on the wall of any structure.

WALL SIGN OR SIGNBOARD:

Any wall which shall have attached to it a flat advertising display, shall be classed as a "wall signboard" if the area is over twelve (12) square feet and a "wall sign" if the area is less than twelve (12) square feet.

WAREHOUSE:

A building or portion thereof, designed or used for the storage of merchandise or materials.

WATERPROOF:

(a) So constructed or protected that moisture will not interfere with its successful operation.

(b) So constructed or treated as to be impervious to moisture.

WATERTIGHT:

So constructed that moisture will not enter.

WATER TUBE BOILER:

A device for transferring heat through a vessel the inside of which contains water or its product.

WIDTH OF BUILDING OR LOT:

The horizontal dimensions next in value to the length.

WINDING DRUM MACHINE—ELEVATOR:

An elevator machine in which the cables are fastened to, and wound on a drum.

WIRE GLASS:

Glass not less than one-fourth (¼) inch thick enclosing a layer of wire fabric reinforcement having a mesh not larger than a seven-eighths (⅞) inch, and the size of wire not smaller than No. 24 B. & S. Gauge.

WOODEN BUILDINGS:

A building of which the exterior walls or a portion thereof are of wood.

WORKSHOP:

A building or room in which articles or merchandise are manufactured or repaired wholly or principally by hand.

YARD:

An open space on the same lot with a building. A "Yard" between the extreme rear line of the building and the extreme rear line of the lot is a "rear yard." A "Yard" between the front line of the building and the front line of the lot is a "front yard." A "side yard" shall be deemed an open unobstructed space the full length of the building and adjacent to or parallel to the side property line.

ZONING LINE:

Any building line determined by the zoning ordinance or by the authority given in the zoning ordinance or ordinances.

INDIANAPOLIS BUILDING CODE

DIVISION A—PART ONE.

Sec. A-101—DIVISION OF THE BUREAU OF BUILDINGS.

There is hereby created in the City of Indianapolis under the

Department of Public Safety the office of the Commissioner of Buildings with inspectors, engineers and clerical help under his direction and control as follows, to-wit:

ASSISTANTS TO THE COMMISSIONER OF BUILDINGS.

Assistant Commissioner of Buildings.
Structural Engineer.
Assistant Structural Engineer.
Combustion Engineer.
Assistant Combustion Engineer.
Electrical Engineer.
Assistant Electrical Engineer.
Chief Elevator Inspector.
Chief Plumbing Inspector.
Chief Sign Inspector.
Chief Inspector of Construction.
Chief Inspector of Reinforced Concrete Construction.
Chief Inspector of Reinspection.
Chief Clerk.
Zoning Clerk.
Statistician and Bookkeeper.
At least one and not over four assistant clerks.
At least one and not over four plumbing inspectors.
At least six and not over fifteen building inspectors.
At least one and not over five reinspection inspectors.
At least one and not over four smoke inspectors.
At least three and not over six electrical inspectors.
Filing Clerk.
Two Stenographers.

Sec. A-102—QUALIFICATIONS FOR OFFICE:

(a) Registered Professional Engineers.

The Commissioner of Buildings; Assistant Commissioner of Buildings; Structural and Assistant Structural Engineer; Combustion and Assistant Combustion Engineer; Electrical and Assistant Electrical Engineer; shall all be regularly registered professional engineers of the State of Indiana.

(b) Experience.

(1) The Commissioner of Buildings and Assistant Commissioner of Buildings and Structural Engineer shall have at least five (5) years of practical experience in their profession as shown by the state certificate of registration as professional engineers of the State of Indiana; or practical builders who have been engaged in the active duties of building construction for at least four (4) years.

(3) The Chief Elevator Inspector shall have practical experience in elevator construction and shall have been engaged in the active duties of the machinist trade for at least four (4) years.

(4) The Chief Plumbing Inspector and all assistant inspectors shall have had at least four (4) years of practical experience as plumbers.

(5) The Chief Electrical Inspector and all electrical inspectors shall be practical electricians who have been active in the duties of an electrician for at least four (4) years.

(6) The Smoke Inspectors shall be practical firemen or stationary engineers who have had at least four (4) years' experience as such.

(7) The Zoning Clerk shall have had at least six (6) months' experience in zoning work in the City of Indianapolis.

(8) The Chief Clerk shall be either a practical builder, building inspector or qualified as such.

(9) The Chief Inspector of Reinspection shall have had at least two (2) years' experience in building inspection work and shall be familiar with all provisions of this Code regarding reinspection.

(10) The Chief Inspector of Reinforced Concrete Construction shall have had at least three (3) years' practical experience in the construction of reinforced concrete buildings in addition to the qualifications required for a building inspector.

Sec. A-103—EXAMINATIONS: PASSING GRADE.

(a) Requirements.

The Commissioner and Assistant Commissioner of Buildings, Structural and Assistant Structural Engineer, shall be each required to pass an examination dealing with the following:

(1) Stress diagrams of trusses.
(2) Strength of materials of construction.
(3) Design of simple and restrained beams.
(4) Design of reinforced concrete beams, columns and floors.
(5) Design of steel columns, beams and wind bracing.
(6) Wood and masonry construction.
(7) State housing law, Zoning Ordinance.
(8) Principle provisions of this Code.

(b) The Chief Inspector of Construction and all building inspectors shall be examined on the provisions of this Code pertaining to building construction sufficient to satisfy the examining board.

(c) The Electrical and Assistant Electrical Engneer and all electrical inspectors shall be examined on the provisions of this Code regarding electrical wiring sufficient to satisfy the examining board.

(d) The Combustion and Assistant Combustion Engineer and all smoke inspectors shall each be examined on the provisions of this Code regarding smoke abatement and the construction and installation of all apparatus of combustion and the housing thereof.

(e) The Chief Elevator Inspector shall be examined on the provisions of this Code regarding elevator installation, elevator enclosures and the construction of the same.

(f) The Chief Sign Inspector shall be examined on the hanging, construction and inspection of signs as outlined by this Code.

(g) The Chief Inspector of Reinspection and all assistant reinspection inspectors shall pass an examination covering the reinspection of moving picture theaters, houses and airdomes, the reinspection of public assembly halls; the reinspection of all storage and warehouses, in addition to other parts of the Building Code pertaining to fire prevention.

(h) The Chief Plumbing Inspector and all assistant inspectors shall pass an examination covering all matter pertaining to the installation of plumbing and other piping as determined by this Code; and shall as part of the examination wipe two lead pipe joints before the examining board and in their presence, as follows:

(a) One lead joint fastening three straight pieces of lead pipe making a (T) joint.
(b) One lead joint fastening four pieces of lead pipe making a double (T) or cross joint as the board may determine.

(i) The Chief Clerk shall be examined on the provisions of this

Code regarding the issuing of permits and the fees to be charged therefor.

(j) The Chief Inspector of Reinforced Concrete Construction shall pass an examination as a building inspector, special attention being given to reinforced concrete.

(k) All employees and appointees of the Board of Safety to the office of the Commissioner of Buildings who are required by this Code to pass an examination shall have a grade of at least seventy (70) per cent which shall be determined by the Examining Board in the following manner:

(1) At least forty (40) separate questions shall be asked and the answers shall be written by the applicant.

(2) Seventy (70) per cent of the matter asked on the examination shall be answered correctly or the examining board shall not in any case recommend the applicant to the Board of Public Safety for appointment.

The Board of Public Safety shall not appoint, in any case, any applicant to any position where an examination is required unless the examining board shall recommend that applicant. The applicant must have a passing grade on the examination.

Sec. A-104—EXAMINING BOARD.

(a) The examining board shall be composed of nine (9) members appointed by the Mayor to serve as a Board of Examiners to examine all applicants as outlined in this ordinance. Such Board of Examiners shall be composed of one (1) structural engineer; one (1) electrical engineer; one (1) mechanical engineer; one (1) combustion engineer; one (1) master builder familiar with fire resisting building construction; one (1) architect; one (1) master plumber; the City Civil Engineer; and the Secretary of the City Board of Health and Charity. All members of said board except the master plumber, master builder, and the Secretary of the Board of Health shall be regularly registered professional engineers registered under the laws of the State of Indiana.

(b) The City Civil Engineer shall be chairman of the board.

(c) The members of the examining board with the exception of the City Civil Engineer and the Secretary of the City Board of Health and Charity shall each receive ten (10) dollars for each day's work of examining applicants. Such money is to be paid out of the general fund after appropriation by the Common Council.

(d) Such examining board shall serve as such until another board is appointed by the Mayor.

Sec. A-105—TIME AND PLACE OF EXAMINATION.

It shall be the duty of the Board of Public Safety to designate a time and place and give public notice thereof by the publication at least three (3) times in the official paper of the said city when such examining board shall convene to hold examinations.

(b) Such examinations shall be open to any person who is a resident of the City of Indianapolis, Indiana, and who complies with the required qualifications for the office as set forth above and who makes an affidavit to the same.

Sec. A-106—EXAMINING BOARD TO REPORT TO THE BOARD OF PUBLIC SAFETY.

After the examination of applicants by the examining board the results of such examination shall be reported in writing to the Board of Public Safety with recommendations as to the personal qualifica-

tions and character of each applicant passing the examination. The Board of Public Safety shall appoint such officer and such assistants as may be deemed necessary to carry out the provisions of this ordinance from those who have properly satisfied the examining board and have properly answered seventy (70) per cent of the subject matter asked on the examinations. After the selection of the members of the examining board by the Mayor said members may be called at any time by the Board of Public Safety to hold examinations.

Sec. A-107—OATH OF OFFICE.

The Commissioner of Buildings and all assistants before he or they enter upon the duties of his or their official capacity shall take and subscribe an oath before the City Clerk to faithfully and impartially execute the duties of his or their office and to support the Constitution of the State of Indiana and the United States.

Sec. A-108—SHALL KEEP A RECORD OF ALL APPLICANTS FOR PERMITS.

It shall be the duty of said Commissioner of Buildings to cause to be kept a record of all applicants for permits which shall be regularly numbered in the order of their issue; also a record showing the number, description and size of all buildings erected in the City during his term of office; of what material constructed, the aggregate of the number, kind and cost of all buildings, the inspection, removal and condemnation of buildings and all other matters proper to be recorded.

Sec. A-109—SHALL INSPECT WHEN NOTIFIED.

It shall be the duty of the Commissioner of Buildings upon being served with a written notice requiring him to visit and inspect any building upon or in which work is being done, under any of the provisions of this Code, to do so within forty-eight (48) hours from the time of receiving such notice.

Sec. A-110—DUTIES OF COMMISSIONER OF BUILDINGS.

It shall be the duty of the Commissioner of Buildings to sign all certificates and notices required to be issued under this Code except as otherwise provided herein, to make complaint of all violations thereof to the Board of Public Safety; to cause to be kept in proper books for the purpose of a register of all transactions of the office and to submit to the Board of Public Safety a quarterly statement of all such transactions and to enforce all of the conditions of this Code.

Sec. A-111—POWER OF COMMISSIONER.

(a) The Commissioner of Buildings shall have full discretionary power to pass upon any question arising under the provisions of this Code, relative to the matter of construction or materials to be used in the erection, alteration or repair of any building; provided, however, that should any question arise between the Commissioner of Buildings and the owner or architect of any building, or should the owner or architect object to any order or decision of said Commissioner, the matter shall be referred to the Board of Public Safety and its decision shall be final and conclusive, unless any interested person, firm or corporation files a written appeal for arbitration written ten days from the decision of the Commissioner of Buildings.

(b) The Commissioner of Buildings and his authorized assistants are hereby given authority to enter any building or premises in the City of Indianapolis, Indiana, in the performance of their

duties, and to order and compel the immediate suspension of any work done in the violation of the provisions of this Code, and to prohibit the use of any materials and remove samples thereof for testing purposes and to prohibit the maintenance or operation of any machinery in violation of the provisions of this Code, or any ordinance of the City of Indianapolis.

(c) No person shall continue the construction of any building, or use any machinery in, on or about any building or on any premises after the Commissioner of Buildings or his regularly authorized assistants, have directed the suspension thereof.

(d) The Commissioner of Buildings and his regularly authorized assistants are hereby given authority to make such tests as may be necessary to determine the safety of the conditions of any building, material or machinery which it becomes their duty under the provisions of this Code to inspect, the cost of such test to be borne by the owner or agent, or the Commissioner of Buildings may require the owner or agents to make such tests as required, and a written statement furnished to the Bureau of Buildings of the same.

(e) The Commissioner of Buildings or his authorized assistants shall procure materials from any building or repair job for test at any time they are in doubt of the strength of such materials. Such materials shall be considered condemned and shall be destroyed by the inspector if he, the inspector, finds that the materials do not meet the standards set forth in this ordinance.

(f) Standards of any character set forth in this ordinance may be varied from time to time by the Board of Public Safety if engineering practice develops to such an extent that the standards set forth in this ordinance become inadequate in any way. If any such standards are to be varied they shall be approved by the Board of Public Safety and be posted as a RULING OF THE COMMISSIONER OF BUILDINGS.

Sec. A-112—SHALL EXAMINE ALL DANGEROUS BUILDINGS.

It shall be the duty of the Commissioner of Buildings to examine or cause to be examined all buildings reported to be dangerous or damaged by fire or accident, and to make a record of such examination, including the nature of the damage, with the name of the street and the number of the building, with the name of the owner, and to examine all buildings under application to be removed, raised, enlarged, altered or built upon, and if considered necessary to make a record of the conditions of the same.

Sec. A-113—NOT TO BE ENGAGED IN ANY BUILDING BUSINESS—SPECIAL APPOINTMENT.

(a) The Commissioner of Buildings or his authorized assistants shall not, during their term of office, be employed or engaged, directly or indirectly, in any building business or enter into any building for others or for the furnishing of materials or construction, specifications or plans for buildings for others.

(b) The Commissioner of Buildings upon appointment of the Board of Public Safety may act as Electrical Engineer.

Sec. A-114—DUTIES OF ASSISTANTS TO THE COMMISSIONER OF BUILDINGS.

(a) All of the assistants appointed by the Board of Public Safety under the Commissioner of Buildings and in the Bureau of Buildings shall enforce the regulations of this Code and perform

their duties as set forth by the Commissioner who has charge of the affairs of the office and shall be the head of the office and the director of all the work therein.

(b) The title which any employee under the Commissioner may hold shall not prevent him from doing other work as the Commissioner may direct. Each person shall be fully responsible for the enforcement of this Code within their knowledge.

(c) Each inspector shall keep a complete record of his inspection work and make a weekly report to the Commissioner. In case that the Commissioner shall appoint an inspector over any certain territory said inspector shall perform his duty properly and be responsible for the inspection work under his direction, and within [illegible]. Each inspector shall receive inspection slips and shall thereon keep a complete record of all inspections made and shall attach the final inspection tag on the building license as described in this Code.

(d) The Structural Engineer shall inspect and check all plans submitted to the office for any buildings or structures to see that they are in conformity with this Code and the best engineering practice of the day.

(e) The Board of Public Safety shall see that at least one structural engineer is appointed to the office of the Commissioner of Buildings.

Sec. A-115—SALARIES.

That the salaries of the appointees of the Board of Public Safety to the office of the Commissioner of Buildings shall be to-wit as follows:

Position of Appointee.	Yearly Salary
Commissioner of Buildings	$4000.00
Assistant Commissioner of Buildings	3600.00
Structural Engineer	3300.00
Assistant Structural Engineer	2500.00
Combustion Engineer	3300.00
Assistant Combustion Engineer	2500.00
Electrical Engineer	3000.00
Assistant Electrical Engineer	2500.00
Chief Elevator Inspector	2500.00
Chief Plumbing Inspector	2500.00
Chief Sign Inspector	2500.00
Chief Inspector of Construction	2500.00
Chief Inspector of Reinforced Concrete Construction	2500.00
Chief Inspector of Reinspection	2500.00
Chief Clerk	2400.00
Zoning Clerk	2400.00
Assistant Clerks, each	2100.00
Bookkeeper and Statistician	2100.00
Building Inspectors, each	2400.00
Reinspection Inspectors, each	2400.00
Smoke Inspectors, each	2400.00
Plumbing Inspectors, each	2400.00
Electrical Inspectors, each	2400.00
Elevator Inspectors, each	2400.00
Filing Clerk	1200.00
Stenographers, each	1200.00
Members of Electrical Board, each	60.00

Members of Plumbing Board, each	60.00
Secretary to Electrical Board	240.00
Secretary to Plumbing Board	240.00

Sec. A-116—BONDS FOR ALL EMPLOYEES IN BUREAU OF BUILDINGS.

(a) No person shall be appointed to any position of any character in the Bureau of Buildings under the Department of Public Safety without a surety bond to the City of Indianapolis to protect the city from malfeasance in office of any appointee.

(b) The minimum bond furnished to the city by the appointee shall be one thousand (1,000) dollars in every case except as follows:

Commissioner of Buildings	$5000.00
Assistant Commissioner of Buildings	3000.00
Structural Engineer	3000.00
Assistant Structural Engineer	2000.00
Combustion Engineer	3000.00
Assistant Combustion Engineer	2000.00
Electrical Engineer	3000.00
Assistant Electrical Engineer	2000.00
All Chief Inspectors and Assistant Inspectors of all kinds	2000.00

DIVISION A—PART TWO
ADMINISTRATION

Sec. A-201—GENERAL PERMITS.

(a) Before any excavation shall be commenced for any building or structure, or the construction, erection, alteration or repairs started, of or to, any wall, foundation, fence, building, structure, tank, advertising display, flue, stack, fire escape, platform, staging, shute, ramp, electrical wiring, plumbing, steam fitting or other piping, elevator, escalator, elevator shaft, hoistway, dumb waiter shaft, amusement device, stairs, stair well, partitions or any of the appurtenances to any of the above a permit and license shall be obtained from the City Controller so to do, after application to the Commissioner of Buildings.

(b) Each division and part of this Code may have sections requiring permits to do specific things in fuller explanation than the above.

(c) No application for a permit shall be issued by the Commissioner of Buildings unless the person or persons, firm or corporation agree to do all the work for which a permit is granted according to the provisions of this Code and the approval issued thereunder either on said application or according to plans and specifications approved by the Commissioner of Buildings and kept on file with him. The Commissioner of Buildings may require affidavits to this effect in any case.

(d) All provisions of this Code shall apply with equal force to both municipal and private buildings, structures or premises.

Sec. A-202—PLANS AND SPECIFICATIONS.

(a) Before the erection, construction or alteration of any building or part of any building or any part of any structure or wall and before the erection of any platform staging or flooring to be used for standing or seating purposes, and before the construction or alteration of any advertising display, boiler, oil burner, stack, flue, furnace, apparatus of combustion, commercial gas stoves, flag poles, canopy, amusement device, any appurtenance to any building

or structure, or any elevator, elevator shaft, or appurtenance to either, the owner or owners, lessee or agent or either or any of them, or the architect or builder or contractor employed by any of the above persons, firm or corporation, shall submit to the Commissioner of Buildings a detailed statement and a copy of the specifications, also two (2) full and complete copies of the plans, certified plat survey and lot plan of such proposed work, and also two (2) complete sets of structural drawings, wind pressure and snow load stress diagrams of trusses, moment diagrams of arches, stress diagrams of retaining walls and all other necessary data of said proposed work as the Commissioner of Buildings may require before any permit is issued.

(b) Blue prints in duplicate for all buildings or structures both new or old, both public or private shall be provided the Bureau of Buildings before application for a building license and permit. Such blue prints shall show in complete detail the following:

(1) All construction and details.
(2) Exact location of the proposed building or structure on the lot or premises.
(3) All adjacent properties both city and private.
(4) All property lines both city and private.
(5) The widths of all streets and alleys.
(6) The size of adjacent acreage or tract of ground.
(7) Distance from lot or premises to next street intersections.

Exception—

(a) Pencil drawings may be substituted for the blue prints for non-residence accessory buildings.
(b) Repairs not in excess of one hundred (100) dollars in value.

Sec. A-204—NUMBERING OF BLUE PRINTS.

After such blue prints are read by the Bureau of Buildings any corrections to the same shall be made in acid by the applicant before such blue prints shall be submitted for a permit or building license.

Sec. A-204—NUMBERING BLUE PRINTS.

All blue prints in sets shall be numbered and an index furnished on the first blue print setting forth each sheet and the character thereof. A complete survey and affidavit before a notary public of all property lines and size of a lot or lots shall accompany each set of blue prints except when in the opinion of the Commissioner of Buildings such survey or affidavit shall not be necessary. Such survey shall be made by a regularly registered land surveyor.

Sec. A-205—COLUMN AND STRUCTURAL STRESSES.

All column loads shall be shown at the footing of each column foundation. All floor loads and structural material stresses shall be shown at each point or connection unless a standard throughout the whole structure is maintained

Sec. A-206—ERRORS IN BLUE PRINTS AFTER PERMIT IS ISSUED NOT LEGAL.

After the blue prints are stamped as follows: "APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES," such approval shall not be considered as evidence to allow any person or persons to violate any law or ordinance of this Code. Such above approval shall not guarantee any person or persons that the

approved plans are in exact accordance with all building and zoning laws or ordinances, and any errors found later either by the applicant or by the Bureau of Buildings shall not be binding to permit any person or persons to violate any law or ordinance. Such errors shall be immediately rectified and the construction or location of the building or structure changed to conform to the law and ordinances and this Code.

Sec. A-207—BLUE PRINTS REMAIN AT BUREAU OF BUILDINGS.

(a) One set of approved blue prints shall remain the property of the Bureau of Buildings until the final inspection of the building or structure; whereupon such blue prints and specifications are left at the Bureau of Buildings at the owner's risk except in cases where blue prints are required to be filed permanently at the Bureau of Buildings.

(b) The blue prints for all first class buildings and all tenement houses shall remain the property of the Bureau of Buildings.

Sec. A-208—SCALES OF PLANS.

All plans shall be drawn to a scale of one-quarter (¼) of an inch to one (1) foot of actual structure or building measurement; except by special permission in writing from the Commissioner of Buildings one-eighth (⅛) inch to one (1) foot scale may be used in large buildings.

Sec. A-209—REGISTERED ENGINEER.

The Commissioner of Buildings shall require plans and specifications of any building or structure to be approved by a registered professional engineer registered in the State of Indiana as such; except third and fourth class buildings which do not contain trusses, reinforced concrete or steel framing.

Sec. A-210—CHANGES NOT TO BE MADE IN PLANS AFTER PERMIT IS ISSUED.

No changes are to be made in any plan or specifications of construction after a building license has been issued except by special permission, in writing, from the Commissioner of Buildings.

Sec. A-211—APPROVAL OF PART OF BUILDING.

Nothing in this part shall be construed to prevent the Commissioner of Buildings from granting his approval for the erection of any part of a building or structure, where approved plans of the same are on file at the Bureau of Buildings.

Sec. A-212—REVOCATION OF BUILDING LICENSE.

Should the Commissioner of Buildings become convinced that the work under the building license is not proceeding according to the plans and specifications upon which such building license was issued, but is proceeding in violation of the law or ordinance or this Code, it shall be his duty to notify, by parole or otherwise, the owner or owners, or his agents, that the work is being done in violation of the approval, permit and ordinance and that such work shall immediately be stopped and changed to conform to the Building Code, zoning laws or other laws or ordinances in effect in Indianapolis or such building license will be revoked.

Sec. A-213—AUTHORITY OF PAROLE:

The Commissioner of Buildings or his authorized assistants shall order all work stopped by parole or otherwise when they find work proceeding on drawings or blue prints not approved by the Bureau

of Buildings or in violation of this Code or any law or odinance, or in any case when the approved blue prints or drawings are found in error.

Sec. A-214—REVOCATION OF BUILDING LICENSE—STICKER, TAG, NOTICE:

Such building license shall be revoked by parole or otherwise by the Commissioner of Buildings or his authorized assistants when it is believed any building or zoning law or ordinance is being violated. Such revocation of a building license shall be by letter to the applicant at the address shown on the building license application or in lieu thereof the Commissioner of Buildings or his authorized assistants may cause a tag, sticker or notice of such revocation of the license to be written on or attached to the building license, which is required by the law to be posted in a conspicuous place on the construction job.

Sec. A-215—BUILDING LICENSE TO BE POSTED ON THE JOB:

It shall hereafter be unlawful for any person, persons, firm or corporation to do any construction work on any new or old structure, including repairs, in Indianapolis, unless said person or persons, firm or corporation, including the contractor, foreman or workman doing such work, shall maintain in full view and in a conspicuous place during the construction or repair work called for by a permit and until the said work shall be finished and finally inspected, a building license for such work on such building or structure.

Sec. A-216—REMOVAL OR LICENSE—FINAL INSPECTION:

Such license shall not be removed until the permission so to do is granted by the Commissioner of Buildings or his authorized assistants, either by letter or parole. Such parole notice when final inspection is made shall be in the form of a sticker which shall be attached to the license by the inspector and signed by him.

Sec. A-217—PLANS AND SPECIFICATIONS ON JOB:

It shall further be unlawful for any person or persons, firm or member of a corporation to do any construction work on any new or old building or structure or premises in Indianapolis unless there is maintained on such construction or repair job at all times during working hours a complete set of plans and specifications stamped—

"APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES."

Sec. A-218—LEGAL EXPIRATION OF ANY BUILDING LICENSE:

Every permit and license shall expire by limitation if active work has not been commenced within two (2) months of the date of issue. Digging or arranging the terrain shall not legalize the license. If no construction has been done above the foundation of the proposed building or structure within one (1) year of the date of issue the building license shall expire by limitation.

Sec. A-219—REJECTION OF PLANS:

It shall be the duty of the Commissioner of Buildings to accept or reject any plan or set of plans within a reasonable time from the date of filing same in his office pursuant to the provisions of this Building Code and all zoning laws and ordinances or other laws and ordinances in effect in the City of Indianapolis.

Sec. A-220—ORDINARY REPAIRS:

Ordinary repairs to a building or structure or any of the appurtenances thereto, the value of which shall not exceed fifty (50) dollars, may be made without notice to the Commissioner of Buildings, but such repairs shall not be construed to include the cutting away of any stone or brick wall, or any portion thereof, the removal or cutting of any beams, supports or structural parts of any building or structure or the removal, change or closing of any staircase or fire escape or the rebuilding or repairs of any flue or chimney. Any electrical or plumbing system. Exception—Painting, cleaning, decorating and papering, electrical, plumbing or other fixtures.

Sec. A-221—DEMOLISHED BUILDINGS:

(a) When plans and a detailed statement are filed with the Commissioner of Buildings for an existing building or part of an existing building to be demolished, such facts shall be stated in the statement so filed.

(b) In demolishing any building, it shall be demolished story after story, commencing with the top story, and each story shall be completely removed before the next story below. No material shall be placed upon the floor of any such building in the course of demolition, but the bricks, timbers and other structural parts of each story shall be lowered to the ground immediately upon displacement.

(c) The material to be removed shall be properly wet down to lay dust incident to its removal. The Commissioner of Buildings may require dust proof shutes to be used.

(d) The owner, architect, builder or contractor for any building, structure, premises, wall, platforms, staging or flooring to be demolished shall give no less than twenty-four (24) hours' notice to the Commissioner of Buildings of such intended demolition.

(e) A bond will not be required for the wrecking of a fourth class, one (1) story building providing a permit is issued for the same and all material removed from the building to be wrecked shall be stored on private property; however, a bond is required for all other wrecking of building. (Section 239.)

Sec. A-222—IF RAISED OR BUILT UPON—CHANGE OF OCCUPANCY:

No building already erected or hereafter built, shall be raised or built upon or have its occupancy changed, in such a manner that were such building wholly built or constructed after the passage of this ordinance it would be a violation of any of the provisions of this Code or any other law or ordinance.

Sec. A-223—FEES FOR GENERAL PERMITS:

(a) Any division of the building Code may have specific fees for its parts or sections.

(b) For new buildings, hollow sidewalks or additions to old buildings, for the wrecking of old buildings or structures the permit fee shall be two (2) cents for Grade D and three (3) cents for all other buildings; for every one hundred (100) cubic feet of contents or fraction thereof. The cubical contents shall be measured to include every part of the building, hollow sidewalk or addition from the bottom of the foundations to one-half (½) of the highest part of a pitched roof and to the top of flat roofs; provided, however, that no permit fee shall be less than two (2) dollars and a permit to erect any new building or structure shall not be issued for any location or premises where there are existing buildings until a per-

mit to remove or wreck such existing building has been issued at the above rate.

(c) Moving buildings on the street from one (1) location to another location the permit fee shall be five (5) dollars, from one (1) location to another on any lot two (2) dollars.

(d) Permits for interior alterations to any building or structures or appurtenances thereto to which the one hundred (100) cubic foot rate, above mentioned, cannot be properly applied shall be two (2) dollars for every one thousand (1000) dollars in value or fraction thereof of such alterations; providing, however, that no fee shall be less than two (2) dollars.

(e) The fee to be charged for the installation of new equipment of combustion or the alteration or reinspection of old equipment of combustion shall be as follows, to-wit:

All high pressure boilers with a capacity up to

One hundred (100) H. P.	$2.00 each
101 to 300 H. P.	2.50 each
301 to 500 H. P.	3.00 each
All over 500 H. P.	3.50 each

(f) The fee to be charged for the installation, alteration or reinspection of, (1) a hot air furnace, (2) oil burning furnace, (3) oil burning equipment for any purpose whatsoever, (4) inflammable liquid combustion apparatus and (5) all heating boilers of the low pressure type up to and including three thousand (3000) square feet of radiating surface; shall be two (2) dollars for each installation or parts thereof. Where liquid tanks are installed at the same time the above permit shall include the tanks.

(g) The fee to be charged for the installation, alteration or reinspection of any heating boiler capable to handling more than three (3000) thousand square feet of radiating surface shall be three (3) dollars.

(h) Permits will not be required for the installation of gas cooking stoves for single family units. A permit for all other gas stoves or appliances and all water heaters shall be one (1) dollar for each and every installation.

(i) The fee to be charged for a permit for the erection or alteration of a steel stack or brick stack or flue up to and including two hundred and fifty-six (256) square inches shall be two (2) dollars and for any such over two hundred and fifty-six (256) square inches in area shall be three (3) dollars. This fee shall not apply to Grade D buildings, but shall apply to all other buildings or structures and shall be in addition to any other building permit.

(j) The fee to be charged for a permit issued for the erection, attaching or construction of any street banner, or billboard except as hereinafter provided shall be two (2) dollars for the first two hundred (200) square feet or fraction thereof of the total surface of the said billboard or street banner exposed on the display side and an additional one (1) dollar for each and every additional two hundred (200) square feet of the total surface or fraction thereof.

The fee to be charged for a permit issued for the erection, attaching or construction of any signboard under twenty-five (25) square feet in area, except as hereinafter provided, shall be one (1) dollar each and for any signboard over twenty-five (25) square feet in area shall be two (2) dollars each for the first two hundred square feet (200) or fraction thereof of the total surface of the said signboard, and an additional one (1) dollar for each and every addi-

tional two hundred (200) square feet of the total surface or fraction thereof. (See B-Part Four.)

(k) The fee to be charged for a permit issued for the erection, attaching or hanging of a street sign or electric wall sign shall be three (3) dollars for the first fifty (50) square feet of the total single or double faced surface thereof and an additional two (2) dollars for each and every fifty (50) square feet of the total said surface or fraction thereof.

(l) The fee to be charged for a permit issued for the erection or construction of any roof sign whatsoever, shall be three (3) dollars for the first two hundred and fifty (250) square feet or fraction thereof of the total surface of said roof sign calculated from the overall dimensions on the display side and an additional two (2) dollars for each and every additional two hundred and fifty (250) square feet of the total surface of said roof sign.

(m) Repairs may be made to any legal advertising display at the rate of one (1) dollar for each five hundred (500) dollars in value of the repairs both labor and material with a minimum fee of one (1) dollar for any permit less than five hundred (500) dollars providing, however, that repairs may be made to any legal advertising display without a permit, which repairs do not exceed twenty-five (25) dollars in value. No illegal advertising display may be repaired. Repairs to any legal advertising display shall be limited to fifty (50) per cent of the total structure.

(n) The area of two (2) or more advertising displays when their combined area is less than the minimum for their class shall not be added and included under one (1) permit, but a separate permit shall be taken out for each advertising display.

(o) In calculating the facial area of a double-faced advertising display only one (1) face shall be used, when the whole display is a structural unit; otherwise both faces shall be taken or the advertising display considered two (2) separate displays.

(p) The minimum fee to be charged for a permit to install electric lighting circuits shall be two (2) dollars minimum for one (1) circuit and fifty (50) cents additional for each additional circuit up to and including ten (10) circuits, and twenty-five (25) cents for each and every circuit in addition to ten (10) circuits of lights or small motors permissible on lighting circuits or other device, mechanism, or appliance permitted on such lighting circuits.

(q) The minimum fee to be charged for a permit to install electrical motors, devices or machines on power circuits shall be two (2) dollars for the first machine or circuit and one (1) dollar for each additional circuit, machine, motor or device required by this Code to be on power circuits.

(r) The fee to be charged for a permit to install elevators, elevator doors, elevator shafts, elevator machinery, cables and any other elevator appurtenances shall be two (2) dollars minimum for a permit for one (1) or two (2) story elevators and fifty (50) cents additional for each floor over two (2) floors such elevator or appurtenance extends.

(s) The fee to be charged for a permit to erect a tent for a period of one (1) day and not over six (6) months in any one (1) year shall be to-wit, as follows:

Up to four hundred (400) square feet in area $1.00
Four hundred (400) square feet to one thousand (1000) sq. ft 2.00

One thousand (1000) sq. feet to four thousand (4000) sq. ft. 3.50
All tents over four thousand (4000) square feet 5.00

The above permit fee shall be one (1) day to six (6) months and shall not permit the owner to repair such tent. No permit shall be granted without the agreement of the owner that he will remove such tent after the expiration of six (6) months.

(t) The permit fee to be charged for the installation of oil storage tanks or tanks for inflammable liquids or other liquids shall be as follows:

Up to three hundred (300) gallons.....$1.00 each
Three hundred (300) gallons to eleven hundred (1100) gallons ..... 2.00 each
Eleven hundred (1100) gallons to twenty-five thousand (25000) gallons ..... 3.00 each
Over twenty-five thousand (25000) gallons ..... 4.00 each

Exception—Portable tanks.

(u) The permit fee to be charged for the inspection and installation of each gasoline or other inflammable liquid pump shall be one (1) dollar for each pump.

Exception—Portable pumps.

(v) Whenever any building is rented or leased for a different occupancy than that which it has been built, the owner or lessee shall first obtain a permit from the City Controller after application and inspection by the Bureau of Buildings. Such change of occupancy permit shall be one (1) dollar unless alterations are to be made whereupon the permit for alterations shall only be paid.

(w) The permit fees for the installation or reinspection of plumbing shall be as follows, to-wit:

Each stack, building sewer or building drain including not over ten (10) fixtures or openings for fixtures or other openings a minimum fee of.....$3.00
Each additional fixture or opening for a fixture additional..... .25
For repairs or reinspection of old installations the minimum fee for each stack, building sewer or building drain up to and including ten (10) fixtures or openings for fixtures..... 1.00
Each additional fixture or opening for a fixture..... .10

It shall be the duty of the plumber to notify the Bureau of Buildings and also the owner, or his authorized agent, verbally, by telephone, or in writing, not less than eight (8) working hours between the hours of 8 A. M. and 4 P. M. before the work is to be inspected or tested.

It shall be the duty of the plumber to make sure that the work will stand the test prescribed before giving the above notification.

If the Commissioner of Buildings finds that the work will not stand the test, the plumber shall be required to renotify in writing and to pay the sum of one (1) dollar for each renotification or reinspection.

(x) Permits for repairs to any building or structure, or to any of the appurtenances thereto shall be as follows, to-wit:

Repairs to	Exemption	Minimum fee	Rate of fee for each $1000 in value of repairs
Buildings	$50.00	$1.00	$2.00
Steam fitting	50.00	1.00	2.00

Apparatus of Combustion (Low pressure types)	50.00	1.00	2.00
Apparatus of Combustion (High pressure types)	50.00	2.00	2.00
Stack and Flues (up to 256 sq. in. in area)	50.00	1.00	2.00
Stack and Flues (over 256 sq. in. in area)	50.00	2.00	2.00
Advertising Displays	25.00	1.00	2.00
Electrical Work	50.00*	1.00	2.00
Elevator Equipment	50.00	1.00	2.00
Storage tanks and appurtenances	50.00	1.00	2.00
Plumbing	50.00	1.00	

The above exemption shall be construed to allow such repairs over a period or not less than one (1) year. If such repairs over a period of one (1) year exceed the above values a permit shall be taken out.

*See Section D-116.

(y) Such fees shall be paid the City Controller after application to the Commissioner of Buildings.

Sec. A-224—REINSPECTION OF EQUIPMENT OF COMBUSTION:

Whenever any flue or stack shall issue smoke in violation of this ordinance, the Combustion Engineer may cause the whole equipment of combustion to be reinspected and corrections made. Upon reinspection of any equipment of combustion, the owner or owners or persons in charge or control of the same shall pay to the City Controller the reinspection fee as herein described within thirty (30) days from the date of inspection notice.

Sec. A-225—REINSPECTION FEES FOR STREET SIGNS:

(a) The owner, person or persons, firm or corporation in charge or control of the maintenance of any street sign shall pay an annual inspection fee payable January first after a permit is taken out for erection, and that the same inspection fee shall be paid once each year thereafter. to-wit. as follows:

(1) Street signs having a total single or double faced area measured from the outer edges of the sign or fifty (50) sq. feet or less, one dollar and fifty cents ($1.50) per year.

(2) Street signs having a total single or double faced area measured from the outer edges of the sign of over fifty (50) sq. feet and less than one hundred (100) sq. feet two (2) dollars per year.

(3) Street signs having a total single or double faced area measured from the outer edges of the sign of one hundred (100) sq. feet and less than one hundred and fifty (150) sq. feet, two (2) dollars and fifty (50) cents per year.

(4) Street signs having a total single or double faced area measured from the outer edges of the sign of over one hundred and fifty (150) sq. feet, three (3) dollars per year.

(5) Such inspection fees must be paid yearly and are due on the first day of January and are delinquent after the first day of July of the same year. Such inspection fees are payable to the City Controller after application to the Commissioner of Buildings and in no case shall an inspection fee be less than one (1) dollar and fifty (50) cents.

Sec. A-226—REINSPECTION FEES FOR ANNUAL INSPECTION OF ADVERTISING DISPLAYS OTHER THAN STREET SIGNS:

(a) An annual inspection fee shall be paid the City Controller by every person, firm or corporation, in possession, charge or control of any advertising display other than (a) street sign, (b) sign less than twelve (12) sq. feet in area, (c) billboard or signboard less than twenty-eight (28) sq. feet in area, (d) painted wall sign or painted wall signboard, (e) billboards or signboards over twenty-eight (28) sq. feet in area located upon any wall, within six (6) inches of the property line, maintained as an adjunct to any business within the building of which the wall is a part thereof or any other billboard or signboard over twenty-eight (28) sq. feet in area equal to the sum of one-half (½) of a cent multiplied by the number of sq. feet of the total display surface of the said display including all borders and measured to the outer edges of the display or supports on the display side. This fee shall be for a period of one (1) year, shall not be pro-rated and shall be due the first day of January and delinquent the first day of July of each year, and in no case shall a fee be less than one (1) dollar.

(b) Such fees shall be paid to the City Controller after application to the Commissioner of Buildings upon such blanks as he shall use therefor.

(c) A separate application shall be made and a separate fee paid for such advertising display, provided, however, that any group of advertising display maintained as a continuous structure may be grouped as one (1) structure with one (1) inspection tag and one (1) fee paid for the total area of the group.

Sec. A-227—REINSPECTION OF ALL BUILDINGS IN GENERAL USE—PRECAUTIONS IN BEHALF OF PUBLIC SAFETY—MAY REQUIRE REPAIR OR ALTERATIONS IN SUCH CASES—AMUSEMENT DEVICES:

(a) The Commissioner of Buildings may cause to be inspected all public school buildings, public assembly halls, churches, theaters, buildings used either for manufacturing or commercial purposes, hotels, apartment houses and other buildings, amusement devices or structures occupied or frequented by large numbers of people, for the purpose of determining the safety of such buildings or any part of appliances or equipment thereof; the sufficiency of their doors, passageways, aisles, stairways, corridors, exits or fire escapes, and generally their facilities for egress in case of fire or other accident, and the strength of their floors, and he shall make return of all violations of the several provisions of this Code or other laws or ordinances to the Board of Public Safety.

(b) It shall be the duty of the Commissioner of Buildings, when any citizen represents that combustible materials are kept in any place in the city in an insecure manner, or that the doors, stairways, corridors, exits or fire escapes of any factory or workshop or other place of employment are insufficient for the escapes of employes in case of fire, panic or accident, or do not comply with the provisions of this Code; or that the flues, fire boxes, or heating apparatus and apparatus of combustion, in any building in the city is in unsafe or dangerous condition or in any wise in contravention of this Code, to cause examination to be made of such place or building; and if such representation is found to be true, said Commissioner shall

give notice in writing or parole to the owner, occupant, lessee or person in possession, charge or control of such place or building, to make such changes, alteration or repairs as the ordinances of the city may require. Upon failure of parties so notified to comply with the said notice, the matter shall be placed in the Board of Public Safety or the Commissioner of Buildings may prohibit the use of the building, device or premises.

(c) It shall be unlawful to continue the use of such buildings until the changes, alterations or repairs found necessary by the Commissioner of Buildings to make such building or part thereof safe, or to bring it into compliance with this Code, shall have been made.

Sec. A-228—REINSPECTION OF ELECTRICAL EQUIPMENT:

(a) The minimum fee to be charged for a permit to reinspect electrical work shall be one (1) dollar minimum for one (1) circuit and twenty-five (25) cents additional for each additional circuit up to and including (10) circuits, and fifteen (15) cents additional for each and every circuit over ten (10) circuits of lights or small motors permissible on lighting circuits, or other device, mechanism or appliance permitted by this Code on such lighting circuits.

(b) The minimum fee to be charged for the reinspection of electrical motors, devices, appliances, or mechanisms, on power circuits shall be two (2) dollars for the first machine or circuit and one (1) dollar for each additional machine, motor or device required by this Code to be on power circuits.

Sec. A-229—REINSPECTION OF ELEVATORS AND APPURTENANCES:

The fee to be charged for the reinspection of elevators, elevator doors, elevator shafts, elevator machinery (except electrical equipment), cables and any other elevator appurtenances shall be two (2) dollars minimum for such appurtenance or elevator extending two (2) stories and fifty (50) cents additional for each story in excess of two (2) stories such elevator extends.

Sec. A-230—POWER OF COMMISSIONER OF BUILDINGS IN ORDERING REINSPECTION:

The Commissioner of Buildings shall order reinspection of buildings, signs, electrical work, elevators, equipment of combustion and any other appurtenance of any building whenever he may deem necessary so to do, but in no case more than once in any one (1) year unless an emergency arises, then he shall order reinspection as he may see fit. If any owner, person or persons, firm or corporation think the reinspection of their building or premises is not necessary they shall have the right at all times to appeal their individual case of reinspection to the Board of Public Safety when such reinspection occurs more than once each year in order to have the reinspection fee waived.

Sec. A-231—REINSPECTION FEES FOR BUILDINGS IN GENERAL USE—AMUSEMENT DEVICES:

(a) Whenever it shall become the duty of the Commissioner of Buildings to order his authorized assistants to reinspect any premises from any cause whatsoever a reinspection fee of two (2) dollars shall be paid the City Controller upon presentation of a certificate of reinspection to the owner, lessor, or person or persons in charge or control of such building, structure or device that such building

has been reinspected. This fee shall cover all other reinspection not specifically covered.

(b) Such reinspection fee shall be paid to the City Controller within thirty (30) days of the date of the reinspection notice.

Sec. A-232—BUILDINGS FOUND IN UNSAFE CONDITIONS—NOTICE TO OWNER—AUTHORITY OF COMMISSIONER:

(a) Whenever the Commissioner of Buildings shall find any building or structure or part thereof in the city in such unsafe condition as to endanger life, but in such condition that by the immediate application of precautionary measures such danger may be averted, he shall have authority and it shall be his duty to forthwith notify in writing, the owner, agent or person in possession, charge or control of such building or structure or part thereof, to adopt and put into effect such precautionary measures as may be necessary or advisable in order to place such building or structure or part thereof in a safe condition; such notice shall state briefly the nature of the work required to be done and the time within which the work required to be done shall be fixed by said Commissioner of Buildings, upon taking into consideration the condition of such building or structure or part thereof, and the danger of life and property which may result from its unsafe condition.

(b) Whenever the Commissioner of Buildings shall be unable to find the owner of such building, structure or part thereof, upon whom such notice may be served, he shall address, stamp and mail such notice to such owner at their last known address, and in addition thereto shall place or cause to be placed the notice herein provided for, upon such building at or near its principal entrance, in large letters as follows:

NOTICE.

"THIS BUILDING IS IN A DANGEROUS CONDITION AND HAS BEEN CONDEMNED BY THE COMMISSIONER OF BUILDINGS."

(c) It shall be unlawful for any person, firm or corporation to remove said notice or notices without written permission from the Commissioner of Buildings.

(d) If the owner of such building, premises or structure, or part thereof, when so notified, shall fail, neglect or refuse to immediately place such building or structure, or part thereof, in a safe condition, or to adopt such precautionary measures as shall have been specified by said Commissioner within the time specified in such notice, in such case, at the expiration of such time it shall be unlawful for any person, firm or corporation to occupy or use said building, premises or structure, or part thereof, until the same is placed in a safe condition and in compliance with this Code. In any case where a building or structure or part thereof, is in a dangerous or unsafe condition and has not been placed in a safe condition within the time specified in the notice of the Commissioner of Buildings, such building or structure or such part thereof, shall be forthwith vacated, and it shall be unlawful for any person or persons to enter same except for the purpose of making repairs required by the Commissioner of Buildings and the Ordinances of the City of Indianapolis, Indiana.

(e) If, at the expiration of the time specified in such notice for the completion of the work in order to render the building or structure safe, said notice shall not have been complied with, the Com-

missioner of Buildings shall refer the matter to the Board of Public Safety, together with such recommendations as he shall desire to make to the said Board of Public Safety. Whereupon it shall be the duty of the Board of Public Safety to cause a notice to be served upon the owner of such building, structure, or premises to appear before it upon a day named in such notice, to show cause why such building or other structure or parts thereof should not be condemned and the same removed. And the said Board of Public Safety shall thereupon hear and consider the recommendation of the said Commissioner of Buildings, and the objection thereto, if any, of such owners and after having satisfied themselves upon the matter represented, shall make final orders therein. If the report and recommendations of the Commissioner of Buildings shall be found correct and shall be approved, it shall be the duty of the Commissioner of Buildings to proceed forthwith to tear down or destroy that part of said building or structure that is in such unsafe condition as to endanger life and property. The expense of tearing down any part of such building or structure shall be charged to the owner of such building, structure or part thereof, and the Commissioner of Buildings shall recover or cause to be recovered from such owner in control thereof, the cost of doing such work, by legal proceedings, prosecuted by the Law Department.

(f) If such agent, owner, or person fails to appear before the Board of Public Safety at their request, said agent, owner or person shall be guilty of a misdemeanor.

Sec. A-233—MAY DIRECT FIRE DEPARTMENT TO REMOVE:

The Commissioner of Buildings shall have the authority to direct the Chief of the Fire Force or the Chief of the Fire Force shall have the authority to tear down or remove any defective or dangerous wall, flue or structure or any building or structure or part thereof, which may be or has been damaged by the cause of fire or otherwise when such dangerous wall, flue or structure endangers life or property.

Sec. A-234—MAY STOP CONSTRUCTION AND WRECKING OF BUILDING.

(a) The Commissioner of Buildings or his authorized assistants shall have the power to stop the construction of any building or the making of any alterations or repairs of any building within said city when the same is being done in a reckless or careless manner, or in violation of any ordinance or this building Code and to order, in writing or by parole or by posted notice any and all persons in any way or manner whatever engaged in so constructing, altering or repairing any such building to stop and desist therefrom until further notice. The following notice shall be posted:

"THIS BUILDING IS BEING CONSTRUCTED, OCCUPIED, ARRANGED OR DESIGNED IN VIOLATION OF THE BUILDING CODE AND THE ORDINANCES OF THE CITY OF INDIANAPOLIS, INDIANA. NO PERSON OR PERSONS EXCEPT THOSE AUTHORIZED SO TO DO ARE TO OCCUPY, TRESPASS, OR OTHERWISE USE THESE PREMISES.

"IT SHALL BE UNLAWFUL FOR ANY PERSON, FIRM, OR CORPORATION TO REMOVE THIS NOTICE WITHOUT THE WRITTEN PERMISSION OF THE COMMISSIONER OF BUILDINGS."

(b) When such work has been stopped as specified above by order of said Commissioner or his assistants, such work shall not be resumed until said Commissioner of Buildings shall be satisfied that adequate precautions will be taken for the protection of life and property, and that said work will be proceeded carefully and in conformity with the ordinances of the City of Indianapolis, Indiana, and this Code.

(c) Whenever any building or structure is found to be in violation of the Zoning or Building Ordinances of the City of Indianapolis, the owner or owners or person or persons constructing such building or structure shall immediately stop such construction even though said building or structure is being built according to plans approved by the Bureau of Buildings and stamped: "APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES."

The Commissioner of Buildings or his authorized assistants may stop such work by posted notice, parole, or letter whenever any violations of the Building and Zoning laws or ordinances occur.

Sec. A-235—ARBITRATION—APPEAL FROM DECISION.

(a) In all cases where discretionary power is used by the Commissioner of Buildings in questions relating to the erection or location of any building or buildings or structures or part thereof, any party or parties believing themselves injured or wronged by the decision of the Commissioner of Buildings, may before instituting any suit, make an appeal for arbitration as follows, to-wit:

(b) Any person wishing to make an appeal shall do so within five (5) days after written notice of the decision or order of the Commissioner of Buildings has been given. An appeal made later than five (5) days after the serving of the notice of the Commissioner of Buildings shall not entitle the appellant to any arbitration. The request for arbitration shall be in writing and shall state the object of the proposed arbitration and the name of the person who is to represent the appellant as arbitrator.

(c) The Commissioner of Buildings shall thereupon inform the appellant of the cost of such arbitration and such appellant shall within twenty-four (24) hours from the receipt of such information deposit with the Commissioner of Buildings, the sum of money requested for defraying the expenses of the same, which sum shall be fixed in each case by said Commissioner, in proportion to the time it will take and the difficulty and importance of the case, but shall in no case be more than the cost of similar service in the course of ordinary business of private individuals or corporations. As soon as such sum of money shall have been deposited with him, the Commissioner of Buildings shall appoint an arbitrator to represent the city and the two (2) arbitrators thus chosen shall, if they cannot agree, select a third arbitrator; and in event said two arbitrators fail to agree on a third arbitrator within five (5) days after their disagreement, the Mayor shall select the third arbitrator, after which the decision of any two (2) of these arbitrators shall, after investigation and consideration of the matter in question, be final and binding upon the appellant as well as the city, unless the appeal is taken therefrom, as provided in case of an appeal under a statutory arbitration, within five (5) days thereafter.

Sec. A-236—ARBITRATORS TO TAKE OATH—POWER TO EXAMINE WITNESSES:

(a) The arbitrators shall themselves, before entering upon the discharge of their duties, be placed under oath by the City Clerk or a Notary Public, to the effect that they are unprejudiced as to the matter in question and that they will faithfully discharge the duties of their position. They shall have the power to call witnesses and place them under oath, and their decisions or award shall be rendered in writing, both to the Commissioner of Buildings and the appellant.

(b) The fee deposited by the appellant with the Commissioner of Buildings shall be paid by the Commissioner of Buildings to the arbitrators upon the rendering of their report and shall be in full of all costs incident to the arbitration.

Sec. A-237—IN URGENT CASES—COMMISSIONER'S POWER FINAL:

Whenever the decision of the Commissioner of Buildings, regarding the safety of any building or any part thereof, is made in a case which is so urgent that failure to properly carry out his orders to demolish or strengthen such building or part thereof may endanger life and limb, the decision and order of the Commissioner of Buildings shall be absolute and final.

Sec. A-238—DUTY OF POLICE TO ASSIST COMMISSIONER IN ENFORCING—PROVISIONS OF THIS CODE AND ZONING ORDINANCES:

(a) The police shall assist the Commissioner of Buildings in enforcing any provisions of the Building and Zoning Ordinances. The Commissioner of Buildings or any of his authorized assistants in urgent cases may ask the police to accompany him or them to any premises to help enforce the law and make arrests where necessary.

(b) The police on regular patrol duty shall investigate all premises to see if a building license is posted, wherever it is apparent any construction, repair, or excavation work is being done. If no building license is posted on such premises the said police shall order all work and operations to stop immediately and until such a time as a building license is posted as required by this Ordinance.

(c) Whenever it shall be deemed necessary by the Commissioner of Buildings upon orders of the Board of Public Safety the police department shall have its men report in writing to the Commissioner of Buildings, on appropriate blanks, all locations where repairs to buildings or structures are being made and all locations of new construction of any character, to or of, any building or structure, or on any lot or premises in the city.

Sec. A-239—WRECKING BOND.

Any person, firm or corporation engaged in the wrecking of any building or structure for which a permit or license is required, before such a permit is issued shall execute and deliver to the City Controller a good and sufficient surety bond in the sum of ten thousand dollars ($10,000) payable to the City of Indianapolis, such bond:

(1) First, to indemnify the City against any lawsuit brought or judgments obtained against the City by reason of the wrecking or tearing down any such building.

(2) Second, to be made for the use and benefit of any citizen of the city who has obtained a judgment against the person, firm or corporation executing the wrecking of the owner or person in

charge or control of the premises; by reason of accidents to persons or property during the wrecking operations.

Sec. A-240—RULINGS OF THE COMMISSIONER OF BUILDINGS:

(a) Whenever it becomes necessary to add to or substract from the requirements set forth in this Code, the Commissioner of Buildings shall issue a ruling in regular numerical order which ruling after being passed by the Board of Public Safety and published twice each week for two (2) consecutive weeks in the official paper of the City of Indianapolis, shall become a part of this Ordinance and be subject to the provisions and penalties herein provided.

(b) Whenever new construction or new materials of construction pass such tests as outlined in this Ordinance they shall be adopted by the Commissioner of Buildings as a ruling as above outlined.

Sec. A-241—PAYING OF PERMIT FEES:

When an application for a permit has been issued by the Bureau of Buildings the fees for the Building License called for by said application shall be paid on the same day or the next business day following. Anyone withholding an application for a permit and not paying the fees within the time above specified shall be deemed guilty of a misdemeanor and shall be subject to a fine upon conviction as hereinafter provided.

Sec. A-242—CONNECTING PASSAGEWAYS:

(a) Fireproof passageways may be placed between buildings or structures within the City of Indianapolis and above a street or alley which does not exceed forty (40) feet in width of property line to property line.

(b) All passageways shall be constructed so as to safely sustain a load of two hundred (200) pounds per square foot on the floor thereof and a roof load as determined elsewhere in this Ordinance.

(c) All such passageways shall have automatic approved fire doors at each end.

(d) All such passageways shall be constructed entirely of incombustible material and shall be at all points at least fourteen feet above the highest point of the roadway of the street or alley.

Sec. A-243—VALIDITY OF THIS CODE:

If any part, section or part of any section of this Code shall in any manner be declared invalid, such invalidity shall not be construed to make any other part thereof invalid or any section of any part or any paragraph or sentence of any paragraph.

DIVISION A.
PART THREE
MISCELLANEOUS PROVISIONS.

Sec. A-301—THE FIRE LIMITS OF THE CITY OF INDIANAPOLIS.

(a) Commencing at the center line of the intersection of St. Clair Street and West Street; thence south with the center line of West Street to the center line of North Street; thence west with the center line of North Street to the center line of Blake Street; thence South on Blake Street to the center line of Washington Avenue; thence west to the east bank of White River; thence south and along the east bank of White River to a point in line with the center line

of McCarty Street; thence east to and on the center line of McCarty Street to a point in a line parallel with the southwest property line of Virginia Avenue and one hundred and fifty (150) feet from the southwest of said property line; thence to the center line of Prospect Street; thence east on the center line of Prospect Street to the center line of Shelby Street; thence north on the center line of Shelby Street to the center line of Hosbrook Street; thence northwest on the center line of Hosbrook street to the center line of Cedar street: thence northeast on the center line of Cedar Street to the center line of Elm Street; thence northwest on the center line of Elm Street to the center line of Pine Street; thence northeast and thence north on the center line of Pine Street to the center line of Davidson Street; thence on the center line of Davidson Street to the center line of Massachusetts Avenue; thence north to a point in a line parallel with the northwest property line of Massachusetts Avenue and one hundred and fifty (150) feet northwest from the said property line; thence southwest on said line, parallel with the northwest property line of Massachusetts Avenue and one hundred and fifty (150) feet from the northwest of said property line, to the center line of St. Clair Street; thence west on the center line of St. Clair Street to the place of beginning.

(b) That part of the fire limit as described in paragraph (a) commencing at the intersection of the center line of North Street and West Street; thence south on the center line of West Street to the center line of Merrill Street; thence east on the center line of Merrill Street to the center line of East Street; thence north on the center line of East Street to North Street; thence west on the center line of North Street to West street, the place of beginning, shall be known as the first or inner fire district or zone.

That part of the fire limits outside of the District as described in paragraph (b) shall be known as the outer or second district or zone.

Sec. A-302—CLASSIFICATION OF BUILDINGS ACCORDING TO CONSTRUCTION.

(a) All buildings as hereafter described, now existing or hereafter erected, altered or enlarged, shall be classified into four (4) classes of construction as follows:

(b) Buildings of the first class shall be taken to mean a building of fireproof construction throughout, the structural parts of which are wholly of brick, stone, tile, concrete, iron, steel or other equally substantial non-combustible materials.

(c) Buildings of the second class shall be taken to mean a building of metal or slow burning construction, wherein any floors and roofs are constructed of heavy dressed timbers, exposed wooden beams, girders and planking and supported upon heavy masonry walls or on wooden or fireproofed iron or steel columns.

(d) Buildings of the third class shall be taken to mean any building not of the first or second class, the external and division walls of which are wholly of brick, stone, concrete or other incombustible materials.

(e) Buildings of the fourth class shall be taken to mean any building not of the first, second or third class.

Sec. A-303—CLASSIFICATION OF BUILDINGS ACCORDING TO USE:

All buildings shall be classified according to their occupancy or use under one of the six (6) following grades:

(a) Public buildings or structures accessible to the public, and in which people may congregate for civic, political, educational, religious, amusement or transportation purposes; or in which they may be voluntarily or forcibly detained or housed for safety, punishment, observation, or care, shall be classified under Grade A and B.

(1) The following buildings shall be grouped under Grade A of Public Buildings:

Armories, bath houses (with sleeping accommodations other than those required for janitor), city halls, hospitals, colleges, court houses, detention buildings, police stations, libraries, museums, nurseries, railway passenger stations, schools or places of instruction, theaters, art buildings, gymnasiums and swimming pools and churches.

(2) The following buildings shall be grouped under Grade B of Public Buildings:

Amusement and dance halls, exhibition buildings, community center halls and all other public assembly halls.

(b) Residence Buildings shall be construed to mean all buildings where sleeping accommodations (other than janitor, chauffeur or watchman) are provided, including accessory buildings, shall be classified under Grade C and D.

(1) The following buildings shall be grouped under Grade C of Residence Buildings:

Bachelor apartments, club houses and studies with more than fifteen (15) sleeping rooms, hotels, rooming houses, lodging houses, boarding houses, tenement houses, and garages accessory to any of the above housing not over four (4) cars between fire walls.

(2) The following buildings shall be grouped under Grade D of Residence Buildings:

Single family dwellings, doubles, duplexes and three (3) or four (4) apartment dwellings designed with separate entrances, porches, halls, toilets and rooms.

(c) Business buildings shall be construed to mean and include all structures used or adapted to the transaction of business, the operation of machinery, the manufacture or storage of machinery or materials, the housing of live stock, or buildings or structures for any other industrial purpose and shall be classified under Grade E and F.

(1) The following buildings shall be grouped under Grade E of Business Buildings:

Factories, lofts, office buildings, telephone exchanges, printing houses, restaurants, stables, stores, warehouses, workshops and garages housing over four (4) cars between fire walls.

(2) The following buildings shall be grouped under Grade F of Business Buildings:

Car barns, foundries, light and power plants, railroad freight stations, ice houses, also special industry buildings, constructed and occupied exclusively for a special purpose or industry and not otherwise classified, such as coffee roasters, cooperage shops, dry cleaning establishments, ice-making plants, laboratories, malt houses, oil houses, oil refineries, refrigerating plants, rendering plants, soap factories, sugar refineries, smoke houses, slaughter houses, also garages accommodating more than four (4) cars between fire, division or party walls or in which cars are stored or parked on more than one (1) floor.

Sec. A-304—CLASS OR GRADE OF BUILDING CHANGED—PERMIT:

(a) When buildings, the use of which bring them within any of the classes or grades mentioned, are to be applied to the uses of any other classes or grades of which a better system of construction is required, the construction and equipment of such buildings shall first be made to conform to the requirements of this Code as specified for their intended use.

(b) It shall be unlawful to use any such building for a new or different purpose other than that for which its structure or purpose adapts it, unless the requirements of this Code to such new and different use, have been complied with, with a permit for such alterations, which has been first obtained from the Commissioner of Buildings.

Sec. A-305—BUILDINGS WITHIN THE FIRE LIMITS:

(a) All buildings hereafter erected or enlarged within the inner fire zone as described in section three hundred and one (301) above shall be erected or enlarged, except as hereinafter provided. as first or second class buildings. Only buildings built entirely of non-combustible materials may be erected over a railroad track or switch. An all metal isolated one (1) story shelter shed, without side walls, may be erected when the area of the same is not over four thousand (4,000) square feet. This shed may be used for the shelter of automobiles.

(b) All buildings hereafter erected, altered or enlarged within the outer fire zone as described in section three hundred and one (301) above shall be erected, altered or enlarged, except as hereinafter provided, as first or second class buildings.

(c) It shall be unlawful to repair or alter any building within either fire zone, if in the opinion of the Commissioner of Buildings such building has been altered or damaged from any cause to the extent of fifty (50) per cent of its original cost as a new building. The Commissioner of Buildings shall have authority to order such building wrecked and removed.

Exception: A First or Second Class Building.

(d) Repairs on every existing frame dwelling which is rented, leased, let or hired out, to be occupied, or which is occupied as the home or residence of not more than four (4) families living independently; with no halls, toilets or entrances in common may be made involving the substitution of material or work made necessary by ordinary wear and tear.

(e) Any dwelling house which is to be occupied as the home or residence of not more than four (4) families living independently from each other with no halls, toilets, or entrances in common, may be constructed and erected within the outer fire zone as fourth class buildings veneered with brick or other non-combustible material, including approved metal lath and plaster.

(f) Additions or alterations may be made to any frame constructed dwelling now existing and located within the outer fire zone as fourth class buildings not veneered as described above, and which is occupied as the home or residence of not more than two (2) families living independently from each other, with no halls, toilets or entrances in common; provided no such additions or alterations are greater than forty (40) per cent of the superficial area of the outer dimensions of the original existing foundation walls.

(g) Fourth class one (1) story two (2) car garages may be erected as an accessory to a dwelling on the rear half of any lot in the second fire zone, providing no part of such building or structure is built within four (4) feet of any other building or structure. Class C roofing shall be used on such garages. Such garages shall be limited to five hundred (500) square feet in area of outside of building walls. Nothing in this section shall prevent one (1), two (2) car garage for each family of such dwelling when the same are constructed as above described.

(h) Contractors' tool and construction houses may be erected in either fire zone.

Sec. A-306—MEZZANINE FLOORS:

Mezzanine Floor Area shall in no case exceed seventy-five (75) per cent of the area of the floor below.

(b) All canopies shall be of fireproof construction.

(c) All canopies shall have a clear unobstructed vertical dis-

Sec. A-307—CANOPIES OVER PUBLIC HIGHWAY:

(a) No canopy shall extend within eighteen (18) inches of a line drawn perpendicular and projecting from the curb.

tance of twelve (12) feet below the canopy to the curb grade.

(d) No canopy shall extend within three (3) feet of the side property line when such side property line is extended to the curb; within three (3) feet of the side walls or walls built at an angle with the wall from which the canopy is suspended.

(e) All canopies shall be hung or supported from the building. No posts or supports shall obstruct the public highway.

Sec. A-308—HEIGHT OF STORIES:

In all buildings of all classes of construction the height of stories shall not exceed the following, without adequate provision being made to safely sustain the increased stresses:

First Story	16	Ft.	in	the	Clear
Second Story	14	"	"	"	"
Third Story	12	"	"	"	"
Fourth and Upper Stories	11	"	"	"	"

Exception—Special permission.

Sec. A-309—SKYLIGHTS—MONITORS:

The term skylight shall include all monitors, saw-toothed roofs or other openings in any roof construction for ventilation or lighting purposes.

All skylights shall be of metal sash and wire glass with metal supporting members.

All skylights shall have the under side protected with heavy mesh wire screens not less than number twelve (12) wire mesh.

Exception—Other approved construction.

Note—It is recommended that all skylights have condensation troughs run to the sump. Theater Stages. Sec. A-521.

Sec. A-310—GLASS IN FLOORS OR SIDEWALKS:

Glass used in sidewalks or floors for the transmission of light shall be set in steel frames. Each opening shall be limited to sixteen (16) square inches of glass area.

Exception—Glass protected openings in floors guarded by a railing or well.

Sec. A-311—METALLIC LEADERS FROM ROOFS:

All roofs of buildings of all classes shall have sufficient metallic leaders and troughs that will conduct the water from the roof to a sewer or dry well and in such a manner that no water will run into and damage the walls and footings.

Exception—Two (2) car frame garages accessory to a dwelling. (See Section A-344.)

Sec. A-312—CORNICES:

In all buildings which have a cornice of incombustible material sixty-five (65) per cent of the weight of such material shall be within and back of the outer face of the wall upon which the cornice rests.

Such cornices shall be thoroughly anchored into the wall.

The placing of heavy materials above the cornice will not suffice to hold the cornice in place but the cornice must be a structural and safe unit.

No wooden cornice will be permitted.

Exception—Wooden frame construction, of fourth class or class three residences or fireproofed wooden roof timbers in class two.

Sec. A-313—BUILDINGS TO BE ON OWN PROPERTY:

No part of any building shall project beyond the building line and into the public highway.

Exception—

(a) Appendages may project three (3) feet beyond the building line into the street, but in all cases shall be twelve (12) feet above the grade.

(b) Street signs or flag poles may project one-third of the distance from the property line to the curb line and need to be only nine (9) feet above the established curb grade.

(c) A fireproof canopy.

Sec. A-314—SCUTTLES TO FLAT ROOFS—STAIRS TO FLAT ROOFS:

In buildings of all classes that have a flat roof at least one (1) large scuttle door shall be provided with easy access to the roof. A passageway shall lead to all such scuttles.

In buildings of the first class all stairs shall extend to the roof so that egress may be taken to the roof in case of fire.

Note: It is recommended that a stairs be run to all scuttles in order to facilitate fire fighting of adjacent premises.

Sec. A-315—BUILDING MATERIALS IN THE STREET.

(a) Persons engaged in the erection, reconstruction, wrecking or repair of any building, may occupy the public space with building materials for such reasonable period as the Commissioner of Buildings shall decide.

(b) The occupying of sidewalks or streets by articles not intended for immediate use from day to day in connection with the operations for which the permit has been issued will not be allowed except that old brick or building materials taken from the building and to be used in the new construction may be stacked in front of the site of said building for a time to be limited by the Commissioner of Buildings.

(c) The maximum area permitted to be occupied in any street or alley must be approved and shall not extend beyond one-third (⅓) of the width of the street, from curb line to curb line, where there are no railway tracks. On streets containing railway

tracks the space to be occupied by building materials outside of the curb shall depend on the width of the streets in front of the building under construction or repair.

(d) Where the street between the curb and the nearest rail of the track is twenty (20) feet or more, the building material shall be completely stacked or arranged at all times to occupy not more than three-fourths (¾) the distance from curb to the nearest rail therefrom and to leave at least ten (10) feet clear in all cases between materials and the nearest rail, and no teams, wagons, carts, barrows, hods, buckets, or other appliance, delivering or removing materials to or from the building shall obstruct any part of the space so reserved.

(e) The gutter or waterway of any street, avenue or alley shall not at any time be obstructed by any building materials or by any earth, sand, or gravel, but such gutters or alleyways must be at all times kept clear to allow the free passage of water in and along the same.

(f) Any person having the use of any portion of the street or sidewalk shall cause red lights to be placed in a conspicuous place in front of all obstructions from dark until sunrise each night, during the time such obstruction remains.

Sec. A-316—SIDEWALKS TO BE COVERED.

(a) Whenever any new building is to be erected or any building is to be remodeled or wrecked and where such building is more than one (1) story in height and is located adjacent to the city property line of the street, the owner, agent or contractor for such new building, remodeling or wrecking, shall, before proceeding with such work, first erect a safe and convenient inclosed passageway for the use of pedestrians, between the property line and the curb adjacent to such buildings or structures.

Exception—Special permission from the Commissioner of Buildings.

(b) Such inclosed passageway shall be so constructed as to give a free and unobstructed passage for pedestrians not less than seven (7) feet in width and not less than eight (8) feet in height, provided, however, that in no case shall such passageway be required to be of a greater width than the established and existing sidewalk upon any street where such enclosed passageways shall be required.

Exception—Special permission.

(c) The sides and roof of the same shall be constructed of material of sufficient strength to afford full and complete covering. Such inclosed passageway shall be water-tight and the inside walls and ceilings thereof shall be painted or calcimined white throughout the entire length thereof.

(d) Such inclosed passageway shall be equipped with suitable lights of sufficient number and power to illuminate the same at all times.

(e) Such inclosed passageway shall at all times be maintained in a clean and sanitary condition and be kept free from rubbish, litter and all advertising display, and shall be provided with suitable solid approaches to the walkway.

(f) Post-No-Bill signs shall be painted on the passageway in conspicuous places.

(g) Sidewalks shall be kept clean at all times.

Sec. A-317—CURB OR PAVING—HOW TO REMOVE.

When, in the construction, alteration, repair, or removal of a building, it shall be necessary to remove any of the paving or curb in the street in front of said building or in the alley adjacent thereto, either for the purpose of making excavation or for setting derrick posts, the Commissioner of Buildings shall not issue a permit for said proposed work until the applicant for such permit presents to the Commissioner of Buildings a permit from the City Engineer for removing said paving or curb, together with an approved bond from the Board of Public Works for the amount of money necessary, according to the estimate of the City Engineer, to defray the expenses of relaying after the completion of said building. (See Section F-130.)

Sec. A-318—TEMPORARY SHEDS AND CONTRACTOR'S TOOL HOUSES.

Temporary, one (1) story, frame sheds and contractor's tool houses may be erected within the fire limits for the use of builders, adjacent to buildings in course of erection, but shall be demolished or removed upon the completion of said building.

Sec. A-319—SCAFFOLDING.

All scaffolds erected, for use in construction, repair, alteration or removal of buildings shall be safely supported and of sufficient width and properly secured to insure the safety of persons working thereon, or passing under or by the same and to prevent the falling thereof or of any materials therefrom and any workman or mechanic whose duties require him to use a scaffold, may notify the Commissioner of Buildings, in writing, calling attention to any defect or conditions which in the employe's opinon renders the scaffold dangerous and the Commissioner of Buildings shall inspect the scaffold and take such action as is necessary.

Sec. A-320—LIGHTS IN HOTELS, FLATS AND APARTMENT HOUSES.

It shall be the duty of each lessee, manager or custodian of any hotel, flat or apartment house to keep, during all hours of the night, such number of lights burning in the basement and halls thereof as to make all public parts of such basement and hallways visible to persons of ordinary eyesight coming into the same.

Sec. A-321—FIREPROOF SHAVING VAULTS:

No building shall be used or occupied in whole or part for any of the trades or occupations hereinafter mentioned, to-wit:

Planing mills, sash, door and blind factories, carpenter or cooper shops, wagon or carriage manufactories, cabinet and furniture factories, wood turning and veneer manufactories, box or shingle manufactories or any other woodwork factory or shop, unless such building, so occupied, shall have in connection with it a brick or other approved vault with fireproof doors of sufficient capacity to contain all the shavings, saw dust, chips or other light combustible refuse connected therewith and shavings and other light combustible refuse shall be removed each day from such premises to such vault and in no event shall the proprietors, owners or lessees of the above named manufactories or shops allow combustible refuse to accumulate on any lot or in any buildings unless stored in such a brick or other approved vault.

Exception—Such combustible materials may be stored in all metal containers.

Sec. A-322—AWNINGS.

(a) The erection of awnings, coverings and canopies that project over any street, alley or other public place is permitted. A structure of the kind mentioned is one of which either the frame or covering is made to be raised, folded or rolled up.

(b) No structure mentioned in this section shall be erected that is supported by other means than the attachment of the same to the building.

(c) Such structure when lowered, unfolded or unrolled may project beyond the property line of the street, alley or other public place not to exceed eight (8) feet, provided that it shall not project in any case nearer than eighteen (18) inches to the outer edge of the curb.

(d) No structure mentioned in this section at its lowest point shall be less than eight (8) feet above the surface of the sidewalk or public lawn space over which it is erected.

Sec. A-323—FENCE.

(a) All partition or party fences shall be made and kept in good condition and sufficient repair by the owners of the ground on each side, at their joint expense, provided that the ground on each side shall be inclosed, used or occupied.

(b) If any person, whose duty it shall be to make or keep in good repair any fence or part of the fence, shall neglect or refuse to do so for five (5) days after the written request being made by the other parties interested, or his agent, then it shall be lawful for the party so making the request of the aforesaid to make or repair the whole fence or part of the fence and recover one-half (½) of the expenses thereof from the person so refusing or neglecting.

(c) No fence erected under the authority of these regulations shall be less than five (5) or more than seven (7) feet in height, excepting by consent of the parties interested on both sides of such fence and the permission of the Commissioner of Buildings.

(d) If any person shall enclose ground adjoining that already inclosed and shall thereby be benefited by any fence before erected, the person so benefited shall pay therefor a just and reasonable compensation in conformity to the conditions of the fence at the time.

Sec. A-324—STORM DOORS.

(a) Temporary storm doors may be erected in front of any entrance to any building, provided that the construction does not project more than three and one-half (3½) feet from the building line. Storm doors or any part thereof shall be erected or maintained only during the winter months of each year, and must be removed at any time on written orders of the Commissioner of Buildings, and in no case shall storm doors or inclosures be used as signs or for the display of goods or advertising.

(b) Revolving doors shall not be used as storm doors or for any other purpose, unless the revolving wings of such revolving doors are so arranged that by the application of a force, slightly more than is necessary to revolve said doors, and which any person of ordinary strength is capable of exercising, all the wings of said doors fold flat on each other and in an outward direction or unless the revolving wings of said revolving doors are so arranged that they will readily collapse or remove by pressure or simple mechanical means to be

approved by the Commissioner of Buildings and leave sufficient opening for two (2) or more persons to pass through, with a minimum width of not less than twenty-two (22) inches on each side of said collapsed door.

(c) Where revolving doors are used as exits, they shall be credited as exits only to the extent of the clear space remaining when the doors are collapsed and all deficiency of required exits must be made up by additional doors.

(d) Such revolving doors shall not be used in exits from public assembly halls.

Sec. A-325—MOVING BUILDINGS:

(a) It shall be unlawful for any person, firm or corporation to move any brick, frame or other building from one location to another unless the same shall be altered or reconstructed so as to conform to the class of construction required by this Code in its new location.

(b) No building shall be moved to a new location over any street within the city limits without a permit to be first issued therefor by authority of the Board of Public Works.

(c) The person desiring such removal shall file with the Commissioner of Buildings his written application therefor, setting forth the kind of building to be removed, its estimated original cost, its dimensions in extreme length, height and width, its present location and the particular lot or site to which it is proposed to be moved. The Commissioner of Buildings shall thereupon thoroughly examine said building and refer the papers aforesaid, relating to its removal, to the Board of Public Works, together with his original opinion endorsed in writing upon said application as to the present value of such building compared with the original cost and whether the proposed removal can be made without serious injury to person or property, provided, however, that no such building shall be moved if it has been damaged by wear and tear or other cause to an extent exceeding fifty (50) per cent of its first cost. The Board of Public Works may thereupon approve the issuing of a permit for such removal, designating therein the particular street or alleys along which the removal shall be made and that such removal can, in the opinion of the Board of Public Works and the Board of Park Commissioners, be made without serious injury to pavement, curb, shade trees or other public improvements.

(d) The Board of Public Works shall require a bond to be executed by the person, firm or corporation, describing such removal with surety to the satisfaction of such Board, which bond shall be in terms for such amount as said Board may prescribe, conditioned upon the strict compliance with the terms of the said permit as to route to be taken and limit of time in which to effect such removal, and to repair or compensate for the repair, and to pay all damages whatsoever occasioned by or incident to such removal and to pay to said City of Indianapolis as liquidated damages an amount not exceeding fifty (50) dollars, to be prescribed by said Board for each and every day's delay in completing such removal or any repair in damages to property or public improvement or in clearing public highways of all debris occasioned thereby.

(e) With the issuance of said permit, the said Board of Public Works shall cause written notice thereof to be given to the Superintendent of the Fire Alarm and the owners of telephone, telegraph,

electric light companies and others whose property may be affected by such removal.

(f) It shall be unlawful to remove any building across any bridge or over any waterway in the City of Indianapolis.

Sec. A-326—EXCAVATED SPACES.

Open excavated spaces that are within ten (10) feet of any property line of the street or public highway shall have retaining walls built in such an approved manner that danger to the public will be eliminated. If, in the opinion of the Commissioner of Buildings, a solid fence is necessary such a fence shall be provided by the owner of the said premises, whether a retaining wall is necessary or not.

Sec. A-327—TEMPORARY BUILDINGS.

No temporary building shall be erected in the City of Indianapolis.

Exceptions:

(a) As an adjunct to the erection of a building, known as contractor's sheds or tool houses.

(b) Upon satisfactory evidence that such building is temporary. No permit will be required for contractor's houses and the same must be demolished or moved away immediately after the final inspection of such building.

A solid foundation is required under a temporary building.

Sec. A-328—TENTS, ERECTION OF.

No tent shall be erected in the City unless a permit so to do is granted by the City Controller after application to the Commissioner of Buildings upon written approval of the Board of Public Safety.

Sec. A-329—TEMPORARY CONSTRUCTION—(See Section A-362).

(a) Before the erection of temporary construction in any public hall, for the use of fairs, bazaars, luncheons and other forms of public entertainment, comprising booths, stands or scenic representation, the plans of such proposed work shall be filed with the Commissioner of Buildings and his approval and a permit obtained before such work is contemplated.

(b) All such construction shall be so located in the hall as not to obstruct perfectly free access to all exits.

(c) All scenic drapery, woodwork or other inflammable materials shall be treated with fireproof paint or compounds which may be approved by the Commissioner of Buildings.

Sec. A-330—SCENERY IN CLUB OR LODGE HALLS.

Nothing herein shall prevent the use of a limited amount of permanent scenery, curtains, and appliances, to be used in a club or lodge hall, when the same is treated with fireproof paint or compounds approved by the Commissioner of Buildings.

Sec. A-331—TEMPORARY BOOTHS AND STANDS.

Temporary one (1) story wooden or canvas-covered booths, sales stands or lunch counters, for fair and exhibition purposes and structures for similar use may be constructed in such a manner and under such conditions as the Commissioner of Buildings may prescribe.

Sec. A-332—SPRINKLERS. (See Section A-504.)

(a) In all new or existing buildings of all classes an approved automatic sprinkler system, so constructed as to protect every square foot of floor area, shall be provided as follows:

(1) Throughout all Grade E and Grade F buildings of all classes in the cellar, basement or sub-basement thereof, including spaces under sidewalks; and used for the manufacture, sale or storage of combustible goods or merchandise.

Exception:—Basement less than twenty-five hundred (2,500) square feet in area.

(2) Throughout all buildings of all classes having a maximum area between fire or division walls in excess of those permitted by this Code.

(3) Throughout first and second class buildings of Grade E and Grade F, where the height exceeds five (5) stories; except in office buildings such a system shall be required only in sample, shipping, storage or stock rooms which exceed one thousand (1,000) square feet in area and contain combustible goods or supplies not stored in enclosed fire-resisting shelving.

(4) Throughout all second class buildings of Grade E and Grade F over two (2) stories high, used for the manufacture, sale or storage of combustible goods or merchandise.

(5) Over all heating furnaces or boilers, in Grade A, Grade B, and Grade C buildings unless in approved fireproofed rooms.

(b) Sprinkler heads shall be a kind approved by the Chief of the Fire Department.

(c) Sprinkler heads shall be so placed as to thoroughly protect all parts of the area in which they are installed, including spaces under stairs, inside elevator wells, in belt, cable, pipe, gear and pulley boxes, inside small inclosures, such as drying and heating boxes, tenter and dry room inclosures, chutes, conveyor trunks, and all cupboards and closets unless they have tops entirely open and are so located that sprinklers can properly spray therein. Each sprinkler head shall protect not in excess of one hundred (100) square feet area.

(d) The size of the riser serving any one floor of one fire area shall not be less than the following, and the number of sprinklers on a given size pipe on one floor of one fire area shall not exceed the following:

Size of Pipe.	Maximum No. of Sprinklers Allowed
¾ inch	1 Sprinkler
1 "	2 "
1¼ "	3 "
1½ "	5 "
2 "	10 "
2½ "	20 "
3 "	36 "
3½ "	55 "
4 "	80 "
5 "	140 "
6 "	200 "

(e) Each system shall be provided with an outside screw and yoke gate valve so located as to be readily accessible and to control all sources of water supply, except that from steamer connections. Drain pipes shall be provided, and the system so installed as to drain all parts.

(f) A dry pipe system shall be used only when a wet pipe system is impracticable, as in buildings which have no heating facilities.

(g) Two (2) independent water supplies shall be provided, at least one of which shall be automatic. Provided that, where sprinklers are required only in cellars, basements, and first stories, a connection to a street main will be deemed sufficient.

Supply from street mains is not sufficient for automatic supply unless giving, in the highest line of sprinklers, at least twenty-five (25) pounds static pressure, and the supply shall be able to maintain ten (10) pounds pressure with the water flowing through the number of sprinklers judged liable to be opened by fire at any one time.

(h) Pressure tanks, if used, shall have a total capacity of not less than forty-five hundred (4,500) gallons (3,000 gallons of water), and in any event the tank or tanks shall contain sufficient water to supply twelve and one-half (12½) per cent of the greatest number of sprinklers within a fire area on any one floor for twenty (20) minutes with an average discharge of twenty (20) gallons per minute per sprinkler.

(i) Gravity tanks, if used, shall contain an available quantity of water sufficient to supply twenty-five (25) per cent of the greatest number of sprinklers in a fire area on any floor to which it gives protection, for twenty (20) minutes with an average discharge per sprinkler of twenty (20) gallons per minute, but the tank shall be not less than five thousand (5,000) gallons available capacity.

The elevation of the bottom of the tank above the highest line of sprinklers on the system which it supplies shall be not less than twenty (20) feet.

(j) Fire pumps, if used, shall be of not less than five hundred (500) gallons capacity per minute, and sufficient to supply fifty (50) per cent of the number of sprinklers within a fire area on any floor with an average discharge per sprinkler of twenty (20) gallons a minute. Pumps shall have an adequate source of power and shall be supplied from street main or from well or cistern containing one hour's full supply for the number of sprinklers judged liable to be open by fire at any one time; suction piping shall be installed in an approved manner.

(k) The system shall be connected to a Siamese steamer connection outside of the building by a pipe of a diameter equal to that of the largest standpipe supplied. Such connection shall be made on each street front, except that corner buildings having one street frontage of less than fifty (50) feet may have only one connection. Siamese connections shall be about one (1) foot above the curb level, and shall be provided with check valves, and substantial caps to protect the threads on the connection; the threads shall be uniform with that used by the fire department. A suitable iron plate with raised letters shall be provided, reading "To Basement Sprinkler" or "To Cellar Sprinkler," where only these are installed, or "To Automatic Sprinkler" where entire building is equipped.

(l) Just inside of the building, in a horizontal section, shall be placed a straightway check valve. A drip pipe, with valve to same, shall be placed between said check valve and Siamese connection to properly drain this section to prevent freezing.

(m) Piping shall be wrought iron or steel, galvanized, and, together with fittings and connections, shall be of such strength as to safely withstand at least one hundred and fifty (150) pounds water pressure to the square inch for two (2) hours when ready for service, without leaking at joints, valves, or fittings; such test shall be made by the Chief of the Fire Department.

(n) All such sprinkler equipments shall be in accordance with the regulations of, and plans shall meet the approval of the Chief of the Fire Department.

Note: It is generally recognized among fire-protection engineers that the introduction of an approved system of automatic sprinklers in a factory where the conditions of manufacture constitute a fire hazard, not only furnishes excellent security against loss by fire, but that it soon pays for itself by the reduction in insurance premiums. The period necessary for this reimbursement usually varies from four (4) to seven (7) years depending upon the condition surrounding the risk. The automatic sprinkler installation is therefore an excellent financial investment aside from the protection it affords to life and property against fire.

Sec. A-333—METALLIC STAND PIPES:

All factories, warehouses, mercantile business, hotels, flats, apartment buildings and office buildings sixty (60) feet and over in height shall be provided with one (1) or more two and one-half (2½) inch or larger metallic stand pipes provided with hose connections at each story on the outside wall thereof, or on the inside of such building extending to and above the roof and so arranged that a fire hose may be attached from the street to the same. All such standpipes shall be provided with Siamese connections, provided and arranged subject to the approval of the Chief of the Fire Department.

Exception—Other approved methods.

Sec. A-334—PROTECTION OF FIRE DOORS:

All fire doors shall be so installed that they will close under adverse conditions. If counterweights are used to close any fire door the counterweights shall be placed in protected metal boxes or channels so that materials placed in close proximity to the door will not interfere with the operation of the door.

Sec. A-335—REINSPECTION OF FIRE DOORS—SPRINKLERS—OTHER FIRE PROTECTIONS:

The Commissioner of Buildings may annually have all fire doors or other fire protection apparatus inspected by a competent inspector to see that the same is in first-class working condition, including the sprinkler systems and chemical extinguishers.

Sec. A-336—CHEMICAL FIRE EXTINGUISHERS:

In all buildings of Grade E and Grade E, where combustible materials of any kind are stored approved chemical extinguishers shall be installed.

Approved extinguishers shall be installed in readily accessible places to the extent that one (1) extinguisher is installed to each and every two thousand (2,000) square feet of floor area of the building or structure.

These extinguishers shall be marked with explicit directions as to the operation of the same in order to extinguish a fire.

Sec. A-337—HEATING AND VENTILATION IN SCHOOL HOUSES.

All school houses hereafter constructed or remodeled shall be supplied with heating and ventilating systems. Fresh air shall be taken from outside the building and properly diffused without draughts through each school-room during the school session. Each school-room shall be supplied with foul air flues of ample size to withdraw the foul air therefrom at a minimum rate of eighteen hundred (1800) cubic feet per hour for each two hundred and twenty-five (225) cubic feet of said schoolroom space, regardless of outside atmospheric conditions; and heaters of all kinds shall be capable of maintaining a temperature of seventy (70) degrees Fahrenheit in all schoolrooms, halls, office rooms, laboratories and manual training rooms, in all kinds of weather and maintaining in each schoolroom relative humidity of not less than forty (40) per cent; provided, that when artificial ventilation, by use of fan or blower, is adopted, the provisions as to entrance of fresh air shall be from outside of the building.

Exception—Other approved methods.

Sec. A-338—SANITARY CONDITIONS OF PREMISES DURING BUILDING CONSTRUCTION:

(a) Every contractor or builder shall keep the premises where buildings are being wrecked or constructed, in a sanitary condition and shall furnish suitable toilets or privies for the employees during working hours.

(b) Such toilets or privies shall be approved and erected under the rules and regulations of the Board of Health.

(c) Sanitary drinking water shall be furnished the working men during working hours.

(d) All scrap paper, garbage, kindling or refuse wood or any other deleterious matter of a combustible nature shall be disposed of and the premises kept free from fire hazards.

Sec. A-339—ROLLER COASTERS—AERIAL AND OTHER AMUSEMENT DEVICES:

(a) No amusement device of any character on which passengers ride shall be installed in any building or on any lot or premises without a permit to do so.

(b) Duplicate sets of plans shall be filed in the Bureau of Buildings before a permit is issued. Such plans shall be in conformity with the provisions of this Code.

(c) All such amusement devices shall be tested before the same are used. Such tests shall be under the supervision of the Commissioner of Buildings.

Test:

A test shall be conducted by loading the amusement device with twice the working live load figuring one hundred and fifty (150) pounds per person, that is, the device shall be loaded to twice the capacity of the maximum number of people that can ride thereon or therein.

(d) Once each year before such amusement device shall be used they shall be reinspected and tested and the reinspection fee named in this Code shall be paid for such reinspection. The reinspection test shall be the same as if the device were new.

Sec. A-340—HYBRID BUILDINGS:

(a) No hybrid building shall be permitted unless by special permission of the Commissioner. However, in no case shall a third-class provision be waived for a fourth-class provision, nor a second-class for a third-class, nor a first-class for a second-class.

(b) Hybrid buildings will be permitted whenever the provision that makes the building hybrid, is of a better classification, i. e., third-class construction may be substituted for fourth-class and second-class for third and first for second.

Sec. A-341—WINDOW WASHERS AND PAINTERS SAFETY HOOKS:

In every building four (4) stories or over in height there shall be provided in each window an approved set of safety supports fastened in a safe and thorough manner. Such safety hooks are to be provided for window washers and painters.

Sec. A-342—PROVISIONS OF THIS CODE.

This Code is divided into parts for convenience of use only and any provision in one part shall be applicable to any other part. Any provision for one class or grade of building shall be deemed to apply to any other class or grade unless specifically so stated in the section. This is provided in order to avoid considerable repetition. special permission.

Sec. A-343—NO EXCAVATION BELOW FOOTINGS.

Basements or cellars or parts thereof shall not extend to a depth lower than the bottom of the footings in any building except by

Sec. A-344—SIZE OF BUILDING DRAINS—AND SEWERS FOR STORM WATER ONLY:

The required sizes in inches of circular storm water building drains and building sewers and other lateral storm drains shall be determined on the basis of the total drained area in horizontal projection in accordance with the following table:

No. of Sq. Ft. Drained Area.	Fall ⅛" to 1'	Fall ¼" to 1'	Fall ½" to 1'
Up to 90	1-½	1-½	1-½
91 to 400	3	2	2
401 to 660	3	3	2
661 to 1200	4	3	3
1201 to 1800	4	4	3
1801 to 2500	5	4	4
2501 to 4100	5	5	4
4101 to 4600	6	5	5
4601 to 5300	6	6	5
5301 to 7500	8	6	6
7501 to 11100	8	8	6
11101 to 15700	10	8	8
15701 to 19500	10	10	8
19501 to 24800	12	10	8
24801 to 31000	12	12	10
31001 to 44000	14	12	10
44001 to 60000	14	14	12

See Part ten, Division F.

Sec. A-345—COMBINED STORM AND SANITARY SEWER SYSTEMS:

Whenever a combined sewer system is employed, the required site of the building sewer shall be determined by adding to the drained area in square feet one hundred eighty (180) square feet for each "Fixture unit." (See table, Section A-346, on the sanitary system), and then applying the total to the preceding table for storm sewers; except that no combined sanitary and storm sewer shall be less than four (4) inches in diameter. The required sizes of the sanitary building and the storm building drain up to their point of junction outside of the building may be independently determined from the table.

Sec. A-346—FIXTURE UNIT.

The following table based on the rate of discharge from a lavatory as the unit shall be employed to determine fixture equivalents: See Sec. F-902.

One (1) lavatory or washbasin	1	fixture unit
One (1) kitchen sink	1½	" "
One (1) bath tub	2	" "
One (1) laundry tray	3	" "
One combination fixture	3	" "
One (1) urinal	3	" "
One (1) shower bath	3	" "
One (1) floor drain	3	" "
One (1) Slop sink	4	" "
One (1) water closet	6	" "

Sec. A-347—DRAINAGE OF YARDS, AREAS, AREAWAYS AND ROOFS.

All roofs and paved areas, areaways, yards, courts and courtyards shall be drained into the storm water sewerage system or the combined sewerage systems, but not into sewers intended for sewage only. When drains used for this purpose are connected with the combined sewerage systems, they shall be effectually trapped except roof leaders and conductors, where the roof or gutter opening is located not less than twelve (12) feet from a door, window, scuttle, or air shaft. One (1) trap may serve for all such connections, but traps must be set below the frost line or on the inside of the building.

Sec. A-348—SIZE OF GUTTERS AND LEADERS.

No gutter or inside leader shall be of less size than the following:

Roof Containing	Gutter	Leader
Up to 90 square feet	3 inches	2½ inches
91 to 270 square feet	4 inches	3 inches
271 to 810 square feet	4 inches	3½ inches
811 to 1800 square feet	5 inches	4 inches
1801 to 3600 square feet	6 inches	5 inches
3601 to 5500 square feet	8 inches	6 inches
5501 to 9600 square feet	10 inches	7 inches

Gutters, on new buildings, eight (8) inches or over in width shall be hung with wrought iron hangers of approved type.

The above sizes of rain leaders are based on diameter or circular rain leaders, and gutters based on semi-circular sheet metal gutters

with the top dimension given and other shapes shall have the same sectional area.

Sec. A-349—INSIDE CONDUCTORS:

When placed within the walls of any building or run in an inner or interior court, or ventilating pipe shaft, all conductors or roof leaders shall be constructed of extra heavy cast iron or of galvanized wrought iron or steel pipe.

Sec. A-350—OUTSIDE CONDUCTORS:

When outside conductors or downspouts of sheet metal are connected with the building drain, they shall be so connected by means of not less than one (1) length of cast iron pipe extending vertically at least one (1) foot above the grade line.

Along public highways without sidewalks, they shall be placed in niches in the walls, protected by wheel guards or enter the building through the wall at a forty-five (45) degree slope at least twelve feet above the grade.

Sec. A-351—DEFECTIVE CONDUCTOR PIPES:

When an existing sheet metal conductor pipe within the walls of any building becomes defective such conductor shall be replaced by one which conforms to these rules and regulations.

Sec. A-352—VENT CONNECTIONS WITH CONDUCTORS PROHIBITED:

Conductor pipes shall not be used as soil, waste or vent pipes, nor shall any soil, waste or vent pipes be used as conductors.

Sec. A-353—OVERFLOWS:

Overflow pipes from cisterns, supply tanks, expansion tanks and drip pans, shall connect only indirectly with any building sewer, building drain, soil, waste or vent pipe.

Sec. A-354—SUBSOIL, FOUNDATION, CLEAR WATER AND ABSORPTION TILE DRAINS:

Where subsoil drains are placed under the cellar floor or used to encircle the outer walls of a building, the same shall be made of open jointed drain tile not less than four (4) inches or earthenware pipe, and shall be properly trapped and protected against back pressure by an automatic back pressure valve accessibly located before entering the building sewer or drain. They may discharge through a cellar drain.

Sec. A-355—SUBSOIL DRAINS BELOW THE MAIN SEWER LEVEL:

Subsoil drains below the main sewer level shall discharge into a sump or receiving tank, the contents of which shall be automatically lifted and discharged into the drainage system above the cellar through some properly trapped fixture drain.

Sec. A-356—BASEMENT AND CELLAR DRAINS:

All buildings which contain a basement or cellar, shall have approved floor drains to conduct water therefrom. Such floor drains shall be connected to a public sewer except in cases where no public sewer is available.

Sec. A-357—PIPE CHASES FOR SOIL AND WASTE AND OTHER PIPING:

All waste and supply piping or any toilet, bathroom, sink, wash stand or other water consuming fixture shall be enclosed in an accessible vertical chase whose inside dimensions are not less than

fourteen (14) inches by five and one-half (5½) inches, which chase shall run the full height of the enclosing walls or partitions.

If the chase is in a stud wall the studs shall be not less than two (2) inch by six (6) inch lumber.

Sec. A-358—FALSE CEILING BELOW SOIL AND WASTE AND OTHER PIPING:

In every case in any frame constructed floor, a false ceiling or other approved method shall be arranged below the floor joists in such a manner that all the soil and waste piping and all water or other piping can be placed in position without sawing, cutting or notching of any floor joists except as provided in Section 359.

Sec. A-359—STRUCTURAL PARTS OF WOOD SHALL NOT BE CUT INTO FOR PIPING OR SEWER PIPING:

(a) No wooden joist and wooden beams or girder shall be notched or sawed into for any purpose whatsoever, however, holes may be bored midway between the top and bottom of any such structural member when the said hole is not over one and one-half (1½) inches in diameter and is not over two (2) feet from the end of the joist or beam. No holes of over three-quarters (¾) of an inch may be bored in any joist or beam in any location nearer the middle of the span of the joist or beam for any purpose whatsoever.

(b) The strength of structural members depends upon the depth of the joist and any cutting or notching that cuts away material nearer the edges or near the middle of the span of the timber will generally so weaken the timber that they have to be replaced. If it becomes necessary to notch timbers the timbers shall be increased in depth sufficient to take care of the decreased strength of the timber shall be doubled. Such procedure shall not be practiced without the complete sanction of the Commissioner of Buildings.

Sec. A-360—EXPOSURE OF FAUCETS AND WATER VALVES:

No faucet, water valve, gas valve or other shutoff in any water or gas piping shall be located in any building in such a manner that the same is concealed and is not in a readily accessible location. In cases where water faucets or valves are located in a plastered or tile wall or partition there shall be a readily accessible chase within the wall or partition so such valves may be removed for repairs without disturbing any plastering or any structural or built in parts of the building except the cover for the pipe chase.

Sec. A-361—USED GOODS OR MATERIALS—PROTECTION THEREOF:

All used goods or materials as defined by this Code when not stored in an approved building or structure shall not be stored on public property except as provided by this Code and shall not be stored on any open lot or piece of ground unless the same is inclosed on all sides by an eight (8) inch brick wall, eight (8) feet high, built in an approved manner.

Sec. A-362—BLEACHERS—GRANDSTANDS:

(a) All bleachers or grandstands erected either within buildings or upon any lot or premises within the city limits of Indianapolis shall be constructed according to the provisions of this Code and shall not be open to the public until an inspection has been made by the Bureau of Buildings and a certificate of inspection issued therefor.

(b) Before the erection of any such bleachers or grandstands blue prints in duplicate shall be submitted to the Bureau of Buildings showing all construction, all exits, aisles and seat construction.

(c) The seats shall be so constructed that the space allotted for each person shall in no case be less than twenty-seven (27) inches back to back of seats and twenty (20) inches in width of each seat. There shall be no open space in a vertical line in such bleachers or grandstand. Cleats shall be fastened in an approved manner on the seat boards. These seat cleats shall be at least one (1) inch high and shall be fastened twenty (20) inches center to center on the seat board to indicate the seat space.

(d) No aisle shall be less than three (3) feet in width. Aisles shall be arranged in a manner approved by the Commissioner of Buildings. Exits shall be arranged in accordance with the theater exit requirements of this Code if such bleachers or grandstands are within an inclosure or a building.

(e) All such grandstands or bleachers erected within the fire district shall be of first class construction except the seat and seat cleats may be of wood, and the structural steel work may be unprotected. When portions of such structures are inclosed they shall be inclosed with first class construction.

Sec. A-363—MASONRY CONSTRUCTION:

(a) All mortar joints shall be filled solid with Portland cement mortar or cement-lime mortar in any masonry work.

(b) All masonry work shall be run up true and plumb. The Commissioner of Buildings shall have the right to judge the workmanship of any masonry construction.

Sec. A-364—WORKMANSHIP:

(a) The Commissioner of Buildings shall have the power to pass upon the workmanship and to judge the quality and safety thereof of any construction work below or above the grade of any lot or on or within any premises or building in the City of Indianapolis.

Sec. A-365—VENTILATING WINDOWS:

Steel or other sash which are arranged on hinges or pivots; and when open are not in the same plane as the frames which contain them shall not be used in any location within fourteen (14) feet of any public sidewalk or surface of any street or alley, unless such sash when fully opened are entirely within the outer plane of the walls of the building in which they are located.

Sec. A-366—RAMPS:

(a) Vehicle ramps or other commercial ramps shall not exceed two (2) inches of rise per foot of horizontal run.

(b) Ramps used for people shall not exceed one (1) inch rise for each ten (10) inches of horizontal run.

(c) No ramp shall be used as an exit from a building unless approved construction is used.

No ramp whose rise is greater than one (1) inch of rise for each ten (10) inches of horizontal run shall be used for people.

DIVISION A—PART FOUR
PROVISIONS FOR FIRST CLASS BUILDINGS

Sec. A-401—WHAT BUILDINGS SHALL BE FIRST CLASS:

(a) All buildings or structures shall be of first class construction in the city that:

(1) Are hereafter erected, altered or enlarged, in whole or in part and that are more than two (2) stories in height above the basement or are more than thirty-three (33) feet in height above the established grade, to be used as: (a) a school building; (b) a place of instruction; (c) a public assembly hall with occupancy in excess of eight hundred (800) people; (d) a church; (e) a hospital building; (f) an asylum; (g) a sanitarium; (h) a hotel; and (i) all other buildings of Grade A.

(2) Are hereafter erected, altered or enlarged in whole or in part and are more than three (3) stories in height above the basement; or that are more than forty-seven (47) feet in height above the established grade, to be used as: (a) a public assembly hall with occupancy less than eight hundred and one (801) people; (b) an association or club building; (c) a lodging, apartment or tenement house; (d) an office building; (e) retail mercantile building; (f) all other buildings of Grade B that have fifty (50) or more rooms above the first floor.

(3) Are hereinafter erected, altered or enlarged in whole or in part, to be used as a theater or public assembly hall with a major stage; which will seat fifty (50) or more persons in seats for spectators on the main floor or floors or balconies above the main floor.

(b) Every building hereafter erected, altered or enlarged to a height greater than seventy-five (75) feet above the curb, shall be a building of the first class and shall comply in its construction with all the provisions of this Code regulating buildings of the first class.

(c) All buildings or structures of Grade B shall have the floor construction over the cellar or basement of fire proof construction.

(d) All buildings or structures in the city designed or used in whole or in part as oil houses, high pressure boiler houses or rooms, drying rooms, film storage rooms, oil refineries, rendering plants, smoke houses, shaving vaults, varnish works and all buildings used for the storage of large quantities of combustible fibers in the fire district and all public garage buildings in the city over one (1) story in height shall be buildings of the first class. See part five (5) Division A.

Exception:

(a) The roof structure of one story public garages outside the fire limits may be third class.

(b) The roof structure of high pressure boiler houses.

(e) Every permanent structure intended for the seating or accommodation of the public, commonly known as grandstands or bleachers, erected within the fire district shall be of first class construction except the seats and seat cleats may be of wood, and the structural steel work may be unprotected. When portions of such structures are enclosed they shall be enclosed with first class construction.

(f) Every building hereafter erected, altered, or enlarged in whole or in part; to be used for the exhibition of moving pictures seating more than eight hundred (800) spectators, shall be a building of the first class.

Sec. A-402—WALL THICKNESS IN FIRST CLASS BUILDINGS:

(a) Buildings of the first class shall be constructed with walls of masonry or concrete of a thickness required as follows:

THICKNESS IN INCHES OF MASONRY BEARING WALLS FOR FIRST CLASS BUILDINGS WITH A LIVE LOAD IN EXCESS OF TWO HUNDRED POUNDS PER SQUARE FOOT FOR ANY OR ALL FLOORS SHALL BE AS FOLLOWS:

Stories	B	1	2	3	4	5	6	7	8	9	10
1	12	12									
2	12	12	12								
3	16	16	12	12							
4	20	16	16	12	12						
5	24	20	16	16	12	12					
6	24	20	20	16	16	12	12				
7	28	24	20	20	16	16	12	12			
8	28	24	24	20	20	16	16	12	12		
9	32	28	24	24	20	20	16	16	12	12	
10	32	28	28	24	24	20	20	16	16	12	12

THICKNESS IN INCHES OF MASONRY BEARING WALLS FOR FIRST CLASS BUILDINGS WITH A LIVE LOAD LESS THAN ONE HUNDRED AND NINETY-NINE POUNDS PER SQUARE FOOT FOR ANY OR ALL FLOORS SHALL BE AS FOLLOWS:

Stories	B	1	2	3	4	5	6	7	8	9	10
1	12	12									
2	12	12	12								
3	16	12	12	12							
4	16	16	12	12	12						
5	16	16	16	12	12	12	12				
6	20	16	16	16	12	12	12				
7	20	20	20	16	16	16	12	12	12		
8	20	20	20	16	16	16	12	12	12		
9	24	20	20	20	16	16	16	12	12	12	
10	24	24	20	20	20	16	16	16	12	12	12

Exception: Skeleton constructed first or second class buildings.

(b) The legal depth of excavations for first class buildings measured from the established grade to the bottom of footings shall be ten (10) feet.

(c) All first class buildings or structures shall have solid incombustible water resisting foundations completely and continuously around the building or structure; constructed no less than twelve (12) inches in thickness for panel or curtain walls and as per above schedule for load bearing walls. Such foundations shall be placed to a depth below the established grade of no less than four (4) feet.

(d) No wooden or combustible lintel, rafter or girder shall be used in any first class building to support brick, concrete, tile or any masonry construction whatsoever.

(e) All first class buildings of masonry bearing wall construction shall have the roof framing and all beams and girders thoroughly anchored into the wall by any method approved by the Commissioner of Buildings.

(f) No building of the first class with masonry bearing wall construction shall be built over one hundred and twenty-five (125) feet or ten (10) stories in height above the established grade.

(g) When the openings in any wall or section of any wall become forty (40) per cent or over the wall shall be considered as piers.

Sec. A-403—CONSTRUCTION OF FIRST CLASS BUILDINGS:

(a) A building of the first class shall be constructed wholly of non-combustible materials, except as hereinafter provided, with walls, floors and roof construction of masonry, concrete, reinforced concrete, or of iron or steel frame work, filled between and around with masonry, tile, concrete, terra cotta or other durable, non-combustible and fire-resisting materials.

(b) All columns, girders, beams, struts and all structural members shall be protected with fire proof materials, so put on and held in place as effectually to protect such members from the effects of fire, corrosion or abrasion, except that steel roof trusses and beams supporting only roof and ceiling loads will be considered properly protected when an approved incombustible ceiling, such as metal lath and plaster is suspended under the same in such a manner as will prevent the passage of fire. All exterior columns and wall girders or other framing of structural steel supporting masonry, shall be protected by a thickness at the exterior points with at least four (4) inches of fire proof material, except one inside face of columns may be covered with less when authorized by the Commissioner of Buildings.

(c) All structural members of buildings of this class, which may be subjected to unusual responsibility shall be especially protected and fire proofed in such a manner as to effectually protect such members and their loads from risk of accident by fire or otherwise.

(d) For the purpose of fire protection structural steel shall be protected by the following minimum thicknesses of approved incombustible material:

One and one-half (1½) inches for inside columns.

One and one-quarter (1¼) inches for beams and girders.

One inch (1) for joists.

Sec. A-404—FIRE PROOFING OF STRUCTURAL PARTS—METAL LATH:

(a) Floor or roof beams and other framing shall be protected by fire proofing not less than two (2) inches in thickness, except as provided above. Nothing in this section shall be construed to prohibit the use of steel floor or roof joists for floor or roof panels for buildings when the same are protected by not less than one (1) inch of cement plaster applied on metal lath on the under side of metal joists or suspended therefrom, and two (2) inches of concrete or metal lath and plaster on top of same. Approved wooden screeds will be permitted above joists. All formed steel joists shall be thoroughly bridged.

(b) Metal lath for any construction shall weigh not less than three (3) pounds per square yard and shall be fastened in an approved manner.

Sec. A-405—WOOD IN FIRST CLASS BUILDING:

In all buildings of the first class, wood may be used for the wearing surface of the floors and necessary sleepers for their attachment; and also for window and door frames, sash, doors and finish around them, except in elevator shafts, stair wells or exposed positions where approved fire doors, metal sash and wired glass are required by the Building Code and also for solid partitions or wood studs with approved metal lath and cement plaster on each

side thereof and for hand rails for stairs, but not for balustrades or newel posts.

Sec. A-406—HOLLOW SPACES:

There shall be no air spaces between the top of any floor construction and the floor boarding or behind any woodwork, but all such places shall be solidly filled with concrete or plaster or other fire-resisting materials.

Sec. A-407—CURTAIN WALLS AND PANEL WALLS IN FIRST CLASS BUILDINGS:

(a) Non-bearing masonry curtain walls built between piers or pilasters shall be not less than twelve (12) inches thick for the uppermost fifty (50) feet of height increasing four (4) inches in thickness for each next lower section of fifty (50) feet.

(b) Non-bearing masonry panel walls supported at each story shall not be less than eight (8) inches thick or four (4) inch heavy duty tile bonded to four (4) inches of brickwork, bonded with masonry bonds, eight (8) inches thick for solid masonry; and six (6) inches thick for reinforced concrete designed for a side pressure of thirty (30) pounds per square foot each direction.

Sec. A-408—WIRE GLASS AND STEEL SASH:

Wire glass and steel sash shall be required in all first class buildings built in hazardous locations as determined by the Commissioner of Buildings in all windows that are seventy-five (75) feet above the grade, and also all windows that have an exposure of less than fifty (50) feet from any other building or structure. When such exposure requires wired glass and steel sash all windows not over fifty (50) feet above the established grade may have the lower half thereof of plain glass.

Exception: Wire glass and metal sash shall be used in all elevator hatchway and stair wells.

Sec. A-409—HEIGHT OF STORIES IN FIRST CLASS BUILDINGS:

The height of stories for load bearing wall constructed first class buildings shall not exceed first story, sixteen (16) feet in the clear; second story, fourteen (14) feet in the clear; third and upper stories, twelve (12) feet in the clear. In load bearing wall constructed buildings if any story exceeds the foregoing height, the walls of any such story and all walls below that story shall be increased four (4) inches in thickness.

Sec. A-410—DIVISION AND PARTY WALLS:

Division or fire and party walls in first class buildings may be stopped against the under side of the fire proof roof slab or beams. Where parapet walls are used they shall not be less than twelve (12) inches in thickness.

Sec. A-411—AREA BETWEEN FIRE WALLS IN FIRST CLASS BUILDINGS:

See Section A-332 for Sprinklers.

The area between fire or division walls in first class buildings shall be as follows:

(a) All buildings of Grade

A, B, C and D.....No restrictions as to area

Light and power stations .....No restrictions as to area

Office buildings .....No restrictions as to area

Exception— See Rule D below.

(b) All buildings of Grade E and F not exceeding sixty-five (65) feet in height.

Fronting On	Without Sprinklers	With Sprinklers increase of 66⅔ per cent
One street	10,000 sq. feet	16,666 sq. feet
Two streets	12,000 sq. feet	20,000 sq. feet
Three or more streets	15,000 sq. feet	25,000 sq. feet

Exception:

(1) One (1) story first class buildings located on four streets or isolated and used for manufacturing of incombustible materials may be unlimited in area.

(2) First class buildings not over three (3) stories in height located on four (4) streets or isolated and used for manufacturing purposes may have the area increased between fire walls of fifty (50) per cent of that stated above in the fire district or unlimited in area outside the fire district when approved two source automatic sprinklers are installed.

(c) All buildings of Grade E and F exceeding sixty-five (65) feet in height and not exceeding two hundred (200) feet in height.

Fronting on	Without Sprinklers	With Sprinklers increase of 50%
One Street	7,500 sq. feet	11,250 sq. feet
Two Streets	10,000 sq. feet	15,000 sq. feet
Three or more Streets	12,500 sq. feet	18,750 sq. feet

(d) The first floor only of any fire proof building occupied as a store may have an area of twenty thousand (20,000) square feet, and if fully protected by approved automatic sprinklers may be increased fifty per cent or have a maximum area of thirty thousand (30,000) square feet.

Sec. A-412—LIGHT SHAFTS:

Walls of light shafts or vent shafts shall be classed as curtain walls or panel walls.

Sec. A-413—PARTITION WALLS:

(a) No hollow wood partitions will be permitted in first class buildings.

(b) Three (3) inch and six (6) inch hollow tile partition walls of hard burnt clay, porous terra cotta or other suitable fire proofing, set in cement, lime mortar, may be built not exceeding in their vertical measurements eleven (11) and twenty (20) feet respectively, or one (1) story in height and in their horizontal measurements a length not exceeding twenty-five (25) feet for both unless strengthened by a steel frame, cross walls, piers, columns or buttresses.

(c) All such walls shall be carried on incomubstible foundations, or on iron girders and columns.

(d) In no case, however, are such partition walls to be used as bearing walls or to support any load except their own weight.

(e) Two (2) inches of approved metal lath and cement-plaster on steel studs will be permitted in first class buildings for partition walls.

Sec. A-414—HEIGHT OF FIRST CLASS BUILDINGS:

No building or structure hereafter erected, shall be of a height exceeding two hundred (200) feet and if such building fronts on a street less than one hundred (100) feet in width such building or structure shall not exceed one hundred and eighty (180) feet in

height above the established grade and one hundred and eight (108) feet on Monument Place, provided further that a building may be measured one (1) foot for each three (3) feet in height above the one hundred and eighty (180) feet height. See Zoning Regulations on heights.

Exception: Spire, stack, chimney or pent house.

Sec. A-415—CONSTRUCTION OF ELEVATOR SHAFT, HOISTWAY, RAMP AND STAIRWAY ENCLOSURES IN FIRST CLASS BILDINGS:

(a) In all first class buildings all stairs shall be enclosed in fire proof wells from the top of the building to the bottom (except as hereafter provided). Such wells shall contain a passageway at each floor level equal in width to the width of the stairs so that a continual run can be made from the roof to the first floor exit without passing onto any open floor area. At the street floor of all such stair wells the stairs and railings shall be so arranged, in any manner approved by the Commissioner of Buildings, that people will not get into the basement in case of a panic. All such stair wells which include a basement stairs shall have a heavy door at the street floor where stairs lead to the basement. Such door shall open into the stair well so that travel up from the basement will open the door, and travel into the basement will cause the door to close. All other doors in stairs shall open with the direction of egress to the street floor and be marked with approved exit lights.

(b) All passenger or freight elevator shafts extending more than two (2) stories in height above the basement or any vehicle ramp, hereafter placed in any first class building designed, used or built for any purpose whatsoever shall be entirely enclosed for the full height in suitable walls of brick, tile, concrete or other approved material.

(c) Any such elevator shafts, ramps or stair wells may be enclosed with two (2) inches of solid cement plaster applied to approved steel lath on metal studs anchored at each floor and ceiling in an approved manner, providing the door frames of any openings in said shafts or wells shall be constructed of heavy steel jams which extend for the full height of each story and are anchored at the floor and ceiling.

(d) Any plaster exposed to an open floor in storage, mercantile or warehouse buildings shall be cased to a height of thirty-six (36) inches above each floor with an abrasive resisting wainscoting on the open floor space side.

(e) If the enclosing walls are of brick or load bearing tile laid in cement mortar or of concrete, and not used as bearing walls; they must be eight (8) inches in thickness for not more than fifty (50) feet of their uppermost height and increased in thickness four (4) inches for the remaining lower portions or parts thereof.

(f) Where each story is carried on iron or reinforced concrete frame work, and burnt clay, tile or other approved materials are used the walls shall not be less than six (6) inches except as above provided for approved steel lath and plaster.

(g) In all cases wherever the elevator goes to the top floor the enclosing walls of the elevator shaft must be continued so as to entirely close off the attic space. Suitable windows or skylights of plain glass shall be provided for light and ventilation in all pent houses.

(a) When stairs shall return directly on themselves a half-space landing shall be provided whose major dimensions shall be twice the width of the stairs in the direction of the run of the stairs and shall not be less than the width of the stairs in the lesser dimension.

NOTE—It is recommended that hand rails be placed thirty (30) inches above the treads.

Sec. A-418—REQUIREMENTS FOR STAIRS IN HOTELS, FLATS, APARTMENTS, LODGING OR TENEMENT HOUSES:

(a) In all first class buildings designed or occupied as hotels, flats, apartment, lodging or tenement houses, the amount of stairs shall be as follows, to-wit:

Area Between Fire or Division Walls	No. of Rooms between said Walls	Lineal Feet or Stair Treads
1,000— 2,500 Sq. Feet or	60 Rooms	7 Ft.
2,500— 5,000 Sq. Feet or	120 Rooms	8 Ft.
5,000—10,000 Sq. Feet or	200 Rooms	10½ Ft.
10,000—15,000 Sq. Feet or	350 Rooms	14 Ft.

(b) The risers shall not exceed seven and one-half (7½) inches in height and the treads shall not be less than ten (10) inches in width exclusive of any nosings.

Exception: In apartment houses no apartment entrance door shall be more than eighty (80) feet from an egress door of a stairway.

Sec. A-419—REQUIREMENTS FOR STAIRS IN ROOF GARDENS, CLUBS, LODGE HALLS, SCHOOLS, CHURCHES, AUDITORIUMS, THEATERS, MOVING PICTURE HOUSES AND ALL OTHER PUBLIC ASSEMBLY HALLS:

In every building hereafter erected or altered to be used in part or as a whole as a public assembly hall, roof garden, club or lodge hall, the width of the stairs shall be twenty (20) inches for every hundred (100) persons of aggregate seating capacity of all rooms. The risers shall not exceed seven (7) inches in height and the treads shall not be less than eleven (11) inches in width exclusive of any nosings. In any case where the seats are not fastened to the floor and the calculation of stair width not readily made, the width of exits and stairs shall be calculated on a basis of eight (8) square feet per person, figuring the total area of all floors between fire, party or division walls, including aisles, rostrum rooms, stages or platforms.

Sec. A-420—LOCATION OF ASSEMBLY HALLS IN FIRST CLASS BUILDINGS:

(a) On the second floor of any first class building a public assembly hall with a major stage may be provided when the occupancy of the hall does not exceed eight hundred (800) people.

(b) A public assembly hall with a minor stage and an occupancy not in excess of fifteen hundred (1,500) may be placed on any floor of a first class building.

(c) Exit requirements for the above shall be twenty (20) inches of exit width for each and every one hundred (100) people of occupancy of such public assembly hall.

(d) The area requirements for occupancy shall be determined either by the actual seating capacity of the hall or based upon six (6) square feet of floor area per person for fixed seats or eight (8) square feet for removable seats.

(e) There shall be a stair landing at each story height or intermediate story height on an exact level with the same.

(f) At each story height there shall be provided an approved metal or reinforced concrete runway three (3) feet in width provided with approved railings of metal located at the exact level of each story or intermediate story and fastened on the outside of the building with approved metal brackets.

(g) At each story height there shall be provided two (2) approved doors not less than two (2) feet eight (8) inches in width, said doors to open directly onto the metal runway in an approved manner and with the egress. One door shall open from the main floor area of the building onto the metal or reinforced concrete runway. One door shall provide egress from the runway to the smoke tower, one of the said doors shall be at each end of the runway. All doors shall be equipped with approved panic hardware and shall be marked with approved exit light.

Sec. A-417—STAIRWAYS IN FIRST CLASS BUILDINGS OF GRADE A, B, C AND D:

(a) In every first class building of Grade A, B, C and D three (3) stories or over in height hereafter erected or altered of any character, with area, number of rooms or seating capacity between fire, division or party walls as described in the following sections; there must be provided as a minimum, one (1) enclosed fire proof stairway and one (1) smoke tower fire escape neither one less than three (3) feet six (6) inches in width in the clear, placed as far remote from each other as possible with exits from the building opening immediately onto a public highway, or court and fire proof passage way to a public highway; with exit doors opening outwardly and properly equipped with pressure releasing panic locks.

Exception:

(1) Dwellings, duplexes, doubles and double duplex dwellings not over three (3) stories in height.

(2) Open stairs may be permitted in first class school buildings that are not over three (3) stories in height above the grade line. Such stairs must have stair enclosures but the fire doors may be omitted.

(3) In armories, court houses, police stations, city halls, prisons, railway stations and similar first class buildings the stairs shall not be required to be enclosed unless the buildings are over four (4) stories in height, then at least one (1) enclosed stairs or smoke tower fire escape leading directly to a a public highway shall be provided for fire egress as approved by the Commissioner of Buildings.

(4) Buildings used entirely by clubs or ritualistic organizations, with no sleeping rooms, may have one (1) stairs open from the first to the third floor providing one (1) enclosed stairs or smoke tower fire escape is provided. In such buildings where sleeping rooms are provided at least one (1) completely enclosed stairway and one (1) smoke tower fire escape shall be provided.

(b) All such stairs shall be built with uniform treads and risers throughout each flight.

(c) There shall be no winders in any such stairs and no such flight of any such stairs shall rise to a vertical height in excess of eight (8) feet without a proper landing equal in width to the width of the stairs.

Exception: When the elevator engine is placed overhead on a solid slab of incombustible material.

(h) In all cases a small opening of sufficient size must be provided to permit easy access to any elevator machinery that is in the top of the shaft. Such opening shall be equipped with a fire door. (Section C-104.)

(i) All openings in fire proof elevator shafts or stair well enclosures shall be protected by fire doors approved by the Commissioner of Buildings for the purpose.

(j) In factories and warehouses:

(a) Where elevator shafts open directly into a storage room no openings will be permitted in the elevator fire doors;

(b) No openings will be permitted in the stair fire doors.

(k) All fire doors shall be constructed and hung on incombustible supports and frames in a manner approved by the Commissioner of Buildings.

(l) A stairway shall not be permitted within the same enclosure with an elevator, elevators or ramp.

(m) Whenever any inclined bundle, box or material chute is placed in a first class building or structure the same shall be of approved construction with fire doors arranged so as to close off each story from any or all other stories.

(n) Vehicle ramps extending up and through an alternate or intermediate floor system shall be arranged with fire doors and approved steel lath and plaster, partitions throughout one (1) set of alternate floors so fire cannot pass up from the basement or first floor towards any of the floors above or from any of the floors above to the top floor. Approved rolling fire doors may be used in ramps.

Sec. A-416—REQUIREMENTS FOR STAIRS AND SMOKE TOWER FIRE ESCAPES IN ALL FIRST CLASS BUILDINGS:

(a) In all first class buidings of all grades except as hereinafter provided, that have a floor area between fire, party or division walls of six thousand (6,000) square feet and not exceeding fifteen thousand (15,000) square feet shall be provided with two (2) smoke tower fire escapes in addition to one (1) enclosed fire proof stairs; placed as far remote from each other as possible.

(b) For buildings that have a floor area between fire walls in excess of fifteen thousand (15,000) square feet shall be provided with two (2) smoke tower fire escapes in addition to two (2) enclosed fire proof stairs; placed as far remote from each other as possible.

(c) A smoke tower fire escape shall be constructed entirely of incombustible material with the stairs located within the main walls of the building and entirely closed off from the building by unpierced walls at least eight (8) inches in thickness. The enclosure shall be known as the smoke tower.

(d) No flight of stairs in the smoke tower shall rise to a greater height than eight (8) feet without a landing equal in width to the width of the stairs. The minimum width of such stairs or landing shall be three (3) feet six (6) inches. The lesser dimension of any landing shall always be equal or greater than the width of the stairs. Such stairs shall be continuous from the roof to the street level and shall have hand rails on both sides thereof. No winders shall be permitted.

Sec. A-421—REQUIREMENTS FOR STAIRWAYS IN FIRST CLASS BUILDINGS OF GRADE E AND F:

(a) In every first class building of Grade E and F three (3) stories or over in height above the basement, hereafter erected or altered in whole or in part with area between fire, party or division walls as described below; there must be provided at least one (1) enclosed fire proof stairway and one (1) smoke tower fire escape neither one less than three (3) feet six (6) inches minimum width of stairs in the clear, placed as far remote from each other as possible with exits from the building opening immediately onto a public highway, or court and fire proof passageway to a public highway, with exit doors opening outwardly and properly provided with pressure releasing panic locks.

Exception: Office buildings that have no mercantile or sales room on the second floor may have one (1) open stairs from the first floor to the second floor when one (1) enclosed stairs or smoke tower fire escape is provided.

Exception: Office buildings less than seventy-five (75) feet in height and not exceeding six thousand (6,000) square feet in area.

Note—See special provisions for office buildings, Sec. A-421.

(b) All such stairs shall be built with uniform treads and risers throughout each flight and no flight shall be built to rise to a vertical height in excess of eight (8) feet without a proper landing equal in width to the width of the stairs.

(c) When such stairs shall return directly on themselves, a half-space landing shall be provided whose major dimensions shall be twice the width of the stairs in the direction of the run of the stairs and shall not be less than the width of the stairs in the lesser dimension. All such stairways shall have railings on each side thereof.

(d) Stairways which are six (6) feet or over in width shall be provided with intermediate hand rails and newel posts.

(e) No such building of the first class of Grade E and Grade F shall have any stair risers that exceeds eight (8) inches in height nor any stair tread that is less than eleven (11) inches in width exclusive of any nosing.

(f) The ruling factor for the location of stairs in all buildings of Grade E and Grade F shall be as follows: There shall be no floor space which is over one hundred (100) feet from any stair or fire tower egress door.

Exception: Storage buildings and warehouses.

(g) The total width of stairs for first class buildings shall be according to the following:

GRADE E AND GRADE F

Area Between Fire, Party or Division Walls	Lineal Feet of Width of Stairs
Up to 6,000 Square Feet	7 Feet
6,000 to 10,000 Square Feet	8½ Feet
10,000 to 15,000 Square Feet	10½ Feet
15,000 to 25,000 Square Feet	14 Feet

Sec. A-422—OFFICE BUILDINGS:

(a) In all buildings erected or altered which are not over seventy-five (75) feet in height and are to be used as office buildings above the second floor only one (1) stairs and a fire escape need be

provided; when the area is less than six thousand (6,000) square feet between fire, party or division walls; providing the fire escape and stairs are placed as far remote from each other as possible and no floor space is over one hundred (100) feet from any egress door. Such fire escapes shall be of an approved type with the lowest flight a counterbalanced stairs. In such office buildings in excess of six thousand (6,000) square feet in area between fire, party or division walls one-third (⅓) of the calculated stair width may be placed in an approved counterbalanced fire escape; provided, however, the same shall be in addition to two (2) enclosed three (3) foot six (6) inch stairs. All stairs in office buildings shall conform to all other requirements.

(b) The total width of stairs for first class office buildings shall be according to the following:

Area between Party or Division Walls	Lineal Feet of Width of Stairs
Up to 6,000 Square Feet	7 Feet
6,000 to 10,000 Square Feet	8½ Feet
10,000 to 15,000 Square Feet	10½ Feet
15,000 to 25,000 Square Feet	14 Feet

Sec. A-423—STAIRS IN FIRST CLASS MERCANTILE BUILDINGS:

(a) No stairs in any first class mercantile building shall have any stair riser that exceeds seven (7) inches in height nor any stair tread that is less than eleven (11) inches in width exclusive of any nosing.

(b) All such stairs shall be clearly designated with exit lights designed and installed the same as for theaters.

(c) The total width of stairs shall be the same as for all other buildings of Grade E and F. See table Section 421.

Sec. A-424—BASEMENT STAIRS:

In every first class building hereafter erected or altered in whole or in part in which the basement is used for mercantile purposes where combustible goods are displayed and sold, there shall be at least one (1) enclosed stairway three (3) feet six (6) inches in width constructed entirely of incombustible material and leading directly from the basement to a public highway or a court and fire proof passageway to a public highway. Such basement stairs shall be provided with a door opening outwardly and equipped with a pressure releasing panic lock.

Sec. A-425—INDICATOR BARS FOR WINDOWS IN STAIRWELLS AND ELEVATOR SHAFTS:

In all stairwell or elevator hoistway windows that are located on the outside property lines or that are located in courts that have an immediate access to the public highway there shall be placed in frames of such windows steel or other metal rods at least five-eighths (⅝) of an inch in diameter located not to exceed ten (10) inches on centers. These rods are to indicate the location to firemen of such stairwells or elevator hatchways.

Sec. A-426—STAIRS TO ROOF:

In all first class buildings that are constructed with a flat roof all stairways shall run to the roof in order to give egress to such roof in case of fire.

Sec. A-427—WATER OUTLETS AND SCUPPERS:

(a) There shall be provided in all factories, warehouses and mercantile buildings of the first class, approved water outlets for all floors so distributed as to provide one (1) outlet for every two thousand (2,000) square feet of floor area. These outlets to be set below the floor level and arranged to convey water to the outside of such buildings or structures.

(b) All basement or cellar rooms of such buildings or structures shall be provided with floor outlets or drains connected with the city sewer where the same is practical.

Sec. A-428—SPACE UNDER SIDEWALK:

In buildings where the space under the sidewalk is used a reinforced wall shall be provided to contain the roadway of the street. Such wall shall be designed for three hundred (300) pounds per square foot surcharge in addition to the earth pressure. In all buildings which are within ten (10) feet of the curb of any public highway the walls along that side shall be designed to carry three hundred (300) pounds per square foot as a minimum side pressure, except in cases where the space below the grade line under the building and next to the street curb is not excavated.

Sec. A-429—EXIT LIGHTS:

In all first class buildings exit lights shall be placed above the entrance doors to stair wells on each floor thereof. Such lights shall be green in color and shall be accompanied by the word "Exit" in large clear letters as approved by the Commissioner of Buildings for the purpose. All such exit lights and lights within the stairwell shall be connected to an electrical system independent of any other electrical system within the building, providing, however, a separate connection behind the main entrance switch of the building shall be approved. Lighting within stairwells shall be provided at all times during the occupation of the building when, in the opinion of the Commissioner of Buildings, the lighting from windows is not sufficient. When electrical illumination is required, the amount of foot candles per square foot of all floor treads and landings shall be not less than one-half.

Sec. A-430—WINDOWS ON SIDE PROPERTY LINES:

No windows shall hereafter be constructed in the outside walls located on the inside property line of any first class building. However, when such walls are maintained, at least four (4) feet from the inside property line, windows may be placed therein.

Exception: One story non-residence buildings.

Sec. A-431—METAL TIES:

In masonry bearing wall-constructed first class buildings metal ties shall not be used except in two (2) story buildings where twelve (12) inch walls are used; then four (4) inches of the twelve (12) may be tied to the remaining eight (8) inch wall with non-corrosive metal ties of heavy corrugated metal approved by the Commissioner of Buildings for the purpose. The eight (8) inch wall thereof shall be bonded with masonry bonds.

Sec. A-432—FLOORS TO BE POSTED IN ALL FIRST CLASS BUILDINGS:

(a) All floors in any first class building used for any purpose whatsoever shall have posted on each floor on each of the four (4) walls and made a part of the wall a metal plate of non-corrosive

metal giving in heavy outline the allowable average floor load for that floor or part of a floor.

(b) When different bays of any floor are designed to carry different live loads each bay of such floor or floors shall be marked. Such markers shall be fastened to the columns in a strong and thorough manner.

(c) Such markers shall have letters and figures at least one (1) inch high and the marker shall read as follows:

DO NOT OVERLOAD THIS FLOOR
CAPACITY.....POUNDS PER SQ. FOOT

DIVISION A—PART FIVE
FIRST CLASS BUILDINGS FOR SPECIAL USE

Sec. A-501—BOILER HOUSES OR ROOMS:

(a) All buildings hereafter erected or altered for high pressure boiler houses shall be entirely of first class construction, except outside of the fire limits where there is a clear space of eight (8) feet between the tops of the boilers and the roof, the roof may be of second class construction. Approved means of egress therefrom shall be provided.

(b) All high pressure steam boilers or high pressure air tanks hereafter to be placed in any building shall be placed in fireproof room, the walls of which shall be constructed of brick, stone, or concrete, of not less than twelve (12) inches in thickness and all openings into such fireproofed room shall be provided with standard fire doors.

(c) All high pressure boiler rooms shall be provided with at least two (2) means of egress, one (1) of which shall be to the outside of the building. All openings into such rooms shall be equipped with approved fire doors. Such doors shall swing outwardly.

(d) All such high pressure boiler or high pressure air rooms shall be so ventilated that,

(1) Air for high pressure boiler rooms shall be changed every five (5) minutes.

(2) Any leak or explosion will be released from the room to the outside without causing damage to the room.

(e) High pressure boilers or tanks shall be taken to mean all such boilers or tanks that have a gauge pressure of over fifteen (15) pounds.

Sec. A-502—SMOKE HOUSES:

(a) All smoke houses shall be of fireproof construction, with brick, or concrete walls. iron doors and brick, concrete or metal roof.

(b) An iron guard shall be placed over and not less than three (3) feet above the fire, and the hanging rails shall be of iron, and an iron grating shall be placed under the first row of hanging rails and be not less than eight (8) feet above the floor of firepit.

(c) The walls of all smoke houses shall be at least three (3) feet higher than the roof of the building in which they are located, and shall not be less than twelve (12) inches in thickness and shall be coped with stone or tile.

Sec. A-503—PUBLIC GARAGES:

(a) Every building hereafter altered, erected or enlarged to be used as a public garage shall be a building of the first class except:

(1) In the fire district the roof construction of a one (1) story

public garage or other one story buildings may be of second class construction or wooden latticed trusses may be used when approved by the Commissioner of Buildings.

(2) Outside the fire district the roof construction of one (1) story public garage buildings may be of third class construction.

(b) Every room used as a public garage shall be provided with two (2) motor vehicle exits to a public highway or fireproof passageway to a public highway. These exits shall be placed as remote from each other as possible.

(c) It shall hereafter be unlawful for any person, firm or corporation to maintain any business other than garage business within the same building or part of the same building, with a public garage unless such business is separated from the public garage by an eight (8) inch solid fire wall of brick or concrete. Openings through such fire walls shall be equipped with approved fire doors.

(d) Outside of the fire zones no public garage shall be located or maintained within one hundred and fifty (150) feet of any lot where there is situated a church, hospital or public school building, unless such garage was established prior to the establishment of the said church, hospital or school building.

(e) No public garage shall be allowed or maintained in any building where there is any church, college, school, assembly hall, hotel, apartment house, tenement house or lodging house, provided, however, that a public garage may be placed in any other building built entirely of first class construction. In case a public garage becomes necessary as an adjunct to a church, college, school, assembly hall, hotel, apartment house, tenement house or lodging house, the same may be placed on the same lot as any of the above and adjacent thereto, providing the two (2) buildings are of first class construction and are separated from each other by an unpierced solid fire wall of brick or concrete. When the two (2) buildings are separated by a distance of four (4) feet openings equipped with approved fire doors may be provided. Such court must open from the ground to the sky.

(f) Vehicle ramps will be permitted in any public garage when the ramp rise is not in excess of two (2) inches per foot of run, and the ramp opening onto each floor is arranged with approved fire doors so as to close off each floor from the ramp or close off each alternate floor in case alternate floor systems are used.

Sec. A-504—DRY SPRINKLERS (See Sec. A-332):

In any building where the space under the building and below the established grade is used for the storage of more than four (4) automobiles or other machines containing in the tanks thereof inflammable liquids, such space shall be equipped with a dry sprinkler connected to a siamese connection on the outside of the building. Such sprinkler shall be constructed according to the provisions of this Code and under the approval of the Commissioner of Buildings.

Sec. A-505—DRY CLEANING ROOMS AND BUILDINGS:

(a) No dry cleaning business shall be installed or maintained within the City of Indianapolis, except under permit of the Commissioner of Buildings. Plans and specifications, giving full details as to the location, construction and operation thereof, must be filed with the Commissioner of Buildings, together with an application to conduct such business. If the plans and specifications submitted

comply with the rules of this Ordinance then the Commissioner of Buildings may approve them and issue the necessary permit.

(b) Sponging is prohibited in shops, dwellings, enclosures, yards and all other places, unless carried on through the application of such inflammable liquids from an approved automatically closing safety can of not more than one (1) quart capacity; and the use for sponging of such liquid from, or in, open pans or vessels is prohibited.

(c) Sponging is prohibited in any room not provided with safe means of exit direct to the outside of the building and shall not be executed or applied in any room or enclosure containing any open or flaming fire or light nor within ten (10) feet of any such light, self-heating iron or other spark or flame producing appliance. During all such application and for one-half (½) hour thereafter, two (2) direct openings for ventilation and air circulation must be provided, preferably on opposite sides of the room and near the floor level.

(d) Buildings for dry cleaning purposes shall be constructed of non-combustible material, shall not be more than one (1) story or sixteen feet (16) high, without a basement or other open space below the floor, shall not be used for other occupancy, and shall be at least ten (10) feet from other buildings or a public thoroughfare, unless separated from such building or highway by a solid fire wall of brick or concrete not less than eight (8) inches thick. All floors shall be of concrete or other noncombustible material. All doors shall have raised sills at least ten (10) inches above the highest point of the floor, and no other opening, except for ventilators, shall be less than twelve (12) inches above the same point. In wash rooms only the necessary appliances for washing, extracting, and redistilling shall be permitted. No direct opening shall be permitted between a wash room and a dry room. No combustible material shall be permitted in the construction of dry rooms or any racks or other appurtenances. All steam or hot water pipes for drying purposes must be protected by wire screens or otherwise protected so as to prevent contact of pipes and inflammable goods. All windows, doors or other openings within one hundred (100) feet of exposed openings or combustible structures or materials shall be provided with wired glass in metal frames or approved fireproof shutters, doors or covers. All doors, windows, shutters, screens, grills and barrel openings shall be arranged for ready opening from either side in case of an emergency. Intercommunicating openings shall be provided with standard automatic closing fire doors kept closed except when passing through. All rooms shall have a steam extinguishing system satisfactory to the Commissioner of Buildings or where such fire extinguishing agent is not available an approved system using a fire deterrent chemical or gas. One approved hand chemical extinguisher shall be provided for each five hundred (500) feet of floor area.

(e) A vent opening of at least twenty (20) square inches area shall be provided at the floor level in each wash room and drying room, near each machine and opposite to any door or other air inlet, such openings shall be covered with two (2) by two (2) mesh, number sixteen (16) galvanized wire web and shall be kept clear of all obstructions. From the vent opening a flue of at least twenty (20) square inches area and of non-combustible materials, built into the wall or floor or securely fastened thereto and free from mechanical injury, shall conduct to and through a sparkless exhaust fan. This

exhaust fan shall be run continuously, and shall be of sufficient size to completely change the air volume of said room every five (5) minutes. All discharge outlets of vent pipes shall be provided with twelve by twelve (12 x 12) mesh or equivalent wire screen and located without hazard to surrounding property and acceptable to the Commissioner of Buildings. Skylights and windows must be of wired glass in metal frames and provided with fusible link connecting to an automatically closing device, and shall be covered with twelve by twelve (12 x 12) mesh or equivalent brass wire screen to prevent spark or other fire entrance. Necessary precautions shall be taken to prevent the clogging or in any way the stopping of air passage through such wire screens.

(f) Heating shall be done by steam or hot water. No steam boiler, furnace nor exposed fire, nor any electric dynamo, electric switch of any type, nor motor, nor other spark emitting device shall be allowed in any washing, drying or distilling room, or in line with the vapor exhaust travel therefrom. All artificial lighting shall be in accordance with the electrical division of this Code.

(g) In each wash room there shall be provided a drain connection to the sewer, at least four (4) inches in diameter, provided with an inverted (U) pipe or other approved method forming a water seal to prevent the passage of inflammable vapor.

(h) All dry cleaning, washing, extracting and redistilling shall be carried on in closed machines, which shall be fluid tight. The washers shall have hinged doors and shall be arranged so that in case of an explosion the door will automatically close. The transfer of all liquids shall be through continuous piping, and all outlet or drain lines shall be drained by gravity to settling or storage tanks. No dry cleaning fluid shall be settled in any open or unprotected vessel or tanks. All piping and all metallic parts of each machine shall be properly grounded by at least number eight (8) B. and S. Gauge copper insulated wire to a water pipe or other approved grounded device.

(j) All goods removed from the washer to the extractors must be kept in tight metal pans with the under side of the bottom covered with wood. No goods or washed stocks shall be taken from the wash room until the washing liquid has been removed by the extractor. All dried goods shall be removed from the extractor at the close of the operation. Settling tanks shall be constructed, located and vented essentially according to rules given for the storage tanks. At the close of the day's operations, all liquid contained in the washers, extractors or stills, or otherwise, shall be returned to the stock settling tanks. The location of all tanks buried or otherwise and their contents and hazards shall be plainly marked by signs approved by the Commissioner of Buildings.

(k) None of the tank installations shall be covered from sight until after an inspection by the Commissioner of Buildings and his written approval has been given.

INFLAMMABLE LIQUID

Sec. A-506—CONSTRUCTION OF BUILDINGS FOR STORAGE (See Sec. B-702):

(a) It shall hereafter be unlawful for any person, firm or corporation to build, erect, construct, alter or repair any building to be used in whole or in part for the storage of any liquid or solid

that has a flash point less than one hundred and fifty (150) degrees Fahrenheit unless the said building shall be of first class construction, except as hereinafter provided.

Such liquids shall include the following:

Crude Petroleum	Gasoline
Naptha	Benzine
Benzol	Camphine
Carbon Oil	Spirit Gas
Burning Fluids	Turpentine
Kerosene	Alcohol
Earth Oil	Rock Oil

(b) Such oil storage houses or buildings shall be limited to one (1) story in height, the floor of which shall be at least three (3) feet below the grade of the adjoining street. The walls of such buildings or structures shall be carried at least thirty (30) inches above the roof. All walls shall be coped with tile or other approved combustible material. Such buildings shall be detached from other buildings at least eight (8) feet. Where any walls of such buildings or structures are twenty-five (25) feet or less from any other building or structure such walls shall be free from any doors or windows or other openings except one (1) approved exit door may be provided in such wall.

(c) No such building or structure shall be permitted to be used for any other purpose whatsoever than oil storage. All electrical work shall be installed in armored cable or metal conduit and all switches placed outside of the building. All lights shall be in vapor proof globes.

(d) All such buildings and structures including equipment and appurtenances thereto shall be constructed according to plans and specifications approved by the Commissioner of Buildings for the purpose.

Sec. A-507—FILM VAULTS:

(a) It shall hereafter be unlawful for any person, firm or corporation to keep, handle or store more than fifty (50) reels of moving picture films as defined in this Code unless such films are stored in a fireproof vault.

(b) Such vaults shall be constructed with walls, floor and ceiling not less than six (6) inches in thickness of reinforced concrete, or eight (8) inches of solid brick or twelve (12) inches of hollow tile. In computing the thickness of a floor, wall and ceiling of a vault the thickness of the floor, wall and ceiling of the building may be included provided it shall be of fireproof construction. No vault shall exceed seven hundred and fifty (750) cubic feet of interior capacity or more than ten (10) feet high in size from finished floor to finished ceiling. Each vault shall have a ventilating duct or ducts of total sectional area of seven hundred (700) square inches or thirty (30) inches in diameter and such duct or ducts shall lead to the outside air. The opening of each duct to the outside air shall be at a point not less than forty (40) feet from any opening of any building opposite the opening of such duct unless the mouth of such duct is at least ten (10) feet above all such openings. Such duct openings shall never in any case be placed nearer to the side property line than ten (10) feet. All ducts from a vault or vaults located in any building shall lead to the outside air vent pipes extending not less than four (4) feet above the roof of the building. No films, vaults,

inspection rooms or cabinets shall be allowed in the basement of any building. All interior ducts shall be constructed of metal not less than one-eighth (⅛) of an inch in thickness and lined on the outside with approved fireproof material not less than two (2) inches thick. No openings shall be allowed in any film vault except the ventilating duct and entrance door. Only one entrance shall be allowed in each vault, and this opening shall be equipped with approved standard vault, inner and outer fire doors with metal frames, the inner door to be so arranged that it cannot obstruct or interfere with the outer door. The outer door shall be equipped with automatic or self-closing attachments. All shelving and fixtures shall be of incombustible material. All lighting shall be controlled by indicator switches on the outside of the vault. Only vapor proof globes equipped with wire guards and keyless sockets shall be used inside of the vault. No artificial heat shall be allowed inside any vault. The ventilator duct shall be shielded from the weather and provided at the outlet with a wire mesh screen not larger than one-fourth (¼) inch mesh, and if so desired single strength glass may be installed. Where fifty (50) reels of moving picture film or less are kept, an approved metal cabinet not exceeding fifty (50) reels in individual capacity must be provided. Such cabinet shall be made of at least number eight (8) U. S. Gauge sheet metal and provided with a double wall containing one (1) inch air space, and provided with doors to be constructed equivalent to the cabinet walls. Doors shall be self-closing, closely fitting at all points of contact and shall be kept closed and locked. There shall not be more than one (1) cabinet in any premises described in any one permit unless located within a vault as described herein. Each reel must be kept, when not under inspection, in a separate metal container, and each container must be placed on edge in a vault or cabinet. Films shall not be left outside of the cabinet or vault during the non-operation of such film plant or exchange.

Sec. A-508—THEATERS AND PLACES OF AMUSEMENT—MOVING PICTURE HOUSES:

Theaters may be taken to mean all buildings or any part of any building hereafter erected, altered or used for theatrical, moving picture, or operatic purposes or for public entertainment of any kind; except where minor stages are permitted, as hereinafter provided; where a stage or platform with stage scenery, footlights or appurtenances or any part of either or any of them are employed; provided, however, that buildings classed under Grade B which have a seating capacity not to exceed eight hundred (800) people in any one (1) room will not be classed as theaters. Such rooms that come under Grade B may be provided with a major stage, if located on the first or second floor of any first class building. (See Sec. A-419.)

Sec. A-509—ASSEMBLY ROOMS LESS THAN EIGHT HUNDRED (800):

(a) All buildings hereafter erected, altered, or enlarged in whole or in part in the City, except as above provided, and to be used as theaters or exhibition of moving pictures with a seating capacity of over eight hundred (800) shall be buildings of the first class, except public assembly halls shall have the right to have occassional operatic or moving picture productions when not in excess of twice each week.

(b) The capacity of all public assembly halls with fixed seats unless otherwise provided, shall be calculated on a basis of six (6) square feet per person including all aisles or rooms or parts of rooms in the main public assembly hall.

(c) The capacity of a public assembly hall with movable seats or no seats shall be calculated on a basis of eight (8) square feet per person.

(d) Every public assembly hall except as otherwise provided shall have exit facilities of at least twenty (20) inches for every hundred (100) persons. The main exit shall be at least twelve (12) feet in width for all public assembly halls with an occupancy of fifteen hundred (1500) or over. No exit door shall be less than six (6) feet in width.

(e) All exits to public assembly halls shall be clearly marked "EXIT" in letters eight (8) inches high illuminated by electricity obtained from an approved separate service from the other electrical wiring in said public assembly halls. Such exit lights shall be green in color.

(f) Every public assembly hall shall have at least two (2) exits located as remote from each other as possible. Every public assembly hall shall have at least three (3) exits located as remote from each other as possible, where the capacity is over eight hundred (800) people.

(g) The rules for fixed seats for all public assembly halls shall be the same as for theaters.

Sec. A-510—MINOR STAGES:

A minor stage may be permitted in any public assembly hall, except as provided in third and fourth class buildings. Such stage may have one (1) fire resisting front or stage drop curtain, footlights and one (1) set of fire-resisting scenery chemicalized by approved methods. Such minor stages shall be built in an approved manner and according to the conditions of the building construction, exits and surroundings. Such minor stage shall be entirely fireproofed with metal lath and plaster or other equally fireproof construction, except wood may be used for the sleepers of the floor, or if the floor beams, joists, girders; where a cellar, basement or another story lies underneath such stage; are of wood they shall be entirely fireproofed with approved metal lath and plaster. All exits in such public assembly halls with a minor stage shall be according to this Code as outlined for theaters.

Sec. A-511—APPROVAL:

(a) No building hereafter erected or altered for public assembly purposes shall be open to the public until the same has been inspected and approved by the Commissioner of Buildings and a certificate of approval issued therefor, and the Chief of Police of the City of Indianapolis shall have the power to take possession of and close said building or any part thereof, until the Commissioner of Buildings shall issue such certificate; provided that such inspection must be made within forty-eight (48) hours after he, the Commissioner, has received written notice from the owner or lessee that the building is ready for inspection.

(b) In all cases, under the provisions of this Code whenever the Commissioner of Buildings may deem it, for the public safety, necessary to limit the number of persons that shall be permitted to

occupy the interior of any building aforesaid, and the owner, lessee or manager neglects or refuses to comply with any order or requirement in relation thereto, the Chief of Police of the City is hereby authorized and required, upon application to him by the Commissioner of Buildings, to take possession of and close said building, or to perform such acts in the premises as shall prevent the improper occupation of the same or the liability of accidents to the public and shall retain said possession until the Commissioner of Buildings shall permit said building to be released from said possession or the closing by the Chief of Police in compliance with the order and requirements.

Sec. A-512—FRONTAGE:

(a) Every theater hereafter erected or any building remodeled for the aforesaid purpose shall have all entrances for patrons front upon a public highway, with all emergency exits not directly related to the main entrance, to face directly upon a public highway or fireproof passageway to a public highway.

(b) When the seating capacity exceeds one thousand five hundred (1,500) additional emergency exits must be provided in which case the same may face upon a court not less than eight (8) feet in width, leading directly to some public highway as provided above.

Sec. A-513—ENTRANCES AND EXITS:

(a) When the auditorium of a theater has its stairways or entrance to the balcony, gallery or other floors above; or where the main entrance to the passageway to such auditorium of a theater has in connection with the same, means of passage to the balcony, gallery or other floors above; such entrance or passageway or entrances or passageways, in case more than one is desired, shall have a total combined width, including emergency exits of the first floor, not less than twenty (20) inches for each one hundred (100) persons, and in no case shall such entrance or entrances be less than twelve (12) feet.

(b) Emergency exits and doors not directly related to the main entrance shall be provided with a space equivalent to twenty (20) inches for each one hundred (100) seating capacity for each auditorium, balcony and gallery. Each exit shall be at least five (5) feet in width and provided with approved panic doors.

(c) All doors of exits of theaters now or hereafter erected shall open outward and be equipped with pressure releasing panic locks, which will permit the doors to open from within at all times without the use of a key or similar instrument.

Sec. A-514—FIRE ESCAPES AND STAIRS:

(a) When the sides of the auditorium, balcony or gallery face on a public highway for emergency stairs or fire escapes, the walls of that portion of the building shall be set back or so arranged as to allow the construction of the emergency exit as hereinafter prescribed in such a manner that they will not encroach on public space; provided that when the same face on a sidewalk not less than fifteen (15) feet in width, a fire escape may be used on the sidewalk.

(b) All fire escapes from the balcony or gallery shall be constructed according to the State regulations.

(c) All stairways shall be sufficient to sustain a weight of one hundred (100) pounds per square foot and provided with substantial rails on each side.

(d) Every theater or public assembly hall shall have stairways equivalent to twenty (20) inches for every one hundred (100) seating capacity of the auditorium, assembly rooms, or balconies, and provided that the number of persons located in such rooms at any one time shall be determined by the total width of exits therefrom calculated on the above basis. When movable seats are used the exit widths and stairs shall be calculated on a basis of eight (8) square feet of floor space per person including all rooms.

(e) All stairways shall have hand rails on each side thereof and when the stairs are six (6) feet or wider they shall have an intermediate hand rail. All hand rails shall be of wood or metal at least two (2) inches in diameter.

(f) In no case shall the risers of such stairs be greater than seven (7) inches and the width of the treads not less than eleven (11) inches exclusive of any nosings. No stair shall rise to a greater height than eight (8) feet without a landing equal in width to the width of the stairs. No winders shall be allowed in any such stairs or exits. When stairs turn directly on themselves the landing shall be equal to the width of the stairs in its narrowest dimension and twice the width of the stairs in its widest dimension.

Sec. A-515—FIRE DOORS AND WINDOWS:

(a) All window frames and sash, doors, trim and other interior finish leading to or from the auditorium, balcony or gallery, stage or dressing rooms must be of metal or of wood covered with metal, or of such incombustible material that may be approved by the Commissioner of Buildings.

(b) All glass, if used, must be approved standard wire glass.

Sec. A-516—FLOOR LEVELS:

(a) The floor level of the auditorium shall be maintained within the limits of the first story thereof and where such floors are banked, the floor of the lowest bank shall not be above the sidewalk level.

(b) The level of the main entrance or corridor shall not rise above the established grade more than three (3) feet except by special permission of the Commissioner of Buildings. There shall be no steps from the foyer or main entrance onto the sidewalk.

(c) To overcome any difference of level in and between corridors, courts, lobbies, passages, auditoriums and aisles on the ground floor, gradients shall be employed of not over one (1) foot in ten (10) feet with no perpendicular risers.

Sec. A-517—BUSINESS IN FRONT OF AUDITORIUM:

(a) Nothing herein contained shall prevent the use of the front portion of any building for the purposes of offices or stores, provided that said offices or stores are separated from the auditorium balcony, galleries and exits with unpierced walls of brick or other fireproof materials at least eight (8) inches in thickness.

(b) If any part of the building above or below the auditorium, balcony or gallery is used for any business the same must be separated by approved fireproof ceiling and floor construction.

Sec. A-518—WORKSHOP, STORAGE AND PROPERTY ROOMS:

No workshop, storage or general property room shall be allowed above the auditorium or stage or under the same or in any of the fly galleries, provided, however, said rooms or shops may be located in the rear or at the side of the stage, but in such cases they shall be

separated from the stage by a fireproof wall and the opening leading into said partition shall have fireproof doors on each side of the wall.

Sec. A-519—PROSCENIUM WALLS:

(a) The stage shall be separated from the auditorium by a brick wall, not less than eighteen (18) inches thick or its equivalent; the entire width of the building and topped out at least four (4) feet above the highest roof adjoining said fire wall.

(b) There shall be no openings in this wall except the curtain or proscenium opening, and not more than two (2) others to be located at or below the stage level. These latter openings shall not exceed twenty-one (21) superficial feet each, with self-closing fire doors securely hung to rabbets. (Sec. A-334.)

(c) The wall over the curtain or proscenium opening shall be carried by a fire-proofed iron or steel girder with a relieving arch above of sufficient capacity and abutment or surety on each side of the opening to insure stability against the thrust of the arch.

(d) The frame around the curtain or proscenium opening shall be formed entirely of fireproof materials. If metal be used, the metal shall be filled in solid with incombustible material and securely anchored to the wall with iron.

Sec. A-520—CURTAIN:

(a) The curtain or proscenium opening shall be provided with a metal fierproof curtain, or a curtain of asbestos or other fireproof material, sliding at each end in grooves securely fastened to the brick wall and extending into such grooves to a depth of not less than six (6) inches on each side of the opening and in addition such asbestos or fireproof curtain may be provided with steel cable guides, not less than one-fourth (¼) of an inch in diameter.

(b) Said fireproof curtain shall be raised and lowered between each act or intermission or raised and lowered and raised immediately before each performance.

(c) The fireproof curtain shall be placed at least two (2) feet distance from the footlights at the nearest point.

(d) Act drop curtains shall also be of fireproof material or material fireproofed with approved fireproofing.

Sec. A-521—VENTILATORS:

(a) Over the stage shall be skylight ventilators, constructed of incombustible materials having openings equal in area to one tenth (1/10) the area of the stage floor having the whole top or sides so constructed and counterbalanced to open automatically, operated by cords from at least two (2) points near the exits on opposite side of the stage and having an arrangement of at least two (2) combustible or fusible connections to open the ventilation valves automatically by the action of fire on the stage and shall be placed near the center and above the highest part of the stage.

(b) Skylight covering of ventilators shall have sheet metal frames set with double thick glass, each pane thereof measuring not less than three hundred (300) square inches and immediately underneath the glass there shall be wire netting. Wired glass shall not be used as a substitute for such netting.

Sec. A-522—CONSTRUCTION OF STAGE FLOOR:

(a) That part of the stage floor, usually equal to the width of the proscenium opening, used in working scenery, traps or other mechanical apparatus, may be of wood, provided that the flooring on

the underside shall be covered with tin, sheet metal or fireproof paint. No flooring used thereon shall be less than one and five-eighths (1⅝) inches in thickness. All joists shall be of second class construction.

(b) The remaining part of the stage must be of fireproof construction.

Sec. A-523—FLY GALLERIES:

The entire fly galleries shall be constructed of iron or steel beams, filled with fireproof materials and no wood boards or sleepers shall be used as covering over beams, but the said floors shall be entirely fireproof.

Sec. A-524—RIGGING LOFT:

The rigging loft shall be fireproof except the floor covering the same, and the gridiron shall be of either wrought iron or steel construction.

Sec. A-525—STAGE SCENERY:

All stage scenery, curtains and decorations shall be made of incombustible material, and all woodwork on or about the stage shall be painted or saturated with some approved incombustible material.

Sec. A-526—DRESSING ROOM PARTITIONS—EXITS:

(a) The walls separating the employes or dressing rooms from the stage and the partitions dividing the dressing rooms, together with the partitions of every passageway from the same to the stage, and all other partitions on or about the stage, inclusive of stairways, shall be constructed of fireproof material.

(b) All doors in any of said partitions shall be constructed of iron or other fireproofing material.

(c) All shelving and cupboards in each and every dressing room, property room or other storage room shall be constructed of metal, slate or some fireproof material.

(d) Whenever dressing rooms are placed under the stage, auditorium or any part of the theater, at least two (2) enclosed smoke proof exits must be provided from the same to the floor above with one (1) exit from each leading directly to the street. Such exits shall be equipped with pressure releasing panic locks. All dressing rooms shall be fireproof.

(e) No oil lamps, candles or matches will be permitted in any dressing room, or under any part of the stage or auditorium.

Sec. A-527—SEATS:

All seats in the auditorium, balcony or gallery except those contained in the boxes, shall be firmly secured to the floor and no seat shall have more than six (6) seats between it and the aisles on each side, and no seat in the auditorium, except those contained in the boxes, shall be less than thirty-one (31) inches from back to back, measured in a horizontal direction and not less than twenty (20) inches in width from center to center of arm, and not less than thirty (30) inches from back to back and twenty (20) inches from arm to arm in the balcony or gallery. All platforms in balconies or galleries formed to receive the seats shall be not more than twenty-one (21) inches in width of risers nor less than thirty-one (31) inches in width of platform.

Sec. A-528—EXIT SIGNS—GREEN LIGHTS—PROGRAMMES:

(a) Each and every exit which can be used in case of fire shall be designated by the word "EXIT" in plain English letters, not less

than eight (8) inches in height and so situated immediately over or on the exit that they can be readily seen from any or all parts of the auditorium, balcony or gallery.

(b) A green light shall be placed over each of said exits and kept burning during the time of the performance and no other fixed green light will be permitted in the auditorium, balcony or gallery and the fact that such green lights indicate an exit to be used in case of fire shall be conspicuously printed on the programme used in the theater.

(c) All such exit lights must be independent and controlled by a separate service from behind the main entrance switch with a switch or shutoff located in the box office or manager's office and controlled only in that particular place and shall remain lighted until the entire audience has left the theater.

Sec. A-529—AISLES:

(a) All aisles on the respective floors, having seats on both sides of the same shall not be less than three (3) feet wide, where they begin and shall be increased in width toward the exit, in the ratio of one and one-half (1½) inches to five (5) running feet.

(b) Aisles having seats on one (1) side only shall not be less than two (2) feet wide at their beginning and increased in width the same as aisles having seats on both sides.

(c) All aisles and passageways shall be kept free of camp stools, chairs, sofas and other obstruction and no person shall be allowed to stand in or occupy any of the aisles nor the space in the rear of the last row of seats.

Sec. A-530—WATER CLOSETS:

Every theater shall be provided with and there shall be maintained therein, suitable and separate water closets for men and women for the convenience of the patrons of said theater. Such closets shall be continuously kept open for a period of fifteen (15) minutes next preceding the commencement of any entertainment or performance, in said theater and until the close thereof.

(b) Every theater shall have a rest room for women.

Sec. A-531—STEAM BOILER:

(a) No steam boiler or furnace which may be required for heating purposes shall be located under the auditorium or stage or in any passageway or stairway or exit and the space allotted to the same whether at the rear or side of stage or auditorium, shall be enclosed by walls of masonry on both sides and the ceiling of such space shall be constructed of fireproof materials.

(b) No high pressure boiler shall be allowed in any theater.

Sec. A-532—REGISTERS OR RADIATORS:

(a) No floor register for heating shall be permitted in aisles or passageways.

(b) No coil or radiator shall be placed in any aisle or passageway used as exit, but said coils and radiators shall be placed in recesses formed in the wall or partition to receive the same.

Sec. A-533—STAND PIPES:

(a) Stand pipes four (4) inches in diameter shall be provided with hose attachment on every floor and gallery as follows:

(b) One (1) on each side of the auditorium in each tier, also on each side of the stage on each tier and at least one (1) in the prop-

erty room and one (1) in the carpenter shop if the same be contiguous to the building.

(c) All stand pipes shall be kept clear from obstruction, said stand pipes shall be separate and distinct, receiving their supply of water direct from the street main and also Siamese connection on main line and shall be fitted with regulation couplings of the Fire Department and be ready for immediate use at all times during the performance.

(d) When the pressure of the street water service is not sufficient to provide an efficient working pressure at the hose nozzle or sprinkling outlet, then the stand pipes shall be filled with water by means of an automatic pump or pumps of sufficient capacity to supply all the fire lines connected therewith.

Sec. A-534—SPRINKLERS:

(a) There shall be placed over the curtain opening the full width, a set of automatic sprinklers.

(b) Automatic sprinklers shall be placed in the ceiling or below the roof of the stage and in the dressing rooms, carpenter shops and property rooms at such intervals as will protect every square foot surface when said sprinklers are in operation. (Sec. A-332.)

Sec. A-535—FIRE HOSE:

A proper and sufficient quantity of two and one-half (2½) inch hose fitted with regulation couplings of the Fire department with nozzles attached thereto with hose spanners at each outlet shall always be kept attached to each hose attachment.

Sec. A-536—PORTABLE EXTINGUISHERS:

(a) There shall be provided hand pumps or other portable fire extinguishing apparatus, at least four (4) axes, two (2) twenty-five (25) foot hooks, two (2) fifteen (15) foot hooks and two (2) ten (10) foot hooks on each tier or floor of the stage to be hung on the wall in a conspicuous place.

(b) There shall be kept ready for immediate use on the stage at least four (4) casks full of water and two (2) buckets to each cask. Such casks and buckets shall be painted red.

Sec. A-537—APPROVED BY FIRE CHIEF:

All sprinkler equipment and fire hose shall be approved by the Chief of the Fire Department.

Sec. A-538—INSPECTORS MAY ENTER:

The Commissioner of Buildings and his authorized assistants shall have power and they are hereby authorized to enter any theater or other place of amusement within the limits of this city, without hindrance from anyone for the purpose of examination and the enforcement of the provisions of this Ordinance whenever same may be deemed necessary.

Sec. A-539—WIRING (See Part 29—Division D):

All wiring apparatus, etc., not specifically covered by special rules of this Code must conform to the rules and requirements of the Commissioner of Buildings. Said rules and requirements, when officially made and adopted, shall have full force and effect as Ordinances.

Sec. A-540—ELECTRIC CURRENT SERVICE:

(a) Where the supply may be obtained from two (2) separate street mains, two (2) separate and distinct services must be in-

stalled, one (1) service to be of sufficient capacity to supply current for the entire equipment of the theater, while the other service must be at least of sufficient capacity to supply current for all emergency lights.

(b) Where the supply cannot be obtained from two (2) separate sources, the feed for emergency lights must be taken from a point on the street side of the main service fuses. By "emergency lights" are meant exit lights and all lights in lobbies, stairways, corridors and other portions of the theater to which the public have access, which are normally kept lighted during the performance.

(c) Where the source of the supply is an isolated plant within the same building, an auxiliary service of at least sufficient capacity to supply all emergency lights must be installed from some outside source, or suitable storage battery within the premises may be considered the equivalent of such service.

Sec. A-541—STAGE:

All permanent electrical construction, except as hereinafter provided, must be in approved conduit or armored cable.

Sec. A-542—SWITCHBOARDS (See Sec. D-2904):

Switchboards must be made of non-combustible, non-absorptive insulating material, and where accessible from the stage level, must be protected by a suitable guard rail to prevent accidental contact with live parts of the board.

Sec. A-543—FOOTLIGHTS:

(a) Footlights must be wired in approved conduit or armored cable, each lamp receptacle being enclosed within an approved outlet box, or the lamp receptacle may be mounted in an iron or steel box, the metal to be of a thickness not less than number twenty (20) U. S. Sheet metal gauge treated to prevent oxidation and so constructed as to enclose all the wires.

(b) Theater footlights shall be so wired that the number of outlets and the lamps connected to them shall in no case be such as to place more than fifteen (15) amperes on a branch circuit fuse. (See Sec. D-812)

Sec. A-544—BORDERS AND PROSCENIUM SIDE LIGHTS:

(a) Border and proscenium side lights must be constructed of steel of a thickness not less than number twenty (20) U. S. Sheet metal gauge, treated to prevent oxidation and shall be suitably stayed and supported, and so designed that the flanges and reflectors will protect the lamps.

(b) Border lights and proscenium side lights shall be so wired that the number of outlets and the lamps connected to them shall in no case be such as to place more than fifteen (15) amperes on a branch circuit fuse.

(c) They must be wired with approved conduit or armored cable, each lamp receptacle to be enclosed with an approved outlet box, or the lamp receptacles may be mounted in an iron or steel box; the metal shall be a thickness not less than number twenty (20) U. S. Sheet metal gauge; treated to prevent oxidation, and so constructed as to enclose all wires, which must be soldered to lugs or receptacles.

(d) They must be provided with suitable guards to prevent the scenery or other combustible material coming in contact with the lamps.

(e) Cable or borders must be of an approved type and suitably supported; conduit construction must be used from the switchboard, to points where cables must be flexible, to permit of the raising and lowering of border.

(f) For the wiring of the border proper, wire with approved slow burning insulation must be used.

(g) Borders must be suitably suspended, and if wire rope is used, the same must be insulated by at least one (1) strain insulator inserted at the border.

Sec. A-545—STAGE AND GALLERY POCKETS:

(a) Stage and gallery pockets must be of approved types, controlled from the switchboard. Each receptacle shall be of not less than thirty-five (35) ampere rating for arc lamps, nor fifteen (15) ampere rating for incandescent lamps, and each receptacle shall be wired to its full capacity.

(b) Arc pockets shall be wired with wire not smaller than number six (6) B. and S. gauge; incandescent lamp pockets not less than number twelve (12) B. and S. gauge.

(c) Plugs for arcs and incandescent pockets must not be interchangeable.

Sec. A-546—SCENE DOCKS:

Where lamps are installed in scene docks they must be so located and installed that they will not be liable to mechanical injury.

Sec. A-547—CURTAIN MOTORS:

Curtain motors must be of iron-clad type and installed so as to conform to the requirements of the Commissioner of Buildings.

Sec. A-548—CONTROL FOR STAGE FLUES:

(a) In cases where dampers are released by an electric device, the electrical circuit operating same must be normally closed.

(b) Magnet operating dampers must be wound to take the full voltage of the circuit by which it is supplied, using no resistance device, and must not heat more than normal for apparatus of similar construction.

(c) It must be located in a loft above the scenery and shall be installed in a suitable iron box with a tight self-closing door.

(d) Such dampers must be controlled by at least two (2) standard single pull switches mounted within approved iron boxes, provided with self-closing doors with lock or latch, and located one (1) at the electrician's station and the other as designated by the Commissioner of Buildings.

Sec. A-549—DRESSING ROOMS:

(a) Dressing rooms must be wired in approved conduit or armored cable.

(b) All pendant lights must be equipped with approved reinforced cord, armored cable, or steel armored flexible cord.

(c) All lamps must be provided with approved guards.

Sec. A-550—PORTABLE EQUIPMENT:

(a) Arc lamps used for stage effects must conform to the following requirements:

(b) Must be constructed entirely of metal except where the use of approved insulating material is necessary.

(c) Must be substantially constructed, and so designed as to provide for proper ventilation, and to prevent sparks from being

emitted from the lamps when the same are in operation, and mica must be used for the frame insulation.

(d) Front opening must be provided with a self-closing hinged door frame, in which wire gauze or glass must be inserted, except in the case of lens lamps, where the front may be stationery, and a solid door be provided on the back or side.

(e) Must be so constructed that neither carbons nor live parts will be brought in contact with metal of hood during operation and arc lamp frames and standards must be so installed and protected so as to prevent the liability of their being grounded.

(f) Switch on standards must be so constructed that accidental contact with any live portion of the same will be impossible. All standard connections in lamps and at switches and rheostats must be provided with approved lugs.

(g) Rheostats must be plainly marked with their rated capacity in volts and amperes, and if mounted on standards must be raised to a height of at least three (3) inches above the floor. Resistances must be enclosed in a substantial and properly ventilated metal case which affords a clearance at least one (1) inch between the case and the resistance element.

(h) A competent operator must be in charge of each arc lamp, except that one (1) operator may have charge of two (2) lamps when they are not more than ten (10) feet apart, and are so located that he can properly watch and care for both lamps.

Sec. A-551—BUNCHES:

(a) Bunches must be substantially constructed of metal and must not contain any exposed wiring.

(b) The cable feeding the same must be bushed in an approved manner where passing through the metal, and must be properly secured to prevent any mechanical strain from coming on the connection.

Sec. A-552—STRIPS:

(a) Strips must be constructed of steel of a thickness of not less than number twenty (20) U. S. Sheet metal gauge treated to prevent oxidation, and suitably stayed and supported and so designed that the flanges will protect the lamps.

(b) Cables must be bushed in a suitable manner when passing through the metal, and must be properly secured to prevent serious mechanical strain from coming on the connection.

(c) Must be wired in approved conduit or armored cable, each lamp receptacle being enclosed within an approved outlet box, or the lamp receptacles may be mounted in an iron or steel box, the metal to be of a thickness not less than number twenty (20) U. S. sheet metal gauge, treated to prevent oxidation, so constructed as to enclose all wires.

(d) Wires shall be soldered to lugs or receptacles.

Sec. A-553—PORTABLE PLUGGING BOXES:

(a) Portable plugging boxes must be constructed so that no current carrying part will be exposed, and each receptacle must be protected by approved fuses mounted on slate or marble bases and enclosed in a fireproof cabinet equipped with self-closing doors.

(b) Each receptacle must be constructed to carry thirty (30) amperes without undue heating, and the busbars must have a carrying capacity equivalent to the current required for the total number

of receptacles, and approved lugs must be provided for the connection of the master cable.

Sec. A-554—PIN PLUG CONNECTORS:

Pin plug connectors must be of an approved type so installed that the female part of the plug will be on the live end of the cable, and must be so constructed that tension on the cable will not cause serious mechanical strain on the connection.

Sec. A-555—PORTABLE CONDUCTORS:

Flexible conductors used from receptacles to arc lamps, bunches and other portable equipment must be approved stayed cable, except that for the purpose of feeding a stand lamp under conditions where conductors are not liable to severe mechanical injury, an approved reinforced cord may be used provided the cutout designed to protect the same is not fused with over six (6) ampere capacity.

Sec. A-556—LIGHTS ON SCENERY:

Where brackets are used they must be wired entirely on the inside, fixture stems must come to the back of the scene and the end of the stem shall be properly bushed.

Sec. A-557—STRING OR FESTOONED LIGHTS:

(a) Wiring of string and festooned lights must be of an approved type, joints to be properly made, soldered and taped and staggered where practicable.

(b) Where lamps are used in lanterns or similar devices, approved guards must be employed.

Sec. A-558—SPECIAL ELECTRIC EFFECTS:

Where devices are used for producing special effects, such as lightning, waterfalls, etc., the apparatus must be so constructed and located that flames, sparks, etc., resulting from the operation cannot come in contact with combustible material.

Sec. A-559—AUDITORIUM:

(a) All wiring of auditorium must be installed in approved conduit metal moulding or armored cable.

(b) Exit lights must not have more than one (1) set of fuses between the same and the service fuses.

(c) Exit lights and all lights in halls, corridors or any other parts of the building, used by the audience, except the general auditorium lighting, must be fed independently of the stage lighting and must be controlled only from the lobby or other convenient place in front of the house.

(d) All fuses must be enclosed in approved cabinets.

Sec. A-560—VENTILATION IN THEATERS:

All theaters shall be so ventilated that the air shall be changed at least once every fifteen (15) minutes. Such air may be filtered and brought to the proper temperature by approved methods.

Sec. A-561—MACHINE ENCLOSURES FOR MOVING PICTURE MACHINE (See Sec. D-2501):

(a) All moving picture projecting machines used in any theater, picture show, or airdome, must be placed in an enclosure or housing made of approved fireproof material.

(b) Such booth must be ventilated by force to the outside air with two (2) vents, the area of which shall not be less than one hundred (100) square inches for each vent.

(c) The booth shall be large enough for the operator to walk easily on either side or back of the machine. The room must be well lighted.

Note: It is recommended that two (2) inches of approved metal lath and plaster be used for moving picture booths.

(d) All openings into this booth must be arranged in such a manner that they are held normally closed by doors or shutters of the same fire-resisting properties as the booth itself.

Exception: The air vents to the outside.

Sec. A-562—TOP AND BOTTOM REELS:

(a) Top and bottom reels must be enclosed in steel boxes or magazines, each with an opening of approved construction at the bottom or top, so arranged as not to permit entrance of flame to the magazine.

(b) No solder shall be used in the construction of this magazine.

(c) The front side of each magazine must consist of a door hinged and arranged to swing horizontally and be provided with a suitable latch.

Sec. A-563—AUTOMATIC SHUTTER:

(a) Automatic shutters must be provided and must be so constructed as to shield the film from the beam of light whenever the film is not running at operating speed.

(b) Shutters must be kept permanently attached to the gate frame.

Sec. A-564—EXTRA FILMS:

Extra films must be kept in individual metal boxes, equipped with tight fitting covers and not more than four (4) films shall be allowed in the machine enclosure at any one time and not more than two (2) feet of film shall be exposed in the machine enclosure.

Sec. A-565—MACHINE OPERATION (See Sec. D-2502):

Motor-driven projectors shall be of a type expressly designed and approved for such operation. Such projectors shall be used only by permission of the Commissioner of Buildings, and when the projector is in charge of a qualified operator.

Sec. A-566—FIRE EXTINGUISHERS:

In all machine enclosures there shall be placed a three (3) gallon fire extinguisher, which shall be charged at all times, or some other form of fire extinguisher, approved by the Commissioner of Buildings.

Sec. A-567—WIRING:

All wiring apparatus, etc., not specifically covered herein, must conform to the ruling of the Commissioner of Buildings. Said rules and requirements when officially made and adopted shall have the full force and effect of ordinances.

Sec. A-568—TEMPORARY USE OF MOVING PICTURE MACHINES:

Nothing herein shall prevent the temporary use of a moving picture machine or stereopticon for the purpose of lectures in any public hall, club or lodge hall, school or church, when regulations are provided for in this Code, and a permit is first obtained from the City Controller on the approval of the Commissioner of Buildings.

Sec. A-569—BOOTH—CARE OF:

In no case shall more than one (1) person besides the regular machine operator, be allowed in a booth at any one (1) time.

(b) No smoking will be permitted in any booth or matches be allowed in the same.

(c) No paper, books, clothing or debris will be allowed in any booth and the booth must be kept clean and free from any inflammable materials at all times.

Sec. A-570—SALE OF SEATS:

When the seating capacity of any theater is taken up or sold out a sign shall be placed in front of the box office indicating to the public that all seats are sold.

DIVISION A—PART SIX
SECOND CLASS BUILDINGS

Sec. A-601—WHAT BUILDINGS SHALL BE SECOND CLASS:

(a) All buildings built, altered or repaired within the inner fire district, unless buildings of the first class, shall be buildings of the second class, except as otherwise provided in this Code, (Sec. A-305.)

(b) No second class building in the city used for retail mercantile business, association or club purposes or as a lodging, apartment or tenement house or office building shall be built more than three (3) stories in height.

Exception—Special permission.

(c) No second class building more than two (2) stories in height; hereafter erected, altered or enlarged in the city shall be used as a school building, place of instruction; public assembly hall with an occupancy in excess of eight hundred (800) people; church, hospital building, asylum or sanitarium.

Sec. A-602—WALL THICKNESS—HEIGHT OF SECOND CLASS BUILDINGS:

(a) Buildings of the second class, unless of skeleton construction with panel walls, shall be constructed with walls of masonry or concrete of a thickness required, to-wit, as follows:

(1) THICKNESS IN INCHES OF MASONRY BEARING WALLS FOR SECOND CLASS BUILDINGS WITH A LIVE LOAD IN EXCESS OF TWO HUNDRED (200) POUNDS PER SQUARE FOOT FOR ANY OR ALL FLOORS SHALL BE AS FOLLOWS:

Stories	B	1	2	3	4	5	6
1	12	12					
2	12	12	12				
3	16	16	12	12			
4	20	16	16	12	12		
5	24	20	16	16	12	12	
6	24	20	20	16	16	12	12

(2) THICKNESS IN INCHES OF MASONRY BEARING WALLS FOR SECOND CLASS BUILDINGS WITH A LIVE LOAD LESS THAN ONE HUNDRED AND NINETY-NINE (199) POUNDS PER SQUARE FOOT FOR ANY OR ALL FLOORS SHALL BE AS FOLLOWS:

Stories	B	1	2	3	4	5	6
1	12	12					
2	12	12	12				
3	16	12	12	12			
4	16	16	12	12	12		
5	16	16	16	12	12	12	
6	20	16	16	16	12	12	12

(b) No building of the second class shall be built to have a height exceeding seventy-five (75) feet above the established grade.

Sec. A-603—PARAPET WALLS OF SECOND CLASS BUILDINGS:

Parapet walls shall be the same thickness as the wall below the roof including the last story and shall extend thirty (30) inches above the roof at all points; however, in no case shall parapet walls be less than twelve (12) inches in thickness.

Sec. A-604—CONSTRUCTION OF SECOND CLASS BUILDINGS:

Second class buildings constructed with masonry bearing walls as specified above and with wooden columns, wooden girders, and wooden floors shall have no such wooden columns, beams, joists or girders whose least dimensions are less than seven and one-half (7½) inches. All such columns and girders shall rest upon iron plates or iron post caps of sufficient size and thickness to receive the loads from the columns and girders and to properly distribute such load to the supporting columns or masonry below, so as not to exceed the allowable stress for the various materials. All beams, girders and roof framing shall be anchored into the wall and post caps in an approved manner.

Sec. A-605—FLOORS OF SECOND CLASS BUILDINGS:

Floors shall be of dressed and tongued, or double grooved and splined planking composed of a top floor and a sub-floor of a total thickness of two (2) and one-half (½) inches. That planking which shall constitute the under floor shall be at least one and five-eighths (1⅝) inches in thickness, upon which shall be laid a top floor of tongue and grooved material not less than seven eighths (⅞) of an inch thick, which shall cross the under floor at an angle of not less than forty-five (45) degrees. It is required that a layer of waterproof building paper be placed between the two (2) layers of floor.

Sec. A-606—STEEL STIRRUPS IN SECOND CLASS BUILDINGS:

(a) All beams framing into girders or other beams shall be hung in approved iron or steel stirrups or hangers.

(b) Steel stirrups shall be designed so that they can be readily fastened to the timber they support. Either heavy nails or lags shall be used.

Sec. A-607—DRESSED TIMBERS IN SECOND CLASS BUILDINGS:

All planking, wooden columns, girders, beams or posts shall be thoroughly dressed when used in second class buildings.

Sec. A-608—FIREPROOFING OF STRUCTURAL PARTS:

When iron or steel girders, beams, or other structural steel parts support any masonry or floor loads in second class buildings they shall be fireproofed with masonry, concrete, tile, terra cotta or other noncombustible and fire resisting material. These materials shall be so put on and held in place as effectually to protect such members from the effects of fire corrosion or abrasion with a thickness at the extreme exterior point at least three (3) inches of fire proof material except one (1) inside face of steel columns may be covered with less when authorized by the Commissioner of Buildings.

Sec. A-609—ROOF TRUSSES IN SECOND CLASS BUILDINGS:

Steel roof trusses and beams supporting only roof and ceiling loads may be required to be protected with an approved incombustible ceiling such as approved metal lath on metal furring and plaster suspended in a manner that will prevent passage of fire. (Sec. A-404)

Sec. A-610—ROOF RAFTERS OF WOOD:

In second class buildings where wooden rafters are used to support roof loads the same shall not be less than thirty-six (36) inches in area of the cross section of the least dimension of the said timber. Such roof timbers shall be thoroughly dressed except approved lattice trusses may be used for roof support.

Sec. A-611—ROOF DECKING—PENT HOUSES--SKYLIGHTS:

The roof decking or planking used for the roof and around pent houses or skylights of second class buildings shall in no case be less than one and five-eighths (1⅝) inches in thickness of dressed tongue and grooved timber. Where pent houses and skylights are constructed above the roof of a second class building the wooden planking of the same shall be covered with metal or class A roofing material unless the pent house or skylight is adjacent to an exterior wall then the said wall shall be run thirty (30) inches above the roof of the pent house or skylight.

Sec. A-612—HOLLOW PLACES, METAL FURRING, LATH AND PLASTER:

There shall be no hollow wooden partitions or any hollow or concealed places in any wooden construction in second class buildings and whenever wood shall be used it shall be solid, and it shall not be permissible in any second class building to so plaster, sheath or cover it with any materials as to leave any hollow space behind the same, except ceiling joists may be furred with metal and covered with steel lath and plaster, providing, however, that the hollow spaces are thoroughly fire blocked every eight (8) feet.

Sec. A-613—ROOFING MATERIAL:

All second class buildings shall be covered with fire resisting roof covering of class B or better. (Sec. B-306.)

Sec. A-614—STAIR TIMBERS HOLLOW SPACES:

All wooden stair-horses used in second class buildings shall have at least thirty-six (36) square inches area in cross section. There shall be no hollow spaces under any wooden stairs, unless the same is furred with metal and covered with approved steel lath and plaster.

Sec. A-615—MASONRY CORBLE:

Under each floor of a second class building there shall be a four (4) inch masonry corble at all points around the walls of the building for the subfloor to rest upon.

Sec. A-616—FIRE CUTTING AND TIMBER BEARING:

(a) In second class buildings all wooden timbers, beams, girders floor joists or roof rafters that have a masonry wall bearing shall be fire-cut with not over one (1) inch of the timber entering the wall at the top of the timber. The bearing of all such timbers shall be sufficient to safely carry the superimposed loads and in no case shall be less than four (4) inches.

(b) All beams or girders that enter any bearing wall shall have iron or steel bearing plates of sufficient size to safely carry the superimposed load. Such bearing plates shall be thoroughly anchored into the wall.

Sec. A-617—SKYLIGHTS—MONITORS AND AIR VENTS:

In all second class buildings all skylights, air vents, monitors or any appurtenance that is attached to the roof and provides for an opening in the roof sheathing shall extend and project at least eighteen (18) inches above the same at all points, minimum projection.

Sec. A-618—AREAWAYS (See Sec. A-344):

All areaways around the walls of second class buildings shall be so constructed and drained to a sewer or dry well that water which might enter thereto from the surface will be conducted away and will not injure the walls and footings.

Sec. A-619—FOOTINGS—FOUNDATIONS:

(a) All footings under any wall shall be at least four (4) inches wider than the wall and shall not be less in depth than one-third (⅓) of the width of the footing. Such footings shall be of sufficient size to safely carry the superimposed loads. Footings in filled ground shall be extended downward until a test of the soil satisfactorily of footings shall be under the direction of the Commissioner of Build- proves that the footing will stand the superimposed load. All tests ings. (Sec. B-108.)

(b) Column footings shall be so designed that they will safely carry the superimposed loads and where eccentric footings are used the same shall satisfy the Commissioner of Buildings that they are safe and will not slip. Two (2) eccentric footings shall be tied to a regular footing with a beam, if in the opinion of the Commissioner of Buildings the same will make such footings more stable.

(c) The Commissioner of Buildings may require reinforcements in any column or other footing.

(d) The bottom of all footings for second class buildings shall be in no case less than forty-eight (48) inches below the established grade for walls, piers, columns or other foundations.

(e) The legal depth of footings for second class buildings shall be ten (10) feet in the fire limits and seven (7) feet outside of the fire limits.

Sec. A-620—COLUMNS:

(a) All wooden columns or posts used in second class buildings to support any structural load shall rest upon the post cap which must rest immediately on the top of the next lower column or post cap. Such post caps shall be anchored in an approved manner

(b) Wooden columns not less than ten (10) inches by ten (10) inches may be used in finished basements of second class buildings. The footing under such basement columns or posts shall be at least twelve (12) inches above the finished floor and shall be thoroughly anchored thereto.

Note—It is recommended that such basement columns have the lower end creosoted.

Sec. A-621—PIPE CHASES:

No pipe chases or other channel shall be cut in the pilasters or bearing walls of any second class building except upon approval of the Commissioner of Buildings. No such pipe chases shall be at a

greater depth into the wall or pilaster than one-third (⅓) of the thickness of the same at that point.

Sec. A-622—EXTENSION OF ROOF GIRDERS:

Roof girders or rafters may extend beyond the outside walls of any second class building, but only on the outside property lines, providing such roof timbers are fireproofed with at least two (2) inches of approved metal lath and cement plaster. (Sec. A-404).

Sec. A-623—SPACE UNDER SIDEWALKS:

In second class buildings where the space under the sidewalk is used a reinforced concrete wall shall be provided to contain the roadway of the street. Such wall shall be designed for three hundred (300) pounds per square foot surcharge in addition to the earth pressure. In all buildings which are within ten (10) feet of the curb of any public highway the walls along that side shall be designed to carry three hundred (300) pounds per square foot minimum side pressure, except in cases where the space below the grade line under the building and on the street side is not excavated.

Sec. A-624—SOFFITS AND CORNICES:

Wooden cornices shall not be used in any case. All soffits or brackets supporting cornices shall be of incombustible material, except as above provided for roof beams on the outside property line which shall be covered with incombustible material.

Sec. A-625—MEZZANINE FLOORS IN FIRE DISTRICT:

Mezzanine floor areas in the fire district shall in no case exceed seventy-five (75) per cent of the area of the floor below. When such mezzanine floors are built of combustible material the floor joists of the same shall not be less than seven and one-half (7½) inches minimum dimension for Mezzanine floor area of five hundred (500) square feet and over and shall not be less than four and one-half (4½) inches minimum dimension for Mezzanine floor areas less than five hundred (500) square feet. In no case shall the flooring be less than one and five-eighths (1⅝) tongue and grooved flooring. All other construction shall strictly conform to first or second class construction.

Sec. A-626—CURTAIN AND PANEL WALLS IN SECOND CLASS BUILDINGS:

(a) Non-bearing curtain walls built between pilasters shall be not less than twelve (12) inches in thickness for the uppermost sixty (60) feet in height increasing four (4) inches for the next lower portion of such curtain wall.

(b) Panel walls may be eight (8) inches in thickness when approved construction is used.

Sec. A-627—WIRE GLASS AND STEEL SASH:

Wire glass and steel sash shall be required in all windows that have an exposure of fifty (50) feet or less from any other building or structure except the lower half of the same may be plain glass when in the opinion of the Commissioner of Buildings wired glass is not necessary.

Sec. A-628—HEIGHT OF STORIES:

The height of stories for load bearing wall constructed second class buildings shall not exceed:

1st Story	16	Feet in the clear
2nd "	14	" " " "
3rd and upper Stories	12	" " " "

In load bearing wall constructed buildings if any story exceeds the foregoing height, the walls of any such story and all walls below that story shall be increased four (4) inches in thickness.

Sec. A-629—AREA BETWEEN FIRE WALLS IN SECOND CLASS BUILDINGS:

(a) The area between fire, party or division walls in second class buildings shall be to wit as follows: (See Sec. A-332 for Sprinklers.)

Fronting on	Without sprinklers	With automatic sprinklers increase 100%
One street	6,500 Sq. Ft.	13,100 Sq. Ft.
Two "	8,000 " "	16,000 " "
Three or more Streets	10,000 " "	20,000 " "

(b) One (1) story second class buildings located on four (4) streets or isolated and used for public assembly purposes may be unlimited in area.

(c) One (1) or Two (2) story second class buildings located on four (4) or more streets or isolated and used for the manufacture of incombustible materials may have the area increased between fire walls or fifty (50) per cent of that stated above in the fire district or unlimited in area outside the fire district when equipped with approved automatic sprinklers.

Sec. A-630—DIVISION OR FIRE AND PARTY WALLS:

Division or fire and party walls in second class buildings shall be run through the roof and shall extend at least thirty (30) inches above all roofs or upward projections from the roof and shall be not less than twelve (12) inches in thickness and shall be capped with a tile or other approved coping so applied as to prevent moisture from entering the wall.

Sec. A-631—LIGHT OR VENT SHAFTS:

Walls of light or vent shafts shall be classed as curtain walls unless they are load bearing or panel walls.

Sec. A-632—HEIGHT OF SECOND CLASS BUILDINGS:

No second class building shall be built to exceed six (6) stories above the basement or seventy-five (75) feet above the established grade measured from the grade line to half the height of the roof for pitched roofs or to the top point of the roof for flat roofs.

Sec. A-633—CONSTRUCTION OF ELEVATOR SHAFTS, HOISTWAY AND STAIRWAY ENCLOSURES IN SECOND CLASS BUILDINGS:

(a) In all second class buildings all stairs shall be enclosed in continuous fireproof wells from the top of the building to the bottom, except as hereinafter provided. Such stairways shall contain a passageway at each floor level equal in width to the width of the stairs so that a continual run can be made from the top story to the first floor exit without passing onto any open floor area. At the street floor of all such stair wells the stairs and railings shall be so arranged in any manner approved by the Commissioner of Buildings that people will not get to the basement during a panic. All such stair wells which include a basement stairs shall have a fire door at the street floor where the stairs lead to the basement. Such doors shall open into the stair well in such a manner that travel up from the basement will open the door and travel into the basement will close the door. All doors to stairs shall be metal clad, marked with

exit lights and shall open with the direction of egress to the street floor and shall be equipped with pressure releasing panic locks. The enclosing walls of all stair wells shall be composed of six (6) inches of tile for panel walls, eight (8) inches of tile for curtain walls, or two (2) inches of approved metal lath and cement plaster. No hollow building tile or masonry shall be placed on any wood in stair wells. All door openings to stair wells shall be of fire resisting construction. All doors shall be of solid face and built of fire resisting construction. Where doors are of wood they shall be lined on both sides with metal at least twenty (20) gauge, and the door frames shall be of metal or other fire resisting construction approved by the Commissioner of Buildings. All windows in such stair wells shall be of metal sash and wire glass. No such window shall exceed sixteen square feet of wire glass area.

Note: Stair doors for second class buildings may be of one and five-eighths (1⅝) inch lumber covered on the exposed side with eighteen (18) gauge metal. All stair exits shall be marked in same manner as for theater exits.

(b) All passenger, freight elevator shafts or stairways extending more than two (2) stories in height hereafter placed in any second class building designed, used or built for any purpose whatsoever shall be entirely enclosed for the full height in suitable walls of brick, tile or concrete. Any such elevator shafts or stair wells may be enclosed with two (2) inches of solid cement plaster applied to approved steel lath on metal studs or angles anchored at each floor and ceiling in an approved manner. The door frames of any openings in elevator shafts or stair wells shall be constructed of heavy steel jams which extend for the full height of each story and are anchored at the floor and ceiling, however, any plaster that is exposed to an open floor shall be cased to a height of thirty-six (36) inches above each floor with an abrasive resisting wainscoting.

(c) If the enclosing walls are of brick or tile laid in cement mortar or of concrete, and not used as bearing walls, they must be eight (8) inches in thickness for not more than fifty (50) feet of their uppermost height and increased in thickness four (4) inches for the remaining lower portions or parts thereof. Where each story is carried on iron or reinforced concrete, frame work, and burnt clay, tile or other approved materials are used the walls shall not be less than six (6) inches except as above provided for approved steel lath and plaster.

(d) In all cases wherever an elevator goes to the top floor, the enclosing walls of the elevator shaft must be continued so as to entirely close off the attic space from the shaft and suitable windows or skylights provided for light and ventilation, providing, however, when the elevator engine is placed overhead the same shall rest on a solid slab of incombustible material. In all cases a small opening of sufficient size must be provided to permit easy access to any elevator machinery that is in the top of the shaft, such openings shall be equipped with a fire door. All openings in fire resisting elevator shaft enclosures shall be protected by fire doors approved by the Commissioner of Buildings for the purpose. In factories and warehouses where elevator shafts open directly into a storage room no plain or wire glass will be permitted in the elevator doors. All fire doors shall be constructed and hung on incombustible supports and frames in a manner approved by the Commissioner of Buildings.

(e) A stairway and an elevator or elevators shall not be permitted within the same enclosure.

Sec. A-634—STAIRWAYS IN SECOND CLASS BUILDINGS:

(a) In every second class building two (2) stories or over in height above the basement, hereafter erected or altered in whole or in part with area between fire, party or division walls as described below there must be provided as a minimum at least one (1) enclosed stairway and one (1) smoke tower fire escape neither less than three (3) feet six (6) inches minimum width of each stairs in the clear, placed as far remote from each other as possible, with exits from the building opening immediately to a public highway, or court and fireproof passageway to a public highway, with exit doors opening outwardly and properly provided with pressure releasing panic locks. All such stairs shall be built without winders and with uniform treads and risers throughout each flight and no flight shall be built to rise to a vertical height in excess of eight (8) feet without a proper landing equal in width to the width of the stairs. When such stairs shall return directly on themselves, a half-space landing shall be provided whose major dimension shall be twice the width of the stairs in the direction of the run of the stairs and shall not be less than the width of the stairs in the lesser dimension. All such stairways shall have railings on each side thereof. Stairways which are six (6) feet and over in width shall be provided with intermediate hand rails and newel posts.

(b) In second class buildings, of Grade C, Grade D, Grade E, and Grade F, except mercantile buildings, no riser shall be greater in height than eight (8) inches and no tread shall be less than ten (10) inches in width exclusive of any nosings.

(c) In second class buildings of Grade A and Grade B and all mercantile buildings no riser shall be greater in height than seven (7) inches and no tread shall be less than eleven (11) inches in width.

(d) No winders will be permitted in any stairs of any building of second class construction. No winders will be permitted in smoke tower fire escapes.

(e) All stairs shall be clearly marked with approved exit lights at each floor or story height.

(f) For all second class buildings the minimum width of stairs shall be to wit as follows:

Area between fire, party and division walls.	Lineal feet of width of stairs.
Up to 6,000 Sq. Ft.	7 Ft.
6,000 to 12,000 Sq. Ft.	10½ Ft.
12,000 to 20,000 Sq. Ft.	14 Ft.

(g) In second class buildings no floor space shall be more than one hundred (100) feet from any exit stair door, except warehouses and storage buildings.

Sec. A-635—SMOKE TOWER FIRE ESCAPES IN SECOND CLASS BUILDINGS:

(a) Second class buildings that have a floor area between fire walls up to and not exceeding six thousand (6,000) square feet shall be provided with one (1) smoke tower in addition to one (1) enclosed fireproof stairs; placed as far remote from each other as possible.

(b) Second class buildings that have a floor area between fire walls of six thousand (6,000) square feet and not exceeding twelve thousand (12,000) square feet shall be provided with two (2) smoke tower fire escapes in addition to one (1) enclosed fireproof stairs; placed as far remote from each other as possible.

(c) Second class buildings that have a floor area between fire walls in excess of twelve thousand (12,000) square feet shall be provided with two (2) smoke tower fire escapes in addition to two (2) enclosed fireproof stairs; placed as far remote from each other as possible.

(d) A smoke tower fire escape shall be constructed entirely of incombustible material with the stairs located within the main walls of the building and entirely closed off from the building by unpierced walls at least eight (8) inches in thickness. This enclosure shall be known as a smoke tower.

(e) No flight of stairs in the smoke tower shall rise to a greater height than eight (8) feet without a landing equal in width to the width of the stairs. The minimum width of such stairs or landing shall be three (3) feet six (6) inches. The lesser dimension of any landing shall always be equal or greater than the width of the stairs. Such stairs shall be continuous from the top story to the street level and shall have hand rails on both sides thereof.

(f) There shall be a stair landing at each story height on an exact level with the same.

(g) At each story height there shall be provided an approved metal or reinforced concrete runway three (3) feet in width; provided with approved railings; located at an exact level of each story or intermediate story and fastened on the outside of the building with approved brackets.

(h) At each story height there shall be provided two (2) approved doors not less than two (2) feet eight (8) inches in width, said doors to open directly to the metal runway in an approved manner and with the egress. One door shall open from the main floor area of the building onto the metal or reinforced concrete runway. One door shall provide egress from the runway to the smoke tower, one of the said doors shall be at each end of the runway. All doors shall be equipped with approved panic hardware.

Sec. A-636—WATER OUTLETS AND SCUPPERS:

(a) There shall be provided in all factories, warehouses and mercantile buildings of the second class approved water outlets for all floors so distributed as to provide one (1) outlet for every two thousand (2,000) square feet of floor area. These outlets shall be set below the floor level and arranged to convey water to the outside of such buildings or structures where floors are flooded in case of fire.

(b) All basement or cellar rooms of such buildings or structures shall be provided with floor outlets or drains connected with the city sewer.

Sec. A-637—FLOORS TO BE POSTED IN ALL SECOND CLASS BUILDINGS:

(a) All floors in any second class building used for any purpose whatsoever shall have posted on each floor on each of the four (4) walls and made a part of the wall a metal plate of noncorrosive metal giving in heavy outline the allowable average floor load for that floor or part of a floor.

(b) When different bays of any floor are designed to carry different live loads each bay of such floor or floors shall be marked. Such markers shall be fastened to the columns in a strong and thorough manner.

(c) Such markers shall have letters and figures at least one (1) inch high and shall read as follows:

DO NOT OVERLOAD THIS FLOOR
CAPACITY ..... POUNDS PER SQ. FT.

Sec. A-638—WINDOWS ON THE INSIDE PROPERTY LINE: In any second class building no windows shall be placed in any wall on the inside property lines, providing however, that windows may be placed in walls located four (4) feet from the inside property line.

Exception—One story nonresidence buildings.

Sec. A-639—PUBLIC ASSEMBLY HALLS:

(a) No public assembly hall shall be located on any floor of a second class building above the third floor.

(b) No public assembly hall with a capacity of over eight hundred (800) people shall be located or used on the third floor of a second class building of any grade.

(c) No stage whatsoever shall be used as an adjunct to a public assembly hall on the third floor of a second class building of any grade.

(d) No fixed seats will be permitted to be used on the third floor in any assembly hall of a second class building.

(e) Public assembly halls with fixed seats and a minor stage and a capacity of not to exceed eight hundred (800) people will be permitted on the second floor of any second class building.

(f) Where any basement or cellar is constructed under such assembly hall the floor construction over such basement or cellar shall be of fire-resisting construction. No entrance to such basement shall be constructed with egress into the assembly hall but such entrance shall be to the outside of the building.

(g) No garage of any sort shall be located in any assembly hall, under any assembly hall, or in the same building with an assembly hall of any building of second class construction.

(h) Public assembly halls shall have exits provided, figuring all exits, and other exit equipment the same as for theaters.

(i) A major stage shall not be permitted in any second class building.

Sec. A-640—DWELLINGS AND APARTMENT HOUSES: For special regulations regarding dwellings and apartment houses consult other parts of this Code also.

INDIANAPOLIS BUILDING CODE

DIVISION A—PART SEVEN

THIRD CLASS BUILDINGS AND OTHER PROVISIONS OF CONSTRUCTION

Sec. A-701—THIRD CLASS BUILDING—ORDINARY CONSTRUCTION:

(a) Buildings of the third class shall be constructed with walls of masonry, massive or reinforced concrete or approved incombustible materials of a thickness, to wit, as follows:

WALLS MINIMUM THICKNESS IN INCHES
(See Sec. A-722)

Stories	Basement	1st	2nd	3rd
1	12	12		
2	12	12	12	
3	16	12	12	12

(b) Buildings of the third class shall not exceed three (3) stories in height or forty-five (45) feet above the established grade.

(c) The external, party, fire and division walls shall be of masonry, massive or reinforced concrete or equally substantial and fire resisting materials.

(d) Any building or structure constructed with masonry, reinforced concrete, or massive concrete exterior walls and with unprotected steel columns supporting any floor load shall be classed as a third class building.

Sec. A-702—THIRD CLASS BUILDINGS—ERECTION—REPAIRS:

(a) No third class building shall be altered or repaired more than fifty (50) per cent from the original construction; in the first or second fire zones; if damaged or altered by any cause whatsoever, and the Commissioner of Buildings may condemn such buildings when so damaged from any cause whatsoever.

(b) No third class building shall be erected in the fire zones, except in the second fire zone two story third class buildings may be erected when the total area between fire walls does not exceed five thousand (5,000) square feet without approved automatic sprinklers, with an increase of one hundred (100) per cent when two source approved automatic sprinklers are provided. (See Sec. A-902 and A-903.)

(c) Third class butldings may be built outside of the fire zones All public garage buildings located outside of the fire zones shall be buildings of third class or better.

(d) Third class buildings may be built on the side property line when there is no conflict with the zoning ordinances or other laws or ordinances or this Code.

(e) All filling stations outside of the first fire zone shall be third class buildings or better.

Sec. A-703—DIVISION—PARTY OR FIRE WALLS:

(a) All division, party or fire walls in third class buildings shall be not less than those walls described in Section 701 above. Such walls shall be carried and extended upward above the roof twenty-four (24) inches at any point and shall be capped with tile or other approved material sufficient to prevent passage of water into the wall.

(b) All openings in such walls shall be equipped on either side thereof with approved fire doors so constructed and hung with fusible links as to close in case of excessive heat or fire. (Sec. A-334.)

Sec. A-704—NO MASONRY ON WOOD:

No wooden lintel shall be used to support masonry or concrete in any third class building. No masonry shall rest on any wooden floor beam or wooden support of any sort.

Sec. A-705—CONSTRUCTION OF ROOFS AND FLOORS:

The floors and roof of third class buildings may be of joist construction. The partitions may be of wood studs covered with wood lath and plaster. The roof of any third class building shall be covered with slate, tile, metal; or any roofing material that will pass the tests of this Code as Class B roofing.

Sec. A-706—FIRE CUTTING:

All joists, beams or girders entering masonry walls in third class buildings shall be fire cut so that the upper edge of the same extends not to exceed one (1) inch into the wall. All such joists, beams or girders shall have at least a four (4) inch bearing.

Sec. A-707—FIRE-BLOCKING—PLATES:

(a) Immediately under and over each stud partition in third class buildings there shall be two (2) inch wooden plate. All partitions shall be fire-blocked midway between each floor and ceiling with approved fire-blocking thoroughly fastened.

(b) All sewer piping, water, gas or other piping shall be thoroughly fire-blocked at the floor and ceiling and midway between the floor and ceiling when such pipes run up through any partitions or walls of combustible construction. All furnace pipes shall be fire-blocked. Furnace piping shall have metal wings riveted to the pipes of sufficient size that the wing can be nailed to the studding and completely close off and block the air space between the studding. At least one (1) inch of plastering shall be placed over such fire-blocking to make the same air tight. Special formed metal fire-blocking, or other approved blocking shall be used around other piping and the same covered with plastering.

Sec. A-708—PARTITION SUPPORTS:

In third class buildings where partitions run parallel with the floor joists a double joist shall be placed under each partition. Such double joists shall have three quarter (¾) inch spacers between the joists to facilitate electrical wiring.

Sec. A-709—WINDOW AND DOOR FRAMES:

No skeleton or plank window or door frame shall be used in a third class building unless the same are at least of one and five eighths (1⅝) inch in thickness. (Market lumber dimension.)

Sec. A-710—PILASTER CONSTRUCTION:

Where third class buildings are of pilaster and panel wall construction and all structural loads are carried by the pilaster eight (8) inch panel walls may be used between the pilasters.

Sec. A-711—POST CAPS:

(a) In third class buildings of beam and girder construction all post caps shall be of metal of sufficient strength to carry the structural loads. All such caps shall be substantially fastened to the posts and beams or girders. All beams entering the walls shall be fire cut and anchored thereto in a manner satisfactory to the Commissioner of Buildings. Each beam or girder shall be connected across the post caps so as to form a continuous tension member holding the opposite walls in place. Where floor and roof joists enter masonry walls of third class buildings such roof or floor timbers shall be anchored into the wall with an approved (T) anchor every six (6) feet throughout the whole length of all such walls. Such anchors shall be fastened so as to procure ready release of the joist in the wall in case of fire.

(b) All beams or girders shall rest on post caps. Each column of successive stories, shall rest on the post caps.

Sec. A-712—WINDOWS ON SIDE PROPERTY LINES:

In third class buildings no windows shall be placed in any wall located on the inside property lines, providing, however, that windows may be placed in such walls when the walls are located at least four (4) feet from the inside property lines. Courts and air shafts recessed at least four (4) feet from the inside property line will be considered as walls four (4) feet from the inside property line and such courts or air vents may have windows therein.

Exception—One-story nonresidence buildings.

Sec. A-713—METAL TIES IN MASONRY WALLS:

No metal tie or metal bond shall be used in masonry walls in any third class building except in two (2) story buildings where twelve (12) inch walls are required the outer four (4) inches of the twelve (12) inch wall may be tied to the remaining eight (8) inch wall by approved noncorrosive metal ties. The eight (8) inch part thereof shall have masonry bonds.

Sec. A-714—SCUTTLE DOORS:

Under the roof and above the ceiling of the top floor of all third class buildings the attic space thereof shall be provided with ample and sufficient scuttle doors to provide ready means of access to said attic space.

Sec. A-715—AREAWAYS AROUND THIRD CLASS BUILDINGS:

In all areaways around a third class building such areaways shall be provided with suitable ducts to the sewer or a dry well to conduct the water therefrom away from the walls of the building.

Sec. A-716—BRIDGING IN THIRD CLASS BUILDINGS:

There shall be one (1) row of pairs of two (2) inch by two (2) inch or one (1) inch by four (4) inch substantial bridging trussed to adjacent joists in third class buildings in such manner that a continuous row of bridging braces all joists at least every six (6) feet in length of the joists or fraction thereof. Such bridging shall be nailed to the top of one joist and to the bottom of the adjacent with two (2) six (6) penny nails at each end of such bridging.

Sec. A-717—STIRRUPS AND HANGERS:

In third class buildings all joists framing into beams shall be hung in approved stirrups or approved brackets unless such joists rest on top of said beams or girders.

Sec. A-718—IRON OR STEEL ON WOOD:

Iron or steel beams may be used in third class construction where the use of wooden beams would be impractical due to the size. Such steel beams, may be placed on wooden columns when such columns are no less than six (6) inches in least dimension. (Market lumber dimensions.)

Exception—Dwelling construction use four (4) inch by four (4) inch supports.

Sec. A-719—DOUBLE WALL CONSTRUCTION:

(a) Double wall construction of reinforced concrete may be used in the erection of third class buildings, provided that the same amount of material is used as in solid masonry, and the concrete mixed as provided elsewhere in the Code, and further provided that there shall be steel reinforcement as hereinafter provided and that the void in such wall shall not exceed thirty-three and one-third (33⅓) per cent.

(b) All such double wall construction shall have steel reinforcement of not less than three-tenths (3/10) of one (1) per cent; the tie rods or vertical reinforcing steel shall be spaced not more than twelve (12) inches centers and the horizontal reinforcing rods not more than nine (9) inches centers and wired together at each intersection. All rods shall be lapped for a sufficient length to develop their full stress for adhesion. Additional bars shall be set over all openings. The steel shall be confined within the concrete and placed where the combination will develop the greatest strength and the rods shall be placed and secured so as to resist a pressure of

thirty (30) pounds per square foot; either from the exterior or the interior of each and every square foot of wall panel.

Sec. A-720—FOUNDATIONS OF THIRD CLASS BUILDINGS:

(a) All foundation footings for third class buildings shall be forty-eight (48) inches below the established grade (except one (1) story accessory garages and porch columns of masonry shall have footings not less than thirty (30) inches below the established grade). All such foundations shall be of masonry, massive concrete or reinforced concrete. No foundation wall shall be constructed of any material which will absorb more than the following percentage of water by weight to wit, as follows:

(b) Any mixture or form of Portland cement sand and gravel or other ingredients known as forms of concrete shall not absorb more than fourteen (14) pounds of water per cubic foot of actual concrete.

(c) Any form of tile or brick masonry shall not absorb more than ten (10) per cent of water by weight.

(d) All bearing walls of masonry, massive or reinforced concrete shall have footings under the same at least four (4) inches wider than the wall and of a thickness not less than one-third (⅓) of the width thereof.

(e) All foundations which are constructed with no access below the first floor joists shall be provided with air vents at each side of the structure to prevent dry rot of the timbers and floor.

Sec. A-721—PARAPET WALLS IN THIRD CLASS BUILDINGS:

Parapet walls shall be of the same thickness as the walls of the last story or story immediately below the roof timbers; and shall be at least eighteen (18) inches above the roof at all points.

Sec. A-722—WALL REDUCTION OF THIRD CLASS BUILDINGS:

The last story above the basement in third class buildings may have the walls thereof reduced to eight (8) inch walls in buildings of Grade C and Grade D. If only the first story is of Grade E (except garage buildings or any other building where gasoline or other explosive and inflammable materials are kept in any quantity in excess of ten (10) gallons), then the top story or last story above the basement may have the walls thereof reduced to eight (8) inches providing the height of such eight (8) inch wall including the parapet is not over fourteen (14) feet.

Sec. A-723—CELLAR DEPTH IN THIRD CLASS BUILDINGS:

The finished floor of any cellar in a third class building of Grade A, Grade B, Grade E, and Grade F, shall be at least eight (8) feet below the beams or floor joists above.

Sec. A-724—AREA OF FLOOR BETWEEN FIRE, PARTY OR DIVISION WALLS:

(a) The floor area between fire, party or division walls, shall not exceed the following, except as hereafter provided.

Fronting on	Without Sprinklers	With Automatic Sprinklers
One street	5,000 Sq. Ft.	10,000 Sq. Ft.
Two "	6,000 " "	12,000 " "
Three "	7,500 " "	15,000 " "

(See Sec. A-332 for Sprinklers.)

(b) If the building is designed for apartment house or family unit purposes a fire, party or division wall shall be provided between every three (3) apartments in any one direction or row, in all cases.

(c) If the building is on four (4) streets or isolated and not over one (1) story in height and used for manufacturing noncombustible materials there shall be no limit between fire walls.

(d) Any one (1) story assembly hall located on four (4) streets or isolated and built of third class construction may be unlimited in area; provided, however, where any basement is constructed, the floor of the assembly hall over the basement shall be of fire-resisting construction.

Sec. A-725—PUBLIC GARAGE BUILDINGS OF THE THIRD CLASS:

(a) All public garage buildings of the third class shall have all the windows thereof composed of wire glass and steel sash unless the distance from the walls of the garage to any other property line or property which may be built upon is in excess of fifty (50) feet.

(b) All such third class public garage buildings shall have two (2) large automobile exit doors placed as far remote from each other as possible.

(c) Where goods are displayed for sale in such garage buildings such display area shall be separated from the space used for the storage of automobiles by a fire or division wall. The office of such garage may be in the same area as the storage of cars, providing that it does not exceed five hundred (500) square feet in area.

Sec. A-726—MONITORS, SKYLIGHTS AND VENTS:

(a) All monitors, skylights, air vents or other openings in the roof sheathing shall have the sides thereof extend at least eighteen (18) inches above the roof at all points.

Exception: Grade D Buildings.

Sec. A-727—LINTELS—PIPE CHASES:

(a) No wooden lintel shall be used to support any masonry or massive concrete whatsoever.

(b) Pipe chases shall not be cut in eight (8) inch walls.

(c) In thicker walls, twelve (12) inch or thicker, pipe chases shall not be cut but may be built into the wall, however, the back of such chases shall not be less than six (6) inches in any case.

Sec. A-728—CONSTRUCTION OF ELEVATOR SHAFTS, HOISTWAY, DUMBWAITER AND STAIR ENCLOSURES IN THIRD CLASS BUILDING—FIRE DOORS.

(a) In all third class buildings all elevator, hoistway dumbwaiter shafts, and stairways extending more than two (2) floors shall be enclosed in walls of six (6) inch tile or two (2) inches of approved metal lath and plaster.

(b) All openings to stairs shall be protected with fire resisting doors approved by the Commissioner of Buildings for the purpose. All such stair doors shall open with the egress from the building and shall be equipped with approved pressure releasing locks. No stairs shall be constructed so the stairs is continuous to the basement but shall be constructed so that the ingress to the basement will be difficult, and entirely cut off by approved fire doors. Such doors shall protect the street floor from the basement and shall open with the egress from the basement. No winders shall be permitted.

Sec. A-729—STAIRS IN APARTMENT HOUSES OF THIRD CLASS:

In apartment houses two (2) or more stories in height and of third class construction two (2) or more fireproof stairs shall be provided in such a manner, that no entrance door of any apartment is more than eighty (80) feet from an exit stair door and that the passage thereto is through a fireproof hallway from the said apartment to the stair door. Approved fire resisting doors shall be constructed at each floor. The stairs shall be so constructed that the ingress to the basement will be difficult. Approved fire doors will be required at the top and at the bottom of the stairs to the basement unless the furnace, storage or other rooms are fireproofed and equipped with self closing fire doors that are closed at all times. In the latter case only one (1) fire door will be required.

Sec. A-730—EXITS FROM BASEMENTS:

(a) In third class buildings where goods are sold in the basement at least one (1) exit stairs shall lead directly to the public highway or fireproof passageway to a public highway.

(b) In all apartment houses of third class a basement exit stairs shall lead directly to the outside from the boiler or furnace room.

Sec. A-731—REQUIREMENTS FOR STAIRS ACCORDING TO FLOOR AREA BETWEEN FIRE, PARTY OR DIVISION WALLS GENERAL.

(a) In no case in any third class building shall there be less than two (2) stairways or two (2) stairs and stair wells placed between fire, party or division walls (except as provided for flats or apartments). Such stairs shall be placed as far remote from each other as possible.

(b) The minimum width of stair tread shall be three (3) feet six (6) inches.

(c) No such exit stairs shall rise to a vertical height of over eight (8) feet without a landing equal in width to the width of the stairs.

(d) In all buildings of Grade C no stair riser shall exceed seven and one-half (7½) inches in vertical height and no tread shall be less than ten (10) inches exclusive of the nosing.

(e) In buildings of the third class of Grade A and Grade B no stair riser shall exceed seven (7) inches in height and no trend shall be less than eleven (11) inches in width exclusive of any nosings.

(f) In buildings of the third class and of Grade E and Grade F no stairs shall have any riser which exceeds eight (8) inches in height nor any stair tread that is less than ten (10) inches in width exclusive of any nosing.

(g) Windows lighting stairs in third class buildings may be of metal sash and wire glass when required by the Commissioner of Buildings.

(h) No closets will be permitted under stairs in third class buildings used for manufacturing, mercantile, office or apartment house purposes (except by special permission from the Commissioner of Buildings, the space under the stairs may be used when the same is protected with approved metal lath and plaster).

(1) The requirements for width of stairs shall be as follows:

Area between fire, party or division	Lineal feet of stair treads

Up to 6,000 Square Feet	7 Feet
6,000 to 10,000 Square Feet	10½ Feet
10,000 to 15,000 Square Feet	14 Feet

(2) No part of any floor shall be more than one hundred (100) feet from a stairway egress door (except in apartment houses as provided in Section 730 above).

(j) In every third class building the stairs shall be so constructed that the egress is continuous and without winders from the top story above the basement to the street exit and the stair enclosure shall be so arranged that the egress remains in the stair well continuously and does not go onto any open floor area or public halls except within the stair well or enclosure. All doors to such stair wells shall open with the egress to the street level and shall be equipped with panic, pressure releasing locks.

(k) Nothing in this section shall apply to Grade D buildings.

Sec. A-732—WASTE OUTLETS AND SCUPPERS:

(a) Water outlets and scuppers shall be provided for all floor area two thousand (2,000) square feet and over, in manufacturing, mercantile or storage buildings or in the opinion of the Commissioner of Buildings any other building where the occupancy would require the same.

(b) Such water outlets shall be provided for each two thousand (2,000) square feet of floor area.

(c) All basements or cellars shall be provided with sewer drains.

Exception—Special permission.

Sec. A-733—ROOFING OF THIRD CLASS BUILDINGS:

All third class buildings shall have the roof thereof covered with Class B roofing material.

Exception—Grade D buildings.

Sec. A-734—WHERE WALLS MAY BE REDUCED IN THIRD CLASS BUILDINGS:

(a) In buildings of Grade C, Grade D, and Grade E, the walls of the last story above the basement may be reduced to eight (8) inches in thickness.

Sec. A-735—HEIGHT OF WALLS IN THIRD CLASS BUILDINGS:

(a) No eight (8) inch wall shall rise to a greater height, between the finished floor and the roof timbers of any one (1) story third class building, than fourteen (14) feet without increasing the wall, four (4) inches in thickness; except the parapet, fire, party or division walls above the roof will not be considered in figuring such wall increase unless such parapet, fire party or division wall increases the total wall height by over five (5) feet. Nineteen feet shall be the total height of eight (8) inch walls for the top or last story above the basement including the parapet.

Exception—Grade D Buildings.

Sec. A-736—PILASTERS—CLEAR LENGTH OF WALL—WOODEN COLUMN:

(a) No eight (8) inch wall shall extend in a horizontal direction more than twenty-five (25) feet if it be loadbearing not more than fifty (50) feet if it be nonloadbearing curtain or panel wall, unless adequate columns or pilasters are provided.

(b) Pilasters shall be of adequate size to carry all superimposed structural and wind loads. No isolated pilasters or pier shall be

greater in height between connections than ten (10) times its least dimension.

Sec. A-737—METALLIC LEADERS FROM ROOFS—AREAWAYS (See Sec. A-344):

(a) The roofs of all third class buildings shall be equipped with ample metallic leaders to carry the water from the roof and to a sewer or dry well. Such drainage of roofs shall be approved by the Commissioner of Buildings.

(b) In all areaways around or adjacent to the foundation walls of any third class building there shall be placed an approved duct to a sewer or dry well to conduct water away from the foundation walls.

Sec. A-738—CHIMNEYS AND FLUES:

(a) Chimneys of all third class buildings of Grade A, Grade B, and Grade E, and Grade F, shall be in conformity with the regulations set forth under division E of this Code.

(b) No flue for any heating boiler, hot air furnace, or apparatus of combustion for heating purposes and of the low pressure type, shall be less than twelve (12) inches by twelve (12) inches for any grade building.

(c) All gas stoves, water heaters, or other gas heating apparatus shall be connected to a flue sufficient for the purpose and in no case shall the dimensions be less than four by eight (4 x 8) inches.

Exception—Gas stoves in Grade C and Grade D buildings. (See Sec. A-724-d.)

Sec. A-739—PUBLIC ASSEMBLY HALLS:

(a) No public assembly hall with a capacity of over eight hundred (800) people shall be located or used on the second or third floor of a third class building of any grade.

(b) No stage either major or minor shall be constructed or used as an adjunct to a public assembly hall on the third floor of any third class building of any grade.

(c) No fixed seats shall be permitted or used in a public assembly hall on the third floor of a third class building of any grade.

(d) Public assembly halls with a capacity of eight hundred (800) or less will be permitted on the second floor of a third class building. Such assembly halls may have a minor stage and fixed seats.

(e) Where any basement or cellar is constructed under the public assembly hall; the floor of the public assembly hall over the basement or cellar shall be of fire-resisting construction. No entrance to such basement or cellar shall be to the outside of the building.

(f) No garage of any sort shall be located in a third class building where there is a public assembly hall.

(g) Exits for assembly halls shall be provided the same as for theaters.

(h) A minor stage will be permitted in public assembly halls on the ground or street floor of any third class building unless prohibited by other provisions of this Code, or the Zoning Ordinance or Ordinances.

Sec. A-740—AIR SPACE BELOW WOODEN FLOOR JOISTS:

In any case where wooden floor joists are used for the first floor of any building there must be at least a two (2) foot air space below each joist above the grade line or when such joists are placed

closer than two (2) feet to the grade line there shall be an excavated space of at least three (3) feet below the bottom of such joist.

Note—This provision is to prevent dry rot and to produce dry floor conditions.

Sec. A-741—SEWER IN BASEMENTS:

All basements shall have at least one (1) sewer connection.

Sec. A-742—SCUTTLES TO ATTIC SPACE:

In all third class buildings where there is any space between the roof and the ceiling of the last story above the basement or where there is any concealed space concealing any flue or chimney under such roof there shall be a scuttle or door to such space.

Sec. A-743—FLASHING:

(a) All parts of a third class building that are liable to have water leak through to the inside of the building shall be flashed with noncorrosive approved flashing.

Sec. A-744—LATHING AND PLASTERING (See Part 8—Division B):

(a) All laths shall be nailed so that there is at least three-eighths (⅜) of an inch between each lath. The lath shall be of sufficient strength to procure a workmanship job.

(b) All plastering shall be approved plaster applied of sufficient thickness, (not less than one-half (½) inch in any case) to give a strong and durable wall.

Sec. A-745—PLASTERED CORNERS:

Where exposed plaster edges or corners are constructed approved corner strips shall be used. The same shall extend at least five (5) feet up from the floor.

Sec. A-746—WOODEN POSTS:

No wooden posts shall be used in the basement or cellar of any third class building of any sort, however, pipe columns filled with concrete may be used in basements that have cement floors.

DIVISION A—PART EIGHT

SPECIAL PROVISIONS FOR BUILDINGS OF MASONRY OR CONCRETE CONSTRUCTION

DWELLINGS

Sec. A-801—MASONRY WALLS:

(a) The minimum thickness of exterior solid brick walls shall be eight (8) inches for a height not exceeding thirty (30) feet for Grade D Buildings.

(b) In gable construction an additional five (5) feet is permitted to the peak of the gable.

(c) In all masonry walls of brick at least every sixth course shall be a header course or there shall be at least one (1) full header brick in every seventy-two (72) inches of wall surface.

Sec. A-802—PIERS:

The unsupported height of isolated piers of brick, concrete block or massive concrete shall not be greater than ten (10) times the least dimension of the said pier. Rubble or other stone shall not be used in piers.

Sec. A-803—ARCHES AND LINTELS:

(a) Openings for doors and windows shall have well buttressed arches; or lintels of masonry, massive or reinforced concrete; or

metal beams which shall have a bearing at each end of not less than four (4) inches on the wall.

(b) On the inside of the openings that are less than four (4) feet wide, in which the thickness of the lintels or arches is less than the thickness of the wall supported; timber may be permitted which will rest at each end not more than two (2) inches on the wall and be chamfered or cut to serve as centers for arches.

Sec. A-804—MATERIALS FOR FOUNDATIONS:

(a) All materials for foundations shall be of approved incombustible material and when used below grade shall meet the following requirements:

Material	Minimum crushing strength Pounds per sq. inch gross area
Clay Building Tile	1200 Pounds
Concrete Building Tile	800 Pounds
Massive Concrete	2000 Pounds
Concrete Block	800 Pounds
Clay Brick	1500 Pounds
Concrete Brick	1500 Pounds
Reinforced Concrete	2000 Pounds

(b) Mortar for foundations or exterior walls, chimneys or piers shall have a strength in no case less than the following mix; one (1) part Portland Cement; one (1) part lime; six (6) parts clean sharp sand; pure water.

(c) No brick work, or concrete work shall progress during freezing weather, or on a rising temperature lower than twenty-eight (28) degrees Fahrenheit and on a falling temperature of thirty-two (32) degrees Fahrenheit.

Sec. A-805—THICKNESS OF WEIGHT AND BONDING OF HOLLOW TILE AND CONCRETE BLOCK:

(a) The minimum thickness of hollow tile, or hollow concrete block walls shall be eight (8) inches for the uppermost twenty-two (22) feet in height with an additional five (5) feet in gable ends in Grade D buildings.

(b) All hollow tile and concrete block walls shall be bonded in every course by breaking joints at least three (3) inches horizontally.

(c) Where brick, stone, or ashler veneer is veneered to tile or concrete blocks the backing of the veneer may be not less than four (4) inches in thickness for the uppermost twenty (20) feet in height with five (5) feet additional for gable ends, providing the veneer and backing are thoroughly bonded together with approved masonry bonds as provided above.

Sec. A-806—PIERS OF HOLLOW CONCRETE BLOCKS OR HOLLOW TILE:

Hollow building tile or hollow concrete blocks shall not be used for isolated piers unless the hollow spaces are filled solidly with concrete with a mixture of 1:2:4 or other mix approved by the Commissioner of Buildings. The unsupported height of such piers shall not be greater than ten (10) times their least dimension.

Sec. A-807—WALLS OF HOLLOW CONCRETE BLOCK OR HOLLOW BUILDING TILE:

(a) Walls of hollow building tile or hollow concrete block shall have all hollow tile or all hollow blocks filled solidly with approved concrete, immediately under any floor joists, beams, lintels, girders, door sills, windows sills or any other openings in said walls.

(b) Such hollow building tile or hollow concrete blocks shall be filled before placing in the wall sufficient time to hold the filling in place.

Sec. A-808—CHASES IN WALLS OF HOLLOW BUILDING TILE OR CONCRETE BLOCK:

Pipe chases shall not be cut in eight (8) inch walls of hollow building tile or concrete block nor in any such wall used as backing for veneer except properly formed concrete blocks or built in solid pipe chases are permitted not to exceed one-third (⅓) the thickness of the wall. When such chases are built in; the adjacent tile or blocks shall be filled solid for a distance of at least three (3) inches.

Sec. A-809—STRENGTH OF MATERIALS:

All materials for use above the foundation for use in Grade D buildings shall meet the following requirements:

Material	Minimum crushing strength Pounds per sq. inch gross area
Clay Building Tile	800 Pounds
Concrete Building Tile	800 Pounds
Massive Concrete	1500 Pounds
Concrete Block	800 Pounds
Clay Brick	1500 Pounds
Concrete Brick	1500 Pounds
Reinforced Concrete	2000 Pounds

Sec. A-810—MONOLITHIC CONCRETE DWELLINGS:

(a) Monolithic concrete dwelling construction of concrete shall contain not less than two-tenths (2/10) of one (1) per cent of reinforcement. Solid bearing walls shall be at least six (6) inches in thickness.

(b) Reinforcement not less than four (4) tenths (10) of one (1) per cent computed on a vertical height of twelve (12) inches shall be placed over all wall openings and in all corners of the structure to prevent cracks. Floor and roof connections and details shall be designed to transmit safely the vertical and horizontal loads imposed including wind and snow loads.

(c) Hollow monolithic concrete walls reinforced with steel shall not be less than six (6) inches in thickness total aggregate of materials. Wall openings and corners shall be reinforced as outlined above for monolithic walls. The inner and outer part of such walls shall be thoroughly anchored with non-corrosive approved metal ties which are so designed as to cause the two (2) walls to act as one (1). Immediately under all roof rafters or beams, floor joists or beams and girders, windows, doors or any other openings there shall be solid walls at least eight (8) inches in height vertically.

(d) The air space shall never exceed thirty-three per cent (33%) of the total wall thickness.

Sec. A-811—UNIT CONSTRUCTION:

Precast concrete units for construction of dwellings shall be of sufficient strength, and where necessary shall be reinforced to carry safely the loads imposed. Connections between the several parts of such construction shall be of sufficient strength to resist all horizontal, vertical and wind loads.

Sec. A-812—CONCRETE STRUCTURAL FRAME WITH ENCLOSING WALLS:

Dwellings constructed with monolithic reinforced concrete frames cast in metal or other forms, and with enclosing walls of concrete plaster, or other approved materials or of precast units carried on such frames, or having reinforced concrete bearing walls; shall be designed in accordance with this Code regulating reinforced concrete design.

Sec. A-813—ROOF ANCHORS—JOIST ANCHORS—BEAM OR GIRDER ANCHORS:

(a) Each tier of joists shall be anchored to masonry, reinforced concrete, or massive concrete walls with (T) shaped anchors at intervals of not more than six (6) feet and shall be fastened so as to provide for easy release of the joists in case of fire.

(b) Where joists are lapped over plates, walls, beams or girders the joists shall be thoroughly spiked together. When abutted they shall be strapped together with approved straps.

(c) Joists, beams or girders running parallel and adjacent to masonry, reinforced concrete or massive concrete walls shall be anchored in the center between supports with metal approved anchors. The anchor for parallel joists shall extend away from the wall sufficient distance to fasten to three (3) joists.

(d) Beams or girders shall be anchored into the wall with approved anchors and shall also be anchored together with approved straps, where they abut each other.

(e) Where roof rafters rest on masonry, reinforced concrete or massive concrete walls they shall be anchored to the said wall with approved anchors. Such anchors shall extend at least two (2) feet down in the wall for massive concrete and masonry walls and into the reinforcing for reinforced concrete walls. All such anchors shall be placed not to exceed six (6) feet apart.

Sec. A-814—FIRE CUTTING—WOODEN STRUCTURAL PARTS:

All joists, beams or girders that enter any masonry, reinforced concrete or massive concrete wall or pier shall be fire-cut with only one (1) inch of the top of the member remaining in the said wall.

Sec. A-815—LOT LEVELS OF GRADE D BUILDINGS:

In no case shall the lot levels or lot grade along the side property line of dwellings vary more than twelve (12) inches in grade between one (1) improved lot and the adjacent improved lot.

Exceptions—(a) By special permission of the Commissioner of Buildings. (b) Where the grade of the street adjoining the lot frontage varies more than twelve (12) inches in twenty (20) feet.

Sec. A-816—VENTILATION OF BATHROOMS, KITCHENS AND TOILETS:

In every apartment house, dwelling, double dwelling or double duplex dwelling there shall be constructed a regulation size double wall tinned iron vent constructed the same as a furnace pipe, placed with the opening near the ceiling of all toilets, bathrooms and kitchens to extract fumes or gases therefrom. Such vent ducts shall open to the outside atmosphere in any manner approved by the Commissioner of Buildings. Such vents may open to the atmosphere under the cornice. Only one (1) room shall be connected to any such vent duct. In rooms or closets used for cooking no stove hood shall

be connected to the vent, however, stove hoods may be used when they are connected to a flue or a chimney. Such stove hood may be used in lieu of a vent in such cooking rooms or closets.

Sec. A-817—CLOSETS UNDER STAIRS:

All closets under stairs shall be plastered with steel lath and plaster.

Sec. A-818—SEWER IN BASEMENTS:

All basements shall have at least one (1) sewer connection.

Sec. A-819—DOUBLE DWELLING DIVISION WALLS.

All division walls between double dwellings shall be solid eight (8) inch walls of brick, concrete or clay building tile, concrete block or other approved incombustible material and shall extend up to the ceiling joists of the second floor if the attic space has no stairs and shall extend up and under the roof rafters or timbers if the attic space be used or is designed or intended to be used.

The foundation division walls under the first floor joists shall be at least twelve (12) inches thick.

Exception—One (1) story double dwelling with an area of foundation walls not to exceed one thousand (1,000) square feet shall not be required to have a masonry division wall.

Sec. A-820—FENCES ALONG SIDE PROPERTY LINES OF DWELLINGS OR RESIDENCE BUILDINGS:

(a) Along the side property line of dwellings or apartment houses or in any restricted district of business buildings no fence shall be built in front of the zone line that is over three and one-half (3½) feet in height, and no fence shall be built behind such zoning building line that is over seven (7) feet in height.

(b) All such partition fences shall have the expense thereof borne by the adjacent property owners and equally divided between them. Either owner may erect the fence or remove the fence.

Note—See section A-323.

Sec. A-821—SCUTTLES TO ATTIC SPACE:

In all third class buildings where there is any space between the roof and the ceiling of the last story above the basement or where there is any concealed space concealing any flue or chimney under such roof there shall be a scuttle or door to such space.

Sec. A-822—SIZES OF CHIMNEYS AND FLUES—CONSTRUCTION—REQUIREMENTS:

(a) In all Grade D buildings there shall be at least one (1) chimney which shall be provided with at least two (2) flues; i. e., one (1) smoke flue and one (1) gas flue for the gas grate or water heater.

This provision is made mandatory due to the fact that in the past few years many people have suffocated from carbon monoxide gas from water heaters. For this reason no water heater will be permitted in any bathroom or toilet.

(b) All chimneys in third class dwellings shall be lined with approved fire clay lining. The inside dimensions of the flue lining for hot-air furnaces, hot water boilers, oil burners, and all other apparatus of combustion for building heating purposes shall be no less than twelve (12) inches by twelve (12) inches; and for gas stoves, coal or gas or oil water heaters, gas or coal grates, the lining shall be no less than four (4) by eight (8) inches. (See division F—Part 1.)

Note: Smoke travels in circles, therefore a good chimney is either round, or as nearly square as posible. Under no circumstances should the chimney be lower than the highest part of a building, or any building, nearby, because the air currents going over the high building blow down the flue. When smoke curls down the sides of a chimney it is a sure indication there is a down current, and the chimney should be built higher.

To secure a good draft the chimney must be tight, that is, no air spaces between the bricks, and no other openings for grates, gas burners, etc., except possibly a cleanout door below where the smoke pipe from the boiler enters. No mortar should be allowed to cling to the inside surface of the wall, but should be cleaned off smooth.

The effectiveness of a flue is only as great as its smallest area. Sharp bends and offsets in the flue will choke the draft, it must be free of any feature which prevents a full area for the passage of the products of combustion.

Great care should be taken in placing the smoke pipe into the chimney not to shove it clear through to the other side. This is sometimes done and will check the draft almost entirely.

In entering the chimney from the boiler or furnace avoid right angle elbows. The opening into the chimney should be slightly higher than the opening in the boiler or furnace to give the connecting smoke pipe a slight rise between these two (2) points. Right angle elbows add to the cost, and if the chimney is at all weak, check the draft.

(c) Smoke proof flue lining shall be erected in such a manner that there is at least four (4) inches of solid brick work, eight (8) inches of concrete or clay building tile around each smoke flue in any one chimney so that such flue will be air tight, except for required openings. All flues shall have but one (1) opening thereto for smoke or gases, however, an opening shall be provided at the bottom of each flue for a cleanout.

Exception: An incinerator flue may have a refuse opening on each floor.

The flue lining shall always extend the full height of the chimney from the cleanout to the top of the chimney. Such lining shall extend at least four (4) inches out of the top of the chimney.

(d) Fireplace breasts above the fireplace may be made of stud walls covered with metal lath and plaster approved by the Commissioner of Buildings, but only when the fireplace arch is constructed of a masonry bonded arch eight (8) inches in thickness and thoroughly bonded to the chimney walls.

(e) The main chimney flue for all dwellings shall be as near the center of the house as possible and shall extend to a point at least two (2) feet above the highest point of the roof for a comb roof and at least four (4) feet above a flat roof and in all cases at least two (2) feet above the highest point of the roof, including the highest point of any and all fire and division walls.

(f) No woodwork will be permitted within two (2) inches of a chimney except by special permission.

Sec. A-823—CLOTHES CHUTES:

All clothes chutes in third class buildings shall be of metal or other approved incombustible material.

Sec. A-824—LATHING AND PLASTERING:

See Part 8—Division B.

(a) All laths shall be nailed so that there is at least three-eighths (⅜) of an inch between each lath. The lath shall be of sufficient strength to procure a workmanship job.

(b) All plastering shall be approved plaster applied of sufficient thickness (not less than one-half (½) inch in any case) to give a strong and durable wall.

Sec. A-825—AIR SPACES BELOW WOODEN FLOOR JOISTS:

In any case where wooden floor joists are used for the first floor of any building there must be at least a two (2) foot air space below such joist above the grade line or when such joists are placed closer than two (2) feet to the grade line there shall be an excavated space of at least three (3) feet below the bottom of such joist.

Note—This provision is to prevent dry rot and to produce dry floor conditions.

Sec. A-826—SMOKE TEST OF ALL FLUES:

The owner or contractor building any flue or chimney shall be responsible for a smoke test of all flues before a representative of the Bureau of Buildings.

(b) No flue in any chimney shall be used until an inspection tag of approval has been issued by the Bureau of Buildings and signed by the Inspector in charge of the smoke test.

Sec. A-827—PLASTERED CORNERS:

Where exposed plaster edges or corners are constructed approved corner plaster strips shall be used. The same shall extend at least five (5) feet up from the floor.

Sec. A-828—WOODEN POSTS:

No wooden posts shall be used in the basement or cellar of any third class building of any sort, however, pipe columns filled with concrete may be used in basements that have cement floors.

Sec. A-829—WOODEN CONSTRUCTION IN THIRD CLASS BUILDINGS OF ALL USES:

(a) Wherever any wooden construction of any character is used in any third class building the same shall be made to conform to all the rules and regulations of this Code for fourth class buildings.

(b) All partition walls or sections of these walls in which heat stacks to second floor rooms are installed; or in which plumbing stacks are installed shall be built of six (6) inch studding.

Sec. A-829—ALL ROLOCK WALL IN GRADE D BUILDINGS:

Eight (8) inch hollow brick walls generally known as all rolock brick walls consisting of alternate layers of headers and stretchers, are permitted in one story Grade D buildings providing all mortar joints are completely filled with approved cement-lime or cement mortar.

DIVISION A—PART NINE
FOURTH CLASS BUILDINGS AND OTHER PROVISIONS OF CONSTRUCTION

Sec. A-901—FOURTH CLASS BUILDINGS:

(a) Any building of wooden frame construction where the structural and wind loads are carried by wood and where the walls thereof are of wood or metal frame covered with:

(1) Wood sheathing or its approved equivalent;

(2) Brick, stone or cement veneer; See Sec. B-1001; B-1101;
(3) Stucco on metal or wood lath;
(4) Iron clad on other thin metal
shall be classified as fourth class buildings in this Code.

(b) Any building constructed of all metal without masonry exterior walls shall be classed as a fourth class building.

(c) Any shed of whatever construction shall be classed as fourth class.

Sec. A-902—WHERE FOURTH CLASS BUILDINGS MAY BE BUILT:

(a) No fourth class building of any sort shall be erected in the first fire zone.

Exceptions: (a) Fireproof shelter sheds, (b) Contractors tool houses, (c) Structures built of incombustible material erected over a railroad track or switch.

(b) No fourth class building shall be erected in the second fire zone.

Exceptions: (a) Fourth class one (1) story, two (2) car garages may be built as an accessory to a dwelling in the second fire zone when the walls of the same are built at least four (4) feet from any other structure and the outside dimensions of the foundation walls do not exceed five hundred (500) square feet in area. (b) Fireproof shelter sheds. (c) Contractor's tool houses and structures built of incombustible material erected over a railroad track or switch. (d) Veneer buildings of Grade D.

Sec. A-903—VENEER BUILDINGS:

Fourth class brick, stone or cement veneer Grade D buildings may be erected in the second fire zone providing the outside walls of the same are at least four (4) feet from the side property line and the same are not over thirty-five (35) feet in maximum height of the highest point of the roof.

Sec. A-904—DISTANCE TO SIDE PROPERTY LINE:

No wall or appendage of a fourth class building shall be built within four (4) feet of the inside property line in any location unless the studding along the said inside property line are filled solid from the foundation up and under the roof with incombustible material approved by the Commissioner of Buildings for such purpose and in no case shall such fourth class buildings with filled walls be built less than two (2) feet from the inside property line.

Exceptions: Fourth class one (1) story non-residence buildings may be built on the inside property line on the rear half of the lot as an accessory to a dwelling. When such buildings are built on the rear half of the lot and are on the property line permission so to do, in writing shall be obtained from the owner of the next adjoining lot only in cases said adjoining lot has erected thereon a non-accessory dwelling which is located within eight (8) feet of the walls of the proposed accessory building.

Sec. A-905—STEEL CLAD BUILDINGS AND SHEDS:

(a) Iron clad buildings of all steel skeleton construction may be erected in the second fire zone when used for the manufacture or storage of incombustible materials. Such buildings may have a second class roof construction of slow burning sheathing and shall be located at least four (4) feet from any other premises which can be built upon.

(b) Isolated all metal sheds may be erected in the fire zones when the outer edges of such buildings are eight (8) feet or more from any property which can be built upon. Such sheds are limited to four thousand (4,000) square feet in area.

Sec. A-906—HEIGHT OF FOURTH CLASS BUILDINGS:

No wall of a fourth class building shall be built more than thirty-five (35) feet in height above the established grade except in gable ends an additional five (5) feet will be allowed.

Sec. A-907—CONSTRUCTION OF THE FRAMING OF FOURTH CLASS BUILDINGS:

(a) In frame constructed buildings all studding, floor and ceiling joists shall not be placed more than sixteen (16) inches center to center. All such studding shall be at least two (2) inch by four (4) inch (Market lumber dimensions).

Exception—(a) One (1) story accessory buildings, (b) single family dwellings not over five hundred and fifty (550) sq. feet in area and one (1) story in height.

Sec. A-908—LINING OF FRAME STRUCTURES:

The outside walls shall be lined solid with seven-eighths (7/8) inch by six (6) inch (Market lumber dimensions) wooden sheathing at least double nailed to each stud with eight (8) penny nails or in lieu of wooden sheathing any other material may be used which can be shown by tests approved by the Commissioner of Buildings, will be equal or greater in strength than the seven-eighths (7/8) inch wooden sheathing.

Tests shall be conducted by testing a standard eight (8) by twelve (12) foot wooden sheathing panel double nailed with eight (8) penny nails to two (2) by four (4) inch studs placed sixteen (16) inches on centers against a similar panel of the proposed substitute material. When such substitute material passes such test the Commissioner of Buildings shall have a photograph taken of the test for permanent record and shall issue a set of specifications for such material which specifications after being published for two (2) consecutive weeks in a recognized weekly or daily paper of the City of Indianapolis shall become a part of this Ordinance and Building Code and shall be known as a ruling of the Commissioner of Buildings. (See Sec. A-241.)

Sec. A-909—BOX GIRDER—WIND BRACING:

(a) The outside walls of all frame constructed buildings or structures shall have a box girder immediately above the foundation walls over all openings.

(b) All framing of fourth class buildings shall be designed to carry the wind load by using corner braces of one (1) by six (6) inch (Market lumber dimensions) wooden struts and wind braces let into the studding at each corner and on all sides of the building and making an angle of at least forty-five (45) and not more than sixty (60) degrees with the horizontal. Such braces shall be erected with the flat side in a vertical plane and shall extend to include at least five (5) studs including the ends and shall be nailed to each stud with at least three (3) eight (8) penny nails. When such corner braces cannot be placed at the exact corner a pair of opposite braces covering at least nine (9) studs with upper ends fastened to the same stud may be placed anywhere in the wall panel. In two (2)

story fourth class construction the wind braces above described shall be used also on the second floor outside walls.

Exception: Accessory buildings. Other approved construction.

(c) When approved diagonal sheathing is employed the above wind braces may be omitted.

Sec. A-910—WOODEN BEAMS:

Above the door or window openings a wooden beam sufficient to carry the structural load shall be employed. Such beam shall rest on top of a two (2) by four (4) inch wooden stud that is nailed thoroughly to an additional stud of the main framing. Such beam support stud shall rest on the plate or box girder.

Sec. A-911—PARTITION PLATES:

Where partitions are built they shall have at least a two (2) inch plate both under and over the studs. Where such partitions run parallel to the floor joists a double floor joist shall be placed under the partition constructed with at least three-quarter (¾) inch spreaders between the double joists so as to permit electrical wiring to be placed wihout cutting vertical grooves into the joists.

Sec. A-912—PLASTERED CORNERS:

Where exposed plaster edges or corners are constructed, approved corner plaster strips shall be used. The same shall extend at least five (5) feet up from the floor.

Sec. A-913—STEEL BEAMS:

Steel beams and flitch plates may be used in frame construction to support long spans of floor or ceiling joists when the size of wooden beams would make the same impractical. When steel beams are used all joists framing into the steel beam shall be supported on metal or other approved joist hangers. Such joist hangers shall be thoroughly nailed to the wooden joists.

Sec. A-914—FRAMING:

Where wooden joists frame into wooden beams the joists shall be hung in metal hangers thoroughly nailed to the joists, or in lieu thereof shall rest on the top of the beam or girder.

Exception—Trimmers and their headers.

Sec. A-915—DOOR AND WINDOW FRAMES:

No outside window or door frames shall be used unless the same are built of lumber one and one-quarter (1¼) inch thick or heavier.

Sec. A-916—WOODEN LINTELS:

No wooden lintel or bracket shall be used to support any masonry of any sort.

Sec. A-917—CLOSETS UNDER STAIRS:

All closets under stairs shall be plastered with steel lath and plaster.

Sec. A-918—STUDDING:

Where studding is toenailed into plates the same shall be nailed with at least four (4) eight (8) penny nails. If such studs are nailed through the plates they shall be nailed with at least two (2) twenty (20) penny nails.

Sec. A-919—WOODEN POSTS:

No wooden posts shall be used in the basement or cellar of any fourth class building of any sort, however pipe columns filled with concrete may be used in basements that have cement floors.

Sec. A-920—SEWERS IN BASEMENTS:
All basements shall have at least one (1) sewer connection.

Sec. A-921—DEPTH OF CELLAR IN GRADE D BUILDINGS:
The finished floor of any cellar in Grade D buildings shall be at least seven (7) feet below the bottom of the floor joists or floor supporting beams supporting such floor joists.

Sec. A-922—CANTILEVER JOISTS:
(a) Floor joists on the side property line shall not be cantilevered over the foundation or wall plates unless there is maintained at least four (4) feet between such projection of the building and the side property line.
(b) When floor joists are permitted to be cantilevered they shall not extend more than eighteen (18) inches beyond the wall plates or box girders.
(c) All cantilevered floor joists shall be of sufficient strength to carry the superimposed loads.

Sec. A-923—VENTILATION OF BATHROOMS, KITCHENS AND TOILETS:
In every apartment house, dwelling, double dwelling or double duplex dwelling there shall be constructed a regulation size double wall tinned iron vent constructed the same as a furnace pipe, placed with the opening near the ceiling of all toilets, bathrooms and kitchens to extract fumes or gases therefrom. Such vent ducts shall open to the outside atmosphere in any manner approved by the Commissioner of Buildings. Such vents may open to the atmosphere under the cornice. Only one (1) room shall be connected to any such vent duct. In rooms or closets used for cooking no stove hood shall be connected to the vent, however, stove hoods may be used when they are connected to a flue or chimney. Such stove hood may be used in lieu of a vent in such cooking rooms or closets.

Sec. A-924—FOUNDATIONS OF FOURTH CLASS BUILDINGS:
(a) All foundations for fourth class buildings of frame shall be at least eight (8) inches with an additional four (4) inches in thickness provided when buildings are veneered with brick, stone, or cement.

Exception—If massive concrete is used in the foundation the foundation walls for such veneer buildings may be ten (10) inches in thickness. Ten (10) feet of veneer may be placed on an eight (8) inch wall.
(b) The depth of foundations for one (1) story frame non-residence accessory buildings not exceeding five hundred (500) equare feet in area outside dimensions of foundation walls shall be at least twelve (12) inches below the established grade.
(c) The depth of foundations for all one (1) story frame buildings shall be at least eighteen (18) inches below the established grade, except as above provided. The depth of foundations for all two (2) story frame dwellings shall be at least twenty-four (24) inches below the established grade.
(d) The depth of foundations for outside walls of all masonry, massive concrete, brick, stone or cement veneer structures shall be at least four (4) feet below the established grade to prevent frost from disturbing the same.

Exception—Porch columns of masonry shall be at least thirty (30) inches below the grade.

(e) All foundations shall extend up and under the first floor joists and supporting beams or sills.

(f) All foundations which are constructed with no access below the first floor joists shall be provided with air vents at each side of the structure to prevent dry rot of the timbers and floors.

Note—The construction of dwellings is a matter that needs considerable thought from builders. The first and most important part of any dwelling from a construction as well as a health standpoint is the foundation and basement. The foundation must be as near moisture proof as modern science will make it. This feature is generally overlooked by many builders. It is a good slogan, "Without a good foundation no builder can make a good house." Dry basements are a criterion to good and healthful homes. Give a man a good dry basement and a good roof and it matters not so much what goes between. Much ill health can be traced to dampness.

The exterior of all foundation walls for dwellings should receive a coat of moisture proofing, such as asphalt, heavy roofing paper or pitch. Waterproof cement may be used when a proper mixture of concrete and waterproofing is obtainable. In good dwellings only twelve (12) inch basement and foundation walls should be used. Where tile or concrete block are used special care should be taken to cover the exterior parts of the wall adjacent to the earth with suitable waterproofing.

Another point that is of extreme importance to the carpenters who erect the superstructure is that the foundation be exactly level at all points. This should be watched with extreme care by setting a master level stake near the center of the structure and then level all points from that with a level and straight edge of suitable length. All levels should be checked several times by reversing both the level and the straight edge so that any errors in either may be corrected. It is also good practice to set anchor bolts in the foundation walls of small dwellings and garages. In many districts an additional protection is found in a farmer's tile ditch around the whole house and connected to a dry well or sewer through a suitable sump. Where possible a cement walk of about three (3) feet in width around the house will also protect the foundation walls from excessive moisture. This is especially practical on the back sides of any house. The proximity of shrubbery to any foundation wall attracts moisture; due to the fact that this shrubbery is generally kept wet.

Sec. A-925—FOUNDATIONS UNDER PLATES AND BOX GIRDERS—WINDOW SILL:

(a) Under plates and box girders the foundation walls shall be solid for a sufficient distance downward to distribute the superimposed loads to the whole foundation wall; in no case less than two (2) inches.

(b) The foundation wall under windows and door sills shall be solid and of a sufficient depth to protect the walls from moisture seepage. Under all such sills an air space of half (½) an inch may be permitted when properly constructed so as to prevent passage of air from outside to inside.

Sec. A-926—MATERIALS FOR FOUNDATIONS:

(a) All materials for foundations shall be of approved incombustible material and when used below grade shall meet the following requirements:

Material	Minimum crushing strength Pounds per sq. inch gross area
Clay Building Tile	1200 Pounds
Concrete Building Tile	800 Pounds
Massive Concrete	2000 Pounds
Concrete Block	800 Pounds
Clay Brick	1500 Pounds
Concrete Brick	1500 Pounds
Reinforced Concrete	2000 Pounds

(b) Under box girders and floor joists the foundation walls shall be solid to a depth sufficient to transfer the superimposed loads and to exclude water from entering the walls and in no case to a less depth than two (2) inches. Concrete building tile, concrete block, hollow brick and clay building tile may be filled solid before laying into the wall or the Commissioner of Buildings may permit solid incombustible materials to be laid as the top course of the foundation walls.

Note—One (1) course of brick above concrete block, concrete or clay tile, or other hollow masonry work will be passed as a substitute for solid units as named above.

Sec. A-927—LINTELS SUPPORTING VENEERS:

Over each opening in a veneer structure there shall be placed a steel angle sufficient to carry the structural load.

Exception—Other approved incombustible construction.

Sec. A-928—FIRE-BLOCKING AND HEAT INSULATION:

(a) All fourth class buildings which have hollow or concealed places shall have the same fire-blocked so as to prevent the passage of fire or circulation of air currents. All frame structures shall have wooden or other approved fire-blocking placed at each ceiling and floor level and also midway between the same. Such fire-blocking shall be fitted in a workmanlike manner and thoroughly fastened. One (1) inch of plaster may be required above all fire-blocking when in the opinion of the Commissioner of Buildings the same is necessary to prevent the circulation of air.

(b) All sewer piping, water, gas or other piping shall be thoroughly fireblocked at the floor and ceiling and midway between the floor and ceiling when such pipes run up through any partitions or walls of frame construction.

Exception—Approved pipe chases.

(c) All furnace pipes shall be fireblocked. Furnace piping shall have metal wings riveted to the pipes of sufficient size that the wing can be nailed to the studding and so completely close off and fireblock the air space between the studding. At least one (1) inch of plastering shall be placed over such fireblocking to make the same air tight. Special formed metal fire-blocking shall be used around other piping and the same covered with plastering.

Sec. A-929—FIRE WALLS AND FIRE PROTECTION:

(a) No fire wall used in fourth class buildings shall be less than eight (8) inches in thickness and shall be constructed of incombustible material. All such fire walls shall extend at least eighteen (18)

inches above the roof at any point and shall be capped with tile or other approved incombustible capping sufficient to prevent the passage of water into the wall.

(b) Where fourth class garages are constructed in such a manner as to house more than four (4) cars, every four (4) cars shall be separated from the next car or cars by a fire wall.

Exception—Other approved construction.

(c) Fire walls shall be built between every three (3) flats or apartments in a row in any direction in fourth class apartment buildings.

(d) Whenever it becomes necessary to connect a garage, which is an accessory to a dwelling, to the dwelling proper, such garage building shall be lined with cement plaster applied to approved metal lath. This shall apply also to a double dwelling, duplex dwelling or double duplex dwelling. No direct connection shall be had with the dwelling and garage except through a fire door.

Sec. A-930—METALLIC LEADERS FOR WATER:

The roofs of all fourth class buildings, except as hereinafter provided, shall be provided with proper metallic water leaders and troughs for conducting the water from the roof in such manner that the same will protect all walls and foundations of adjacent buildings from injury. All such leader pipes shall be connected to a sewer or dry well and in no case will water be permitted to run from roofs onto adjacent premises.

Exceptions—Two (2) car fourth class garages, which are an accessory to a dwelling, need not be provided with leader pipes. (See Section A-348.)

Sec. A-931—LOT LEVELS OF GRADE D BUILDINGS:

In no case shall the lot levels or lot grade along the side property line of dwellings vary more than twelve (12) inches in grade between one (1) improved lot and the adjacent improved lot.

Exceptions—(a) By special permission of the Commissioner of Buildings. (b) Where the grade of the street adjoining the lot frontage varies more than twelve (12) inches in twenty (20) feet.

Sec. A-932—DOUBLE DWELLING DIVISION WALLS:

All division walls between double dwellings shall be solid eight (8) inch walls of brick, concrete or clay building tile, concrete block or other approved incombustible material and shall extend up to the ceiling joists of the top floor if the attic space has no stairs and shall extend up and under the roof rafters or timbers if the attic space be used or is designed to be used.

Exception—Other approved fireproof wall construction.

Exception—One (1) story double dwelling with an area of foundation walls not to exceed one thousand (1,000) square feet shall not be required to have a masonry division wall.

Sec. A-933—FENCES ALONG THE SIDE PROPERTY LINES OF DWELLINGS OR RESIDENCE BUILDINGS:

(a) Along the side property line of dwellings or apartment houses or in any restricted district of business buildings no fence shall be built in front of the zone building line that is over three and one-half (3½) feet in height, and no fence shall be built behind such zoning building line that is over seven (7) feet in height.

(b) All such partition fences shall have the expense thereof borne by the adjacent property owners and equally divided between them. Either owner may erect the fence or remove the fence.

Note—(See Sec. A-323).

Sec. A-934—SCUTTLES TO ATTIC SPACE:

In all fourth class buildings where there is any space between the roof and the ceiling of the last story above the basement or where there is any concealed space concealing any flue or chimney under such roof there shall be an accessible scuttle or door to such space.

Sec. A-935—WINDOWS ALONG PROPERTY LINE:

There shall be no windows or other openings in the wall of any fourth class building when such wall is built on the inside property line; however, windows may be placed in walls of dwellings along the side property line when the wall is at least four (4) feet from the inside property line.

Exception—(a) Where the exposure is at least twenty-five (25) feet. (b) Accessory one story buildings.

Sec. A-936—DRAINAGE OF AREAWAYS:

All areaways adjoining any fourth class building shall be provided with an approved drain to a dry well or sewer to protect the walls of the building from moisture. The bottom of all such areaways shall be filled with concrete or other approved material.

Sec. A-937—METAL TIES FOR VENEERED FOURTH CLASS BUILDINGS:

(a) In veneered buildings where brick, stone, cement or similar heavy veneer is used such veneer shall be fastened by approved noncorrosive metal ties to approved sheathing or the wooden framing lined on the outside with approved sheathing.

(b) Such metal ties shall be placed so as to tie the veneer at least every sixteen (16) inches vertically and sixteen (16) inches horizontally.

Sec. A-938—FLASHING:

(a) All parts of a fourth class building that are liable to have water leak through to the inside of the building shall be flashed with noncorrosive approved flashing.

Sec. A-939—WOODEN SHEATHING AND PAPER LINING:

(a) One (1) layer of wooden sheathing or other approved sheathing material shall be fastened to the outside of the framework of all fourth class buildings.

Exception—Accessory four (4) car garages of veneer.

(b) All wooden sheathing or other sheathing not so put on as to prevent air pasage shall be covered with approved building paper.

(c) Waterproof building paper shall be used in all masonry veneer buildings between the masonry and the lining of the framing.

Exception—Other approved material.

(d) All wooden sheathing shall be placed on the structure so that no space is left between adjacent boards but the boards fit tightly and in a workmanlike manner.

(e) All roof sheathing shall be solid with no space between adjacent sheathing boards.

Note—It is recommended that either the under side of all roof rafters or the top of ceiling joists of the last story above the base-

ment in dwellings be lined solidly with some insulating medium in order to procure a dwelling that is a low heat radiator. This insulating medium will keep the dwelling warm in winter and cool in summer. Houses that have no insulating thus provided can be easily located during snowy weather by the fact that the snow will soon melt from uninsulated roofs. Considerably more heat is radiated through the plastering of the ceiling below the attic space than the average person realizes.

(f) Substitute roofing sheathing shall be used only when approved by the Bureau of Buildings. Substitute sheathing shall be figured for supporting strength of the roofing material the same as a beam in flexure or $M=\frac{WL}{12}$ with a factor of safety in conformity with the material as set forth in this Code.

Sec. A-940—BEARING OF JOISTS AND OTHER STRUCTURAL MEMBERS:

(a) All joists shall have a bearing that is solid and closely fitting sufficient to carry the superimposed loads and in no case shall such bearing be less than four (4) inches.

(b) Beams or girders carrying structural or floor loads shall have sufficient bearing to safely carry the superimposed loads and when occasion arises shall have bearing plates of metal thoroughly anchored to the beam and other structural parts to eliminate slippage. No bearing of any beam or girder onto any other part shall be less than four (4) inches.

Sec. A-941—SIZES OF CHIMNEYS AND FLUES—CONSTRUCTION—REQUIREMENTS:

(a) In all Grade D buildings there shall be at least one (1) chimney which shall be provided with at least two (2) flues; i. e., one (1) smoke flue and one (1) gas flue for the gas grate or water heater.

Note—This provision is made mandatory due to the fact that in the past few years many people have suffocated from carbon monoxide gas from water heaters. For this reason no water heater will be permitted in any bathroom or toilet.

(b) All chimneys in fourth class dwellings shall be lined with approved fire clay lining. The minimum inside dimensions of the flue lining for hot-air furnaces, hot water boilers, oil burners, and all other apparatus of combustion for building heating purposes shall be no less than tweleve (12) inches by twelve (12) inches; and for gas stoves, coal or gas or oil water heaters, gas or coal grates, the lining shall be no less than four (4) by eight (8) inches.

Note—Smoke travels in circles, therefore a good chimney is either round, or as nearly square as possible. Under no circumstances should the chimney be lower than the highest part of a building, or any building nearby, because the air currents going over the high building blow down the flue. When smoke curls down the sides of a chimney it is a sure indication there is a down current, and the chimney should be built higher.

To secure a good draft the chimney must be tight, that is, no air spaces between the bricks, and no other openings for grates, gas burners, etc., except possibly a cleanout door below where the smoke pipe from the boiler enters. No mortar should be allowed to cling to the inside surface of the wall, but should be cleaned off smooth.

The effectiveness of a flue is only as great as its smallest area. Sharp bends and offsets in the flue will choke the draft, it must be free of any feature which prevents a full area for the passage of the products of combustion.

Great care should be taken in placing the smoke pipe into the chimney not to shove it clear through to the other side. This is sometimes done and will check the draft entirely

In entering the chimney from the boiler or furnace avoid right angle elbows. The opening into the chimney should be slightly higher than the opening in the boiler or furnace to give the connecting smoke pipe a slight rise between these two (2) points. Right angle elbows add to the cost, and if the chimney is at all weak, check the draft.

(c) Smoke proof flue lining shall be erected in such a manner that there is at least four (4) inches of solid brick work, eight (8) inches of concrete or clay building tile around each smoke flue in any one chimney so that such flue will be air tight, except for required openings. All flues shall have but one (1) opening for smoke or gases, however, an opening shall be provided at the bottom of each flue for a cleanout. In no case shall an incinerator be connected to a smoke flue.

Exception—An incinerator flue may have a refuse opening on each floor.

The flue lining shall always extend the full height of the chimney from the cleanout to the top of the chimney. Such lining shall extend at least four (4) inches out of the top of the chimney.

(d) Fireplace breasts above the fireplace may be made of stud walls covered with metal lath and plaster approved by the Commissioner of Buildings and only when the fireplace arch is constructed of a masonry bonded arch eight (8) inches in thickness and thoroughly bonded to the chimney walls.

(e) The main chimney flue for all dwellings shall be as near the center of the house as possible and shall extend to a point at least two (2) feet above the highest point of the roof for a comb roof and at least four (4) feet above any flat roof and in all cases at least two (2) feet above the highest point of the roof including the highest point of any and all fire and division walls.

(f) No woodwork will be permitted within two (2) inches of a chimney except furring for metal lath or by special permission.

Sec. A-942—AREA BETWEEN FIRE WALLS:

(a) In all buildings of Grade C of the fourth class fire walls shall be provided for every three (3) apartments in width in any direction, or every two thousand (2,000) sq. feet of floor area.

Exception—Garages.

(b) In all other fourth class buildings the area between fire walls shall be, to-wit, as follows:

Fronting on	Without Sprinklers	Automatic With Sprinklers
One Street	5,000 Square Feet	8,333 Square Feet
Two Streets	6,000 Square Feet	10,000 Square Feet
Three Streets	7,500 Square Feet	12,500 Square Feet

Exception: (See Sec. A-332 for Sprinklers).

Sec. A-943—CONSTRUCTION OF FIRE WALLS:

(a) Fire walls for fourth class buildings shall in no case be less than eight (8) inches in thickness.

(b) The depth of the footings for non loadbearing fire walls shall in no case be less than twenty-four (24) inches and shall in all cases be of sufficient depth to safely carry the superimposed loads and to be below the frost line.

(c) Fire walls shall be topped with a parapet wall the thickness of which shall be no less than the wall below and shall be topped with tile or other approved incombustible material. No combustible flashing shall be run over any fire or parapet wall.

(d) No loadbearing fire wall of eight (8) inches in thickness shall extend more than fourteen (14) feet in height except a parapet wall not to exceed five (5) feet in height may be added. If the fire wall be non loadbearing it shall not extend more than twenty-eight (28) feet in height in any case including the parapet wall.

Sec. A-944—STAIRWAYS IN GRADE C BUILDINGS:

(a) Each Grade C building shall be provided with at least two (2) stairways placed as far remote from each other as possible in such a location that no apartment or room entrance door shall be over sixty (60) feet from an egress door of a stairway.

(b) The requirements for the total width of stairs shall be according to the following:

Area of Building Floor	Total Width of Stairs
5,000 Square Feet	7 Feet
6,000 Square Feet	8½ Feet
7,500 Square Feet	10½ Feet

Sec. A-945—CLOTHES CHUTE:

All clothes chutes in fourth class buildings shall be of metal or other approved incombustible material.

Sec. A-946—LATHING AND PLASTERING:

(a) All laths shall be nailed so that there is at least three-eighths (⅜) of an inch between each lath. The lath shall be of sufficient strength to procure a workmanlike job.

(b) All plastering shall be approved plaster applied of sufficient thickness (not less than one-half (½) inch in any case) to give a strong and durable wall.

Sec. A-947—REQUIREMENTS FOR STAIRS IN FOURTH CLASS BUILDINGS, OF GRADE E AND F WHERE PERMITTED BY THIS CODE:

(a) Where commercial and business buildings are permitted by this Code to be of fourth class construction at least two (2), three (3) foot six (6) inch stairways shall be provided in every such building and located as far remote from each other as possible.

(b) The requirements for such stairs shall be to-wit, as follows:

Area of Building Floor in Sq. Ft.	Total Width of Stairs in Ft.
5,000 Square Feet	7 Feet
6,000 Square Feet	8½ Feet
7,500 Square Feet	10½ Feet

Sec. A-948—STRENGTH OF MATERIALS:

All materials for use above the foundation for use in fourth class buildings shall meet the following requirements:

Material	Minimum Crushing Strength Lbs. per sq. in. gross area
Clay Building Tile	800 pounds
Concrete Building Tile	800 pounds
Massive Concrete	1,500 pounds

Concrete Brick	1,500 pounds
Clay Brick	1,500 pounds
Concrete Block	800 pounds
Reinforced Concrete	2,000 pounds

Sec. A-949—SMOKE TEST OF ALL FLUES:

The owner or contractor building any flue or chimney shall be responsible for a smoke test of all flues before a representative of the Bureau of Buildings.

(b) No flue in any chimney shall be used until an inspection tag of approval has been issued by the Bureau of Buildings and signed by the inspector in charge of the smoke test.

Sec. A-950—AIR SPACE BELOW WOODEN FLOOR JOISTS:

In any case where wooden floor joists are used for the first floor of any building there must be at least a two (2) foot air space below such joists above the grade line, or when such joists are placed closer than two (2) feet to the grade line there shall be an excavated space of at least three (3) feet below the bottom of such joist.

Note—This provision is to prevent dry rot and to produce dry floor conditions.

Sec. A-951—FINAL INSPECTION:

No fourth class building shall be occupied or used until final inspection has been made and a certificate of approval issued by the Bureau of Buildings therefor.

Sec. A-952—ASSEMBLY HALLS IN FOURTH CLASS BUILDINGS—GRADE A AND GRADE B:

(a) Public assembly halls with an occupancy less than eight hundred (800) people will be permitted on the second floor of a fourth class building.

(b) No stage of any character will be permitted in the second floor of any fourth class building.

(c) Minor stages will be permitted in assembly halls with an occupancy of less than eight hundred (800) people on the first floor of fourth class buildings, but such stage shall not be used for moving picture performances at any time.

(d) No assembly hall in any fourth class building shall be used for the exhibition of moving pictures.

Exception: Airdomes. Slow burning films.

(e) Exits shall be provided the same as for theaters.

Sec. A-953—PIPE CHASES FOR SOIL AND WASTE AND OTHER PIPING:

Immediately below every bathroom or toilet in any frame constucted wall or partition there shall be provided an accessible chase enclosed in a suitable partition sufficient to hold the soil and waste pipes and all water pipes leading to bathrooms and toilets or other fixtures required to be connected with soil and waste pipes. If the chase is in a stud wall the studs shall be not less than two (2) inch by six (6) inch (market lumber dimensions) placed not less than sixteen (16) inches on centers.

Sec. A-954—FALSE CEILING BELOW SOIL AND WASTE AND OTHER PIPING:

In every case in any frame constructed floor, a false ceiling shall be arranged below the floor joists in such a manner that all the soil and waste piping and all water or other piping can be placed

in position without the sawing, cutting or notching of any floor joists, except as provided in Section 955.

Sec. A-955—STRUCTURAL PARTS OF WOOD SHALL NOT BE CUT INTO FOR PIPING OR SEWER PIPING:

No wooden joist, and wooden beam or girder shall be notched or sawed into for any purpose whatsoever, except holes may be bored midway between the top and bottom of any such structural member when the said hole is not over one and one-half (1½) inches in diameter and is not over two (2) feet from the end of the joist or beam. No holes of over three-quarters (¾) of an inch may be bored in any joist or beam in any location nearer the middle of the span of the joist or beam for any purpose whatsoever.

Exception: Special permission.

Sec. A-956—EXPOSURE OF FAUCETS AND WATER VALVES.

No faucet or water valve, gas valve or other shutoff in any water or gas piping shall be located in any building in such a manner that the same is concealed and is not in a readily accessible location. In cases where water faucets or valves are located in a plastered or tile wall partition there shall be a readily accessible chase within the wall or partition so such valves may be removed for repairs without disturbing any plastering or any structural or built-in parts of the building except the cover for the pipe chase.

Sec. A-957—PRIVATE GARAGE ATTACHED TO A DWELLING:

A two (2) car approved frame constructed garage may be attached or built into any frame constructed dwelling, providing the garage is not over five hundred (500) square feet in area outside of the foundation walls and the inside thereof is completely lined with approved metal lath and plaster. Only one opening from the garage into the dwelling shall be permitted and this opening shall be equipped with a fire door approved by the Bureau of Buildings for the purpose. The underside of the eaves above the garage entrance doors shall also be plastered with approved metal lath and plaster. Any building on any premises which has an entrance door large enough and so constructed that an automobile can be made to enter shall be classed as a garage.

Sec. A-958—CALCULATION OF GARAGE AREA:

The number of cars a garage will contain shall be calculated by figuring two hundred fifty (250) square feet of floor area per car.

Sec. A-959—PROVISIONS FOR WARM AIR FURNACE HEATING PLANT STACKS:

(a) All partition walls or sections of these walls in which heat stacks to second or upper rooms are to be installed shall be built of two (2) inch by six (6) inch studding.

(b) Where warm air register boxes, heads, pipes or stacks are to be installed, joists shall be set not less than sixteen inches (16″) on centers and shall be butted and not lapped. Studding shall set directly over and under joists, leaving a space of not less than fourteen (14) inches between studs and joists. Wherever joists are cut, headers must be put in to support joists.

Sec. A-960—GRADE A AND B BUILDINGS OF FOURTH CLASS CONSTRUCTION:

(a) All grade A and B buildings of fourth class construction over one (1) story in height shall have all the walls thereof and the

ceiling over the basement and first floor lined with approved metal lath and plaster.

Sec. A-961—STAIRWAYS IN GRADE A AND B BUILDINGS OF FOURTH CLASS CONSTRUCTION:

(a) All buildings Grade A and B two (2) stories in height shall be provided with at least two (2) stairways no less than three (3) foot six (6) inches in width placed as far remote from each other as possible.

(b) All such stairs shall be built with uniform treads and risers throughout each flight. There shall be no winders in any such stairs and no flight of any stairs shall rise to a vertical height in excess of eight (8) feet without a proper landing not less in its narrowest dimension than the width of the stairs.

(c) When stairs shall return directly on themselves a half space landing shall be provided whose major dimensions shall be at least twice the width of the stairs in the direction of the run of the stairs and shall not be less than the width of the stairs in the lesser dimension.

(d) Hand rails shall be placed on either side of such stairs thirty (30) inches above the tread.

(e) The risers shall not exceed seven and one-half (7½) inches in height and the treads shall not be less than ten (10) inches in width exclusive of any nosings.

(f) The number of stairs shall be sufficient that no floor space is more than eighty (80) feet from the entrance of any stairway.

(g) All stairs shall have the exit doors thereof open outwardly onto a public highway or court and fire proof passageway to a public highway. All such doors shall be equipped with approved pressure releasing panic hardware.

DIVISION A—PART TEN

MOVING PICTURE SHOWS AND AIRDOMES

Sec. A-1001—MOVING PICTURE AIRDOMES:

Moving picture shows and airdomes will be taken to mean all buildings, rooms or inclosures hereafter erected, or altered or now used for the operation of moving picture machines with films or stereopticons with slides, adapted and used to project upon a screen or other surface, pictorial representations of any character to which the public are admitted to view upon payment of admission fee or otherwise, which buildings, room or enclosures have no stage, stage scenery or stage appurtenances except as herein described, and in which buildings, rooms or enclosures no spectacular, vaudeville, burlesque, dramatic, operatic or other theatrical performance is given.

Sec. A-1002—ROOMS FOR MOVING PICTURE SHOWS—SEATING CAPACITY LESS THAN EIGHT HUNDRED:

(a) All rooms or buildings, which have heretofore been erected for the use in the operation of or which may hereafter be erected for or used in the operation of moving picture machines shall be inspected and approved by the Commissioner of Buildings before the same shall be so used.

(b) Every room used for such purpose shall be on the ground floor of such building except as otherwise provided in this Code and shall front on a public thoroughfare and in no case shall there be a means of communication in said room to any other room or building

nor shall any other business be operated in or connected with such room.

(c) No room as described in this part of the Code, to be used for the exhibition of moving pictures shall have a seating capacity in excess of eight hundred (800) people. When rooms are designed with a seating capacity in excess of eight hundred (800) people they shall be first class buildings and conform to all the rules and regulations set forth in part five (5) of this division.

Sec. A-1003—WALLS:

(a) All exterior walls inclosing said room shall be of incombustible material of a thickness as provided by Section A-701.

(b) The entire floor of the auditorium, foyer and the exits to the street shall be constructed of fire proof material throughout, or if joist construction is used in such floor, the space between such joists must be filled to the depth of at least four (4) inches with fire proof material in an approved manner.

Sec. A-1004—EXITS:

(a) Every room used for such purpose shall have at least one (1) exit for every three hundred (300) seating capacity or fraction thereof, in addition to the front or main entrance, which exit shall open direct into a street, alley or courtyard, free from obstruction, with direct access therefrom to a public highway.

(b) The doorways to the main entrance to such room shall not be less than five (5) feet in width and all additional doorways shall not be less than three (3) feet in width.

(c) All doors must open outward and shall not be locked while the room is open to the public, or if locked, the fastenings must be such as to readily yield to pressure from within, without the use of a key or similar instrument.

(d) Each exit shall be clearly indicated on the inside thereof by an illuminated green sign with the word "Exit" thereon in plain English letters, not less than eight (8) inches in height.

Sec. A-1005—AISLES:

No aisle shall be less than three (3) feet in width and all aisles shall be kept free of camp stools, chairs or other obstruction and no person shall be allowed to stand in or occupy any of the aisles excepting the space in the rear of the last row of seats.

Sec. A-1006—SEATS:

(a) All seats shall not be less than thirty-one (31) inches from back to back and not less than eighteen (18) inches in width from center to center of the arm and shall be firmly secured to the floor and no seat shall have more than six (6) seats between it and the aisle.

(b) No camp chairs or stools shall be used in said room.

Sec. A-1007—AIRDOMES:

(a) An airdome is defined to be an enclosure without a roof or covering with the exterior walls or enclosure of some incombustible material provided with entrance and exits the same as in section 1004, above.

(b) No airdome shall be constructed or operated within the fire limits as provided by this Code.

(c) Tents or canvas enclosures will not be permitted.

Exception—Special permission.

Sec. A-1008—SEATS:

All seats or benches of such airdome shall be not less than thirty-one (31) inches from center to center of arm and shall be securely fastened to the floor or ground.

All aisles shall be the same as in Section 1005, above.

Sec. A-1009—MACHINE ENCLOSURES FOR MOVING PICTURE MACHINE (See Sec. D-2503):

(a) All moving picture projecting machines used in any theater, picture show or airdome, must be placed in an enclosure or housing made of approved fireproof material.

(b) Such booth must be force ventilated to the outside air with two (2) vents, the area of which shall not be less than one hundred (100) square inches for each vent.

(c) The booth shall be large enough for the operator to walk easily on either side or back of the machine. The room must be well lighted.

Note—It is recommended that two (2) inches of approved metal lath and plaster be used for moving picture booths.

(d) All openings into this booth must be arranged in such a manner that they are held normally closed by doors or shutters of the same fire-resisting properties as the booth itself.

Exception—The air vents to the outside.

Sec. A-1010—ORCHESTRA:

Moving picture shows and airdomes shall be permitted to have an orchestra of not more than four (4) instruments, a piano or organ, but shall not be permitted to give any spectacular, vaudeville, burlesque, dramatic, operatic or other theatrical performance.

Sec. A-1011—ARC LAMPS:

Arc lamps used as a part of a moving picture machine must be constructed, so far as practicable, similar to arc lamps of theaters and wiring to same must not be less capacity than No. six (6) B & S gauge.

Sec. A-1012—TOP AND BOTTOM REELS:

(a) Top and bottom reels must be enclosed in steel boxes or magazines, each with an opening of approved construction at bottom or top, so arranged as not to permit entrance of flame to magazine.

(b) No solder shall be used in the construction of this magazine.

(c) The front side of each magazine must consist of a door hinged and arranged to swing horizontally and shall be provided with a suitable latch.

Sec. A-1013—RHEOSTATS:

Rheostats must conform to the rheostat requirements for theater arcs.

Sec. A-1014—AUTOMATIC SHUTTER:

(a) Automatic shutters must be provided and must be so constructed as to shield the film from the beam of light whenever the film is not running at operating speed.

(b) The shutter must be kept permanently attached to the gate frame.

Sec. A-1015—EXTRA FILMS:

Extra films must be kept in individual metal boxes, equipped with tight fitting covers and not more than four (4) films shall be allowed in the machine enclosure at any one (1) time and not more than two (2) feet of film shall be exposed in the machine enclosure.

Sec. A-1016—MACHINE OPERATION (See Sec. D-2502):

Motor-driven projectors shall be of a type expressly designed and approved for such operation. Such projectors shall be used only by permission of the Commissioner of Buildings, and when the projector is in charge of a qualified operator.

Sec. A-1017—FIRE EXTINGUISHERS:

In all machine enclosures there shall be placed a three (3) gallon fire extinguisher, which shall be charged at all times, or some other form of fire extinguisher approved by the Commissioner of Buildings.

Sec. A-1018—WIRING:

All wiring apparatus, etc., not specifically covered herein, must conform to the ruling of the Commissioner of Buildings. Said rules and requirements when officially made and adopted shall have the full force and effect of ordinances.

Sec. A-1019—TEMPORARY USE OF A MOVING PICTURE MACHINE:

Nothing herein shall prevent the temporary use of a moving picture machine or stereopticon for the purpose of lectures in any public hall, club or lodge hall, school or church, when regulations are provided for in this Code, and a permit is first obtained from the City Controller on the approval of the Commissioner of Buildings.

Sec. A-1020—BOOTH—CARE OF:

In no case shall more than one (1) person besides the regular machine operator, be allowed in a booth at any one (1) time.

(b) No smoking will be permitted in any booth or matches allowed in the same.

(c) No paper, books, clothing or debris will be allowed in any booth and the booth must be kept clean and free from any inflammable materials at all times.

Sec. A-1021—CERTIFICATE OF COMPLIANCE:

(a) No person, firm or corporation shall operate any moving picture show nor any theater as described in this ordinance until a certificate of compliance has been issued by the Commissioner of Buildings as follows:

Form 1

THIS ROOM HAS BEEN INSPECTED AND APPROVED FOR THE OPERATION OF MOVING PICTURES.

Signed

.....

Date ..... Commissioner of Buildings

Form 2

THIS ROOM HAS BEEN INSPECTED AND APPROVED FOR THE OPERATION OF A THEATRE.

Signed

.....

Date ..... Commissioner of Buildings

(b) The City Controller shall not issue any license to any person firm or corporation for the operation of a moving picture show or theatre or any other theatre as described in this code until the above certificate has been issued and a copy placed on file in the office of the City Controller.

(c) Such certificate of compliance shall expire one year from the date thereon. When reinspection is made the reinspection fees shall be paid as herein described.

DIVISION B—PART ONE

REQUIREMENTS FOR STRUCTURAL LOADS—IMPOSED LOADS—STRUCTURAL AND MATERIAL STRESSES—QUALITIES OR MATERIALS OF CONSTRUCTION

Sec. B-101—FACTORS OF SAFETY—STRESSES—QUALITY OF MATERIALS:

(a) All timbers used in building construction shall be sound timbers and of a grade that will meet the requirements of this Code. All timbers in slow burning construction shall be thoroughly dressed. Timbers shall be free from knots, dry rot, wind shakes or any other defects which will impair the strength of, and the lasting qualities of the timber. All timbers shall be designed to safely sustain the structural and imposed loads both static and impact.

(b) The factor of safety of timbers shall be as one (1) to five (5); or the figured working load shall be only one-fifth (1/5) of the ultimate strength for that grade and quality of timber used.

(c) On all timbers certified as the result of requirements approved by the Commissioner of Buildings for select and dense select grade structural material as published by the Bureau of Standards, Department of Commerce may have its safe carrying capacity determined by the following working stresses in pounds per square inch. Net cross sectional area as applied to material to be kept under shelter and in dry locations, as follows: to wit: in table No. 1:

TABLE NO. 1

ALLOWABLE UNIT STRESSES FOR CERTIFIED STRUCTURAL LUMBER DIMENSIONS FOR USE IN SECOND CLASS BUILDINGS SHALL BE AS FOLLOWS, TO-WIT:

Allowable stresses in pounds per sq. in.

Dry Locations	Bending		Compression	
Species of Timber	In extreme fiber	Horizontal shear	Parallel to grain "short columns"	Perpendicular to grain
Cedar, Western Red	900	80	700	200
Cedar, Northern & Southern White	750	70	550	175
Cedar, Alaska	1,000	90	800	250
Cedar, Port Orford	1,100	100	900	250
Cypress, Southern	1,300	100	1,100	350
Douglas, Fir, Coast Type (Dense Select Grade)	1,750	90	1,285	380
Douglas Fir, Coast Type	1,600	90	1,175	345
Douglas Fir, Rocky Mtn. Type	1,100	85	800	275
Fir, Balsam	900	70	700	150
Fir, Golden, Noble Silver White	1,100	70	700	300
Hemlock, West Coast	1,300	75	900	300
Hemlock, Eastern	1,100	70	700	300
Larch, Western	1,200	100	1,100	325

Pine, Southern (Dense Select Grade)	1,750	110	1,285	380
Pine, Southern (Select)	1,600	110	1,175	345
Pine, California, Idaho and Northern White, Pondosa and Sugar	900	85	750	250
Pine, Norway	1,100	85	800	300
Redwood	1,200	70	1,000	250
Spruce, Red, White or Sitka	1,100	85	800	250
Spruce, Engelmann	750	70	600	175
Tamarack, Eastern	1,200	95	1,000	300

Lumber not conforming in quality to the above grades shall be termed ordinary and shall have allowable stresses, eighty per cent (80%) as above excepting compression perpendicular to the grain, and as follows: to wit, in table No. 2.

TABLE NO. 2

ALLOWABLE UNIT STRESSES FOR ORDINARY GRADE STRUCTURAL LUMBER DIMENSIONS FOR USE IN THIRD AND FOURTH CLASS CONSTRUCTION SHALL BE AS FOLLOWS, TO-WIT:

	Allowable stresses in pounds per sq. in.			
	Bending		Compression	
Dry Locations Species of Timber	In extreme fiber	Horizontal shear	Parallel to grain "short columns"	Perpendicular to grain
Cedar, Western Red	720	64	560	200
Cedar, Northern & Southern White	600	56	440	175
Cedar, Alaska	800	72	640	250
Cedar, Port Orford	880	80	720	250
Cypress, Southern	1,040	80	880	350
Douglas Fir, Coast Type (Dense, Select Grade)	1,400	72	1,008	380
Douglas Fir, Coast Type	1,200	72	940	345
Douglas Fir, Rocky Mtn. Type	880	68	640	275
Fir, Balsam	720	56	560	150
Fir, Golden, Noble, Silver (White)	880	56	560	300
Hemlock, West Coast	1,040	60	720	300
Larch, Western	960	80	880	325
Pine, Southern	1,200	88	940	345
Pine, California, Idaho and Northern White, Pondosa and Sugar	720	68	600	250
Pine, Norway	880	68	640	300
Redwood	960	56	800	250
Spruce, Red, White or Sitka	880	68	640	250
Spruce, Engelmann	600	56	480	175
Tamarack, Eastern	960	76	800	300

(d) In computing the load for short columns the safe working stress of the species in compression parallel to the grain may be used for columns whose ratio of unsupported length to the least di-

mension does not exceed the whole number of eleven (11) as follows, to wit:

TABLE NO. 3

Species	Allowable stress in pounds per sq. inch parallel to grain "short columns" L/d does not exceed eleven	Modulus of Elasticity
Ash, Black	300	1,100,000
Ash, Commercial White	500	1,500,000
Aspen and large-tooth aspen	150	900,000
Basswood	150	900,000
Beech	500	1,600,000
Birch, Paper	200	1,000,000
Birch, Yellow and Sweet	500	1,600,000
Cedar, Alaska	250	1,200,000
Cedar, Western Red	200	1,000,000
Cedar, Northern and Southern White	175	800,000
Cedar, Port Orford	250	1,200,000
Chestnut	300	1,000,000
Cottonwood, Common and Black	150	900,000
Cypress, Bald	350	1,200,000
Douglas Fir (Western, Washington and Oregon)	325	1,600,000
Douglas Fir (Rocky Mtn. Type)	275	1,200,000
Elm, Cork	500	1,300,000
Elm, Slippery and White	250	1,200,000
Fir, Balsam	150	1,000,000
Fir, Commercial White	300	1,100,000
Gum, Red, Black and Cotton	300	1,200,000
Hemlock, Western	300	1,400,000
Hemlock, Eastern	300	1,100,000
Hickory (True and Pecan)	600	1,800,000
Larch, Western	325	1,300,000
Maple, Sugar and Black	500	1,600,000
Maple, Red and Silver	350	1,100,000
Oak, Commercial, red and white	500	1,500,000
Pine, Southern Yellow	325	1,600,000
Pine, White, Sugar, Western White, Western Yellow	250	1,000,000
Pine, Norway	300	1,200,000
Poplar, Yellow	250	1,100,000
Redwood	250	1,200,000
Spruce, Red, White Sitka	250	1,200,000
Spruce, Engelmann	175	800,000
Sycamore	300	1,200,000
Tamarack, Eastern	300	1,300,000

The stress for columns whose ratio of unsupported length to the one (1) least dimension is greater than eleven (11) and less than twenty-two (22) shall not exceed that given by the following formula, to wit:

$$\frac{P}{A} \text{ equals } 1.5\ C.\ \left(1 - \frac{L}{33d}\right)$$

where

$\frac{P}{A}$ equals the column stress,

C equals the safe stress in compression parallel to the grain.

L equals the unsupported length in inches.

d equals the least dimension of the column.

E equals the modulus of elasticity (Table 3).

The stress for long columns whose ratio of unsupported length to the least dimension exceed twenty-two (22) shall be computed from Euler formula.

$$\frac{P}{A} \text{ equals } \frac{E}{5\ \frac{L^2}{d}}$$

using the modulas of elasticity in table 3.

Sec. B-102—QUALITY OF BRICK—STRESSES—MASONRY WORK—MORTARS:

(a) Brick whether of clay, concrete or other materials shall conform to the following:

Kind	Absorption limits Per cent.		Compression strength (flat) lbs. per sq. in.		Modulus of rupture lbs. per sq. in.	
	Mean of five tests maximum	Individual maximum	Mean of five tests minimum	Individual minimum	Mean of five tests minimum	Individual minimum
Face br'k	10	12	1,500	1,000	300	250
Common	12	15	1,500	1,000	300	250

The safe bearing load to apply to brick work shall not exceed the following when laid up in the wall or other structural unit:

BRICK MASONRY STRESSES

UNIT	Maximum unit working stresses (pounds per sq. inch) Portland cement mortar	Natural cement or cement-lime mortar
Brick (clay) medium grade	170	130
Sand-lime brick	170	130
Concrete brick	170	130

(b) The above stresses for brick masonry may be increased fifty (50) per cent when brick are used that have an ultimate strength of three thousand (3,000) pounds per square inch.

(c) The maximum allowable compressive stresses in rubble stonework due to combined live and dead loads shall not exceed one hundred forty (140) pounds per square inch when laid in Portland cement mortar, one hundred (100) pounds per square inch in natural cement or cement-lime mortar.

The maximum allowable compressive stress in ashlar masonry due to combined live and dead loads shall not exceed the following limits:

WORKING STRESSES

UNIT	Maximum unit working stresses (pounds per sq. inch) laid in Portland cement mortar	Cement-lime or natural cement mortar
Granite	800	640
Limestone	500	400
Marble	500	400
Sandstone	400	320

(d) The working stress for masonry work of brick, concrete block, building tile or other masonry structural material shall be one-tenth (1/10) of the ultimate strength.

(e) Portland cement mortar used to lay up masonry work shall be mixed in the proportion:

1-cement, 3-sand, mixed by volume; hydrated lime or lime putty may be added to an amount not exceeding ten (10) per cent, by volume, of the Portland cement.

(2) Cement and lime mortar shall be mixed in the proportions

1-cement, 3-sand! mixed by volume; hydrated lime or lime putty

1-cement, 1-lime, 6-sand; mixed by volume.

(3) Lime mortar when permitted shall be mixed in the proportions as follows:

1-lime, 3-sand; mixed by volume.

(4) Clear pure water shall be used in all mortars sufficient to permit the mortar to be workable. All water shall be free from acids, oils and alkalis. If mineral coloring is used it shall be in such small quantities as will not impair the required strength.

Sec. B-103—QUALITY OF MASSIVE CONCRETE—STRESSES:

(a) The ultimate strength of massive concrete in compression shall be determined by tests of samples twenty-eight (28) days old. Such samples shall be prepared upon orders and under the direction of the Commissioner of Buildings. When samples are not taken the allowable working loads shall be as follows for different mixtures:

Mixture	Allowable load in pounds per sq. inch
1-cement, 1 -sand, 2-broken stone, gravel	2,900
1-cement, 1½ sand, 3-broken stone, gravel	2,400
1-cement, 2 -sand, 4-broken stone, gravel	2,000

Portland cement is used in figuring the above allowable loads. The cement used in any construction work may be ordered tested by the Commissioner of Buildings.

Sec. B-104—QUALITY OF BUILDING TILE:—STRESSES:

(a) Hollow clay building tile of whatever composition and used to carry structural loads shall be of the following strengths and moisture absorption qualities:

Where used	Moisture per cent shall not exceed	Strength in pounds sq. inch gross area
Above grade	12 per cent by wgt.	800
Below grade	10 per cent by wgt.	1,200

(b) The working loads for hollow building tile shall not exceed one-tenth (1/10) of the ultimate strength in any case.

(c) Hollow clay building tile for non-bearing load partitions or other use where no structural or imposed loads are present shall be of

sufficient strength and stability to withstand the ordinary wear and tear that is present in any building. The webs of such tile shall be at least one-half (½) of an inch in thickness and shall be so scored that cement plaster will readily adhere thereto.

(d) Ordinary clay tile shall not be used in exterior panel or curtain walls or for back up of veneer.

Sec. B-105—QUALITY OF CONCRETE BLOCKS—STRESSES:

(a) Concrete block or concrete building tile of whatever mixture shall be so made that they will meet the following tests in ultimate compression as laid in the wall.

	Ultimate compression for load bearing
Average of four tests in pounds per sq. inch gross area	800
Minimum for any one test pounds per sq. inch gross area	600

No concrete block shall fall below the minimum as shown above.

Sec. B-106—QUALITY OF REINFORCING STEEL—REINFORCED CONCRETE STRESSES:

(a) All reinforcing bars for reinforced concrete, except upon special permission from the Commissioner of Buildings, shall be corrugated, upset or other rough steel bars that will thoroughly bond with the concrete. Such bars shall be free from scale, oil, acids, or other deleterious matter that will tend to destroy the bond between the steel and concrete.

(b) Re-rolled rail steel may be used upon satisfactory proof by tension and bending tests under the direction of the Commissioner of Buildings that such steel will satisfactorily meet the requirements of this Code.

(c) The stresses for steel to be used in reinforced concrete shall not exceed the following in any case or the working stress shall never exceed one-fourth (¼) of the ultimate strength of the steel bars.

	Tensile
Structural Grade	18,000 Pounds per sq. inch
Intermediate or Hard Steel Grade	20,000 Pounds per sq. inch
Re-rolled Rail Steel Grade	20,000 Pounds per sq. inch

Note: Any other re-rolled steel is prohibited.

(d) The shear in steel shall never exceed 12,000 pounds per square inch when used in reinforced concrete construction.

(e) The compressive stress in the steel shall never exceed the product of the compressive stress in concrete multiplied by the elastic modulus of the steel and divided by the elastic modulus of the concrete. (Young's Modulus).

Direct compression in concrete shall not exceed twenty-five (25) per cent of its ultimate strength.

(f) Bending in extreme fibre of concrete shall not exceed thirty-seven and one-half (37½) per cent of the ultimate strength.

Note: 750 pounds per square inch for two thousand (2,000) pounds concrete.

(g) The allowable unit of adhesion between the concrete and steel shall be as follows:

(a) For Plain Bars $u=0.04f'c$

(b) For Deformed Bars $u=0.05f'c$

u=allowable bond stress per square inch.

f'c=ultimate strength of concrete at the age of twenty-eight (28) days.

(h) Calculations of the strength of concrete shall be based upon the ultimate strength of the concrete twenty-eight (28) days old, designated as (U) the ultimate strength in pounds per square inch. This compressive strength shall be determined in accordance with Standard specifications approved by the Commissioner of Buildings.

(i) Calculations of strength of reinforced concrete shall be based upon the ultimate strength of the reinforced concrete twenty-eight (28) days old, designated as (U) the ultimate strength in pounds per inch.

(j) The modulus of elasticity of steel to that of concrete shall be taken as follows for different mixtures unless tests under the direction of the Commissioner of Buildings shall prove otherwise. The minimum strength of concrete for the mixtures given below shall be as follows unless tests in accordance with standard specifications approved by the Commissioner of Buildings shall prove otherwise.

Mixture	"U"	"R"
1 cement, 3 aggregates.....	2,900 Pounds sq. in.	10
1 " 4 "	2,400 " " "	12
1 " 5 "	2,000 " " "	15

(k) Bending Test Requirements

Thickness or Diameter of Bar	Plain Bars			Deformed Bars			Cold Twisted Bars
	Structural Steel Grade	Rerolled Rail Steel Grade	Hard Grade	Structural Steel Grade	Rerolled Rail Steel Grade	Hard Grade	
Under ¾ inch	180 Deg. d=t	180 Deg. d=2t	180 Deg. d=3t	180 D d=t	180 D d=3t	180 D d=4t	180 D d=2t
¾ inch or over	180 Deg. d=t	90 Deg. d=3t	90 Deg. d=3t	180 D. d=2t	90 D d=3t	90 D d=4t	180 D d=3t

Explanatory Note—d=the diameter of pin about which the specimen is bent.
t=the thickness or diameter of the specimen.

Sec. B-107—QUALITY OF BUILDING STEEL—STRESSES:

(a) Rolled steel, on net section in tension eighteen thousand (18,000) pounds per sq. inch.

(b) Rolled steel on short lengths or where the lateral deflection is prevented, eighteen thousand (18,000) pounds per sq. inch in compression.

On the gross section of columns.

$$\frac{18{,}000}{1+\left(\frac{L^2}{18{,}000r^2}\right)}$$

with a maximum of fifteen thousand (15,000) pounds per sq. inch, in which (L) is the unsupported length of the column and (r) is the corresponding least radius of gyration of the section both measured in inches.

Note—The present specification contemplates that the inspections is such that improper material containing defect which should

cause rejection is not used. It is not intended to cover material salvaged from previous construction, which shall not be used except under rigid supervision and inspection.

For main compression members the ratio (L/r) shall never exceed one hundred and twenty (120) and for secondary members two hundred (200).

(c) On extreme fibers the allowable stress in bending of rolled shapes and built up sections, net sections, if altered deflections is prevented shall not exceed eighteen thousand (18,000) pounds per sq. inch.

When the unsupported length (L) exceeds fifteen (15) times (b), the width of the compression flange, the stress in pounds per sq. inch in the latter shall not exceed:

$$\frac{20{,}000}{1+\left(\frac{L^2}{2{,}000\ b^2}\right)}$$

The laterally unsupported length of beams and girders shall not exceed forty (40) times (b) the width of the compression flange.

On the extreme fibers of pins, the allowable stress when the forces are assumed as acting at the center of gravity of the pieces, shall not exceed twenty-seven thousand (27,000) per sq. inch.

(d) The allowable shearing stress of steel shall be to wit as follows:

On pins	13,500	Pounds per sq. inch
On power driven rivets	13,500	" " " "
On turned bolts in reamed holes with a clearance of not more than 1/50th of an inch	13,500	" " " "
On Hand Driven Rivets	10,000	" " " "
On unfinished bolts	10,000	" " " "

On the gross area of the webs of beams and girders where (h), the height between flanges in inches, is not more than sixty (60) times (t) the thickness of the web in inches.

On the gross area of the webs of beams and girders if the web is not stiffened where (h), the height between flanges in inches, is more than sixty (60) times (t), the thickness of the web, the maximum shear per square inch shall not exceed:

$$\frac{S}{A} \text{ shall not exceed } \frac{18{,}000}{1+\left(\frac{h^2}{7{,}200\ t^2}\right)}$$

In which (S) is the total shear, and (A) is the gross area of the web in square inches.

(e) Combined stresses in steel shall be to wit as follows:

For combined stresses due to wind and other loads the premissible working stress may be increased thirty-three and one-third (33⅓) per cent provided the section thus found is in no case less than that required by the live and dead loads alone.

(f) For members carrying wind stresses only, the permissible working stresses may be increased thirty-three and one-third (33⅓) per cent.

(g) Formed steel joists shall be made up of either two (2) symmetrical channel sections spot-welded back to back or of a web plate reinforced by flange angles spot welded together to form a section similar to a plate girder or other approved construction.

(1) Flange widths of formed steel joists shall not exceed one-half (½) of their depth excepting joists five (5) inches or less in depth when a flange width may be three-fourths (¾) of the joist depth. Splices will not be permitted. In no case shall formed steel joists used in steel joist floor construction be considered as resisting wind pressure.

(2) No formed steel joist of any character under its calculated load shall have a deflection exceeding one three hundred and sixtieth (1/360) of the span.

(3) Formed steel joists of any character used in floor construction shall not be spaced more than twenty-four (24) inches on centers and shall be thoroughly bridged.

(4) The maximum allowable unit stresses for formed steel joists with a steel thickness of one-eighth (⅛) inch or less shall not exceed ninety (90) per cent to those allowed for rolled steel.

(h) The least over all dimension of cast iron columns shall be five inches (5), and the thickness of metal shall be not less than one-twelfth (1/12) of the diameter or side, but never less than three-quarters (¾) of an inch thick.

(1) The ends of columns which have bearing on metal shall be faced to a surface perpendicular to the axis of the column.

(2) The columns shall have at splices, a sufficient number of bolts to securely hold them in place.

(3) Cast iron columns which cannot be measured otherwise shall have two (2) holes not less than three-eighths (⅜) of an inch in diameter drilled midway between the ends and one-quarter (¼) around from the seams, for determining the thickness of the metal.

(4) If the core has shifted, the column shall be figured on the basis of the minimum thickness of metal, except that if the core has shifted twenty (20) per cent of the thickness of the shell, the column shall be rejected.

(5) The top and bottom flanges, seats and lugs shall be of ample strength, properly reinforced by ribs and fillets.

(6) Where cores of superimposed columns are of different sizes, a bearing plate of sufficient thickness to properly transfer the load shall be used.

(7) Columns with open sides shall be cast with horizontal webs and solid caps and bases of sufficient strength to properly distribute the stresses.

(8) The length of a cast iron column between points where it is anchored, stayed or tied in at least two (2) directions by beams or girders shall not exceed thirty (30) times its least dimension.

Sec. B-108—SOIL PRESSURES:

(a) In all cases footings shall be sufficient to carry the superimposed loads with a factor of safety of ten (10) or one-tenth (1/10) of the ultimate strength of the soil at that point.

(b) The soil pressure to be used in determining the size of footings, unless determined by tests under the direction of the Commisisoner of Buildings shall be as follows, to wit:

Soil	Pounds per sq. foot
(1) Quicksand and alluvial soils	1,000
(2) Soft clay	2,000
(3) Ordinary clay and sand together in layers wet and spongy	4,000
(4) Clay or fine sand, firm and dry	6,000
(5) Sand, compact and well cemented	8,000
(6) Gravel and coarse sand, well packed	10,000
(7) Hard pan or shale	12,000

No soil pressure in excess of six thousand (6,000) pounds per sq. foot shall be used unless the footings are at a legal depth as determined by this Code.

(c) The maximum load on a timber pile shall not exceed five hundred (500) pounds per sq. inch and shall never be in excess of the following (L);

$$L=\left(\frac{2WH}{S+0.1}\right) \text{ for steam hammers}$$

$$L=\left(\frac{2WH}{S+1}\right) \text{ for drop hammers}$$

in which,

L equals the safe load in pounds allowable
W " " weight of the hammer in pounds
H " " fall of the hammer in feet
S " " penetration under the last blow

measured in inches, assumed to be sensible at an approximately uniform rate, or the average of the last three (3) blows.

(d) The footing shall be designed to carry the calculated dead and live loads with reductions as outlined in this Code for different grades and classes of buildings.

Sec. B-109—FACTORS OF SAFETY:

(a) The factor of safety or the permissible working stress as compared to the ultimate strength shall be as:

For timbers .....one (1) to five (5)
For steel .....one (1) to four (4)
For masonry .....one (1) to ten (10)
For massive concrete .....one (1) to ten (10)
For reinforced concrete .....one (1) to four (4)
For soil .....one (1) to ten (10)

If any material used in building construction does not come under any of the above classes the Commissioner shall name a factor based upon the best engineering practice of the day.

Sec. B-110—TESTING MATERIALS:

(a) Upon payment to the City Controller of the testing fees herein named, the City Controller shall issue a permit for testing of materials by the City testing laboratory. Such materials shall be provided by any person, firm or corporation in Indianapolis, Indiana.

Any person, firm or corporation submitting materials to be tested shall deposit the testing permit with the materials at a place named by the person or persons in charge of the testing laboratory, and after such tests are made and certified to such tested materials shall be removed from the premises as directed by the laboratory officials.

The testing laboratory shall issue a certified test in duplicate of all tests made for which a permit was issued by the City Controller.

(b) The fees to be paid to the City Controller for a permit for testing shall be to wit as follows:

(1) Two (2) cents for every barrel of cement tested or quantity in barrels determined by the testing laboratory officials.

(2) One dollar and fifty cents ($1.50) for each concrete block, concrete tile, clay tile or brick.

(3) One dollar and fifty cents ($1.50) for each test for the first metal rod tested in tension, elongation or yield point with an additional charge of twenty-five (25) cents for each test of each additional rod of the same day's test.

(4) One dollar and fifty cents ($1.50) for the first test of wood bars in tension with an additional charge of twenty-five (25) cents for each additional wooden bar of the same day's test.

(5) One dollar ($1.00) for the first test in compression of wooden struts or columns with an additional charge of twenty-five cents (.25) for each additional piece of wood of the same day's test.

(6) One dollar and fifty cents ($1.50) for each test of wooden or metal beams in flexure.

(7) No testing permit shall be issued for a less sum than one dollar ($1.00).

(c) The Commissioner of Buildings may order tests at any time he may determine, of any material used in the construction of any work or works both public and private. When such tests are ordered the person or persons, firm or corporation in charge of the construction work or works shall take out a testing permit from the City Controller within a reasonable time and shall furnish the testing laboratory with the materials selected by the Commissioner of Buildings.

Sec. B-111—HEAT RESISTING BRICK AND FLUE LINING:

(a) Refractory clay brick shall have a softening point above 1990 degrees Fahrenheit. Such brick shall be used in lining flues, chimneys and stacks as outlined in this Code.

(b) Fire Clay lining for flues for small heating plants, furnaces and the like shall be manufactured from suitable refractory clay, either natural or compounded, which has a softening point not lower than 1990 degrees Fahrenheit, and shall be adapted to withstand high temperatures and flue gases. They shall be of standard commercial thickness, but never less than three-quarters (¾) of an inch.

Sec. B-112—ALLOWABLE LIVE LOAD IN FIRST CLASS BUILDINGS:

	To be used for	Allowable load in pounds per square feet of horizontal area. Floors	Stairs	Corridors
I	One family dwelling of Grade D.....	40	80	80
II	Doubles and Duplexes of Grade D.....	40	80	80
III	Multi-family dwellings of Grade D....	40	80	80
IV	Hotel and Clubs of Grade C.....		100	100
	Sleeping rooms	40		
	All other rooms	100		
	Public Assembly			
	Fixed Seats	60	100	100
	Movable Seats	100	100	100
V	Office Buildings of Grade E.....		100	100
	Office Rooms	50		

	Mercantile Rooms	100	100	100
	Public Assembly			
	Fixed Seats	60	100	100
	Movable Seats	100	100	100
	Provisions shall be made for a load of 2,000 pounds upon any space 2½ ft. square on an otherwise unloaded floor.			
VI	Stores, Mercantile Buildings of Grade E			
	Light Occupancy	100	100	100
	Heavy Occupancy	120	100	120
	Storage, according to use with a minimum of	120	100	120
VII	Factories and Workshops of Grade F according to use with a minimum of	120	100	120
VIII	Amusement Place of Grade A and Grade B			
	Fixed Seats	60	100	100
	Movable Seats	100	100	100
	Dancing	100	100	100
	Theater Stages	200	100	200
IX	Churches, Grade A			
	Fixed Seats	60	100	100
	Movable Seats	100	100	100
X	Institutional Buildings of Grade A			
	Sleeping Rooms	40	100	100
	All other Rooms	100	100	100
	Public Assembly			
	Fixed Seats	60	100	100
	Movable Seats	100	100	100
XI	Educational and Instructional Buildings of Grade A and B			
	Class rooms, fixed seats	50	100	100
	Assembly Rooms			
	Fixed Seats	60	100	100
	Movable Seats	100	100	100
	Gymnasiums	100	100	100
XII	Public Buildings of Grade A and B	100	120	120
	Public Assembly			
	Fixed Seats	60	120	120
	Movable Seats	100	120	120
XIII	Special Hazard Buildings of Grade E and Grade F		100	
	Minimum	120		120
	Ramps	120		
XIV	Special Process Buildings, Loads shall be according to the use of the structure with a minimum of	100	100	100
	All loads must be approved.			

Sec. B-113—ALLOWABLE LIVE LOADS IN BUILDINGS OF THE SECOND, THIRD, AND FOURTH CLASSES:

To be used for	Allowable load in pounds per square feet of horizontal area.		
	Floors	Stairs	Corridors

I	One family dwelling of Grade D			
	Second Class Construction	40	80	80
	Third and Fourth Class Constr	50	80	80
II	Doubles and Duplexes of Grade D			
	Second Class Construction	40	80	80
	Third and Fourth Class Constr	50	80	80
III	Multi-Family Dwellings of Grade C			
	Second Class Construction	40	80	80
	Third and Fourth Class Constr	50	80	80
IV	Hotels and Clubs of Grade C		100	100
	Sleeping Rooms	40		
	All other rooms	100		
	Public Assembly			
	Fixed Seats	100	100	100
	Movable Seats	120	100	100
V	Office Buildings of Grade E			
	Office Rooms	50	100	100
	Mercantile Rooms	100	100	100
	Public Assembly			
	Fixed Seats	100	100	100
	Movable Seats	120	100	100
	Provision shall be made for a load of 2,000 pounds upon any space 2½ ft. sq. on an otherwise unloaded space.			
VI	Stores, Mercantile Buildings of Grade E			
	Light Occupancy	100	100	100
	Heavy Occupancy	120	100	120
	Storage, according to use with a minimum	120	100	120
VII	Factories and Workshops of Grade F according to use with a minimum of	120	100	120
VIII	Amusement Places of Grade A and Grade B			
	Fixed Seats	100	100	100
	Movable Seats	120	100	100
	Stage	200	100	200
IX	Churches, Grade A			
	Fixed Seats	100	100	100
	Movable Seats	120	100	100
X	Educational Building of Grade A		100	100
	Sleeping Rooms	40		
	All other rooms	100	100	100
	Public Assembly			
	Fixed Seats	100	100	100
	Movable Seats	120	100	100
XI	Educational and Instructional Buildings of Grade A and B			
	Class Rooms, fixed seats	50	100	100
	Assembly Rooms			
	Fixed Seats	100	100	100
	Movable Seats	120	100	100
	Gymnasiums	120	100	100
XII	Public Buildings of Grade A and Grade B	100	120	120
	Public Assembly			

	Fixed Seats	100	120	120
	Movable Seats	120	120	120
XIII	Special Hazard Buildings of Grade E and Grade F		100	
	Minimum	120		120
XIV	Special Process Buildings, Loads shall be according to the use of the structure with a minimum	120	100	120
	Loads must be approved.			

Sec. B-114—ALLOWABLE LIVE LOADS:

(a) The allowable live loads to be used for all roofs shall be equal to the dead load thereof and shall never be less than thirty (30) pounds per sq. foot for all classes and grades of buildings.

Exception: Green houses fifteen (15) pounds per sq. ft.

(b) The allowable live load for all sidewalks shall in no case be less than three hundred (300) pounds per sq. foot.

(c) The allowable live load for all roadways in the public highway and of all slabs over culverts or streams shall in no case be less than one (1) ton (2,000 lbs.) per sq. foot.

(d) Allowance shall in all cases be made for partitions; toilets; safes or other concentrated loads. The loads for courtyards and other spaces within the building lines shall not be less than 120 pounds per sq. foot.

Sec. B-115—REDUCTION OF LOADING OF COLUMNS AND GIRDERS:

(a) In all construction except storage buildings and warehouses a reduction of five (5) per cent per floor may be permitted as follows, to wit:

Last story above basement .....95% of all live loads
Next story .....90% " " " "
Next story .....85% " " " "

and likewise for each succeeding story until a reduction of fifty (50) per cent of all superimposed live loads for the tenth story below the roof.

(b) A flat reduction of fifteen (15) per cent of all superimposed live loads will be permitted in all buildings except storage buildings and warehouses, for beams and girders, but not for spandrel beams.

Sec. B-116—WIND PRESSURES:

Signs .....20 Lbs. per sq. ft.
Steel Skeleton Constructed Buildings .....15 " " " "
Reinforced Concrete Skeleton Constructed Buildings .....15 " " " "
Concrete, Brick and Metal Stacks on projected area .....25 " " " "
All other Buildings .....15 " " " "
Wind on roofs on projected areas .....20 " " " "

Sec. B-117—MATERIALS FOR FOUNDATIONS FOR ANY BUILDING:

All materials for foundation shall be of approved incombustible material and when used below grade for load bearing shall meet the following requirements:

Material	Minimum crushing strength pounds per sq. inch gross area
Clay Building Tile	1,200 Pounds
Concrete	800 "
Massive Concrete	2,000 "
Concrete Block	800 "
Clay Brick	1,500 "
Concrete Brick	1,500 "
Reinforced Concrete	2,000 "

Sec. B-118—STRENGTH OF MATERIALS FOR ANY BUILDING:

All materials for use above the foundation of load bearing shall meet the following requirements:

Material	Minimum crushing strength pounds per sq. inch gross area
Clay Building Tile	800 Pounds
Concrete Building Tile	800 "
Massive Concrete	1,500 "
Concrete Block	800 "
Clay Brick	1,500 "
Concrete Brick	1,500 "
Reinforced Concrete	2,000 "

DIVISION B—PART TWO
CONCRETE BLOCKS

Sec. B-201—COMPOSITION OF CONCRETE BLOCKS:

(a) "Concrete Blocks" shall be made of concrete composed of pure water, Portland cement, clean sharp sand and clean gravel, crushed stone or other approved material, free from loam or earthly matter; thoroughly mixed. No particles are to be larger than those which will pass a three-quarter (¾) inch mesh screen and are to grade gradually to small particles, commonly called "grit." These proportions may be varied as the case required, if approved by the Commissioner of Buildings.

(b) Water used in "Concrete Blocks" during the process of manufacture shall be clean, free from oil, acids, alkalies, or vegetable matter of any sort.

(c) If artificial coloring matter is used, only mineral colors shall be used in the amount that will not appreciably impair the strength of the "Concrete Block."

(d) The absorption of three test samples when dried to a constant weight at a temperature between two hundred and twelve (212) and two hundred and fifty (250) degrees F. and immersed in clean water for a period of twenty-four (24) hours shall not exceed fourteen (14) pounds per cubic feet of concrete (actual volume) contained in any block.

(e) All concrete blocks shall be so formed that an air and mortar space of at least one-half (½) inch is left at each end of the concrete block.

Exception—By special permission concrete block generally known as concrete tile may have square ends.

Sec. B-202—WALLS AND PIPE CHASES:

(a) The thickness of foundations and bearing walls for "Concrete Block" shall be, to wit, as follows:

Minimum Thickness of Walls in Inches for "Concrete Block"

Height	B	1	2	3
One Story	12	12		
Two Stories	16	12	12	12
Three Stories	16	16	12	12

In one (1) story buildings outside the fire limits, in cases where frame construction is permitted by this Code, eight (8) inch "Concrete Block" walls may be used provided that no such wall exceeds fifty (50) feet in length between masonry cross-walls or adequate pilasters or fourteen (14) feet in height exclusive of the parapet; however, in Grade D buildings, outside the fire limits, the thickness of "Concrete Block" walls shall not be less than eight (8) inches for the uppermost twenty (20) feet in height and twelve (12) inches for the next fourteen (14) feet in height. An additional five (5) feet of eight (8) inches non-load bearing wall is permitted in gables.

(b) The width of opening in such "Concrete Block" walls shall in no case exceed one-third (⅓) of the total length of the wall unless the thickness is increased four (4) inches or more as required by the Commissioner of Buildings.

(c) In no case shall the loading of any "Concrete Block" wall exceed the safe load allowable for "Concrete Block" walls with a factor of safety of ten (10) or one-tenth (1/10) of the ultimate crushing strength, of the wall as laid up in mortar as specified in section two hundred and four B (204-B), below.

(d) In exterior walls of Grade C buildings the walls of the last story above the basement may be reduced to eight (8) inches in thickness, provided that no such wall has a greater horizontal length than thirty (30) feet without a cross wall, or adequate pilaster not less than ninety-six (96) sq. inches in horizontal cross sectional area, in addition to the wall. Such wall reduction shall be limited to fourteen (14) feet in height between finished floor and ceiling.

(e) The interior fire and load bearing "Concrete Block" walls of any Grade D building shall not be less than eight (8) inches thick for the uppermost twenty (20) feet and twelve (12) inches thick for the next lower fourteen (14) feet, in height.

(f) Pipe chases shall not be cut in "Concrete Block" walls or pilasters but shall be provided for by properly formed "Concrete Blocks" approved by the Commissioner of Buildings for the purpose, and no such chase shall be over one-third (⅓) of the thickness of the wall.

(g) The bed of the "Concrete Block" will be considered as the thickness.

(h) Nothing in this section shall prohibit a wall reduction to eight (8) inches for the second story of "Concrete Block" business buildings or structures located outside of the fire district, providing the second story is used exclusively for office or tenement purposes.

(i) The unsupported height of "Concrete Block" piers shall not exceed ten (10) times their least dimension.

Sec. B-203—AGE OF CONCRETE BLOCK:

"Concrete Blocks" shall not be used for building purposes until they are twenty (20) days old, except by special permission in writing

from the Commissioner of Buildings. "Concrete Blocks" which have been cured by any special process may be used before they are twenty (20) days old, but in no case until they are ten (10) days old.

Sec. B-204—CRUSHING STRENGTH:

"Concrete Blocks" shall not be used in any case unless they stand, without showing signs of failure, the ultimate crushing strength of the block thirty (30) days old resulting from an average of three (3) or more units tested by a recognized testing laboratory or any testing laboratory satisfactory to the Commissioner of Buildings, to-wit, as follows:

Ultimate crushing strength in pounds per sq. inch of gross area as laid in the wall.

Average of three (3) tests 800 pounds
Minimum for any one block 600 pounds

The above tests shall be computed over the gross area of the "Concrete Blocks" as laid up in mortar in any wall with no reduction for hollow spaces, by taking the product of the width and the length of the unit. No single "Concrete Block" shall fall below the amount of strength per sq. inch of gross area indicated in the second column.

No single "Concrete Block" shall fall below one thousand (1,000) pounds per sq. inch ultimate compressive strength when calculated on the minimum cross section area bearing either at the top or base of the "Concrete Block."

Sec. B-205—PURE LIME MORTAR CANNOT BE USED:

No pure lime mortar shall be used in the laying of concrete blocks or concrete building tile.

Exception—Lime may be used in cement mortar to temper the same.

Sec. B-206—LAYING OF BLOCKS:

(a) "Concrete Block" laid up in any exterior wall of any building in Indianapolis shall have the ends completely filled solid with mortar, or in lieu thereof a water tight mortar joint not less than three inches in aggregate width.

Note—(1) It is recommended that concrete blocks be used that have a small ledge at each end. This ledge will form a pocket for the mortar.

(2) It is recommended that blocks below the grade have the side next to the solid thoroughly saturated with pitch to exclude moisture.

(b) The bottom courses of "Concrete Block" laid up in any wall of any building or structure shall have a footing under the wall and the same shall be at least four (4) inches thick vertically.

(c) All vertical and horizontal joints must be flushed full in any wall of "Concrete Blocks" in any buildings or structures, with mortar composed of one (1) part cement to six (6) parts clean sharp sand and one (1) part hydrate of lime, proportioned by volume. The mortar used must be mixed in small batches and used immediately.

(d) The last course of "Concrete Blocks" immediately under any joists, beams, door sills or window sills shall be solid blocks.

(e) Piers and buttresses supporting lintels with a load in excess of five (5) tons must be built of solid "Concrete Blocks" for such distance below the bearing as shall be required by the Commissioner of Buildings. Piers and pilasters supporting heavy loads must be built of solid "Concrete Blocks" of "Concrete Blocks" approved by the

Commissioner of Buildings and must be as large in area as required by the load, which in no case is to exceed one-tenth (1/10) of the ultimate crushing strength of the area of support.

(f) Concrete lintels or sills shall be reinforced with steel bars as required by the Commissioner of Buildings. The supports for lintels shall rest upon solid "Concrete Blocks" approved by the Commissioner of Buildings, immediately under the lintels or sill.

Note—It is recommended that lintels in concrete block walls be built into the wall by using forms.

(g) Where walls and piers are built of more than one (1) row of blocks in the thickness of the wall or pier; header courses must be provided every third course of blocks. Blind headers may be used.

(h) Where there is an offset in any "Concrete Block" wall the last course or ledge course of blocks must be made of solid "Concrete Blocks" approved by the Commissioner of Buildings for the purpose.

Note—One course of brickwork will be accepted instead of solid blocks. Solid blocks within the meaning of this paragraph means blocks that have a solid top at least two (2) inches in thickness.

Sec. B-207—USES OF CONCRETE BLOCKS IN BUILDINGS OR STRUCTURES:

(a) Where "Concrete Blocks" are used for chimneys the blocks must be solid and in no case less than eight (8) inches in thickness. The flue must be lined from the top to the bottom with approved fire clay lining.

(b) In "Concrete Block" walls where pilasters or piers are required the same shall be made of solid blocks or hollow blocks filled with concrete from top to bottom of the pilaster or pier.

Sec. B-208—REQUIREMENTS FOR MARKING ALL CONCRETE BLOCKS:

(a) All "Concrete Blocks" shall be marked with the brand of the manufacturer, which brand shall be filed each year with the Commissioner of Buildings not later than March 1st, together with different sizes and classes of blocks manufactured by any person, firm or corporation selling "Concrete Blocks" or manufacturing "Concrete Blocks" for sale within the City of Indianapolis.

(b) All "Concrete Blocks" shall be branded with the date of manufacture.

Sec. B-209—HOLLOW SPACES IN CONCRETE BLOCKS:

(a) No "Dry Block" shall have an air space when laid up in the wall over thirty-three (33) per cent of the total volume of the "Concrete Block" except by special permission in writing from the Commissioner of Buildings.

(b) No "Cast Block" or "Wet Block" shall have an air space when laid up in the wall of over forty-five (45) per cent of the total volume of the "Concrete Block."

(c) Special "Concrete Blocks" shall be made to provide vertical and horizontal chases for pipes and electrical work.

Sec. B-210—WHEN CONCRETE BLOCKS SHALL NOT BE USED:

"Concrete Blocks" shall not be used for partition or bearing walls in oil houses, or any building where explosive fumes are liable to diffuse into the hollow spaces.

Sec. B-211—STEEL REINFORCEMENT:

(a) The reinforcing steel shall be free from excessive rust, scale, paint, oil or coating of any character which will tend to reduce or destroy the bond.

(b) The allowable tension in steel reinforcing shall be eighteen thousand (18,000) pounds per sq. inch for regular structural steel grade and twenty thousand (20,000) pounds for hard steel grade.

(c) The extreme fiber stress in bending for concrete lintels or reinforced concrete wall or slabs shall not be over seven hundred and fifty (750) pounds per square inch.

Sec. B-212—DUTIES OF THE COMMISSIONER OF BUILDINGS:

(a) The Commissioner of Buildings shall require tests from time to time to be made of "Concrete Blocks" manufactured for sale in Indianapolis and located at the place of manufacture or any other premises, the expense of which shall be borne by the manufacturer or owner offering the "Concrete Blocks" for sale in Indianapolis. Such tests may be required as often as the Commissioner of Buildings shall deem necessary and at least once each year to protect the public safety or to satisfy him that the general run of "Concrete Blocks" will stand the required tests as set forth in this Code.

(b) If any "Concrete Block" or Blocks shall fall below the specified minimum test the Commissioner of Buildings may cause the total number of Blocks manufactured of which the tested "Concrete Block" is a part, to be destroyed.

(c) The Commissioner of Buildings or his authorized assistants may cause "Concrete Blocks" less than twenty (20) days old delivered upon any building site in Indianapolis that are to be used in any building or structure, to be tested as required for any "Concrete Block" and shall condemn one or all such "Concrete Blocks" when the same do not comply with ninety (90) per cent of the testing requirements in section two hundred and four (B-204) which tests shall be made by any recognized laboratory, or under the direction of the Commissioner of Buildings.

DIVISION B—PART THREE
ROOF COVERINGS

Sec. B-301—GENERAL REQUIREMENTS:

All buildings and structures hereafter erected, reroofed or repaired in the City of Indianapolis shall have roof coverings of approved material composed of brick, concrete, tile, slate, metal, asbestos shingles, built up roofing felt with gravel or slag surface, built up water-proofed asphalt, built up asbestos, or any other form of roofing material which will stand the test set forth as Class A or B in section 306 or any material which may be approved by the Commissioner of Buildings for the purpose; except any Grade D building, or any structure which does not house more than four (4) families between fire walls, or any fourth class building outside of the fire district which is not used for residence or mercantile purposes and whose roof area does not exceed twenty-five (2,500) hundred square feet and whose height does not exceed one (1) story, or any third or fourth class garage outside of the first fire district which does not house more than four (4) cars, or any such structure which does not house more than four (4) cars between fire walls, or any one (1) story mercantile structure outside of the first fire district whose roof

area does not exceed one thousand (1,000) square feet; shall be provided with approved roof covering which will stand the test of Class C, as set forth in Section B-306, below, or which may be approved by the Commissioner of Buildings for the purpose. Be it further provided that no existing building or new structure shall have its roof covered or repaired, except a permit be issued thereto in advance of the application of the roof covering and a sample of the same submitted for approval to the Commissioner of Buildings by the applicant when a permit is applied for. Such sample shall be six (6) inches by eight (8) inches in area and shall remain the property of the Department of Buildings. Such sample shall bear the name of the roofer, manufacturer of the roofing material, brand, class of roof and the location of the buildings on which the same is to be placed.

Sec. B-302—REPAIRS—SHINGLES—FLASHINGS:

(a) No existing roof shall be repaired or renewed without a permit issued by the Commissioner of Buildings, except repairs to existing roofs, for the purpose of stopping leaks, may be done to the extent of twenty-five (25) dollars in value without a permit.

(b) No existing wood shingle roof within the City of Indianapolis shall be repaired more than twenty (20) per cent of its total area in any one year unless it be repaired with approved roofing as required by this ordinance.

(c) Any porch roof or dormer window roofs which are separated from the main roof of the house shall be considered as separate roofs and the above rule for repairs shall apply to each of them separately.

(d) All counter flashings shall be of metal or built up asbestos roofing material incorporated with the roofing.

Sec. B-303—EXISTING ROOFS:

That any existing roof within the City of Indianapolis which shall be damaged by fire more than twenty (20) percent of its entire area shall be repaired with the approved standard roofing material in the same manner as if it were a new building or structure as provided for in Section three hundred and one (B-301).

Sec. B-304—POWER OF COMMISSIONER OF BUILDINGS:

(a) The Commissioner of Buildings and his authorized assistants shall have the power to condemn any roof which in their opinion is a hazard and shall cause the same to be covered with approved roofing material as set forth in Section three hundred and one (B-301) for new buildings.

(b) In any such case the Commissioner of Buildings or his authorized assistants may order the vacation of any premises upon recommendation of the Board of Public Safety until the roof of said building is properly covered with approved roofing material as required by the Commissioner of Buildings, or set forth in Section three hundred and one (B-301) for new buildings and structures. The Commissioner of Buildings shall cause the application of additional roofing material or he may cause the existing roof to be removed and a proper roof covering applied as set forth in Section three hundred and one (B-301) for new buildings.

Sec. B-305—TESTS ORDERED:

The Commissioner of Buildings or his authorized assistants shall require from time to time or in any case a test to be made of any roofing material by the person or persons, firm or corporation selling

such roofing material or applying the same to any structure in the City of Indianapolis whatsoever. Such tests shall be conducted under the direction of the Commissioner of Buildings as set forth in this Ordinance or at some testing laboratory acceptable to the owner of the roofing material and the Commissioner of Buildings. Such tests shall be conducted at the expense of the owner of the roofing material.

Sec. B-306—CLASSES OF ROOF COVERINGS:

For the purpose of this Ordinance, roofings are divided into three (3) classes as follows:

Class A roofing must be so designed and constructed that it will withstand the Flame Exposure and Radiation Tests, provided for in Section three hundred and eleven (B-311) of this Ordinance, at five (5) and forty (40) mile air currents and the Burning Brand test at five (5) mile air current for at least sixty (60) minutes, and the Burning Brand Test at forty (40) mile air currents for at least thirty (30) minutes, without the spread of fire from the area directly exposed and without sustained ignition of the roof deck. Class A roofing shall be so designed and constructed that it will withstand all of the fire tests throughout their duration without glowing or flaming parts being carried off by the air currents.

Class B roofing must be so designed and constructed that it will withstand the Flame Exposure and Radiation Tests, provided for in Section three hundred and eleven (B-311) of this Ordinance, at five (5) and forty (40) mile air currents and the Burning Brand Test at five (5) mile air currents for at least thirty (30) minutes and the Burning Brand Test at forty (40) mile air currents for at least fifteen (15) minutes, without spread of fire in excess of one-half square foot per minute from the area directly exposed and without sustained ignition of the roof deck. Class B roofing shall be so designed and constructed that it will withstand all of the fire tests throughout their duration without any glowing or flaming parts being carried off by air currents.

Class C roofing must be so designed and constructed that it will withstand all of the fire tests provided for in Section three hundred and eleven (B-311), for at least five (5) minutes without the spread of fire in excess of five (5) sq. feet per minute from the area directly exposed and without sustained ignition all of the fire tests throughout their duration without glowing or flaming of the roof deck. Class C roofing shall be so designed and constructed that it will withstand parts of size being carried off by the air currents. Class C roofing must be so designed and constructed as to weigh not less than fifty-five (55) pounds per one hundred (100) square feet, before the slag surface is applied.

Sec. B-307—DEADENING FELT:

A layer of deadening felt at least one-sixteenth (1/16) inch thick shall be placed between metal roofing and the supporting wood work.

Sec. B-308—PARTY WALLS:

The wooden planking, roofing and sheathing shall not in any case be extended across the side or party walls.

Sec. B-309—SIDES OF BUILDINGS:

The top and sides of dormer windows shall be protected the same as the roof, or with other material having equivalent fire resistive properties. No wooden shingles may be used on the sides of any

structure unless they are at least five-eighths (⅝) of an inch thick or have been approved.

Sec. B-310—CONDEMNATION OF ROOFS:

The Commissioner of Buildings shall have the power to condemn and have removed any wood shingle roof that is in such deteriorated condition as to be excessively inflammable.

Sec. B-311—APPROVAL:

All roofing material hereafter used in the City of Indianapolis within the requirements of this Ordinance, must withstand the following tests for approval.

Sec. B-312—TEST REQUIREMENTS:

(a) For the purpose of making tests a standard deck must be made according to the following specifications: eight (8) feet long by seven (7) feet wide made of kiln-dried white pine boards eight (8) inches wide and seven-eighths (⅞) of an inch in thickness, free from large or loose knots, sap wood or dry rot. The boards must be dressed on one (1) side and two (2) edges and laid across a seven (7) foot dimension of the deck with the rough sides up and spaced one-fourth (¼) of an inch and nailed to four (4) two (2) by four (4) inch yellow pine battens on the under side of the deck. Two (2) of the battens are located along the under side and two (2) twenty-one (21) inches from these edges. The surface of the deck to be made as true and even as possible.

Sec. B-313—SAMPLES OF ROOF COVERINGS:

Test samples in which prepared roofing containing bituminous materials are used must be selected from stock between the thirtieth (30th) and sixtieth (60th) day after the roofing is manufactured. These samples must be stored for thirty (30) days in freely circulating dry air at temperatures not less than fifty (50) degrees nor more than eighty-five (85) degrees Fahrenheit before they are tested.

Sec. B-314—FLAME EXPOSURE TEST:

Two standard tests shall be subjected to the standard frame exposure tests in which the upper surface of the roof covering under investigation is subjected to the direct application of a gas flame over an area approximately six (6) square feet. One sample shall be tested and subjected to air currents having temperatures between fifty (50) and sixty-five (65) degrees Fahrenheit and a velocity of approximately five (5) miles per hour. The other sample shall be tested under the same conditions except that the air currents shall be approximately forty (40) miles per hour.

Sec. B-315—RADIATION TEST:

The standards test samples shall be subjected to the standard radiation test in which the upper surface of the roof covering under investigation is subjected to a temperature of twelve hundred (1,200) degrees Fahrenheit. One sample shall be tested and subjected to air currents having temperatures between fifty (50) and sixty-five (65) degrees Fahrenheit and a velocity of approximately five (5) miles per hour. The other sample shall be tested under the same general conditions except that the air currents shall be approximately forty (40) miles per hour.

Sec. B-316—BURNING BRAND TEST:

Samples shall be subjected to burning brand tests in which the upper surface of the roof covering under investigation is subjected

to the direct application of a glowing brand thirty-six (36) inches square; one (1) sample shall be tested while subjected to air currents having temperatures between fifty (50) and sixty-five (65) degrees Fahrenheit, and a velocity of approximately five (5) miles per hour, and the other sample shall be tested under the same conditions except that the air currents shall be approximately forty (40) miles per hour. The glowing brand shall be made of at least ten (10) strips of seasoned hard maple two (2) inches square by three (3) feet long formed into a frame or grid with a one and three-quarters (1¾) inch space between strips. The complete gird shall be thoroughly ignited and burning before application of the roof sample, which later shall extend on the side at least eighteen (18) inches beyond the edge of the gird.

Sec. B-317—HANDLING OF ROOFING:

It shall be unlawful for any person, firm or corporation to store, handle or maintain any roof covering material in the City of Indianolis, for the purpose of sale, to place same on the roof of any building or structure in the City of Indianapolis which roofing does not comply with the requirements of this Code.

Sec. B-318—EXPANSION:

Proper provision shall be made for expansion. Special care must be taken to provide expansion joints in metal roofing material.

DIVISION B—PART FOUR
ADVERTISING DISPLAY

Sec. B-401—ERECTION PERMITS WILL NOT BE REQUIRED:

Erection permits will not be required for any temporary muslin advertising displays of less than one hundred (100) square feet in area not erected over the public highway. Erection permits will not be required for the painting of any advertising display upon any wall. Erection permits will not be required for signs less than twenty-five (25) square feet in area advertising real estate, providing the same shall be erected upon the natural grade of any lot and maintained at least twenty (20) feet back from the zoning line and not over ten (10) feet above the ground.

Muslin advertising for transient shows and circuses may be posted in the city after application to the Commissioner of Buildings and the submission of a cash bond guarantee that such advertising will be removed not later than the day the show or circus is in the city. Such bond shall never be less than one hundred (100) dollars and shall not be returned to the company posting such muslin displays until all such displays have been removed and a certificate of removal issued by the Bureau of Buildings.

Note—All such shows shall take out a license to show. Such license fee includes the advertising display fee.

Sec. B-402—DRAWINGS AND SPECIFICATIONS:

Permits for advertising displays shall be granted only on the basis of representations made by proper structural blue prints in duplicate and specifications submitted to the Commissioner of Buildings, indicating the location, disposition, quality of materials and workmanship, with full dimensions and describing the manner of fastening the same to the structure as hereinafter provided. For roof signs a structural detailed blue print of the roof construction of the building must also be submitted. (See section A-210.)

Sec. B-403—BOND:

Every person, firm or corporation engaged in the business of repairing, erecting, painting or hanging advertising displays over the public highways, shall annually file with the City Controller, a good and sufficient Surety Bond, in a penal sum of five thousand (5,000) dollars, to indemnify, save and keep harmless the City of Indianapolis, from any and all causes, damages and expenses of any kind whatsoever, which may be suffered by the City because of neglect on the part of such persons, firm or corporation constructing, repairing, hanging, painting or erecting such advertising displays over the public highway.

Such bond shall be filed with the City Controller not later than March 1 of each calendar year, and failure to furnish this bond shall carry with it a penalty upon conviction of ten (10) dollars to one hundred (100) dollars. Each day after March 1, shall constitute a separate offense .

Sec. B-404—STREET SIGNS:

(a) All street signs erected or maintained in the City of Indianapolis shall be constructed of non-combustible material approved by the Commissioner of Buildings for this purpose.

(b) No street sign can be erected to a greater height than seventy-five (75) feet above the curb of the adjoining street in any case, and in no case above the cornice of any building; three (3) stories or over in height, unless the same be of steel skeleton construction above the cornice, presenting only forty (40) per cent of the solid surface to be affected by wind pressure.

(c) All street signs now or hereafter erected within the fire limits shall be electrically illuminated advertising displays of metal or other non-combustible material. No street sign shall project from the structural part of the building and over the public highway, more than one-third (⅓) of the width of the sidewalk measuring from the city property line to the curb and no such advertising display shall be at less distance than nine (9) feet above the grade of the sidewalk of a public thoroughfare, or fourteen (14) feet above a public thoroughfare where there is no sidewalk and more than nine (9) feet from the property line in any case. Show cases or other devices which project more than fifteen (15) inches from the property line into the public highway, will be classed as street signs under this Code.

Exception: Fireproof illuminated displays suspended from a canopy.

(d) Fireproof illuminated street signs shall be permitted on or hung to fireproof canopies, but no such street sign shall be at a less distance than nine (9) feet above the sidewalk or curb. No street sign shall be permitted when the area of one (1) face shall exceed two hundred and forty (240) square feet.

(e) In any restricted business district as defined by the zoning laws or ordinances, no street sign will be permitted nor will any projecting sign that projects more than fifteen (15) inches from the building line. Existing street and projecting signs shall be inspected and the reinspection fees paid for the same. If any such sign shall be removed for any cause whatsoever the same shall not be replaced. If any such sign shall be condemned it shall not be replaced.

Sec. B-405—WIND PRESSURE:

All advertising displays now in existence or hereafter erected and maintained, shall be made, constructed and maintained of sufficient

strength to withstand a wind pressure of twenty (20) pounds per square foot of surface, without stressing the material beyond the safe limit of stress.

Sec. B-406—WIRING OF ADVERTISING DISPLAYS (See Sec. D-2802).

(a) All wiring and apparatus in electric advertising displays of whatever their character, shall be installed in accordance with the rules and requirements as follows:

Every such advertising display must be constructed so as to secure ample strength and rigidity; every such advertising display shall have the receptacles so designed as to afford permanent and reliable means to prevent possible turning. They shall be designed and placd so that terminals will be at least one-half (½) inch from each other and from the metal of the advertising display; except in open work, this distance shall be increased to one (1) inch. Every such advertising display must be constructed weather-proof in order to enclose all terminals and wiring except the supply leads. Transformers unless of the weather-proof type; also, cut-outs, flashers and other similar devices must be placed in a separate completely enclosed accessible weatherproof box or cabinet made of metal not less than the thickness of the advertising display itself. If the above devices are otherwise located they must be enclosed in approved cut-out boxes or cabinets. Each compartment must have suitable provisions for drainage through one or more holes not less than one-quarter (¼) of an inch in diameter. Miniature receptacles will not be approved for use in outdoor advertising displays. In every such advertising display, the wiring must be neatly run and made mechanically secure. All connections must be thoroughly soldered and all exposed parts treated to prevent corrosion. Where advertising display wiring passes through walls or partitions within the advertising display itself, the same must be protected by standard bushings. In advertising displays where receptacles maintain the wire one (1) inch from any surface the receptacles may be placed as much as twelve (12) inches apart without any other support for the wire. Where the receptacles are more than one (1) foot and less than two (2) feet apart, one (1) additional non-combustible, non-absorptive insulator shall be placed half-way between the receptacles, to maintain the wire in position. Except as above specified, wires must be kept at least two and one-half (2½) inches apart for voltages up to three hundred (300), and four (4) inches apart for voltages over three hundred (300). Wires on the outside of the body of the advertising display must be in standard conduit with all fittings of approved weatherproof type.

(b) Advertising displays constructed with separate letters on metal screens or other supported structure, and all advertising displays whose sections are widely separated from each other, must be completely wired in conduit, except when in the opinion of the Commissioner of Buildings, other methods may prove as safe. This applies to temporary as well as permanent advertising displays. Standard weather-proof cut-out boxes and cabinets must be used when the same are exposed to the weather, such boxes must be of cast metal or hot galvanized sheet metal. Cabinets, cut-out boxes and fittings must be provided with threaded connections for the reception of the conduit which enters them. Junction boxes must be gasketed and made water-tight with a conduit arranged for drainage. Lock-nuts and

bushings will not be approved for conduit work when they are exposed to the weather.

(c) Leads from the advertising display must pass through the walls of the advertising display, through either standard metal conduit and armored cable or one or more standard non-combustible, non-absorbing bushings. Mains feeding advertising displays must be calculated for a capacity of the total connected load, figuring at least ten (10) watts for each receptacle. Exterior advertising displays may be connected to interior lighting circuits, when the total load does not exceed six hundred and sixty (660) watts and in no case, however, may an advertising display be connected to a show window circuit. Outside advertising displays shall be controlled by accessible switches, which shall cut off entirely all wires to the advertising display. All metal electric advertising displays must be thoroughly grounded.

Sec. B-407—SUPPORTS AND GUYS:

(a) Street signs weighing less than seventy-five (75) pounds must be provided with one main supporting chain or guy wire. Such chain or guy wire must have a breaking strength of not less than thirteen hundred (1300) pounds.

(b) The supporting chain or guy wire must be secured to a bolt no less than five-eighths (⅝) of an inch in diameter, secured by an expansion shield or other method approved by the Commissioner of Buildings.

(c) Street signs weighing between seventy-five (75) and one hundred and fifty (150) pounds must be provided with two (2) main supporting chains or guy wires. The said chains or guy wires must each have a breaking strength of not less than fifteen hundred (1500) pounds. The supporting chains or guy wires must be attached to bolts of not less than five-eighths (⅝) of an inch in diameter, secured by expansion shields or other approved supports.

(d) Street signs weighing between one hundred and fifty (150) and two hundred and fifty (250) pounds must be provided with two (2) supporting chains or guy wires. Said chain or guy wires must each have a breaking strength of not less than three thousand (3,000) pounds. The supporting chains or guy wires must be attached to bolts of not less than five-eighths (⅝) of an inch in diameter and the same secured by expansion shields or other approved method.

(e) No supporting chain shall be erected or maintained at an angle of less than thirty (30) degrees with the horizontal.

(f) Street signs having thirty (30) square feet or less of side surface and equipped with guys spread at an angle of more than forty-five (45) degrees, must be supported by chains or guy wires of a breaking strength of not less than thirteen hundred (1300) pounds each. Street signs of this area that are supported by guys spread at an angle of less than forty-five (45) degrees must be supported by chain or guy wires of a breaking strength of not less than three thousand (3,000) pounds each. Street signs having an area of more than thirty (30) square feet of side surface supported by guys spread at an angle of more than forty-five (45) degrees shall be supported by two (2) chains or guy wires fastened to each side of the street signs. The breaking strength of said chain shall be not less than thirteen hundred (1300) pounds each. Street signs of this area and supported by guys spread at an angle of less than forty-five (45) degrees shall be supported by two (2) chains or guys fas-

tened on each side of the street sign. The breaking strength of said chains shall be not less than three thousand (3,000) pounds each. Where the said guys can be attached to only one (1) side of the street sign a stiff brace or steel pipe shall be provided not less than three-fourths (¾) of an inch in diameter for street signs of less than thirty (30) square feet side area and one (1) inch for street signs over thirty (30) square feet side area.

(g) Side guys used on street signs spread at an angle greater than forty-five (45) degrees may be fastened to masonry walls with expansion bolts or by machine screws in iron supports. Where supporting chains must be fastened to walls made of wood, the supporting bolts must go clear through the wall and be fastened on the other side.

(h) No staple shall be used to secure any advertising display to any building or structure unless the display weighs less than eight (8) ounces.

(i) In any advertising display the extreme fiber stress to be used for steel shall not exceed sixteen thousand (16,000) pounds per square inch, and for wood, the extreme fiber stress shall not exceed one thousand (1,000) pounds per square inch.

(j) In any advertising display the effective or unsupported length of the main compression members shall not exceed one hundred and twenty (120) times, and for the secondary members two hundred (200) times the least radius of gyration.

Sec. B-408—APPROVAL OF SIGN INSPECTOR:

All electrically illuminated advertising displays must be approved by the sign inspector and a tag placed thereon to indicate approval, before such display may be used.

Sec. B-409—GLASS IN STREET SIGNS AND CANOPIES:

(a) Ornamental or plain glass shall not be permitted to be hung from any canopy which extends over the public highway within the City of Indianapolis unless the glass is supported around the entire edge by a substantial metal supporting rib, approved by the Commissioner of Buildings. Such glass shall be limited to one hundred (100) square inches in area between any one set of metal supporting rules.

(b) Exposed glass area in any advertising display shall be permitted only when the area between any one set of metal ribs is not greater than one hundred (100) square inches for each and every separate piece of exposed glass. The Commissioner of Buildings shall approve larger areas of exposed glass when wired glass or one-quarter (¼) inch wire mesh in front of the glass is used, providing in no case shall the exposed glass area of the wired glass or wire mesh be greater than eight (8) square feet.

(c) All metal supporting ribs in any advertising display shall be designed to cover at least one-half (½) inch of the exposed glass, except through the stroke of any letter or design the rib may be one-quarter (¼) of an inch in width.

(d) In case a picture or fancy design is to be used in an exposed area of any advertising display, not over two (2) open spaces of not exceeding one hundred and fifty (150) square inches each may be permitted in one (1) advertising display.

Sec. B-410—ROOF SIGNS:

(a) It shall be unlawful for any person, firm or corporation to construct, erect or maintain any solid face advertising display upon a roof of any building over two (2) stories in height.

(b) No solid face roof sign shall be more than fourteen (14) feet in its vertical height measured from the top of the roof to the roof of any building two (2) stories in height, except the Commissioner of Buildings may permit a projector sign of not over four hundred (400) square feet in area to be erected at a greater height, when the same is erected farther back from the property line than the height of the advertising display and that the same shall be of steel skeleton construction with fire-proof face. Such a sign shall conform to all the regulations as set forth in this Ordinance.

(c) No solid face roof sign shall be more than sixteen (16) feet in its vertical height measured from the top of the sign to the roof of any building one (1) story in height.

(d) No solid face roof sign erected as specified above shall be constructed so the lower edge shall be less than three (3) feet above the surface of the said roof and every such roof sign shall be constructed with steel skeleton construction, provided at least a two (2) by four (4) inch wood filler may be used to hold the outer edge of the metal sheets in the face.

(e) All roof signs shall be constructed of incombustible material.

Sec. B-411—CONSTRUCTION OF SIGN BOARDS AND BILL BOARDS:

It shall also be unlawful for any person, firm or corporation to construct, erect or maintain any signboard or billboard within the City of Indianapolis, at a greater height than fourteen (14) feet six (6) inches above the level of the ground upon which such signboard or billboard is erected. The face of every such signboard or billboard within the fire limits of Indianapolis shall be of incombustible material. In all cases every signboard or billboard erected on any open space shall have its base at least two (2) feet six (6) inches above the adjoining street; but if the level of the ground where the signboard is to be erected is above the level of the adjoining street, then the bottom of the face of the signboard or billboard must be at least two (2) feet six (6) inches above the level of the ground at the point where the board is to be erected. All such signboards or billboards erected outside of the fire limits may be of combustible material. In no case shall a signboard or billboard be erected nearer than ten (10) feet of any Grade C, Grade D or frame building or structure.

(b) Nothing in this section shall prohibit the painting of wall signs or wall signboards upon any wall at any height in the City of Indianapolis.

Sec. B-412—SANITARY CONDITIONS:

Any person, firm or corporation who shall maintain any signboard or billboard or other structure for advertising purposes shall keep the same in a sanitary condition and shall not allow waste or refuse from the said display or other structure to accumulate on or about the premises on which the same is located.

Sec. B-413—OBSCENE ADVERTISING:

No advertising of immoral or obscene character shall be posted, painted or displayed upon any advertising displays or other such structures within the City of Indianapolis.

Sec. B-414—ADVERTISING MUST NOT INTERFERE WITH THE OPERATION OF THE FIRE DEPARTMENT:

No advertising display shall be constructed, maintained or erected in any way that the same will interfere with the proper and convenient protection of property by the Fire Department or in any way conflict with public safety or convenience, nor shall any windows or doors be obstructed or the openings thereof be interfered with by any advertising display nor shall any advertising display be attached in any form, shape or manner to fire escapes or in any such manner as will obstruct the use of the same, except temporary flat advertising displays may be used over windows when in the opinion of the Fire Chief, the same will not interfere with the Fire Department.

Sec. B-415—REMOVAL OF FIRE ESCAPES:

In no case may a fire escape be removed for the erection of an advertising display of whatever character or for any other cause without the written consent of the Board of Public Safety upon affidavit that the same fire escape is no longer necessary for the public safety and the conditions of occupancy are to remain the same hereafter. Such written proof is to remain the property of the Board of Public Safety.

Sec. B-416—TEMPORARY FLAT ADVERTISING DISPLAYS:

Temporary canvas or muslin flat advertising displays of over one hundred (100) square feet in area may be erected and maintained in front of any place of business for a period of sixty (60) days after written application to the Commissioner of Buildings and his written consent to the same, provided the same do not interfere with the operation of the Fire Department; and shall advertise only wares or goods sold by the occupant of the building; and are not maintained over the public highway. The maintenance of such an advertising display after the expiration of the sixty (60) days is prohibited and the illegal maintenance thereof shall carry with it a penalty on conviction of one (1) dollar for each day after the expiration of the sixty (60) day permit.

Sec. B-417—TEMPORARY BANNERS:

Temporary banners may be erected, maintained and suspended across streets or avenues when properly attached to the buildings or other supports on either side of the street, for a period of not over sixty (60) days, upon written application to the Board of Public Safety and their written consent to the same. In all such cases the consent of the owner of the buildings to which the banner supports are attached must accompany the application to the Board of Public Safety. In no case shall the lower part of such banner be less than twenty-five (25) feet above the surface of the street or avenue. No such advertising can be hung without a permit and inspection made by the Department of Buildings. The Board of Public Safety may exempt Federal, State or Municipal advertising banners from paying the permit fee if they see fit, when the same is hung over the public highway as stipulated above.

Sec. B-418—ILLUMINATED ROOF SIGNS:

Illuminated roof signs erected or maintained upon or over the roof of any building which shall have all or any part of its letters constructed either in outline or incandescent lamps or which may have painted flush or raised letters; and whose face presents a sur-

face to be affected by wind pressure, shall be constructed with a steel skeleton construction.

The distance between the roof of the building or structure and the lower edge of an illuminated roof sign shall not be less than five (5) feet, and the height of any such sign measured from the roof of a building or structure, to which the same is anchored or attached. The uppermost part of the sign shall not exceed forty (40) feet in any case.

No such roof sign shall be constructed or maintained on any building or structure when such sign presents more than forty (40) per cent of solid surface to the wind.

Sec. B-419—LOCATION OF SIGNBOARD AND BILLBOARDS:

It shall be unlawful for any person, firm or corporation to erect, maintain or construct any signboard or billboard upon any lot or premises, or in any district of the City of Indianapolis, in such manner, that any portion of such signboard or billboard is nearer to the line of any public sidewalk, the public highway or established building line than ten (10) feet back of the same and nearer than five (5) feet to the side property line of the lot on which said signboard or billboard is erected, and in no case shall the same be erected nearer the public highway than the front line of the adjoining property or zoning line; except as otherwise provided for in this Ordinance for real estate signs, and no such signboard or billboard facing the corner of intersecting streets shall be erected on an angle of more than forty-five (45) degrees or less than thirty (30) degrees with either of the streets.

Exception—Special permission.

Sec. B-420—REMOVAL OF SIGNBOARDS AND BILLBOARDS:

Any signboard or billboard which has been erected for a period of one (1) year or more in any square or upon any lot in the City of Indianapolis shall be removed by the owner thereof within one (1) year from the time of receipt of a written notice from the Commissioner of Buildings that a majority of the occupants and resident property owners within one hundred and fifty (150) feet of the said signboard or a majority of the owners of real estate within the said one hundred and fifty (150) feet of the signboard or billboard have signed and filed in the office of the Commissioner of Buildings a written affidavit for the removal of such signboard or billboard. If the owners of such signboard or billboard do not remove the same within one (1) year, the Board of Public Safety shall cause the same to be wrecked or removed from the premises.

Sec. B-421—ADVERTISING DISPLAYS IN THE FIRE DISTRICT—

All advertising displays erected or maintained within the fire limits shall be made entirely of incombustible material except any sign, signboard or billboard, which is erected or maintained less than fourteen (14) feet six (6) inches above the established grade may have the stringers, uprights and braces made of wood.

Sec. B-422—SIDEWALK SHEDS—TOOL HOUSES AND CONTRACTORS' OFFICES:

Wooden sidewalk sheds, tool houses or contractors' offices erected as an adjunct to the construction of a building may be advertised

upon by the construction companies, or may be advertised upon by any other firm, person or corporation expecting to occupy the new building, upon written application to and after written consent from the Commissioner of Buildings. Such advertising displays may be made of combustible material. Such advertising displays less than twelve (12) square feet in area shall be exempt from an erection permit when maintained flat against the wall of the sidewalk, shed, tool house or contractor's office.

Sec. B-423—LICENSE FOR ATTACHING ADVERTISING DISPLAYS LESS THAN TWENTY-EIGHT SQUARE FEET IN AREA TO BILLBOARDS—LICENSE COLLECTIVE ERECTION PERMIT FOR SIGNS LESS THAN TWELVE SQUARE FEET IN AREA:

(a) Any person, firm or corporation who wishes to use any article, device, box, wall, fence, building or structure not located in or on any public highway for advertising display purposes which shall have a display area in each case of less than twenty-eight (28) square feet shall obtain after application to the Commissioner of Buildings a license from the City Controller for the maintenance of a billboard thereon without having to attach the inspector's tag hereinafter described, provided the said person, firm or corporation maintaining such billboards shall have first obtained for each and every man attaching displays thereto the aforesaid license.

(b) Any person, firm or corporation who wishes to use any article, device, box, wall, fence, building or structure not located in or on any public highway for advertising display purposes may obtain after application to the Commissoner of Buildings a license from the City Controller for the attaching and maintenance of signs thereon of less than twelve (12) square feet in area in each case without having to attach the inspectors' tag hereinafter described; provided the said person, firm or corporation having such signs attached shall have first obtained for each and every man attaching said signs the aforesaid license.

This license shall be known as a Billposters' and Sign Attachers' License, shall be issued by the City Controller for a period of one (1) year and shall be taken out by each and every person attaching signs, less than twelve (12) square feet in area or posting bills less than twenty-eight (28) square feet in area within the City of Indianapolis; upon payment of ten (10) dollars to the said City Controller after application to the Commissioner of Buildings. This license must be taken out between January 1 and March 1, and shall not be prorated.

Sec. B-424—REQUIREMENTS FOR THE INSPECTION TAG OWNERS' NAME AND NUMBER OF BILLPOSTERS AND SIGN ATTACHERS' LICENSE:

(a) No permit shall be issued to any applicant for permission to erect, attach, maintain or construct any signboard, or any billboard over twenty-eight (28) square feet in area; or any solid face roof sign unless such applicant shall agree to maintain on the top of such advertising display the name of the person, firm or corporation owning or in charge of the same or in possession or control thereof.

(b) No license shall be issued to any applicant for a Billposters' and Sign Attachers' License unless the holder of the same agrees to maintain on each and every advertising display under the Billposters' and Sign Attachers' License the number of the license. This

number shall be so displayed in character one-quarter (¼) of an inch in height, that it is readable at all times during the maintenance of the advertising display.

(c) No permit shall be issued to any applicant to erect, attach, maintain or construct, except as otherwise provided for in this Ordinance, any billboard over twenty-eight (28) square feet in area, any roof sign, any street sign, or any electric wall sign unless the applicant further agrees to maintain on the advertising display in full view of the public, a numbered inspection tag which shall be issued yearly by the City Controller upon the payment of the inspection fees by the applicant as set forth in this Ordinance. Any advertising display which is maintained less than fourteen (14) feet six (6) inches above the curb of the adjoining street shall have the numbered inspection tag maintained in the upper left hand corner on a provided space at least six (6) by eight (8) inches. For any street sign or electric wall sign the inspection tag shall be maintained anywhere on the sign in full view of the public. For roof signs maintained fourteen (14) feet six (6) inches above the grade the inspection tag shall be maintained in the lower left hand corner.

(d) The latest date in each calendar year which shall be allowed for failure to post said inspection tag upon any of the aforesaid advertising display shall be July 1st of the same year for inspection fees paid for the entire year and shall not be over thirty (30) days from the date a permit is taken out covering any period less than a year and after July 1st.

(e) Be if further provided that on all street signs, electric wall signs, solid face or skeleton construction roof signs of whatever character there will be maintained upon their outer face the name of the person, firm or corporation erecting the same in characters legible and at least one (1) inch high.

(f) It shall be the duty of the Commissioner of Buildings to see that the person, firm or corporation owning, in possession, in charge or control of any advertising display to keep their name thereon as required by this Ordinance and also to see that the inspection tag is placed on all advertising displays as provided for in this Ordinance.

(g) No inspection tag shall be transferred from one location to another without the consent of the Commissioner of Buildings.

Sec. B-425—ILLEGAL ADVERTISING DISPLAYS:

In case any advertising display shall be maintained thirty (30) days after the delinquent date without the owner, person, firm or corporation in charge or control of the same having applied to the Commissioner of Buildings for inspection permit and the payment of the inspection fees to the City Controller the said display shall be construed to be an illegal display and the same caused to be removed or wrecked by the Board of Public Safety.

Any advertising display which shall come under the classification of a sign less than twelve (12) square feet in area or a billboard less than twenty-eight (28) square feet in area may be removed by any person in authority if the license number of the Billposters' and Sign-Attachers' License does not appear thereon.

Sec. B-426—OWNER'S RESPONSIBILITY:

Any person, firm or corporation in charge or control of any advertising display shall maintain such display in a safe and durable manner in accordance with the provisions of this Code and when,

they attach the inspection tag shall see that the display is intact and if repairs are needed, that such repairs are made to weakened parts due to weather or other causes, and that all steel or noncombustible street signs and steel skeleton roof signs are kept painted to prevent weathering.

Sec. B-427—PROPERTY OF PUBLIC UTILITIES:

Nothing in this Code shall be construed to permit any advertising display to be attached to any property of a public utility which property is in, on or over the public highway, except street and interurban cars.

Sec. B-428—DUTIES OF THE COMMISSIONER OF BUILDINGS:

It is hereby made the duty of the Commissioner of Buildings to exercise supervision over all advertising displays erected or being maintained under the provisions of this ordinance and to cause inspection by inspectors of his department, of all advertising displays; and when complaints are made in writing to cause inspection to be made within twenty-four (24) hours thereafter, and whenever it shall appear to the said Commissioner that any such advertising display has been erected in violation of this Ordinance or is in an unsafe condition or appears to be a menace to the safety or health or convenience of the public he shall thereupon issue or cause to be issued a notice in writing to the owner of such advertising display or person in charge, possession or control thereof informing such person, firm or corporation of the condition of the said advertising display and directing the owner thereof to make such alterations or repairs thereto as may be set out in the notice and stipulating a period of time for the owner to comply with the requirements. If the owner or person in charge, possession or control of any such advertising display when so notified shall refuse, fail or neglect to comply with, and conform to the requirements of said notice, said Commissioner shall upon the expiration of the time therein mentioned, alter, change, tear down or cause to be torn down such part of such advertising display as is constructed and maintained in violation of this Ordinance and shall charge the expense to the owner or person in possession, charge or control of such advertising display which shall be recovered from them by appropriate legal procedures. If the owners or person in charge, possession or control of said advertising display cannot be found, or his or their whereabouts cannot be ascertained, the Commissioner shall attach or cause to be attached to such advertising display or the building or premises on which the same is located, a notice of the same import as that required to be sent to the owner, person, firm or corporation, in charge, possession or control thereof. If such advertising display is not made to conform to the orders of the Commissioner of Buildings within thirty (30) days from the date of the posted notice it shall be the duty of the said Commissioner of Buildings to thereupon cause such advertising display to either be repaired according to the requirements of this Ordinance or torn down. Nothing herein contained shall prevent the Commissioner of Buildings from adopting such precautionary measures as may be necessary or advisable to fasten, support or maintain any advertising display in a safe condition, the expense of which shall be charged to and recovered from the owner of such advertising display or person in charge, possession or control thereof by any appropriate legal procedure.

Sec. B-429—ADVERTISING DISPLAYS ON THE PUBLIC HIGHWAY:

It shall hereafter be unlawful for any person to erect, place or attach any advertising display of any size to any pole, box, device or structure located on the public highway; or to any fence, building or structure located on the city's property line of the street and adjacent to the public highway unless such advertising display is erected at least ten (10) feet above the grade of the sidewalk or public highway.

Exception—(1) Interurbans, street cars and vehicles.

(2) Advertising displays for which a permit has been issued as provided for by this Code.

(3) Advertising displays provided for by this Code.

DIVISION B—PART FIVE

Sec. B-501—QUALITY OF REINFORCING STEEL—REINFORCED CONCRETE STRESSES:

(a) All reinforcing bars for reinforced concrete, except upon special permission from the Commissioner of Buildings, shall be corrugated, upset or other rough steel bars that will thoroughly bond with the concrete. Such bars shall be free from scale, oil, acids, or other deleterious matter that will tend to destroy the bond between the steel and concrete.

(b) Re-rolled rail steel may be used upon satisfactory proof by tension and bending tests under the direction of the Commissioner of Buildings that such steel will satisfactorily meet the requirements of this Code.

(c) The stresses for steel to be used in reinforced concrete shall not exceed the following in any case or the working stress shall never exceed one-fourth (¼) of the ultimate strength of the steel bar.

	Tensile
Structural Grade	18,000 Pounds per sq. inch
Intermediate or Hard Steel Grade	20,000 " " " "
Re-rolled rail steel grade	20,000 " " " "

Note—Any other re-rolled steel is prohibited.

(d) The shear in steel shall never exceed 12,000 pounds per sq. inch when used in reinforced concrete construction.

(e) The compressive stress in the steel shall never exceed the product of the compressive stress in concrete multiplied by the elastic modulus of the steel and divided by the elastic modulus of the concrete. (Young's Modulus.)

Direct compression in concrete shall not exceed twenty-five (25) per cent of its ultimate strength.

(f) Bending in extreme fibre of concrete shall not exceed thirty-seven and one-half (37½) per cent of the ultimate strength.

Note—Seven hundred and fifty (750) pounds per square inch for two thousand (2,000) pounds concrete.

(g) The allowable unit of adhesion between the concrete and steel shall be as follows:

(a) For plain bars $u=0.04f'c$

(b) For deformed bars $u=0.05f'c$

u=allowable bond stress per square inch.

f'c=ultimate strength of concrete at the age of twenty-eight (28) days.

(h) Calculations of the strength of concrete shall be based upon the ultimate strength of the concrete twenty-eight (28) days old,

designated as (u) the ultimate strength in pounds per square inch. This compressive strength shall be determined in accordance with Standard Specifications approved by the Commissioner of Buildings.

(i) Calculations of strength of reinforced concrete shall be based upon the ultimate strength of the reinforced concrete twenty-eight (28) days old, designated as (u) the ultimate strength in pounds per inch.

(j) The modulus of elasticity of steel to that of concrete shall be taken as follows for different mixtures unless tests under the direction of the Commissioner of Buildings shall prove otherwise. The minimum strength of concrete for the mixtures given below shall be as follows unless tests in accordance with standard specifications approved by the Commissioner of Buildings shall prove otherwise.

Mixture	"U"	"R"
1 cement, 3 aggregates	2,900 Pounds Sq. In.	10
1 cement, 4 aggregates	2,400 Pounds Sq. In.	12
1 cement, 5 aggregates	2,000 Pounds Sq. In.	15

(k) Bending Test Requirements:

Thickness or Diameter of Bar	Plain Bars			Deformed Bars			Cold Twisted Bars
	Structural Steel Grade	Rerolled Rail Steel Grade	Hard Grade	Structural Steel Grade	Rerolled Rail Steel Grade	Hard Grade	
Under ¾ Inch	180 Deg d=t	180 Deg. d=2t	180 D d=3t	180 D d=t	180 D d=3t	180 D d=4t	180 D d=2t
¾ Inch or Over	180 Deg. d=t	90 Deg. d=3t	90 D d=3t	180 D d=2t	90 D d=3t	90 D d=4t	180 D d=3t

Explanatory Note—
d=the diameter of pin about which the specimen is bent.
t=the thickness or diameter of the specimen.

(l) All reinforcing steel specified on plans shall be shown by number and size of bars and not by area required. The number and size of all stirrups shall be specified on the plans.

Sec. B-502—DESIGN FOR SLABS, BEAMS AND GIRDERS:

(a) Reinforced concrete slabs, beams and girders shall be designed in accordance with the following assumption and requirements:

(1) The common theory of flexure shall be applied to beams and members resisting bending.

(2) The steel is to take all the direct tensile stresses.

(3) The stress strain curve of concrete in compression shall be taken as a straight line.

(b) Except by special permission, no beams shall be less in depth in inches than the net span of the same in feet. This provision does not apply to joists; in tile and joists; metal tile and joists; or wood form joist construction.

Sec. B-503—MOMENTS OF EXTERNAL FORCES:

(a) The bending moment of slabs, beams and girders uniformly loaded and simply supported shall be taken as $\frac{WL}{8}$

(b) The bending moments at the center and at intermediate supports of floor slabs, beams and girders continuous over two (2) or more supports shall be taken at $\frac{WL}{12}$

(c) Slabs, beams and girders supported at one end and continuous at the other shall be considered as partially restrained with a bending moment of $\frac{WL}{10}$

(d) The term (W) equals the total load and (L) equals the span. Where bending moment of $\frac{WL}{8}$ is taken the span (L) shall be the net span. Where a bending moment of $\frac{WL}{10}$ is taken the span (L) shall be the distance from the center of the intermediate support to the inside face of the outside support. Where a bending moment of $\frac{WL}{12}$ is taken the span (L) shall be the distance, center to center of supports.

(e) The bending moment over supports shall be such that the sum of the positive bending moment at the center of the span and the negative bending moment over one support shall not be less than $\frac{WL}{6}$ and the negative bending moment over a support shall never be less than $\frac{WL}{18}$.

(f) All negative moment reinforcing steel in slabs, beams and girders shall extend to the one quarter point of the adjacent panel.

Sec. B-504—WEB REINFORCEMENT:

(a) The vertical shear in all cases shall be taken as a measure of the diagonal tensile stresses.

(b) The total vertical shear shall not exceed one hundred and twenty (120) pounds per square inch on the section (bd), where (b) is the width of a beam and (d) is the effective depth.

(c) The vertical shear taken by the concrete in any case shall not exceed forty (40) pounds per square inch on the section (bd) except that the vertical shear taken by the concrete alone in clay, gypsum, or concrete, tile and joist construction shall not exceed sixty (60) pounds per square inch and in metal tie and joist or in wood form tile and joist shall not exceed fifty (50) pounds per square inch.

(d) The balance of the vertical shear not provided for under (e) shall be carried by web reinforcement.

(e) All web reinforcement shall be fully developed in bond.

(f) The horizontal reinforcement carrying the direct stresses shall not be considered as web reinforcement.

(g) Where vertical stirrups are required they shall not be spaced farther apart than three-fourths (¾) the total depth of the beam.

(h) At points of positive moment vertical stirrups shall pass under the main reinforcing bars if unattached. For negative moments they shall loop or be wrapped around the longitudinal rods if unattached. If stirrups are attached the connection shall be sufficient to develop a stress of ten thousand (10,000) pounds per square inch in the steel without causing slipping along the main bars.

Sec. B-505—LIMITING WIDTH OF FLANGE IN TEE BEAMS:

(a) In the calculation of ribs, a portion of the floor slab may be assumed as acting in flexure in combination with the rib. The width of the slab so acting in flexure is to be governed by the shearing resistance between the rib and the slab, and limited as follows:

(1) Limited to a width equal to one-quarter (¼) of the span length of the ribs between supports.

(2) Limited to a width of three-quarters (¾) of the distance from center to center of ribs.

(3) Limited to a width overhanging either side of four (4) times the thickness of the slab.

(b) No part of the slab shall be considered as a portion of the rib unless the slab and rib are cast at the same time.

(c) When reinforced concrete girders support reinforced concrete beams, the portion of floor slab, acting as a flange to the girder, must be reinforced with rods near the top and at right angles to the girders, to enable it to transmit local loads directly to the girders and not through the beams. Such bars shall extend on either side of the girder equal to a distance of twice the width of the girder and spaced not to exceed twelve (12) inches apart.

Sec. B-506—SHRINKAGE AND THERMAL STRESSES:

Shrinkage and thermal stresses in slabs shall be provided for by introduction of steel at right angles to the main reinforcement of not less than two-tenths (2/10) of one (1) per cent of the effective area of concrete.

Sec. B-507—LOAD DISTRIBUTION—TWO-WAY SLABS:

The distribution of the loads, on square or rectangular slabs reinforced in both directions shall be determined by the formula $R=\left(\frac{L^2}{L^2+B^2}\right)$ in which (R) equals the proportion of the load carried by the short span, and (L) equals the length and (B) equals the breadth of the slab. Beams supporting rectangular slabs reinforced in both directions shall be assumed to take the proportion of load as determined by the formula above.

Sec. B-508—FLAT SLAB CONSTRUCTION—DEFINITIONS:

(a) Flat slabs within the meaning of this Code are reinforced concrete slabs, supported directly on reinforced concrete columns with or without plates or capitals at the top, the whole construction being bridgeless and monolithic without any visible beams or girders.

(b) The column capital shall be defined as the gradual flaring out of the top of the column without any marked offset.

(c) The drop panel shall be defined as a square or rectangular depression around the column capital extending below the slab and adjacent to the slab.

(d) The panel length shall be defined as the distance center to center of columns of the side of a square panel, or the average distance center to center of columns of the long and short sides of a rectangular panel.

(e) The least dimension of any concrete column in flat slab construction shall be no less than one-twelfth (1-12) the panel length, nor one-twelfth (1/12) the clear height of the column.

Sec. B-509—FLAT SLAB THICKNESS:

The total thickness of the slab in inches for a slab with dropped panels shall be determined by the formula:

$$t=1+0.02\ LV\sqrt{w}$$

where (t) equals the slab thickness, (L) equals the panel length in feet, and (w) equals the sum of live and dead load in pounds, per square foot.

For a slab without drop panels

$$t=1\tfrac{1}{2}+0.024\ LV\sqrt{w}$$

or the minimum depth

$$t=1\tfrac{1}{2}+0.03\ LV\sqrt{w}$$

In no case shall the slab thickness for either floors or roofs be made less than six (6) inches; or 1-32 of (L) for floors and 1-40 of (L) for roofs.

Sec. B-510—COLUMN CAPITAL AND FLAT SLAB CONSTRUCTION:

(a) The diameter of the column capital shall be measured where its vertical thickness is at least one and one-half (1½) inches, and shall be at least two hundred and seventy-five thousandths (.275) of the panel length (L).

(b) The slope of the column capital shall nowhere make an angle with the vertical of more than forty-five (45) degrees. Special attention shall be given to the design of the column capital in considering eccentric loads, and the effect of wind upon the structure.

Sec. B-511—FLAT SLAB PANEL LENGTH:

(a) The panel length of flat slab construction shall be limited in all cases to thirty (30) feet.

Sec. B-512—FLAT SLAB DROP PANEL:

(a) When used, the drop panel shall be square or circular for square panels and rectangular or elliptical for oblong panels.

(b) The length of the drop panel shall not be less than one-third (⅓) of the panel length, if square, and not less than one-third (⅓) of the long or short side of the panel respectively, if rectangular.

(c) The depth of the drop panel shall be determined by computing it as a beam, using the negative moment over the column capital specified elsewhere in this part. (B-503.)

(d) In no case, however, shall the dimensions of the drop panel be less than required for punching shear along its perimeter, using the allowable unit shearing stresses specified below.

Sec. B-513—FLAT SLAB SHEARING STRESSES:

The allowable unit punching shear on the perimeter of the column capital shall be one hundred and twenty (120) pounds per square inch. The allowable unit punching shear on the perimeter of the drop panel shall be sixty (60) pounds per square inch.

Sec. B-514—PANEL STRIPS—FLAT SLAB:

(a) For the purpose of establishing the bending moments and the resisting moments of a square panel, the panel shall be divided into strips known as strip A and strip B. (See figure 1). Strip A shall include the reinforcement and slab in a width extending from the center line of the column for a distance on each side of this center line equal to one-quarter (¼) of the panel length. Strip B shall include the reinforcement and slab in the half of the width remaining in the center of the panel. At right angles to these strips, the panel shall be divided into similar strips A and B having the same widths and relations to the center line of the columns as the above strips. These strips shall be for designing purposes only, and are not intended as the boundary lines of any bands of steel used.

(b) These strips shall apply to the system of reinforcement in which the reinforcing bars are placed parallel and at right angles to the center line of the columns, hereinafter known as the two-way (2) system, and also to the system of reinforcement in which the reinforcing bars are placed parallel, at right angles to and diagonal to the center line of the columns hereinafter known as the four-way system.

(c) Any other system of reinforcement in which the reinforcing bars are placed in circular, concentric rings and radial bars, or systems with steel rods arranged in any manner whatsoever, shall comply with the requirements of either the two-way (2) or the four-way (4) system herein specified.

Sec. B-515—FLAT SLAB BENDING MOMENT COEFFICIENTS—INTERIOR PANEL—TWO-WAY SYSTEM:

(a) In panels where standard drops and column capitals are used as above specified, the negative bending moment taken at a cross-section of each strip A at the edge of the column capital or over it, shall be taken as $\frac{WL}{30}$. (See figure 3.)

(b) The positive bending moment taken at a cross section of each strip A midway between column centers, shall be taken as $\frac{WL}{60}$

(c) The positive bending moment taken at a cross-section of each strip B in the middle of the panel shall be taken as $\frac{WL}{120}$

(d) The negative bending moment taken at a cross-section of each strip B on the center line of the columns shall be taken as $\frac{WL}{120}$

In the formulas hereinabove given

"W" = total live and dead load on the whole panel in pounds.

"L" = panel length, center to center of columns.

Sec. B-516—FLAT SLAB BENDING MOMENT COEFFICIENTS—INTERIOR PANEL—FOUR-WAY SYSTEM:

(a) In panels where standard drops and column capitals are used as above specified, the negative bending moment taken at a

cross-section of each strip A at the edge of the column capital or over it, shall be taken as WL. (See figure 3.)

$$\frac{WL}{30}$$

(b) The positive bending moment taken at a cross-section of each strip A midway between column centers shall be taken as

$$\frac{WL}{80}$$

(c) The positive bending moment taken at a cross-section of each strip B taken in the middle of the panel shall be taken as

$$\frac{WL}{120}$$

(d) The negative bending moment taken at a cross-section of each strip B on the center line of the columns shall be taken as

$$\frac{WL}{120}$$

Sec. B-517—FLAT SLAB BENDING MOMENT COEFFICIENTS—WALL PANELS:

(a) Where wall panels with standard drops and capitals are carried by columns and girders built in walls, as in skeleton construction, the same coefficients shall be used as for an interior panel, except as follows: The positive bending moments on strips A and B midway between the wall and the first line of column shall be increased twenty-five (25) per cent.

(b) Where wall panels are carried on new brick walls, the walls shall be laid in Portland cement mortar and shall be stiffened with pilasters as follows: If a sixteen (16) inch wall is used, it shall have a four (4) inch pilaster. If a twelve (12) inch wall is used, it shall have an eight (8) inch pilaster. The width of pilasters shall be not less than the diameter of the column, nor less than one-eighth (⅛) of the distance between pilasters. The pilasters shall be located opposite the column as nearly as practicable, and shall be corbeled out four (4) inches at the top, starting at the level of the base of the column capital. No less than eight (8) inches bearing shall be provided for the slab, the full length of the wall.

(c) The coefficients of bending moments required for these panels shall be the same as those for the interior panels except as provided herewith: The positive bending moments on strips A and B midway between the wall and first line of columns shall be increased fifty (50) per cent.

Where wall panels are supported on old brick walls, there shall be columns with standard drops and capitals built against the wall and these columns shall be tied to the walls in an approved manner. At least an eight (8) inch bearing shall be provided for the slab for the full length. Where this is impracticable a beam shall be built on the underside of the slab adjacent to the wall between columns strong enough to carry twenty-five (25) per cent of the panel load.

(d) The coefficients of bending moments for the two (2) cases of slab support herein described shall be the same as those specified in paragraphs (B) and (C) of this Section for skeleton and wall bearing condition respectively.

(e) Nothing specified above shall be construed as applying to a case of slabs merely resting on walls or ledges, without any condition of restraint. These shall be figured as in ordinary beam and girder construction.

Sec. B-518—FLAT SLAB BENDING MOMENT COEFFICIENTS—WALL AND INTERIOR COLUMNS:

(a) Wall columns in skeleton construction shall be designed to resist a bending moment of $\frac{WL}{80}$ at floors and $\frac{WL}{40}$ at roof. The amount of steel required for this moment shall be independent of that required to carry the direct load. It shall be placed as near the surfaces of the columns as practicable, on the tension sides, and the rods shall be continuous in crossing from one side to another. The length of rods extending below the base of the capital and above the floor line shall be sufficient to develop their strength through bond, but not less than forty (40) diameters, nor less than one-third (⅓) the clear height between the floor line and the base of the column capital. (See figure 4.)

(b) The interior columns must be analyzed for the worst condition of unbalanced loading. It is the intention of this Code to cover ordinary cases of eccentric loads on the columns by the requirement of paragraph (E), Section B-508. Where the minimum size of columns therein specified is found insufficient, the effect of the resulting bending moment shall be properly divided between the adjoining slab and the columns above and below according to best principles of mechanics and the columns enlarged sufficiently with additional steel added to carry the load safely.

Sec. B-519—FLAT SLAB BENDING MOMENT COEFFICIENTS—PANELS WITHOUT DROPS OR CAPITALS—OR BOTH:

(a) In square panels where no column capital or no depressions are used, the sum total of positive and negative bending moments shall be equal to that computed by the following formula:

$$\text{B. M.} = \frac{WL\,(1.53 - 4k - 4.18k^3)}{8}$$

where B. M.=the numerical sum of positive and negative bending moments, regardless of algebraic signs.

W=the total live and dead load on the whole panel.

L=the length of side of square panel center to center of columns.

k=the ratio of the radius of the column or column capital to the panel length (L).

This total bending moment shall be divided between the positive and the negative moments in the same proportion as in the typical square panels for two-way (2) or four-way (4) systems specified above for interior and wall panels respectively.

Sec. B-520—FLAT SLAB POINT OF INFLECTION:

(a) For the purpose of making the calculations of the bending moment at the sections away from the column capital, the point of inflection shall be considered as being one-quarter (¼) the distance center to center of columns, both cross-wise and diagonally, from the center of the column.

Sec. B-521—FLAT SLAB TENSILE STRESS IN STEEL AND COMPRESSIVE STRESS IN CONCRETE:

(a) The tensile stress in steel and the compressive stress in the concrete to resist the bending moment shall be calculated on the basis of the steel reinforcement and concrete in the slab in the width included in a given strip, and according to the assumptions and requirements otherwise given in this part.

(b) The steel shall be considered as being concentrated at the center of gravity of all the bands of steel in a given strip.

(c) For the four-way (4) system of reinforcement the amount of steel to resist the negative bending moment over the support in each strip A shall be taken as the sum of the areas of steel in one cross band and one diagonal band. The amount of steel to resist the positive bending moment of each strip B shall be considered as the area of the steel in a diagonal band. The amount of steel to resist the positive bending moment in each strip A shall be considered as the area of the steel in a cross band, and the amount of steel to resist the negative moment in each strip B shall be the steel included in the width of strip B.

(d) For the two-way (2) system of reinforcement the amount of steel to resist the bending moment in any strip shall be considered as the area of the steel included in the width of the strip.

(e) In both systems of reinforcement the compressive stress in the concrete in any strip shall be calculated by taking the area of the steel considered for each strip, and applying it in a beam formula based on the principles of moments and assumptions given in Section B-502 above.

(f) Where drop panels are used, the width of the beam assumed to resist the compressive stresses over the column capital shall be the width of the drop.

(g) The width of the beam where no drop panels are used shall be the width of the steel bands. Where this is found insufficient, the area shall be increased by introducing compression steel in the bottom of the slab.

Sec. B-522—FLAT SLAB RECTANGULAR PANELS:

(a) When the length of the panel in either the two-way or the four-way system does not exceed the breadth by more than five (5) per cent, all computations shall be based on a square panel whose side equals the mean of the length and breadth, and the steel equally distributed among the strips according to the coefficients above specified.

(b) In no rectangular panel shall the length exceed the breadth by more than one-third (⅓) of the latter.

Sec. B-523—FLAT SLAB RECTANGULAR PANELS, FOUR-WAY SYSTEM:

(a) In the four-way (4) system of reinforcement where the length exceeds the breadth by more than five (5) per cent the amount of steel required in strip A, long direction both positive and negative, shall be the same as that required for the same strip in a square panel whose length is equal to the long side of the rectangular panel.

(b) The amount of steel in strip A, short direction, positive and negative, shall be the same as that required for the same strip in a square panel, whose length is equal to the short side of the rectangular panel.

(c) The amount of steel in strip B, positive and negative, shall be the same as that required for a similar strip in a square panel whose length is equal to the mean of the long and the short side of the rectangular panel.

(d) In no case shall the amount of steel in the short side be less than two-thirds (⅔) of that required for the long side.

Sec. B-524—FLAT SLAB RECTANGULAR PANELS, TWO-WAY SYSTEM.

(a) In the two-way (2) system of reinforcement the amount of steel required for the positive and the negative moment of each strip A shall be determined in the same manner as indicated for the four-way system above.

(b) The amount of steel in strip B, positive and negative, running in the short direction, shall be equal to that required for the same strip in a square panel whose length equals the long side of the rectangular panel.

(c) The amount of steel in strip B, long direction, positive and negative, shall be equal to that required for the same strip in a square panel, whose length equals the short side of the rectangular panel.

(d) In no case shall the amount of steel in strip B, long direction, be less than two-thirds (⅔) of that in the short direction.

Sec. B-525—WALL AND OPENINGS IN FLAT SLAB CONSTRUCTION:

(a) Girders and beams shall be constructed under all walls, around all openings, in excess of four (4) feet square; and to carry any other concentrated loads.

Exception—Special permission.

Sec. B-526—SPANDREL BEAMS IN FLAT SLAB CONSTRUCTION:

(a) The spandrel beams or girders shall, in addition, to their own weight and the weight of the spandrel wall, be designed to carry twenty (20) per cent of the wall panel load uniformly distributed upon them.

Sec. B-527—PLACING OF STEEL:

(a) In order that the slab bars shall be maintained in the position shown in the design during the work of pouring the slab, metal or other approved spacers and supports shall be provided satisfactory to the Commissioner of Buildings. All bars shall be secured in place at intersections, by wire or other approved metal chains or fastenings. In no case shall the spacing of the bars exceed nine (9) inches. The steel to resist the negative moment in each strip B shall extend one-quarter (¼) of the panel length beyond the center line of the columns in both directions.

(b) Splices in bars may be made wherever necessary and preferably at points of minimum stress. The length of splice beyond the center point, in each direction shall not be less than forty (40) diameters of the bars, nor in no case less than two (2) feet. The splicing of adjacent bars shall be avoided.

(c) Slab bars which are lapped over the column; the sectional area of both being included in the calculations for negative moment, shall extend beyond the column center not less than twenty-five one hundredths (.25) of the panel length for cross-bands, and thirty-five (.35) one hundredths of the panel length for diagonal bands.

Sec. B-528—COMPUTATION FOR FLAT SLABS:

(a) Complete computations of interior and wall panels, columns and such other portions of the building as may be required by the Commissioner of Buildings shall be left in the office of the Commissioner of Buildings when plans are presented for approval.

Sec. B-529—REINFORCED CONCRETE COLUMNS:

(a) Stayed columns: Reinforced concrete may be used for columns in which the concrete shall not be leaner than a 1:2:4 mixture and in which the ratio of length to least side diameter does not exceed fifteen (15) but in no case shall the cross section of the column core be less than sixty-four (64) square inches exclusive of the fireproofing. Longitudinal reinforcing rods must be tied together to effectively resist outward flexure at intervals of not more than fifteen (15) times the least diameter of the rod and not more than twelve (12) inches. When compression rods are not required, reinforcing rods shall be used equivalent to not less than one-half (½) of one (1) per cent (.005) of the cross-sectional area of the column core, provided however, that the total sectional area shall not be less than one (1) square inch; and that no rod or bar shall be of a smaller diameter or least dimensions than one-half (½) inch. The area of reinforcing compression rods shall be limited to a maximum of four (4) per cent of the cross-sectional area of the column core. The net core area of the concrete in such columns may be stressed axially not to exceed twenty-five (25) per cent of the ultimate compressive strength of the concrete (500 pounds for 2,000 pounds concrete). The steel also shall be computed to carry its proportionate stress according to the ratio of the moduli of elasticity. Core areas only shall be used as a basis of carrying capacity of columns.

(b) Hooped or Spiral Columns: When the reinforcement of reinforced concrete columns consists of vertical bars and spiral hooping, the concrete may be stressed to twenty-five (25) per cent of its ultimate strength as given in Section B-501, rule (L), provided, that:

(1) The amount of vertical reinforcement shall be not less than the amount of the spiral reinforcement, nor greater than five (5) per cent of the area within the hooping.

(2) The percentage of spiral hooping shall be not less than one-half (½) of one (1) per cent nor greater than one and one-half (1½) per cent.

(3) The pitch of the spiral hooping shall be uniform and not greater than one-tenth (1/10) of the diameter of the column core nor greater than three (3) inches.

(4) The spiral hooping shall be secured to the verticals at every intersection in such a manner as to insure the maintaining of its form and position.

(5) The verticals shall be spaced so that their distance apart measured on the circumference shall be not greater than nine (9) inches or one-eighth (⅛) of the circumference of the column core. In such columns, the action of the hooping may be assumed to increase the resistance of the concrete equivalent to two and one-half (2½) times the amount of the spiral hooping figured as the vertical reinforcement. No part of the concrete outside of the hooping shall be considered as a part of the effective column section.

Formula:

$$P = Ac\ (fc + 2.5\ nfc \times ph)\ X\ (1 + (n-1)\ pv)$$

P=Total load column will carry in pounds

Ac=The area of the concrete core of the column in square inches.
fc=The allowable fiber stress in the concrete in pounds per square inch.
n=The ratio of the modulus of elasticity of concrete to steel.
ph=The percentage of the spiral reinforcement over the core area.
pv=The percentage of the vertical reinforcement over the core area.
(Considere's Formula).

Sec. B-530—STRUCTURAL STEEL COLUMNS ENCASED IN CONCRETE:

(a) Solid Web Columns: In columns of this type the steel shall be designed to take the total dead and live loads and the concrete will be considered as fireproofing only. All columns of this type shall be wrapped with approved wire or metal lath in such a manner as to securely hold the concrete in posit on. All loose scale, rust or other deleterious matter shall be removed before encasing the columns in concrete.

(b) Open Web Columns: In columns of this type the steel shall be designed to take the full dead and live loads with the following unit stresses, with no added allowance for the concrete:

(1) Gray Columns and Similar Types
fs=20,000—300 times the percentage of steel.
(2) For four (4) angle columns, latticed four (4) sided
fs=19,000—300 times the percentage of steel
(3) For four (4) angles with latticed web,
fs=17,500—300 times the percentage of steel
fs=permissible fibre stress in steel.

(c) Open web columns shall be wrapped with one-eighth (⅛) inch or larger wire at vertical intervals not greater than eight (8) inches.

(d) The percentage of steel shall be based on the total area of the column, after deducting two (2) inches for fireproofing all around.

(e) If the unsupported length of columns exceeds fifteen (15) times the least outside dimension, the stresses shall be reduced as required for reinforced concrete columns.

(f) In all columns under this section, positive connections shall be provided to transmit to the column steel, loads of all reinforced beams and girders framing into the column flanges.

(g) Reinforced concrete columns, beams or girders framing into or on structural steel shall not have the bearing on concrete greater than five hundred (500) pounds per square inch unless all load in excess of this amount is taken by rods threaded into the steel or some other method approved by the Commissioner of Buildings.

Sec. B-531—COLUMN SPLICES:

(a) All column bars shall be spliced in such a manner as to transmit the stresses for which they are designed.

Sec. B-532—MINIMUM THICKNESS OF SLAB:

(a) Reinforced concrete slabs shall be not less than three (3) inches thick for floors and two (2) inches for roofs.

Exception—These minimum thicknesses do not apply to flat slab construction nor to concrete joist floor construction.

Sec. B-533—FIREPROOFING:

(a) For the purpose of fire protection; reinforcing steel shall be protected by the following minimum thickness of concrete:

One and one-half (1½) inches in columns.
One and one-fourth (1¼) inches in girders.
Three-quarters (¾) inch in slabs and joists.

(b) Reinforcing steel not protected as specified above, shall not be considered as adding to the strength of the construction.

(c) Heavier fireproofing may be required.

Sec. B-534—MIXTURE FOR REINFORCED CONCRETE WORK:

(a) Water used in mixing concrete shall be clean, free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances.

(b) The Commissioner of Buildings or his authorized assistants shall have the power to make slump tests on any concrete or reinforced concrete job to determine the proper amount of mixing water. This test shall be made with a cone shaped metal form, four (4) inches in diameter at the top, eight (8) inches in diameter at the bottom and tweleve (12) inches high. The results of this test shall be consistent with the following table:

Type of Concrete	Maximum Slumps
Mass Concrete	2 inches
Reinforced Concrete	
Thin vertical sections	6 inches
Heavy sections	2 inches
Thin Confined Horizontal Sections	8 inches
Mixture for Floor Finish	2 inches

The following table gives the amount of water compared to the amount of cement to give different strength concrete.

(c) Proportion of mixing water to cement.

Ultimate Strength Used in Design Pounds per square inch	Water Cement Ratio Gal. of water per sack of cement
1500	8
2000	7
2500	6¼
3000	5½

All structural drawings and plans submitted for approval shall show the strength of concrete for which the several portions of the structure, indicated thereon, were designed and the water-cement ratio necessary to produce that strength as per this table.

(d) The proportions of aggregates to cement for concrete of any water-cement ratio shall be such as to produce concrete that will work readily into the corners and angles of the form and around the reinforcement without permitting free water to collect on the surface. The combined aggregate shall be of such composition of sizes that when separated by the No. 4 standard sieve (see table below) the weight retained on the sieve shall not be less than that passing nor shall the amount of coarse material be such as to produce harshness in placing or honeycombing in the structure. When forms are removed, the faces and corners of the members shall show smooth and sound throughout.

Screen Number	Opening
100	.0058 Sq. In.
48	.0116 " "
28	.0232 " "
14	.046 " "
8	.093 " "
4	.185 " "
⅜	.37 " "
¾	.75 " "
1½	1.5 " "

(e) Concrete aggregates shall consist of natural sands and gravels, crushed rock or other inert materials meeting the approval of the Commissioner of Buildings, having clean, uncoated grains of strong and durable minerals. Aggregates containing soft, pliable, thin, flaky, elongated or laminated particles totaling more than five (5) per cent by weight or containing shale, or silt in excess of three (3) per cent by weight, or crusher dust finer than the No. 100 standard sieve in excess of five (5) per cent shall not be used. Aggregates shall not contain strong alkali, or organic material which gives a color darker than the standard color when tested in accordance with standard colorimetric tests approved by the Commissioner of Buildings. The maximum size of the aggregate shall not be larger than one-sixth (1/6) of the narrowest dimension of the member for which the concrete is to be used nor larger than three-quarters (¾) of the minimum clear spacing between any reinforcing bar and adjacent bars or forms. By maximum size of aggregate is meant the side of the smallest square opening through which ninety-five (95) per cent of the material can be passed.

(f) The methods of measuring concrete materials shall be such that the proportion of water to cement can be accurately controlled during the progress of the work and easily checked at any time by the Commissioner of Buildings or his authorized assistants. A tolerance of one-quarter (¼) gal. of water per sack of cement in any batch of concrete will be allowed provided that during the work of any one (1) day, the average of all the batches does not show a water content greater than that shown on plans as specified in table paragrah (C) above.

(g) The mixing shall be done in a batch machine mixer of a type that will insure the uniform distribution of the materials throughout the mass. For machine mixing, the mixing shall continue for at least one (1) minute after all the materials are placed in the mixer. Special permission may be given by the Commissioner of Buildings for mixing small quantities of concrete by hand. When mixed by hand cement and sand shall first be mixed dry, turned at least three (3) times, or to a uniform color, the water then gradually added and the aggregate turned at least three (3) times, or until the mass has attained a uniform consistency.

(h) When concrete is conveyed or transported by any means from the mixer to the forms, suitable precaution must be taken to prevent segregation of the coarse and fine materials, or the materials shall be remixed before placing the concrete in the forms.

(i) The remixing of mortar or concrete that has partly set will not be permitted.

(j) Concrete shall be placed immediately after mixing with water.

Exception—By special permission concrete for each job may be received from an approved Central Mixing Plant if the time of transportation from the mixer to the forms does not exceed forty (40) minutes.

Sec. B-535—PLACING CONCRETE AND STEEL:

(a) Before placing concrete all forms shall be thoroughly cleaned of all sawdust and wood chips or other foreign matter.

(b) In filling in concrete around reinforcing steel the concrete must be worked and puddled continuously with suitable tools as it is put in place.

(c) Columns must not be poured so rapidly as to interfere with thorough and satisfactory working of the concrete into place.

(d) Concrete subject to premature drying shall be kept wet during the first week after put in place.

(e) When work is suspended the joints shall be located as follows:

(1) For columns: at the underside of girders or the underside of capitals.

(2) For girders: at a point midway between supports, unless a beam should occur at this point, in which case the joint shall be offset a distance equal to twice the width of the beam.

(3) For slabs: at the center of the span.

(4) Joints in columns, girders and beams should be practically perpendicular to the axis, and in floor slabs perpendicular to the planes of their surfaces.

(f) Before work is resumed the concrete previously placed shall be roughened, cleaned of all foreign material, thoroughly wetted and slushed with a mixture consisting of one (1) part cement and not more than two (2) parts fine aggregate.

(g) Beams and girders shall not be constructed over columns without permitting a period of three (3) hours to elapse to provide for settlement and shrinkage.

(h) When beams are designed as tee beams the slab shall be poured at the same time as the web.

(i) The reinforcing steel shall be retained in place horizontally and vertically by means of suitable approved chairs or spacers of metal or other approved incombustible material.

(j) The lateral spacing center to center of reinforcing bars in beams and girders shall be not less than three (3) times the diameter of the bars, and the clear vertical spacing between two (2) layers of bars shall be not less than one (1) inch. Non circular bars shall be spaced the same as for circular bars of equivalent area.

Sec. B-536—CONCRETE PLACED IN FREEZING WEATHER:

(a) Concrete when deposited shall have a temperature of not less than fifty (50) degrees Fahrenheit nor more than one hundred and twenty (120) degrees Fahrenheit. In freezing weather suitable means shall be provided for maintaining the concrete at a temperature of at least fifty (50) degrees Fahrenheit for not less than seventy-two (72) hours after placing. The methods of heating the materials and protecting the concrete shall be approved by the Commissioner of Buildings.

(b) The use of frozen, lumpy sand or coarse aggregate, depending on hot water used in mixing to thaw it out will not be permitted.

(c) A regular temperature chart shall be kept during the pouring of a reinforced concrete building when any likelihood of temperatures as low as thirty-two (32) degrees Fahrenheit are to be encountered. Such temperature charts shall show hourly temperature readings of at least ten (10) points on each floor of such reinforced concrete buildings that has been poured within thirty (30) days. Such readings shall be taken on all exposed sides of the building and shall record the actual temperature of the air adjacent to the concrete. The Commissioner of Buildings may require more than ten (10) readings when he thinks advisable. A copy of the daily temperature shall be filed at the office of the Commissioner of Buildings.

Sec. B-537—CENTERING AND FORMS:

(a) All forms shall be built in a substantial manner with joints such that no appreciable part of the concrete including water can escape, and shall be so supported and braced that they will carry all the imposed loads and maintain in their position without lateral or vertical deflection.

(b) The bottom of all column forms shall be so arranged with hand holes that the base of the column can be cleaned and inspected immediately prior to the pouring of the concrete.

(c) Before removing the shores under any beam, girder or slab, the columns supporting it shall be stripped and examined.

(d) Pouring columns in chases left in masonry will not be permitted except with the written approval of the Commissioner of Buildings.

(e) The time which shall elapse before removing centering varies with the design of the structure and with the condition of the concrete.

(f) Either the shoring or reshoring shall remain in place until the concrete is properly cured and as long as may be required by the Commissioner of Buildings.

(g) In no case shall the shores be removed from under interior beams or girders in less than twenty-one (21) days after the concrete is poured.

(h) Under favorable conditions the shores under wall girders may be removed in ten (10) days after pouring, if the adjacent slabs are properly shored.

(i) If a slab has been previously properly reshored the centering may be removed in seven (7) days after the pouring of the concrete. Either the shoring or the reshoring shall remain in place not less than twenty-one (21) days after the concrete is poured.

(j) Provided ample shores are used to carry the full weight of the floor above, column forms may be removed in not less than two (2) days after pouring.

(k) All forms under concrete placed in freezing weather shall remain until all evidence of frost is removed from the concrete and the natural hardening of the concrete has proceeded to the point of safety, in the opinion of the Commissioner of Buildings.

Sec. B-538—TESTS:

(a) All tests called for in these regulations or ordered by the Commissioner of Buildings or his authorized assistants shall be made

in accordance with Standard Specifications approved by the Commissioner of Buildings.

(b) All such tests shall be made by competent persons approved by the Commissioner of Buildings and copies of the results shall be kept on file in the office of the Commissioner of Buildings for a period of at least two (2) years after the construction work is completed.

(c) Tests shall be made on all material entering into concrete or reinforced concrete construction when in the opinion of the Commissioner of Buildings or his authorized assistants there is any doubt as to its suitability for the purpose.

(d) The Commissioner of Buildings or his authorized assistants shall have the right to require tests of the concrete from time to time during the progress of the work to determine whether the materials and methods in use are such as to produce concrete of the necessary quality or at any other time when in their opinion, there is any doubt as to the quality of the concrete being produced; in addition to those tests required by this Code to be made on every reinforced concrete building or structure.

(e) On every reinforced concrete building or structure the Contractor, owner or architect shall prepare test specimens of each day's run of concrete and shall cure these specimens as near as possible under the same conditions as the concrete in the structure is cured. Specimens for such tests shall be taken at the place where concrete is being deposited.

Specimens shall be taken and formed as follows:

(1) Six (6) inch cubes for floors.

(2) Six (6) inch hexagonal columns for columns.

Specimens shall be cured and tested in accordance with Standard Specifications approved by the Commissioner of Buildings.

Sec. B-539—WORKMANSHIP TESTS:

(a) The Commissioner of Buildings or his authorized assistants shall have the right to order a test under load of any portion of a completed structure when in his opinion, the workmanship or materials have been such as to leave any doubt as to the adequacy or sufficiency of the structure to serve the purpose for which it was intended. Such tests shall not be made on any concrete construction which is less than sixty (60) days old.

(b) In such tests, the member or portion of the structure under consideration shall be given a superimposed load of two (2) times the live load plus the dead load. This load shall be left in position for a period of twenty-four (24) hours before removal. If, during the test or upon removal of the load, the member or portion of structure shows sign of failure the Commissioner of Buildings shall have the right to rate the structure, or such portions thereof which in his opinion are of the same character as the portions tested, for proper live load less than that for which it was designed.

(c) The Contractor for any building, which through failure of portions to pass the test has been rated at a live load less than that for which it was designed shall have the right to submit other portions of the building to test, and any portions which he can show to be satisfactory for the designed load, shall be exempt from the application of the reduced live load rating.

(d) He shall also have the right to retest any portion of the structure, provided sufficient time has elapsed and proper effort been

made to improve the quality of the concrete by favorable curing conditions. If the portions retested prove satisfactory to the Commissioner of Buildings, the designed live load rating shall be restored on all portions which have been given the same favorable conditions of curing.

(e) In workmanship tests applied to determine the suitability of slab or beam construction; the structure will be considered to have failed the test if within twenty-four (24) hours after the removal of the load the floor system fails to recover seventy-five (75) per cent of the maximum deflection shown during the twenty-four (24) hours while under load.

Sec. B-540—INSPECTION:

(a) All concrete work shall be inspected by the Architect or Engineer responsible for its design or by a competent superintendent responsible to the Architect or Engineer. A record shall be kept of such inspection which shall cover the quality and quantity of concrete materials, the mixing and placing of the concrete, and the placing of the reinforcing steel. The record shall also include a complete record of the progress of the work and of the protection given the concrete while curing. These records shall be available for inspection by the Commissioner of Buildings at all times during the progress of the work and shall be preserved for at least two (2) years after the construction is completed and placed on file in the Bureau of Buildings when required by the Commisisoner of Buildings.

Sec. B-541—INSPECTION OF REINFORCED CONCRETE SKELETON CONSTRUCTED BUILDINGS:

(a) No concrete in any reinforced concrete structural part of any reinforced concrete skeleton constructed building shall be placed into final position until the reinforcing steel shall be inspected by the Bureau of Buildings and marked with inspection marks to show that such steel has been inspected. It shall be unlawful for any person, workman, or employee to cover any steel unless the same has been inspected.

(b) When reinforcing steel is ready and in place the same shall be inspected by an inspector from the Bureau of Buildings. Such inspector shall inspect all reinforcing steel in such skeleton constructed buildings. Such inspector shall remain on such building under construction sufficient time each day that steel is being placed or concrete is being poured or placed in position over and covering said reinforcing steel.

(c) The owner or contractor shall notify the Bureau of Buildings in writing, at least twelve (12) hours in advance of any day that an inspector will be required to fulfill the provisions of this Code and this Section.

(d) The inspector shall keep a record on the inspection slip of each day's pourings and the progress of such work.

(e) Test specimens shall be kept of each day's run of both floors and columns. Floor specimens shall be six (6) inch cubes and columns shall be six (6) inch hexagonal specimens.

Sec. B-542—REDUCTION OF LOADING OF COLUMNS AND GIRDERS:

(a) In all construction except storage buildings and warehouses a column reduction of five (5) per cent per floor may be permitted to wit as follows:

Last Story above the basement ....95% of all loads
Next Story .....90% of all loads
Next Story .....85% of all loads

and likewise for each succeeding story until a reduction of fifty (50) per cent for all superimposed loads for the tenth story below the roof.

(b) A flat reduction of fifteen (15) per cent of all superimposed loads will be permitted in all buildings except storage buildings and warehouses, for beams and girders.

Sec. B-543—THICKNESS OF WALLS FOR REINFORCED CONCRETE BUILDINGS:

(a) The minimum thickness of reinforced concrete panel walls shall be six (6) inches. Such panel walls shall safely sustain a load of thirty (30) pounds per square foot side pressure in either direction perpendicular to the panel.

Exception—Buildings outside first fire limits, by special permission, may have thinner reinforced concrete panel walls.

(b) Below grade no panel or other foundation reinforced concrete wall shall be less than eight (8) inches in thickness and shall be designed to safely sustain the imposed side pressure.

(c) Reinforced concrete parapet walls used to retain vehicles on the roof of any building shall be not less than forty (40) inches high and shall be designed to safely sustain side pressure of five hundred (500) pounds per sq. foot.

Sec. B-544—PROTECTION OF COLUMNS AGAINST ABRASION:

In all reinforced concrete structures designed to be used for garage, warehouse, factory, or wholesale mercantile purposes the columns shall be protected by heavy steel bands extending from the floor to a height of thirty (30) inches above the same. This band shall be No. 12 (U. S. Sheet Metal Gauge) or heavier and shall be placed in the building when the forms are placed for the pouring of the columns in new buildings and shall be placed in all old buildings when, in the opinion of the Commissioner of Buildings the same is necessary.

DIVISION B—PART SIX
STEEL SKELETON CONSTRUCTION

Sec. B-601—GENERAL CONDITIONS:

(a) The rules set forth in this part are for structural grade newly fabricated steel. When reclaimed steel shapes are to be reused they shall be thoroughly inspected by the Commissioner of Buildings. Such steel shall not be stressed to more than eighty (80) per cent of the allowable stresses herein given except upon evidence of satisfactory tests conducted under the supervision of the Commissioner.

(b) To obtain a satisfactory structure, the following major requirements must be fulfilled:

(1) The materials used must be suitable, of uniform quality, and without defects affecting the strength or the service of the structure.

(2) Proper loads and conditions must be assumed in the design.

(3) The unit stresses must be suitable for the material used.

(4) The workmanship must be good, so that defects or injuries are not produced in the erection.

(5) The computations and design must be properly made so that the unit stresses specified shall not be exceeded, and the structure and its details shall possess the requisite strength and rigidity.

Sec. B-602—LOADING:

(a) Steel structures shall be designed to sustain the dead weight imposed upon them, including the weight of the steel frame itself, and in addition, the maximum live load as specified in each particular case. Proper provision shall be made for temporary stresses caused by erection.

(b) In cases where live loads have the effect of producing impact or vibration, a proper percentage shall be added to the static live load stresses to provide for such influences, so that the total stress found in any member is an equivalent static stress.

(c) Proper provisions shall be made for stresses caused by wind both during erection and after completion of the building. The wind pressure is dependent upon the conditions of exposure, but the allowable stresses specified in section four (B-603), paragraphs (F) and (G) are based upon the steel frame being designed to carry a wind pressure of not less than twenty (20) pounds per square foot on the vertical projection of exposed surfaces during erection, and fifteen (15) pounds per square foot on the vertical projection of the finished structure.

(d) Proper provision shall be made to securely fasten the reaction points of all steel construction and transmit the stresses to the foundations of the structure.

Sec. B-603—ALLOWABLE STRESSES:

All parts of the structure shall be so proportioned that the sum of the maximum static stresses in pounds per square inch shall not exceed the following:

(a) Tension: Rolled steel, on net section 18,000 pounds per square inch.

(b) Compression: rolled steel; (1) on short lengths or where lateral deflection is prevented 18,000 pounds per square inch.

(2) On gross section of columns,

$$\frac{18{,}000}{1+\left(\frac{L^2}{18{,}000r^2}\right)}$$ Pounds per square inch

with a maximum of 15,000 pounds per square inch. In which (L) is the unsupported length of the column and (r) is the corresponding least radius of gyration of the section, both in inches.

For main compression members, the ratio L/r shall not exceed 120, and for bracing and other secondary members, 200.

(c) Bending: On extreme fibers of rolled shapes, and built up sections, if lateral deflection is prevented, 18,000 pounds per sq. in.

When the unsupported length (L) exceeds fifteen (15) times (b) the width of the compression flange, the stress in pounds per square inch in the latter shall not exceed

$$\frac{20{,}000}{1+\left(\frac{L^2}{2{,}000b^2}\right)}$$ Pounds per square inch.

The laterally unsupported length of beams and girders shall not exceed forty (40) times (b) the width of the compression flange.

On extreme fibers of pins, when the forces are assumed as acting at the center of gravity of the pieces	27,000	Pounds per sq. in.
(d) Shearing on pins	13,500	Pounds per sq. in.
On power driven rivets	13,500	" " " "
On turned bolts in reamed holes with a clearance of not more than one-fiftieth (1/50) of an inch	13,500	" " " "
On hand driven rivets	10,000	" " " "
On unfinished bolts	10,000	" " " "

On the gross area of the webs of beams and girders where (h) the height between flanges in inches, is not more than sixty (60) times (t) the thickness of the web in inches, 12,000 Pounds per sq. in.

On the gross area of the webs of beams and girders if the web is not stiffened where (h), the height between flanges in inches, is more than sixty (60) times (t) the thickness of the web, the maximum shear per square inch, S/A shall not exceed

$$\frac{18{,}000}{1+\left(\frac{h^2}{7{,}200t^2}\right)}$$ Pounds per square inch.

In which (S) is the total shear, and (A) is gross area of web in square inches.

	Pounds per sq. inch Double Shear	Single Shear
(e) Bearings: on pins	30,000	24,000
On power driven rivets	30,000	24,000
On turned bolts in reamed holes	30,000	24,000
On hand-driven rivets	20,000	16,000
On unfinished bolts	20,000	16,000

On expansion rollers per lineal inch six hundred (600) times the diameter of the roller in inches.

(f) Combined Stresses: For combined stresses due to wind and other loads, the permissible working stress may be increased thirty-three and one-third (33⅓) per cent, provided the section thus found is not less than that required by the dead and live loads alone.

(g) For members carrying wind stresses only, the permissible working stresses may be increased thirty-three and one-third (33⅓) per cent.

Sec. B-604—SYMMETRICAL MEMBERS:

Sections shall preferably be symmetrical.

Sec. B-605—BEAMS AND GIRDERS:

(a) Rolled beams shall be proportioned by the moment of inertia of their net section. Plate girders with webs fully spliced for tension and compression shall be so proportioned that the unit stress on the net section does not exceed the stresses specified in Section B-603 as determined by the moment of inertia of the net section.

(b) Plate girder webs shall have a thickness of not less than one-one hundred and sixtieth of the unsupported distance between the flanges (1/160).

(c) Web splices shall consist of a plate on each side of the web capable of transmitting the full stress through the splice rivets.

(d) Stiffeners shall be required on the webs of rolled beams and plate girders at the ends and at points of concentrated loads, and at other points where (h) the clear distance between flanges is greater than:

$$\frac{85t\sqrt{\quad}}{\sqrt{\frac{18{,}000}{(A/S)-1}}}$$

in which (t) is the thickness of the web.

When stiffeners are required the distance in inches between them shall not be greater than,

$$\frac{85t\sqrt{\quad}}{\sqrt{\frac{18{,}000}{(A/S)-1}}}$$

or not greater than six (6) feet. When (h) is greater than sixty (60) times (t) the thickness of the web of a plate girder, stiffeners shall be required at distances not greater than six (6) feet apart. Stiffeners under or over concentrated loads shall be proportioned to distribute such loads into the web.

Plate girder stiffeners shall generally be in pairs, one on each side of the web, and shall have a close bearing against the flange angles at points of concentrated loading; stiffeners over the end bearings shall be on plate fillers. The pitch of rivets in stiffeners shall not exceed six (6) inches.

(e) Flange plates of all girders shall be limited in width so as not to extend more than six (6) inches or more than twelve (12) times the thickness of thinnest plate beyond the outer row of rivets connecting them to the angles.

(f) Crane runway girders and the supporting frame work shall be proportioned to resist the greatest horizontal stresses caused by the operation of the cranes.

(g) Rivets connecting the flanges to the web at points of direct load on the flange between stiffeners shall be proportioned to carry the resultant of the longitudinal and tranverse shears.

(h) Rivets connecting the flanges to the webs of plate girders of columns subject to bending shall be so spaced as to carry the increment of the flange stress between the rivets.

Sec. B-606—COLUMN BASES:

(a) Proper provision shall be made to distribute the column loads on the footings and foundations.

(b) The top surface of all column bases shall be planed for the column bearing.

(c) Column bases shall be set true and level, with full bearing on the masonry, and shall be properly secured to the footings.

Sec. B-607—ECCENTRIC LOADING:

Full provisions shall be made and approved for stresses caused by eccentric loads.

Sec. B-608—COMBINED STRESSES:

(a) Members subject to both direct and bending stresses shall be so proportioned that the greatest combined stresses shall not exceed the allowed limits.

(b) All members and their connections which are subject to stresses of both tension and compression due to the action of live loads shall be designed to sustain stress giving the largest section, with fifty (50) per cent of the smaller stress added to it. If the reversal

of stress is due to the action of wind, the member shall be designed for the stress giving the largest section and the connections proportioned for the largest stress.

Sec. B-609—ABUTTING JOINTS:

Compression members when faced for bearing shall be spliced sufficiently to hold the connecting members accurately in place. Other joints in riveted work, whether in tension or compression, shall be fully spliced.

Sec. B-610—NET SECTIONS:

(a) In calculating tension members, the net section shall be used, and in deducting the rivet holes they shall be taken one eighth (⅛) inch greater in diameter than the nominal diameter of the rivets.

(b) Pin-connected tension members shall have the section through the pin hole twenty-five (25) per cent in excess of the net section of the member, and a net section back of the pin hole equal to seventy-five (75) per cent of that required through the pin hole.

Sec. B-611—RIVETS AND BOLTS:

(a) In proportioning rivets, the nominal diameter of the rivet shall be used.

(b) Rivets carrying calculated stresses, and whose grip exceeds five (5) diameters, shall have their number increased one (1) per cent for each additional one-tenth (1/10) inch in the rivet grip. Special care shall be used in heating and driving such rivets.

(c) Rivets shall be used for the connections of main members carrying live loads which produce impact and for connections subject to reversal of stresses including all roof trusses.

(d) Finished bolts in reamed holes may be used in shop or field work where it is impracticable to obtain satisfactory power driven rivets. The finished shank shall be long enough to provide full bearing, and washers used under the nuts to give full grip when turned tight.

Unfinished bolts may be used in shop or field work for connections in small structures used for shelters, and for secondary members of all structures such as purlins, girts, door and window framing alignment bracing and secondary beams in floor.

Sec. B-612—RIVET SPACING:

(a) The minimum distance between centers of rivet holes shall be not less than four (4) and one-half (½) inches for one and one-quarter (1¼) inch rivets, four (4) inches for one and one-eighth (1⅛) inch rivets, three and one-half (3½) inches for one (1) inch rivets, three (3) inches for seven-eighths (⅞) inch rivets, two and one-half (2½) inches for three-fourths (¾) inch rivets, two (2) inches for five-eighths (⅝) inch rivets and one and three-fourths (1¾) inches for one-half (½) inch rivets.

The maximum pitch in the line of stress of compression members composed of plates and shapes shall not exceed sixteen (16) times the thinnest outside plate or shape, nor twenty (20) times the thinnest enclosed plate or shape with a maximum of twelve (12) inches, and at right angles to the direction of stress the distance between lines of rivets shall not exceed thirty (30) times the thinnest plate or shape.

For angles in built up sections with two (2) gauge lines, with rivets staggered, the maximum pitch in the line of stress in each gage

line shall not exceed twenty-four (24) times the thinnest plate with a maximum of eighteen (18) inches.

(b) In tension members composed of two (2) angles, a pitch of three (3) feet six (6) inches will be allowed and in compression members, two (2) feet, but the ratio L/r for each angle between rivets shall not be more than three fourths (¾) of that for the whole member.

(c) The pitch of rivets at the ends of built up compression members shall not exceed four (4) diameters of the rivets for a length equal to one and one-half (1½) times the maximum width of the member.

(d) The minimum distance from the center of any rivet hole to a sheared edge shall be two and seven-eighths (2⅞) inches for one and one-quarter (1¼) inch rivets, two (2) inches for one and one-eighth (1⅛) inch rivets, one and three-quarter (1¾) inches for one (1) inch rivets, one and one-half (1½) inches for seven-eighths (⅞) inch rivets, one and one-quarter (1¼) inches for three-fourths (¾) inch rivets, one and one-eighth (1⅛) inches for five-eighths (⅝) inch rivets, and one (1) inch for one-half (½) inch rivets. The maximum distance from any edge shall be twelve (12) times the thickness of the plate, but shall not exceed six (6) inches.

Sec. B-613—CONNECTIONS:

(a) Connections carrying calculated stresses except for lacing, sag bars, or angles, hand rails, or beam connections, shall not have less than two (2) rivets; or for field connections not less than three (3) rivets.

(b) Members meeting at a joint shall have their lines of center of gravity meet at a point if practicable; if not, provision shall be made for any eccentricity.

(c) The rivets at the ends of any member transmitting the stresses into that member should have their centers of gravity in the line of the center of gravity of the member; if not, provision shall be made for the effect of the resulting eccentricity. Pins may be so placed as to counteract the effect of bending due to dead load.

(d) When a beam or girder "A" is connected to another member in such a manner that "A" acts as a continuous or fixed end beam, proper provision shall be made for the bending moments at such a connection.

(e) Where stress is transmitted from one (1) piece to another through a loose filler, the number of rivets shall be properly increased; tight-fitting fillers shall be used.

Sec. B-614—LATTICE:

(a) The open sides of compression members shall be provided with lattice having tie plates at each end and at intermediate points if the lattice is interrupted. Tie plates shall be as near the ends as practicable. In main members carrying calculated stresses the end tie plates shall have a length of not less than the distance between the lines of rivets connecting them to the flanges, and intermediate ones of not less than one-half (½) of this distance. The thickness of tie plates shall not be less than one-fiftieth (1/50) of the distance between the lines of rivets connecting them to the segments of the members, and the rivet pitch shall not be more than four (4) diameters. Tie plates shall be sufficient in size and number to equalize the stress in the parts of the members.

(b) Lattice bars shall have neatly finished ends. The thickness of lattice bars shall be not less than one-fortieth (1/40), for single lattice, and one-sixtieth (1/60), for double lattice, of the distance between end rivets; their minimum width shall be as follows:

For fifteen (15) inch channels, or built sections with three and one-half (3½) inch and four (4) inch angles—two and one-fourth (2¼) inches, three-fourths (¾) inch rivets, or two and one-half (2½) inches (seven-eighths inch (⅞) rivets).

For twelve (12) inch, ten (10) inch, and nine (9) inch channels, or built sections with three (3) inch angles—two and one-fourth (2¼) inch (three-fourths (¾) inch rivets).

For eight (8) inch and seven (7) inch channels, or built sections with two and one-half (2½) inch angles—two (2) inches, (five-eighths (⅝) inch rivets), or two and one-quarter (2¼) inches (three-fourths (¾) inch rivets.

For six (6) inch and five (5) inch channels, or built sections with one (1) inch angles—one and one-half (1½) inch (one-half (½) inch rivets), or one and three-fourths (1¾) inch (five-eighths (⅝) inch rivets).

(c) The inclination of lattice bars to the axis of the members shall be not less than forty-five (45) degrees; but when the distance between the rivet lines in the flanges is more than fifteen (15) inches, the lattice shall be double and riveted at the intersection if bars are used, or else shall be made of angles.

(d) Lattice bars shall be so spaced that the ratio L/r of the flange included between their connections shall be not over three-fourths (¾) of that of the member as a whole.

Sec. B-615—EXPANSION:

Proper provision shall be made for expansion and contraction.

Sec. B-616—MINIMUM THICKNESS:

No steel less than five-sixteenths (5/16) inch thick shall be used for exterior or exposed construction, nor less than one-quarter (¼) inch for interior construction, except for linings or fillers and rolled structural shapes.

These provisions do not apply to light structures such as skylights, marquees, fire-escapes, fourth class one-story buildings, or light miscellaneous steel work.

For trusses having end reactions of thirty-five thousand (35,000) pounds or over, the Gusset Plates shall be not less than three-eighths (⅜) inch thick.

Sec. B-617—ADJUSTABLE MEMBERS:

The initial stress in adjustable members shall be assumed as not less than five thousand (5,000) pounds.

Sec. B-618—WORKMANSHIP:

(a) All workmanship shall be equal to the best practice in modern structural shops.

(b) Drifting to enlarge unfair holes shall not be permitted.

(c) The several pieces forming built sections shall be straight and fit close together; and finished members shall be free from twists, bends, or open joints.

(d) Rolled sections, except for minor details, shall not be heated.

(e) Whenever steel castings are used, they shall be properly annealed.

(f) Material may be punched one-sixteenth (1/16) inch larger than the nominal diameter of the rivets, whenever the thickness of the metal is equal to or less than the diameter of the rivets, plus one-eighth (⅛) inch. When the metal is thicker than the diameter of the rivet, plus one-eighth (⅛) inch, the holes shall be drilled, or sub-punched and reamed.

(g) Rivets are to be driven hot, and wherever practicable, by power. Rivet heads shall be of hemispherical shape and uniform size throughout the work for the same size rivet, full, neatly finished, and concentric with the holes. Rivets, after driving, shall be tight, completely filling the holes, and with heads in full contact with the surface.

(h) Compression joints depending upon contact bearing shall have the bearing surfaces truly faced after the members are riveted. All other joints shall be cut or dressed true and straight, especially where exposed to view.

(i) The use of a burning torch is permissible if the burned metal is not carrying stresses during the burning. Stresses shall not be transmitted into the metal through a burned surface.

Sec. B-619—PAINTING:

(a) Parts not in contact, but inaccessible after assembling, shall be properly protected by paint.

(b) All steel work, except where encased in concrete, shall be thoroughly cleaned and given one (1) coat of acceptable metal protection well worked into the joints and open spaces.

(c) Machine finished surfaces shall be protected against corrosion.

(d) Field painting is a phase of maintenance, but it is important that unless otherwise properly protected, all steel work shall after erection be protected by a field coat of good paint applied by a competent painter.

Sec. B-620—ERECTION:

(a) The frame of all steel skeleton buildings shall be carried up true and plumb, and temporary bracing shall be introduced wherever necessary to take care of all loads to which the structure may be subject including erection equipment, and the operation of same. Such bracing shall be left in place as long as may be required for safety.

(b) As erection progresses the work shall be securely bolted and riveted up to take care of all dead load, wind and erection stresses.

(c) Wherever piles of material, erection equipment, or other loads are carried during erection, proper provision shall be made to take care of stresses resulting from the same.

(d) No riveting shall be done until the structure has been properly aligned.

(e) Rivets driven in the field shall be heated and driven with the same care as those driven in the shop.

(f) As near as practical rivets shall be driven so that not more than four (4) stories are, in any case, left standing without full riveting of all riveted connections.

Sec. B-621—FINISH OF STRUCTURAL STEEL:

The finished product shall be free from injurious defects and shall have a workmanship finish.

Sec. B-622—MARKING OF STEEL:

The name or brand of the manufacturer and the melt number shall be legibly stamped or rolled on all finished material, except that rivet and lattice bars and other small sections may be properly separated and marked for identification. The identification marks shall be legibly stamped on the end of each pin and roller.

Sec. B-623—PROTECTION OF WORKINGMEN—RIVETING:

(a) Workingmen erecting structural steel skeleton constructed buildings shall have the maximum protection afforded with the class of work they are doing.

(b) Men working on the skeleton shall have a platform erected below them not more than two (2) stories below.

(c) As near as practical rivets shall be driven so that not more than four (4) stories are, in any case left standing without full riveting of all riveted connections.

Sec. B-624—ROOF TRUSSES:

All roof trusses shall be riveted.

DIVISION B—PART SEVEN
STORAGE OF OILS AND INFLAMMABLE LIQUIDS

Sec. B-701—PERMITS:

No oil storage tank, gasoline or inflammable liquid pump or oil burning equipment shall be installed in any building or in or upon any lot or premises without a permit so to do.

Such permits shall be obtained from the City Controller after application to the Commissioner of Buildings.

A permit shall be taken out for each tank, gasoline or inflammable liquid pump, or oil burning equipment and the same shall not be grouped together in one permit without including the minimum fee for each, i. e., every tank, pump or oil burning equipment.

No tank or piping shall be covered with any material whatsoever without an inspection certificate.

A complete record of permits for all oil storage shall be kept by the Commissioner of Buildings in a record book. This record shall show as near as possible the capacity and location of all oil storage or inflammable liquid tanks.

Sec. B-702—CONSTRUCTION OF BUILDING FOR INFLAMMABLE LIQUIDS:

(a) It shall hereafter be unlawful for any person, firm or corporation to build, construct or erect any building designed for the storage of crude petroleum, gasoline, naptha, benzine, camphine, carbon oil, spirit gas, burning fluids, alcohol, spirits of turpentine, coal oil, rock oil, earth oil, or any other liquid except in conformity with this Code.

(b) Buildings now or hereafter erected or designed for the storage of the fluids mentioned in the preceding paragraphs shall be buildings of the first class and must conform to the following provisions:

(1) The walls shall be solid and of brick, stone, or concrete, and shall be not less than twelve (12) inches thick nor more than sixteen (16) feet high.

(2) The lower floor of such building shall be at least three feet (3) below the grade of the adjoining street and shall be made of earth, concrete or brick.

(3) The roofing of such building shall be made of tile, metal or other incombustible material, and the outside walls of any such building, having a flat roof, shall extend at least eighteen (18) inches above the roof.

(4) The coping upon the roof of such building shall be made of incombustible material.

(5) Such building shall be detached from all other buildings, and shall be properly ventilated.

(6) Where any such building shall be located less than twenty-five (25) feet away from any other building or structure, the wall or walls of such oil storage building on the side or sides thereof that are less than twenty-five (25) feet from any other building or structure shall have no windows or other opening therein; provided, however, that if such building cannot be so constructed that no outside wall thereof shall be less than twenty-five (25) feet away from any other building or structure openings shall be permitted on one (1) side for the purpose of admitting light or providing means of access thereto or egress therefrom. If such opening be a window, such window shall be wired glass and steel sash, and such window shall be provided with a steel shutter.

Note: It is recommended that a light, all metal roof be used for oil storage buildings.

(c) No such building shall be occupied for any purpose other than the storage of oils, and no person shall be permitted to use any such building as a sleeping apartment, or other dwelling place.

(d) Such buildings and the equipment thereof, including the protection of the doors and windows, shall be constructed according to plans and specifications submitted to and approved by the Commissioner of Buildings.

Sec. B-703—STORAGE OF OILS—LOW FLASH POINT:

(a) It shall be unlawful for any person, firm or corporation to keep or store crude petroleum, gasoline, naptha, benzine, coal oil, rock oil, earth oil, or any other liquid except such as will stand a test of one hundred and fifty (150) degrees Fahrenheit, closed cup aester, in any quantity exceeding ten (10) gallons upon or in, any (1) building, (2) structure or (3) premises, within the city, except in such building or enclosure as has been constructed in accordance with the provisions of this Code and in such tanks as provided herein.

(b) Where ten (10) gallons or less of any of the above mentioned oils or fluids, except such as will stand the test above mentioned, are kept upon or in any building or structure within the city, they must be kept in safety cans made of not less than twenty-four (24) gauge galvanized iron or other suitable approved metal with opening or openings protected by self-closing stops, and such safety cans must be of an approved type. Such openings shall be only at the top of such cans.

(c) No gas, candle, oil or other like artificial light or lighted stove, gas grate or other open flame or electric switch or cutout of any kind shall be allowed within fifteen (15) feet of any receptacle or receptacles containing any of the oils or fluids mentioned in this section, nor shall electric switches or cutouts be located within oil storage houses.

Sec. B-704—TANKS FOR STORAGE OF OILS:

(a) Any person, firm or corporation desiring to use any space underneath the surface of the ground or underneath any building in

the city, except in such a building or enclosure as is authorized under the provisions of this Code, for the maintenance or use of any tank thereunder; for the storage of any one (1) or more of the oils or fluids mentioned in this part shall first obtain a permit so to do from the Commissioner of Buildings. If the tank is to be located underneath any public street or alley the same must be approved by the Board of Public Works and said permit may be revoked by the Board of Public Safety at any time for a just cause.

(b) Tanks for the storage of oils or fluids mentioned in this part with the exception herein provided, shall be made of galvanized steel, open hearth basic steel or wrought iron of a gauge depending upon the capacity as follows:

Fourteen (14) U. S. Gauge for capacities of one hundred and eighty (180) gallons or less; twelve (12) U. S. Gauge for capacities of one hundred and eighty-one (181) to three hundred (300) gallons; seven (7) U. S. Gauge for capacities of three hundred and one (301) to four thousand (4,000) gallons:

One-fourth (¼) inch with three-eighths (⅜) inch leads for capacities of four thousand (4,000) to ten thousand (10,000) gallons; three-eighths (⅜) inch for capacities of ten thousand (10,000) to twenty-five thousand (25,000) gallons. All portions of such tanks must be either riveted and soldered or caulked or welded or brazed together and made oil tight and shall be coated on the outside with tar, asphaltum or other rust-resisting material.

(c) All tanks shall be placed and maintained with the tops at least two (2) feet under the surface of the ground or other approved insulating medium.

Exception:

(a) Tanks in oil storage buildings or enclosures.

(b) Portable tanks and safety cans.

No such tank or safety can shall have any openings or pipe connections, except on the top thereof, nor shall it be connected either directly or indirectly with any public or private sewer. All pipes leading to or from such tanks shall be of galvanized wrought iron with heavy galvanized cast iron or brass fittings protected against injury, and shall be so placed when located in buildings so that the tops of such tanks shall be lower than the level of the lowest pipe in the building used in connection therewith. All such tanks shall be so placed that no artificial lights shall be required while filling. Each tank shall be provided with a filler pipe of galvanized iron or brass not less than one and one-fourth (1¼) inches in diameter entering at the top of the tank, and extending not less than four (4) inches below the top of the tank, the upper end of which said filler pipe shall terminate in a locked screw cap or metal filler box, which must be kept securely locked at all times, except when such tank is being filled, and each such tank shall be used, and shall terminate in a gooseneck spark protector, the opening of which shall be covered with thirty (30) mesh wire screen and shall be located at least twenty (20) feet from all windows in higher adjacent buildings. If there is no building within twenty (20) feet of such tank, said vent pipe shall terminate in a locked screw cap or other device which shall be approved. The installation of said tanks shall be subject to the supervision and approval of the Bureau of Buildings and they shall not be covered up until inspected and found that the tanks and their equipment are according to this

Code. Such tanks shall not be used until a certificate of approval has been issued by the Bureau of Buildings.

(d) Tanks for the storage of all fluids that have a flash point below one hundred and fifty (150) degrees Fahrenheit closed cup tester in an aggregate capacity of not more than three hundred (300) gallons may be installed beneath buildings. Every such tank shall be inclosed by a casing of concrete at least two (2) feet below the upper surface of the lowest floor, which shall be constructed of concrete not less than eight (8) inches thick. The filler pipes of tanks installed underneath buildings must terminate outside of the outer walls of said building in a locked screw cap or other device of a design which shall be approved, and said screw cap or device must be kept securely locked at all times except when such tank is being filled and where any such filler pipe runs to a sidewalk, alley or public highway it must terminate in a locked screw cap or other device of a design which shall be approved and which shall be set flush with the surface of the sidewalk, alley or highway and provided with a locked iron cover, which must be kept securely locked at all times except when such tank is being filled. The filling pipes and the vent pipe of any such tank must be laid underneath the concrete floor of the building until they reach the outside of the outer wall of said building. Such tanks shall comply in all other respects with the provisions, conditions and requirements of the preceding paragraphs of this section, provided, however, that no such tank shall be constructed underneath any building, any part of which is used for residence, hotel, or lodging purposes. Such tanks must be supplied with pumps or other device for the removal of the contents thereof, which shall have been approved. Each pipe connecting such tank with the pump of the device for the removal of its contents shall be of galvanized iron, or its equivalent, and must be so laid that no portion thereof is lower than its level at the point where such pipe is connected with the tank and it shall be pitched upward from the tank to the pump or other device used for the removal of the contents of such tank, and said pipe shall be located at least eight (8) inches below the surface of the insulation and all exposed portions thereof shall be properly protected.

(e) Sealed portable filling tanks of a capacity of not more than sixty (60) gallons may be used inside of garages for the storage and handling of any one (1) or more of the oils or fluids mentioned in this section. Such tanks shall be constructed of not less than No. seven (7) U. S. Gauge steel supported on steel wheels not less than thirty (30) inches in diameter, with rubber tires and provided with an approved pump or other device for the removal of the contents thereof, and the hose, of length not to exceed eight (8) feet, through which oil or fluid is to flow.

(f) Pressure tanks not exceeding six (6) gallons capacity constructed of not less than eighteen (18) U. S. Gauge steel, and used in connection with approved lighting systems, may be placed above ground and attached to the outside wall of building.

Sec. B-705—OIL STORAGE HIGH FLASH POINT:

Tanks for the storage of oil or liquids which have a flash point in excess of one hundred and fifty (150) degrees Fahrenheit closed cup tester shall be constructed in the same manner as tanks for the storage of liquids with a low flash point. (Sec. B-704.)

When such tanks are located inside or underneath of buildings, not built as oil houses, they shall be limited to twelve thousand (12,000) gallons capacity.

Such tanks over three hundred (300) gallons capacity shall be completely insulated with eight (8) inches of fireproof material.

Exception: First class buildings and oil houses.

Note: It is recommended that a concrete wall be built around the tank and the space between the tank and enclosure walls be filled with sand or other approved material.

Such high flash point liquids may be stored in residence buildings, dwellings of all classes, and hotels, providing the aggregate capacity of all tanks shall not exceed twelve thousand (12,000) gallons capacity.

Sec. B-706—STORAGE OF LIQUIDS OF ANY FLASH POINT IN OPEN STORAGE:

(a) All oil storage tanks as described in this part that are stored above ground and not in an oil house shall be located as provided in Section B-707, below and shall be completely surrounded by an unpierced fire retaining wall at least eight (8) inches thick at the top forming an oil tight enclosure of a capacity one and one-half (1½) times the total capacity of such tanks within enclosures.

(b) The retaining and fire wall shall be constructed according to the engineering rules set forth in this Code and designed with ample strength to maintain the side pressure if the enclosure were filled with water.

(c) Drainage from such open enclosures shall be through an approved open sump that can be closed off by a valve from the enclosure. Such valve shall be located at least twenty-five feet away from the enclosure wall. Such pipe leading to the sump from the enclosure shall not be over six (6) inches in diameter in any case.

Sec. B-707—LOCATION OF TANKS—OPEN, HOUSED OR BURIED STORAGE:

Capacity of tank in gallons	Minimum distance of tanks to line of adjoining property which may be built upon	to any other tank
300 or less	5 Ft.	2 Ft.
500 or less	10 "	2 "
1,000 or less	20 "	2 "
8,000 or less	25 "	2 "
13,000 or less	30 "	2 "
18,000 or less	40 "	2 "
25,000 or less	50 "	2 "

Exception: Special Permission.

Sec. B-708—MAXIMUM SIZE OF TANKS:

No oil storage tank may be located in the city that has a capacity in excess of twenty-five thousand (25,000) gallons of fluid as outlined in this part.

Sec. B-709—PROTECTION OF MANHOLES—VENT HOLES:

Each above ground tank over one thousand (1,000) gallons capacity located outside of a building must have all manholes, vent holes, and all other openings which may contain inflammable vapor, covered with twenty by twenty (20x20) mesh, or its equivelent, brass wire screen, so attached as to completely cover the opening. Such

screen shall be protected against clogging. A safety valve must be provided, or in lieu thereof a manhole with a tight cover closed by its own weight and not firmly attached. The screen opening may be made removable, but must be so arranged as to close normally.

Sec. B-710—DANGER SIGNS ON TANKS:

The location of all tanks for storage of all oils of any flash point and inflammable liquids shall be clearly designated in a conspicuous place to public view with the following:

"INFLAMMABLE—KEEP FIRE AWAY" in letters at least two (2) inches high.

Sec. B-711—REGULATIONS FOR INSTALLATIONS OF OIL BURNING EQUIPMENT TANKS: (See Sec. F-102.)

Unprotected tanks shall be limited to three hundred (300) gallons aggregate capacity, except in first class buildings.

All tanks with a capacity of over three hundred (300) gallons shall be thoroughly protected with fireproof material to at least eight (8) inches in thickness.

Exception: First class buildings.

All tanks over sixty (60) gallons in capacity for gravity feed systems shall be equipped with a properly protected, approved fire key painted with red paint and so situated that the key will be easily accessible in case of fire.

All fire keys shall have their locations marked with a sign in letters at least four (4) inches high marked "Fire Key."

Note: It is recommended that all fire keys be so arranged that the handle is located within a box containing a glass front marked "Fire Key."

All fire keys shall be so arranged that "off" and "on" are readily discernible.

All tanks located inside of a building must have approved vents leading to the outside; installed in a safe manner.

Sec. B-712—LOCATION OF TANKS IN BUSINESS DISTRICTS AND FOR FILLING STATIONS:

(a) No tank containing more than one (1) tank car of inflammable liquid or any other oil or any petroleum product of any flash point shall be located on any lot in any business district as defined by the zoning ordinances.

(b) The aggregate capacity of tanks to hold inflammable liquid with a flash point below one hundred and fifty (150) degrees closed cup tester, for filling stations shall not exceed six thousand (6,000) gallons in any case. Such tanks may contain not to exceed one thousand (1,000) gallons each.

Sec. B-713—GLASS GAUGES:

(a) No glass gauge shall be used on tanks within buildings.

DIVISION B—PART EIGHT
PLASTERING AND METAL LATH

Sec. B-801—WALLS AND PARTITIONS BEHIND WAINSCOTING TO BE PLASTERED:

The surface of all walls and partitions back of any wainscoting in any building hereafter constructed, enlarged or repaired within the City of Indianapolis shall be plastered with at least one (1) coat of plastering of three-eighths (⅜) inch or more in thickness, unless such wainscoting is placed against a fireproof wall.

Sec. B-802—KEY—LATH JOINTS:

All ceilings, studding, partitions and furred walls of all buildings, when plastered with lime mortar on wood lath, shall have not less than a three-eighths (⅜) inch key, and the ends of the lath shall not be crowded tight together.

Sec. B-803—THREE-COAT WORK ON STUDDING:

(a) Wherever three (3) coat plastering work is to be done, there shall be provided, on all partition and wall openings, seven-eighths (⅞) inch grounds, or the frames shall be set projecting seven-eighths (⅞) of an inch outside of the face of the studding, said grounds or frames to be of substantial construction and set true and straight. Lath shall in no case be used as grounds. The first or scratch-coat of all three (3) coat work shall be made of materials and proportions at least equal to the following: The lime shall be of the best quality, evenly and thoroughly burned limestone. The sand shall be angular grains, sharp, properly screened and free from loam or other deleterious substances. The hair binder shall be water-soaked, well beaten, clean, long winter hair, or in lieu thereof, approved vegetable fiber cut in two (2) inch to three (3) inch lengths may be used for such binder.

(b) First or Scratch Coat:

The mortar for the first or scratch-coat shall be mixed in the proportion of one (1) barrel of lump lime, two (2) and one-half (½) barrels of clean, sharp sand, and the binder in the proportion of two (2) pounds of hair or three (3) pounds of fibre to one hundred (100) pounds of lump lime. This first coat shall be applied at least three-sixteenths (3/16) of an inch thick, and shall be well keyed into the lath. It shall be scored or scratched with diagonal lines in two (2) directions nearly through its thickness. The lime shall be thoroughly slacked, the putty being allowed to cool before incorporating the hair, to avoid burning. The sand shall then be added and thoroughly mixed and the mortar banked for at least one (1) week before it is applied.

(c) Second or Brown Coat:

The second or brown coat shall be at least one-fourth (¼) inch thick and shall not be applied until the scratching is dry, and it shall be brought to a true plane. The mortar shall be composed of one (1) barrel of lump lime to five (5) barrels of sand, with approved binder in the proportion of one (1) pound of hair or fiber to one hundred (100) pounds of lump lime. The mortar for said brown coat shall be prepared as for the scratch coat, and banked for at least one (1) week before it is applied.

(d) Third or Finish Coat:

The third or finish coat shall be the best quality of prepared finish or well slacked lime putty gauged with plaster of paris or marble dust or white sand in combination. The mix shall be proportioned as follows: To one (1) part of plaster add two (2) parts of white mortar. The lime shall be thoroughly slacked in a box, mixing in a small proportion of white sand or marble dust. It shall then be run through a No. 10 mesh wire sieve into a storage box and allowed to stand for at least forty-eight (48) hours before gauging with plaster and applying the finish coat.

Hydrated limes of approved brands may be used in place of lump lime. The third coat when finished shall present an even and true surface.

Sec. B-804—CORNICES OR COVES:

All cornices or coves shall be run straight, true and smooth.

Sec. B-805—PATENT OR HARD WALL PLASTER:

Patent or hard wall plasters shall be of brands approved by the Commissioner of Buildings and shall be received at the scene of building operations in the manufacturer's original packages and shall be mixed and applied in accordance with the manufacturer's specifications. The lath shall be spaced not less than three-eighths (⅜) of an inch apart, joints to be broken at least every ninth (9th) lath, leaving a space between the ends of the lath. The mortar of patent or hard wall plasters shall be applied promptly after mixing, and with sufficient pressure to form a good and sufficient key or clinch on the opposite side of said lath. The several coats to be applied in the manner prescribed in either Section 803 or Section 806 of this Part.

Sec. B-806—TWO-COAT WORK:

Lath shall in no case be used as grounds. All grounds or jambs for two (2) coat work, where patent plasters are used, shall be of substantial construction and shall project beyond the face of the studding or wall three-quarters (¾) of an inch. Where wood lath are used for such work, they shall be spaced not less than three-eighths (⅜) of an inch apart, with joints broken every ninth (9th) lath. The proportions of the materials for two (2) coat patent plaster work shall be the same as specified by the manufacturers of the plaster used, and shall be applied promptly after mixing and with sufficient pressure to insure a good key or clinch on the opposite side of the lath. The first coat shall be straight, true and square to the floor line, leaving an even and regular surface, and the second coat shall not be applied until the first coat shall have thoroughly dried out.

All white mortar finishing coats, on any kind of plastering work, shall be laid on and troweled to a smooth surface, leaving, on completion, neither deficiencies nor brush marks.

Sec. B-807—PLASTERING ON CONCRETE WORK:

Wherever plastering is applied to concrete work, the concrete shall be thoroughly cleaned and wet before the plastering is put on. Wherever unsanded patent plaster is used, the proportion of plaster to sand in the mix of the first or scratch-coat shall be not less than one (1) part of plaster to one (1) part of sand, and such plaster shall be so applied as to thoroughly cover all concrete work to which it is applied.

Sec. B-808—EXTERIOR STUCCO WORK—CONSTRUCTION:

(a) All exterior stucco work shall consist of three (3) coat work; first, a scratch-coat; second, a brown coat; and third, a dash or finish coat.

Exception: Magnesite or patented stucco.

(b) The first coat of all such stucco work shall consist of one (1) part Portland Cement and three (3) parts of sand, and sufficient hair shall be added thereto to properly bind the mortar. Provided, however, that not to exceed ten (10) pounds of lime putty may be added to each sack of Portland Cement, at the discretion of the architect or owner. Said first coat shall be properly scratched with diagonal lines in two (2) directions, nearly through its thickness, and shall be thoroughly set before the second coat is applied.

(c) The second coat shall consist of one (1) part Portland Cement and not more than three (3) parts of sand. Ten (10) per cent of lime may be used therein, and said second coat shall be thoroughly dry before the third coat is applied.

(d) The third coat shall consist of one (1) part of Portland Cement and not more than four (4) parts of sand or pebbles, and may be finished as directed by the architect or owner.

(e) The thickness of the first two (2) coats of such stucco plastering shall not be less at any point than one (1) inch, measured from the outer side of the lath. No such stucco work shall be done in freezing weather, it shall be sprayed occasionally with water so as to prevent it from checking or cracking.

(f) Wherever non-furring metal, consisting of expanded metal lath, woven wire lath or wire lath, is used for stucco work, furring at least five-eighths (⅝) of an inch in thickness shall be properly fastened to the outside walls in a vertical position, said furring to be spaced not more than eight (8) inches on centers.

(g) Stucco shall not be run down to the ground. If on wood frame, the frame should rest on a masonry foundation at least six (6) inches above the finished grade.

(h) Window sills and other horizontal woodwork shall be given a liberal overhang and drip beyond the face of the stucco, and the ends of all sills shall be provided with a piece of metal or other block to prevent concentration of water at the ends of sills. No horizontal surfaces of stucco on wood shall be permitted.

(i) Flashings shall be provided to prevent water getting behind the stucco, such as at the roof and wall intersections, under joints of masonry, and stucco shall be stopped at least one (1) inch above any projections forming a roof or valley for conduct of water below a stucco surface.

(j) Chimneys should be topped with impervious caps having a drip cut into the under side, and if stuccoed, must be wrapped with expanded metal lath before stuccoing.

(k) Wood lath or other materials unsuitable for making continuous bends around corners shall be reinforced with metallic mesh at least six (6) inches each side of the corners.

(l) Stucco of all kinds, irrespective of bases on which they are applied, shall at no point, be less than three-fourths (¾) of an inch thick.

Note: It is recommended that all stucco be seven-eighths (⅞) inch thick.

(m) Portland Cement stucco shall be applied to conform with the approved standard recommended practice for Portland Cement Stucco, and shall not be applied in freezing weather except when suitably protected from freezing. Other stuccos shall be applied in accordance with recommendations of the respective manufacturers thereof.

Sec. B-809—MAGNESITE STUCCO WORK:

(a) All magnesite stucco or other patented stucco for similar use, hereafter used or applied in the City of Indianapolis shall be applied at least one-half (½) inch thick over the face of the lath, tile or other construction, said thickness to be exclusive of the stone or dash. If the factory specifications for the particular type of such stucco to be used call for one-coat work, the stucco shall be troweled on and brought to a level surface and to a thickness of not

less than one-half (½) inch, outside of the lath or other construction to which it is applied, before the stone or dash is applied. If such factory specifications call for two (2) coat work, the first or scratch coat shall be put on to a thickness of not less than one-quarter (¼) of an inch over the face of the lath or other construction to which it is applied and brought to a smooth surface, and the finish or second coat shall be applied to a thickness of not less than one-quarter (¼) of an inch before the stone or dash is thrown on.

(b) No magnesite stucco or other patented stucco for similar use shall hereafter be applied to lath, tile or other absorbent surface or material until after such surface shall have been thoroughly wet with the chloride or other similar solution which, under the manufacturer's specifications, is to be used in the mixing of the stucco which is to be applied to such surface.

(c) The chloride solution shall be at least as strong (i. e., its specific gravity shall test as high) as the factory specifications call for.

(d) Magnesite stucco or other patented stucco for similar use shall be used only over those materials or constructions recommended by the manufacturer of the particular type of such stucco which is to be used.

(e) All such stucco work shall be mixed and applied except as above provided, strictly in accordance with the specifications of the manufacturer. No ingredients or materials shall be added to any such stucco except such as are called for by such specifications, and any such ingredients or materials so added shall conform, as to proportions and quality, with such specifications.

(f) No magnesite stucco or other patented stucco for similar use, or materials for same, shall hereafter be used in the City of Indianapolis until the manufacturer thereof shall have first submitted such materials to the Commissioner of Buildings, together with the chemical ingredients for same and full and complete printed specifications and instructions for the use of such materials, and secured said Commissioner's approval thereof, and such printed specifications and instructions of the manufacturer, so submitted and approved as above provided, shall thereafter govern, except as hereinabove provided, in the use of such stucco and in all questions arising as to the manner of mixing and applying such material and as to the nature of the material, surface or construction on which it is to be applied, until superseded by other printed specifications and instructions subsequently furnished by said manufacturer and approved by said Commissioner of Buildings.

(g) Magnesite stucco shall not be used on metal fabric unless the same is galvanized or cut from galvanized sheets or unless the stucco manufacturer gives a written five (5) year guarantee to the owner and copy filed with the Building Commissioner for replacement of any part of the construction which may disintegrate inside of five (5) years.

(h) No form of metal lath shall be used which cannot be imbedded in the stucco either by means of backplastering or through proper manipulation and consistency of stucco which will insure this result.

(i) Specifications for Wood Frame Exterior Covered with Back-Plastered Metal Lath Stucco Construction.

Any wall, in any building which is not over two and one-half (2½) stories in height permitted to be constructed of wood studs not less than two (2) by four (4) inches, spaced not to exceed sixteen (16) inches on center may be protected on the exterior exposure with two (2) or more coats of Portland Cement Stucco with a total thickness not less than three-quarters (¾) of an inch applied on metal lath weighing not less than three-and four tenths (3.4) pounds per square yard, back-plastered between the studs with one or more coats of the same material not less than five-eighths (⅝) of an inch thick. The spaces between the studs at their juncture with the floor and ceiling joists and midway between the same shall be properly fire-stopped and not less than one (1) layer of building paper, felt or quilting shall be imposed vertically as insulation between the exterior and interior faces of such walls before plaster is applied on the inner face of the studs.

(j) Specifications for Stucco on Metal Lath Over Sheathing.

When stucco on metal lath over approved sheathed construction is used for exterior walls, studs in such walls shall not be less than two (2) by four (4) inches, spaced not to exceed sixteen (16) inches on center and shall be covered with horizontal sheathing boards with a nominal thickness not less than seven-eighths (⅞) of an inch. Sheathing boards shall not be less than six (6) inches wide. (See Sec. A-908.) Vertical joints of sheathing shall be staggered and over the sheathing boards shall be laid a substantial properly lapped paper or membrane well impregnated and thoroughly water-proofed with tar or asphalt or similar materials. The spaces between the studs at their juncture with the floor and ceiling joists and midway between the same shall be properly firestopped. Cement stucco shall consist of not less than two (2) coats aggregating not less than seven-eighths (⅞) of an inch thickness on the exterior face of the metal lath. Metal lath shall weigh not less than three and four-tenths (3.4) pounds per square yard and shall be furred out from the building paper or other backing. Stucco shall be so applied as to thoroughly imbed the back side of the lath.

Sec. B-809—PLASTERED CORNERS:

Where exposed corners are constructed in any plastered building or structure the said corners shall be provided with corner strips or plaster grounds made an integral part of the plastering so as to protect the corners from abrasion.

Sec. B-810—CLOSETS TO BE PLASTERED:

In any frame constructed building or any other building in which the stairs thereof are of wood construction the under side of all such stairs shall be plastered with metal lath and plaster unless such space is open and has no enclosed space thereunder.

Sec. B-811—PLASTERING OF CHIMNEYS:

In cases where chimneys are constructed in an approved manner without high temperature flue lining the outside of the chimney shall be wrapped with approved metal lath and plastered the full height of the chimney above the cleanout and to the top.

Sec. B-812—PRIVATE GARAGES ATTACHED TO A DWELLING:

A one (1) or two (2) car approved frame constructed garage may be attached or built into any frame constructed dwelling providing the garage is not over five hundred (500) square feet in

area outside of the foundation walls and the inside thereof is completely lined with approved metal lath and plaster. Only one (1) opening from the garage into the dwelling shall be permitted and this opening shall be equipped with a fire door approved by the Bureau of Buildings for the purpose. The underside of the eaves above the garage entrance doors shall also be plastered with approved metal lath and plaster.

Any building on any premises which has an entrance door large enough and so constructed that an automobile can be made to enter shall be classed as a garage.

Sec. B-813—METAL LATH:

Ordinary metal lath or wire cloth of any sort used for plastering either inside or outside of building shall be fastened to the structure in a firm and secure manner approved by the Commissioner of Buildings. On wooden frame construction where the studs or other supports are not over sixteen (16) inches apart ordinary metal lath or other approved wire cloth shall be fastened every four (4) inches to each stud, plate, joist and fire block with either eight (8) penny nails driven almost home and then bent over or with one (1) inch approved wire staples.

Exception—Other approved construction.

Wire or metal lath weighing three and four-tenths (3.4) pounds per square yard or other approved metal cloth shall be used.

Metal lath in which a metal rib is made as a furring and supporting member shall not be used on any span over two (2) feet unless special methods approved by the Commissioner of Buildings are used to properly secure the metal lath to the structure. Screws, lags or other approved metal hangers shall be used.

Sec. B-814—BASEMENT WALLS—PLASTERING ON INTERIOR OF:

Wherever the interior walls of basements are plastered below the grade of the lot, Portland cement mortar shall be used.

DIVISION B—PART NINE
RESTRICTING THE MANUFACTURE AND HANDLING OF CALCIUM CARBIDE AND PRODUCT THEREOF

Sec. B-901—PLANTS:

(a) It shall be unlawful for any person, firm or corporation to erect or maintain any plant for the purpose of filling any tank or container with acetylene gas within the corporate limits of the City of Indianapolis except under the following conditions and restrictions:

(b) Such plants shall not be maintained or such business shall not be engaged in, within a radius of one (1) mile in any direction from the Soldiers' and Sailors' Monument in said City.

(c) A danger zone of at least one hundred (100) feet shall be maintained between any building or buildings in which such acetylene gas is manufactured or compressed and the outside property line of the real estate containing such building or buildings.

(d) Such property line shall be marked by a substantial fence or enclosure containing suitable signs on the outside thereof evidencing the nature of the business conducted within as a warning to the public.

(e) No waste from any such plant or business shall be disposed of by means of any covered sewer.

(f) Acetylene gas shall not be stored under a pressure of more than twelve (12) inches of water except in the tanks herein describd, which tanks shall be completely filled with asbestos saturated with acetone.

(g) Whenever acetylene gas is compressed the process shall be in at least three (3) stages. Each compression cylinder shall be surrounded by a water jacket. The gas shall be cooled between each stage of compression the water being kept in constant circulation.

(h) Such gas shall never be compressed to the point of liquefaction.

(i) No copper shall be used in the machinery, apparatus or equipment in such business, in such a way as to come in contact with acetylene.

(j) All buildings in such business shall be buildings of the first class.

(k) No open light or flame shall be permitted in or about such plant or business.

(l) In generating said gas the carbide or calcium shall be introduced into an excess of water, and water shall not be introduced into an excess of carbide.

(m) Every possible precaution shall be used to prevent a flash or fire where filling generators with carbide of calcium.

(n) Calcium carbide shall be stored only in air and water tight drums. No water or moisture shall be admitted to said drum.

(o) All such impurities shall be removed from such gas so far as possible.

(p) Each such establishment of business shall maintain constant supervision to prevent carelessness of workman, defects in apparatus or machinery and violations of the provisions of this Code. In addition duly authorized city officials shall be admitted at all times to such places for the purpose of inspection.

Sec. B-902—STORAGE AND HANDLING:

(a) The storage and handling of tanks or cylinders containing acetylene gas under pressure in the City of Indianapolis shall be subject to the following rules and restrictions and it shall be unlawful to store or handle same otherwise.

(b) All tanks shall be made of seamless steel properly brazed or of other safe and approved type of construction, capable of withstanding tests of twelve hundred (1200) pounds pressure to the square inch without rupture. They shall withstand strain beyond the point of usefulness at six hundred (600) pounds pressure to the square inch and shall be tested at the place of manufacture to a pressure of at least five hundred (500) pounds to the square inch. They shall be absolutely gas and water tight at the test pressure. When threaded fittings are provided, the length of the thread shall be equal to the diameter of the opening. Each tank shall be provided with an opening to which an accurate pressure gauge may be attached. Each tank shall be supplied with one (1) or more fusible safety plugs so made as to release automatically at a temperature of three hundred (300) degrees Fahrenheit. Each tank shall be filled completely with asbestos or other approved porous material saturated with acetone. Such tanks shall be filled to a pressure of not to exceed two hundred and fifty (250) pounds to the square inch at seventy (70) degrees Fahrenheit.

(c) When any number of such tanks from ten (10) to twenty-five (25) are stored together, they shall be kept in fireproof boxes with self-closing covers and shall be separated from other kinds of stock and merchandise and arranged for ventilation to the outside of the buildings.

(d) When more than twenty-five (25) such tanks are stored together they shall be kept in fireproof vaults or rooms which shall contain no open flame. Such vault or room shall be so arranged as to insure ample ventilation to the outside of the building.

DIVISION B—PART TEN
DRESSED STONE FACINGS

Sec. B-1001—DRESSED STONE VENEER CONSTRUCTION:

Sawed or dressed Stone Ashlar facing, three (3) inches or more in thickness, may be used as a veneer over wood stud wall construction in buildings of Class four, or over masonry bearing wall construction in buildings not over three (3) stories high; when securely attached to the backing with galvanized or asphalt coated metal anchors. Anchors shall not be less than one-eighth (⅛) by one (1) inch in section. There shall be at least one (1) anchor to each stone and two (2) anchors to all stone over eighteen (18) inches in length. With frame construction, each anchor shall be fastened with one (1) ten (10) penny galvanized nail.

Sec. B-1002—STRUCTURAL STONE FACINGS:

(a) Sawed or dressed square Stone Ashlar facing, three (3) inches or more in thickness, may be used as facing on masonry bearing walls in buildings not exceeding three (3) stories high when properly bonded into the backing as hereinafter provided; and such facing, four (4) inches or more in thickness, when so bonded may be used for buildings of any height.

(b) Stone Ashlar faced walls shall have a total thickness of not less than the required thickness for brick or hollow tile walls.

(c) Stone Ashlar facing to comply with the requirements for bond and be figured as a part of the wall, shall have at least fifteen (15) per cent of the superficial area of the wall facing made four (4) inches thicker than the remainder of the facing, to form bond stones, which shall be uniformly distributed throughout the available area of the wall.

Stone Ashlar facing which is more than nine (9) inches thick shall have at least a similar area of uniformly distributed bond stone eight (8) inches thicker than the facing.

(d) The height of facing stone courses shall not exceed eight (8) times the thickness of said Ashlar; excepting that spandrel and other recessed panels, when approved, may exceed this height, provided they are of the minimum thickness, as herein provided.

(e) Every stone over one-half (½) square foot in area and not a bond stone shall be anchored to the backing with galvanized or asphalt coated iron or steel anchors three-sixteenths (3/16) by one (1) inch in section, extending at least eight (8) inches into backing masonry. There shall be at least one (1) anchor to each stone and not less than two (2) anchors for each stone more than two (2) feet in length or three (3) square feet in superficial area. Facing stones over twelve (12) square feet in area shall have at least one (1) anchor for each four (4) square feet of superficial face area.

(f) Isolated piers twenty-four (24) inches or less in width faced with Ashlar shall have bond stones in every alternate course but the area of such bond stones need not exceed the requirement specified in Rule C above.

(g) Where eight (8) inch brick, hollow tile or concrete block walls are permitted for dwellings, sheds and private garages, walls built of a sawed or dressed stone facing three (3) inches in thickness bonded into a six (6) inch thick backing of hollow tile or concrete blocks, by header stone two (2) inches thicker than the facing and equal to at least fifteen (15) per cent of the face area, may be used.

Sec. B-1003—BEDDING OF SANDSTONE:

Sandstone and other laminated stones showing pronounced cleavage shall be laid on their natural bed, excepting for cornices and other projecting members which shall have the grain or bedding planes vertical and at right angles to the face of the wall.

Sec. B-1004—ALLOWABLE LOADS ON STONE ASHLAR MASONRY AND ASHLAR FACED MASONRY:

(a) The loading on sawed or dressed stone shall not exceed the following unit stress in pounds per square inch.

	Uniform load Per sq. in.	Concentrated loads Per sq. in.
(1) Solid Limestone and Granite: Set in Cement and Lime Mortar, or Natural Cement Mortar, 1:3 mix	400 Lbs.	500 Lbs.
(2) Solid Standstone: Set in Cement and Lime Mortar, or Natural Cement Mortar, 1:3 mix	300 Lbs.	400 Lbs.

(3) Ashlar faced brick, hollow tile or concrete block walls:

Unit loading on entire sectional area of walls built of brick, hollow tile or concrete blocks, faced with Stone Ashlar, shall not exceed the allowable loading on the particular class of backing masonry used.

DIVISION B—PART ELEVEN
RUBBLE AND RANDOM ASHLAR MASONRY

Sec. B-1101—ROUGH OR ORDINARY RUBBLE:

Masonry walls composed of unsquared or field stone, laid in mortar without regularity or coursing, shall be at least sixteen (16) inches thick and in no case less than four (4) inches thicker than that required for brick walls.

Boulder work, snake Ashlar and other forms of Stone Masonry laid without level beds shall be included in this classification.

Sec. B-1102—COURSED RUBBLE:

The thickness of solid masonry walls composed of roughly shaped stone sized the full thickness of the wall, and fitted approximately on level beds, shall be not less than the thickness required for brick walls under similar conditions.

Sec. B-1103—RANDOM RUBBLE:

Masonry walls when built of stone extending the full thickness of the wall; composed of roughly shaped stones, laid without regularity of coursing but fitting together with approximately level beds; shall be not less in thickness than brick walls; but when such walls

are built of smaller stone or as a facing to brick or other masonry, they shall have a thickness of not less than sixteen (16) inches in any case and in all cases shall be four (4) inches thickner than brick walls under similar conditions.

At least ten (10) per cent of the face area of such walls shall be header stone bonded at least four (4) inches into the backing masonry.

Sec. B-1104—SOLID EIGHT (8) INCH STONE WALLS:

Where an eight (8) inch thickness of brick, hollow tile or concrete block walls are permitted in this Code for Class D buildings, solid walls of sawed or roughly dressed, coursed or random jointed cut stone eight (8) inches in thickness may be used.

Sec. B-1105—RANDOM ASHLAR:

Walls built of a facing of sawed or dressed squared stone of various sizes, bonded into the masonry backing; built of brick, stone, hollow tile or concrete block; by header stone four (4) inches thicker than the facing, equal to at least ten (10) per cent of the face area, shall be equal or greater in thickness to brick walls under similar conditions.

In cases where less than the specified minimum area of bond stone is employed in Random Ashlar facing, Metal Ashlar anchors shall be used in supplement thereto, for all of the larger size facing stones, in order that such facing may be counted, as a part of the wall thickness; but in no case shall the area of bond stone be equal to less than seven (7) per cent of the superficial area of solid wall.

Sec. B-1106—ALLOWABLE LOADS ON RUBBLE AND RANDOM ASHLAR MASONRY:

(a) The uniform or concentrated loading on Stone Masonry faced walls, shall not exceed the following:

(1) Rough or Ordinary Rubble, seventy-five (75) per cent of the load permitted on brick walls.

(2) Solid Coursed Rubble, loading equal to that on brick walls.

(3) Walls faced with Random Rubble, eighty (80) per cent of the load permitted on backing masonry.

(4) Walls faced with Random Ashlar eighty-five (85) per cent of the load permitted on backing masonry.

DIVISION B—PART TWELVE

RESTRICTING THE HANDLING AND STORING OF MOTION PICTURE FILMS AND OTHER HIGHLY INFLAMMABLE MATERIALS

Sec. B-1201—MOTION PICTURE FILMS—STORAGE AND HANDLING:

(a) It shall be unlawful to handle, store or use motion picture films, including negatives, raw stock, finished product, discarded scrap or used film or sheet celluloid in any building structure, or lot except as hereinafter provided in this section.

(b) The handling, storing or use of motion picture films, including negatives, raw stock, finished product, discarded scrap or used film, or sheet celluloid, is prohibited in any building or structure which is occupied or is intended to be occupied as a hotel, school, a place of public assembly, or tenement house, rooming house, residence of more than one family.

Exception—Twelve reels of motion picture film are permitted in theatres; motion picture theatres and shows or other public assembly provided with an approved projection booth.

(c) The handling, storing or use of motion picture films, including negatives, raw stock, finished product, discarded scrap or used film, or sheet celluloid, is prohibited in any building or structure used for the sale of merchandise or for factory purposes, except in the top story of a fireproof building or structure. Such room used for the handling, or storing of motion picture films or sheet celluloid, shall be completely separated from other parts of the building by a fireproof wall as specified in Section B-1207.

(d) The handling, storing or use of motion picture films, including negatives, raw stock, finished product, discarded scrap or used film, or sheet celluloid is prohibited in any building hereafter erected or occupied, any portion of which is situated within twenty-five (25) feet opposite of any wall of another building which is devoted to any use described in rule B above.

(e) The handling, storing or use of motion picture films, including negatives, raw stock, finished product, discarded scrap or used film, or sheet celluloid, is prohibited in any building not of fireproof construction.

Exception: Film storage is permitted in any second or third class building three (3) stories or less in height, and with no other occupancy except the storage, keeping or handling of motion picture films.

(f) It shall be unlawful to store or place sheet celluloid in larger amount than twenty-five (25) pounds in any building as described above unless stored or placed in a fireproof vault as described in Section B-1206 and A-507 of this Code.

(g) No motion picture films or sheet celluloid shall be handled, stored, or used in any building or place, except by a permit issued by the Commissioner of Buildings.

Sec. B-1202—MEANS OF EGRESS FROM BUILDINGS WHERE MOTION PICTURE FILMS ARE STORED:

(a) All buildings used for film storage shall be provided with at least two (2) independent means of escape in case of fire, situated as remote from one another as possible. One means of escape to be a smoke tower fire escape, and each means of escape shall lead to an unobstructed fireproof exit to the street or alley.

(b) The rules in this part shall not apply to theaters, moving picture shows, exhibiting picture films, except that such theaters are prohibited from handling, storing, keeping or using in excess of twelve (12) reels of film at the same time.

Sec. B-1203—SIZE OF REELS:

A reel of film as the term is used in this Code shall be a standard reel containing one thousand (1.000) feet of film, and weighing approximately five (5) pounds. Where any section of this Code is based upon a given number of reels of film in a vault or cabinet, the capacity of that vault or cabinet shall be deemed to be the maximum number of reels which can be stored in such vault or cabinet.

Sec. B-1204—VIOLATIONS:

After one conviction by any owner, manager or user of any building, room or place, for the violation of any provisions of this part and after one written notice of such violation has not been complied

with within twenty-four (24) hours after such notice, the Commissioner of Buildings is hereby authorized and empowered to seize all motion picture films, sheet celluloid handled, stored or used without a permit or in violation of the provisions of this Code, and to remove same to a place of safety and in case of danger to destroy the same. Any and all expense incurred by the public authorities caused by such action shall constitute a lien for the amount of such expense against the films and sheet celluloid, which if not destroyed, shall be sold at public auction to satisfy the said lien on three (3) days' notice, published in the official newspaper of the City of Indianapolis.

Sec. B-1205—PERMITS:

(a) Upon receipt of an application for permit, the Commissioner of Buildings shall make an investigation for the purpose of ascertaining whether or not the building or place at which it is desired or intended to keep, store or handle motion picture films and sheet celluloid, will comply with the provisions of this Code.

(b) The Commissioner of Buildings may approve such application and transmit the same with his approval thereon to the City Controller, who shall upon the payment by such applicant to the City Controller of a license fee of twenty-five (25) dollars, issue to such applicant a license attested by the City Controller, authorizing such applicant to keep or store at the place designated in the application, motion picture films, unexposed films, motion film negatives, subject to the conditions imposed by the ordinances of the City of Indianapolis, now in force or hereafter passed, relating to the storage or keeping of such films. The aforesaid license fee may be prorated according to month: Provided, however, that no license shall be issued for a sum less than six dollars and fifty cents ($6.50) and all licenses shall expire on the 31st day of December of each year.

(c) No permits for the storage or handling of films shall be granted by the Commissioner of Buildings unless the following conditions are complied with in such buildings or structures occupied or to be occupied by the applicant for such permit.

Sec. B-1206—FILM VAULTS:

(a) It shall hereafter be unlawful for any person, firm, or corporation to keep, handle or store more than fifty (50) reels of moving picture films as defined in this Code unless such films are stored in a fireproof vault.

(b) Such vaults shall be constructed with walls, floor and ceiling not less than six (6) inches in thickness of reinforced concrete, or eight (8) inches of solid brick or twelve (12) inches of hollow tile. In computing the thickness of a floor, wall and ceiling of the building may be included provided it shall be of fireproof construction. No vault shall exceed seven hundred and fifty (750) cubic feet of interior capacity or more than ten (10) feet high in size from finished floor to finished ceiling. Each vault shall have a ventilating duct or ducts of total sectional area of seven hundred (700) square inches or thirty (30) inches in diameter and such duct or ducts shall lead to the outside air. The opening of each duct to the outside air shall be at a point not less than forty (40) feet from any opening of any building opposite the opening of such duct unless the mouth of such duct is at least ten (10) feet above all such openings. Such duct openings shall never in any case be placed nearer to the side property line than ten (10) feet. All ducts from a vault or vaults located in any building shall lead to the outside air vent pipes extending not

less than four (4) feet above the roof of the building. No films, vaults, inspection rooms or cabinets shall be allowed in the basement of any building. All interior ducts shall be constructed of metal not less than one-eighth (⅛) of an inch in thickness and lined on the outside with approved fireproof material not less than two (2) inches trick. No openings shall be allowed in any film vault, except the ventilating duct and entrance door. Only one entrance shall be allowed in each vault, and this opening shall be equipped with approved standard vault, inner and outer fire doors with metal frames, the inner door to be so arranged that it cannot obstruct or interfere with the outer door. The outer door shall be equipped with automatic or self-closing attachments. All shelving and fixtures shall be of incombustible material. All lighting shall be controlled by indicator switches on the outside of the vault. Only vapor proof globes equipped with wire guards and keyless sockets shall be used inside of the vault. The ventilator duct shall be shielded from the weather and provided at the outlet with a wire mesh screen not larger than one-fourth (¼) inch mesh, and if so desired single strength glass may be installed. Where fifty (50) reels of moving picture film or less are kept, an approved metal cabinet not exceeding fifty (50) reels in individual capacity must be provided. Such cabinet shall be made of at least number eight (8) U. S. Gauge sheet metal and provided with a double wall containing one (1) inch air space, and provided with doors to be constructed equivalent to the cabinet walls. Doors shall be self-closing, closely fitting at all points of contact and shall be kept closed and locked. There shall not be more than one (1) cabinet in any premises described in any one permit unless located within a vault as described herein. Each reel must be kept, when not under inspection, in a separate metal container, and each container must be placed on edge in a vault or cabinet. Films shall not be left outside of the cabinet or vault during the non-operation of such film plant or exchange.

Sec. B-1207—EXAMINATION ROOM—PROJECTION ROOM:

(a) There must be a room separated from the rest of the premises by a fireproof partition for the examination, rewinding, cleaning or repairing of any film, and no more than twelve (12) exposed reels shall be handled at any one time in such room. All tables and work benches or chairs in such room shall be made of metal or wood encased in metal and securely fastened in place. There shall be at least one sand pail, one filled water bucket and one approved two and one-half gallon chemical extinguisher in each room or division of the premises which the license covers.

(b) A room if provided for the projection of pictures shall be separated from the rest of the premises by fireproof partitions and so arranged that not more than twenty-five (25) persons shall be allowed in such room at any one time; provided, however, that when a machine is so arranged in a booth that the danger of burning film is eliminated and the machine is approved by the Commissioner of Buildings no such room shall be necessary.

(c) All lighting in the examination, rewinding, cleaning or repairing rooms shall be by electricity and only vapor-proof globes shall be used. No flame shall be used for either lighting or heating, and all heating shall be either by hot water or low pressure steam, and all radiators shall be provided with a wire screen or mesh not greater than one-fourth (¼) inch, and so arranged that nothing can be

placed upon same, and all pipes carrying heated air, water or steam shall be covered with fireproof insulating material.

(d) A fireproof partition shall be a partition of eight (8) inches of hollow tile, plaster block, or brick; four (4) inches of reinforced concrete; two (2) inches of metal lath and plaster; or other approved non-combustible material, not less than six inches in thickness. All openings in the partition shall be protected by self-closing fire doors.

Sec. B-1208—CARE OF PREMISES:

(a) In all places where a permit is granted for the handling, storing or use of motion picture films, the following rules must be observed:

(1) Smoking must be prohibited.

(2) All films when not under examination must be kept in tightly closed metal containers.

(3) In receiving rooms films must be immediately placed in a cabinet or vault.

(4) All film scrap or waste shall be kept in tightly closed metal receptacles not exceeding one foot in height and one foot in diameter, and provided with metal standards not less than four inches in length so that the bottom of the receptacle shall not rest on the floor. The place shall be kept clean from rubbish, debris and waste and such scrap or rubbish shall be removed each day. Combustible material shall not be allowed in any room where motion picture film is handled, stored or used.

(5) All fire preventatives and protecting apparatus and devices shall be kept in good working order.

(6) All electrical machinery, wiring and equipment must be placed and installed as provided in the Electrical Division of this Code.

(7) No collodion, amyl, acetate, or other similar inflammable cement, liquid or substance, in quantities greater than one pint, shall be kept in any room where inflammable motion picture films are manufactured, stored, used, handled or repaired.

(8) No person shall carry a lighted cigar, cigarette, pipe or any lighted flame in any room or floor for which a permit has been issued for the storage, handling, or use of motion picture films.

Sec. B-1209—DUTIES OF COMMISSIONER OF BUILDINGS:

The Commissioner of Buildings or his assistants may visit any motion picture show and theater within the city limits and every licensed building or place where motion picture films are stored, handled, repaired or used and report any violations of this Code to the Board of Public Safety.

DIVISION B—PART THIRTEEN
BRICK AND OTHER CLAY PRODUCTS

Sec. B-1301—MASONRY:

(a) All masonry construction shall be laid up with cement-lime or cement mortar. (See Sections B-102, B-103, B-104, and B-105.)

Sec. B-1302—OPENINGS:

(a) All openings in any masonry wall shall be closed at the uppermost point by approved lintels or arches sufficient to carry the superimposed loads.

(b) Whenever the openings in any horizontal plane of any section of any masonry load bearing wall become more than forty (40) per cent of the total wall area, the wall shall be considered as piers and figured as such.

(c) Openings for doors and windows shall have well buttressed arches; or lintels of masonry, massive or reinforced concrete or metal beams which shall have a bearing at each end of not less than four (4) inches on the wall.

(d) On the outside of the openings that are less than four (4) feet wide, in which the thickness of the lintels or arches is less than the thickness of the wall supported, timber may be permitted which will rest at each end not more than two (2) inches on the wall and be chamfered or cut to serve as centers for arches. No structural load shall be carried on such centers.

Sec. B-1303—WALL THICKNESS:

(a) Buildings of the first class shall be constructed with walls of masonry or concrete of a thickness required as follows:

Thickness in inches of Masonry bearing walls for first class buildings with a live load in excess of two hundred pounds per sq. foot for any or all floors shall be as follows, to wit:

Stories	B	1	2	3	4	5	6	7	8	9	10
1	12	12									
2	12	12	12								
3	16	16	12	12							
4	20	16	16	12	12						
5	24	20	16	16	12	12					
6	24	20	20	16	16	12	12				
7	28	24	20	20	16	16	12	12			
8	28	24	24	20	20	16	16	12	12		
9	32	28	24	24	20	20	16	16	12	12	
10	32	28	28	24	24	20	20	16	16	12	12

Thickness in inches of masonry bearing walls for first class buildings with a live load less than one hundred and ninety-nine pounds per square foot for any or all floors shall be as follows to wit:

Stories	B	1	2	3	4	5	6	7	8	9	10
1	12	12									
2	12	12	12								
3	16	12	12	12							
4	16	16	12	12	12						
5	16	16	16	12	12	12					
6	20	16	16	16	12	12	12				
7	20	20	16	16	16	12	12	12			
8	20	20	20	16	16	16	12	12	12		
9	24	20	20	20	16	16	16	12	12	12	
10	24	24	20	20	20	16	16	16	12	12	12

Exception—Skeleton constructed first or second class buildings.

(b) Buildings of the second class, unless of skeleton construction with panel walls, shall be constructed with walls of masonry or concrete of a thickness required as follows, to wit:

(1) Thickness in inches of masonry bearing walls for second class buildings with a live load in excess of two hundred (200) pounds per square feet for any or all floors shall be as follows:

Stories	B	1	2	3	4	5	6
1	12	12					
2	12	12	12				

3	16	16	12	12			
4	20	16	16	12	12		
5	24	20	16	16	12	12	
6	24	20	20	16	16	12	12

(2) Thickness in inches of masonry bearing walls for second class buildings with a live load less than one hundred and ninety-nine (199) pounds per square foot for any or all floors shall be as follows, to wit:

Stories	B	1	2	3	4	5	6
1	12	12					
2	12	12	12				
3	16	12	12	12			
4	16	16	12	12	12		
5	16	16	16	12	12	12	
6	20	16	16	16	12	12	12

(c) Buildings of the third class shall be constructed with walls of masonry, massive concrete or approved incombustible materials of a thickness as follows, to-wit:

Walls minimum thickness in inches (See Sec. A-722.)

Stories	B	1	2	3
1	12	12		
2	12	12	12	
3	16	12	12	12

(d) Non-bearing masonry curtain walls built between piers or pilasters shall be not less than twelve (12) inches thick for the uppermost fifty (50) feet of height increasing four (4) inches in thickness for each next lower section of fifty (50) feet.

(e) Non-bearing masonry panel walls supported at each story shall be not less than eight (8) inches thick or four (4) inch heavy duty tile bonded to four (4) inches of brickwork, bonded with masonry bonds, or eight (8) inches thick for solid masonry.

(f) Three (3) inch and six (6) inch hollow tile partition walls of hard burnt clay, porous terra cotta or other suitable fireproofing, set in cement lime mortar, may be built not exceeding in their vertical measurement eleven (11) and twenty (20) feet respectively, or one (1) story in height and in their horizontal measurements a length not exceeding twenty-five (25) feet for both unless strengthened by a steel frame, cross walls, piers, columns or buttresses.

(g) In masonry bearing-wall-constructed buildings metal ties shall not be used except in one (1) or two (2) story buildings where twelve (12) inch walls are used; then four (4) inches of the twelve (12) may be tied to the remaining eight (8) inch wall with noncorrosive metal ties of heavy corrugated metal approved by the Commissioner of Buildings for the purpose. The eight (8) inch wall thereof shall be bonded with masonry bonds.

Sec. B-1304—HEIGHT OF STORIES:

In all buildings of all classes of construction the height of stories shall not exceed the following without adequate provision being made to safely sustain the increased stresses.

First Story .....16 Ft. in the Clear
Second Story .....14 Ft. in the Clear
Third Story .....12 Ft. in the Clear
Fourth and Upper Stories.....11 Ft. in the Clear

Exception—Special permission.

Sec. B-1305—PARAPET WALLS:

(a) Parapet walls for second class buildings shall be the same thickness as the wall below the roof including the last story and shall extend thirty (30) inches above the roof at all points and in no case shall be less than twelve (12) inches in thickness.

(b) Division or fire and party walls in second class buildings shall be run through the roof and shall extend at least thirty (30) inches above all roofs or upward projections from the roof and shall be not less than twelve (12) inches in thickness and shall be capped with a tile or other approved coping so applied as to prevent moisture from entering the wall.

(c) Parapet walls for third class buildings shall be of the same thickness as the walls of the last story or story immediately below the roof timbers; and shall be at least eighteen (18) inches above the roof at all points.

(d) All parapet walls shall be coped with approved coping.

Sec. B-1306—CORBLES:

Under each floor of a second class building there shall be four (4) inch masonry corble at all points around the walls of the building for the subfloor to rest upon.

Sec. B-1307—WALL REDUCTION:

(a) The last story above the basement in third class buildings may have the walls thereof reduced to eight (8) inch walls in buildings of Grade C and Grade D. If the first story of any building is of Grade E (except garage buildings or any other buildings where gasoline or other explosive and inflammable materials are kept in any quantity in excess of ten (10) gallons), then the top story or last story above the basement may have the walls thereof reduced to eight (8) inches providing the height of such eight (8) inch wall including the parapet is not over fourteen (14) feet.

Sec. B-1308—PILASTER CONSTRUCTION:

(a) Where first, second or third class buildings are of pilaster and panel wall construction and all structural loads are carried by the pilasters, eight (8) inch panel walls may be used between the pilasters.

(b) The unsupported height of isolated piers of brick, concrete block or massive concrete shall not be greater than ten (10) times the least dimension of said pier. Rubble or other stone shall not be used in piers.

Sec. B-1309—FOUNDATIONS:

(a) All first and second class buildings or structures shall have solid combustible water resisting foundations completely and continuously around the building or structure; constructed no less than twelve (12) inches in thickness for panel or curtain walls and as per above schedule for load bearing walls. (See Sec. B-1303.) Such foundations shall be placed to a depth below the established grade of no less than four (4) feet.

(b) All footings under any wall shall be at least four (4) inches wider than the wall and shall not be less in depth than one-third (⅓) of the width of the footing. Such footings shall be of sufficient size to safely carry the superimposed loads. Footings in filled ground shall be extended downward until a test satisfactorily proves that the footing will stand the superimposed load. All tests of footings

shall be under the direction of the Commissioner of Buildings. (See Sec. B-108.)

(c) All foundation footings for third class buildings shall be forty-eight (48) inches below the established grade (except one (1) story accessory garages and porch columns of masonry shall have footings not less than thirty (30) inches below the established grade). All such foundations shall be of masonry, massive concrete or reinforced concrete.

(d) No foundation wall shall be constructed of any material which will absorb more than fourteen (14) pounds of water per cubic foot of actual material.

(e) All foundations for fourth class buildings of frame shall be at least eight (8) inches with an additional four (4) inches in thickness provided when buildings are veneered with brick, stone or cement.

Exception—If massive concrete is used in the foundation the foundation walls for such veneer buildings shall not be less than ten (10) inches in thickness. Ten (10) feet of veneer may be placed on an eight (8) inch wall with a corble at the top of the foundation if necessary.

(f) Hollow building tile or hollow concrete blocks shall not be used for isolated piers unless the hollow spaces are filled solidly with concrete with a mixture of 1:2:4 or other mix approved by the Commissioner of Buildings. The unsupported height of such piers shall not be greater than ten (10) times their least dimension.

Sec. B-1310—BONDING:

(a) In all masonry walls of brick at least every sixth course shall be a header course or there shall be at least one (1) full header brick in every seventy-two (72) inches of wall surface.

In walls more than twelve (12) inches thick the inner joints of header courses shall be covered with another header course which shall break joints with the course below.

Where running bond is used, every sixth course on each face shall be bonded into the backing by cutting the face brick course and using diagonal headers behind it or by using a split brick.

(b) No metal tie or metal bond shall be used in masonry walls in any building except in one (1) or two (2) story buildings where twelve (12) inch walls are required the outer four (4) inches of the twelve (12) inch wall may be tied to the remaining eight (8) inch wall by approved non-corrosive metal ties. The eight (8) inch part thereof shall have masonry bonds.

(c) In veneered buildings where brick, stone, cement or similar heavy veneer is used on wood frame such veneer shall be fastened by approved non-corrosive metal ties to approved sheathing or the wooden framing lined on the outside with approved sheathing.

Exception—Accessory one (1) story buildings.

Waterproof building paper shall be used in all masonry veneer buildings between the masonry and the lining of the framing.

Exception—Other approved material.

(d) In grade D buildings the minimum thickness of hollow tile, or hollow concrete block walls shall be eight (8) inches for the uppermost twenty-two (22) feet in height with an additional five (5) feet in gable ends.

(e) Tile used for back up of veneer shall be heavy duty tile.

Sec. B-1311—LATERAL SUPPORT OF WALLS:
The lateral unsupported length or height of massive concrete or masonry walls, except as otherwise provided, shall not exceed sixteen (16) times the thickness for top stories and eighteen (18) times the thickness for other stories. Walls need not be limited in both directions.

Sec. B-1312—LENGTH OF WALLS:
The maximum length of vertically supported walls shall not exceed the following between piers, pilasters or other supports.

(1) Twenty-five (25) feet for load bearing eight (8) inch walls for third class construction.

(2) Forty (40) feet for eight (8) inch panel or curtain walls for first and second class construction.

(3) Sixty (60) times the thickness for all walls twelve (12) inches or over in thickness for third class construction.

(4) Ninety (90) times the thickness of all walls twelve (12) inches or over in thickness for first and second class buildings.

Sec. B-1313—WALLS OF HOLLOW CONCRETE BLOCK OR HOLLOW BUILDING TILE:
Walls of hollow building tile or hollow concrete block shall have all hollow tile or all hollow blocks filled solidly with approved concrete, immediately under any floor joists, beams, lintels, girders, door sills, window sills or any other openings in said walls.

Sec. B-1314—CHASES IN WALLS OF HOLLOW BUILDING TILE OR CONCRETE BLOCK:
Pipe chases shall not be cut in eight (8) inch walls of hollow building tile or concrete block nor in any such wall used as backing for veneer except properly formed concrete blocks or built in solid pipe chases are permitted not to exceed one-third (⅓) the thickness of the wall. When such chases are built in; the adjacent tile or blocks shall be filled solid for a distance of at least three (3) inches.

Sec. B-1315—ROOF ANCHORS—JOIST ANCHORS—BEAM OR GIRDER ANCHORS:
(a) Each tier of joists shall be anchored to masonry, reinforced concrete, or massive concrete walls with (T) shaped anchors at intervals of not more than six (6) feet and shall be fastened so as to provide for easy release of the joists in case of fire.
(b) All beams, girders, or trusses shall be anchored to masonry work.

Sec. B-1316—FIRE CUTTING—WOODEN STRUCTURAL PARTS:
All joists, beams or girders that enter any masonry reinforced concrete or massive concrete wall or pier shall be fire-cut with only one (1) inch of the top of the member remaining in the said wall.

Sec. B-1317—ALL ROLOCK WALL IN GRADE D BUILDINGS:
Eight inch hollow brick walls generally known as all Rolock brick walls consisting of alternate layers of headers and stretchers, are permitted in one story Grade D Buildings or one story accessory buildings providing all mortar joints are completely filled with approved cement-lime or cement mortar.

DIVISION C—PART ONE
ELEVATORS—ESCALATORS—DUMB WAITERS—HOISTWAYS
ADMINISTRATION

Sec. C-101—ELEVATOR PERMITS MUST BE OBTAINED:

(a) No person, firm or corporation shall hereafter enter upon the installation or alteration of any passenger or freight elevator, dumbwaiter, hoistway, escalator or any part of the machinery thereof or any hatchway or enclosures or perform any work in connection therewith, until said person, firm or corporation shall have filed with the Commissioner of Buildings plans and specifications giving all the information and description in regard to the construction and material to be used in or about said machinery, hatchway or enclosures and to have obtained from said Commissioner of Buildings a permit to make such installation or alteration.

(b) It shall be unlawful for any person, firm or corporation to install, rebuild, or alter any such elevator or any part of the enclosure connected therewith, before securing such necessary permit therefor. Provided, however, that whenever the cost of any such changing or repairing shall be less than twenty-five (25) dollars no such permit shall be required.

Sec. C-102—PLANS AND SPECIFICATIONS:

Before any permit shall be issued for any repairs or for the installation of any elevator, elevator hoistway, dumbwaiter, escalator, or other machine of like nature used to haul materials or persons within any building or premises the owner or architect shall file in the Bureau of Buildings two (2) complete sets of blue prints and two (2) sets of specifications describing and showing all parts necessary to the installation including the structural supporting members and all enclosures.

An affidavit shall accompany such blue prints unless the Commissioner of Buildings shall not require the same. Such affidavit shall be by the owner or architect showing that the application for permit is true and the work will be carried out according to this Code and the approved plans issued under said permit. (See Sec. A-202; A-206; A-214.)

Sec. C-103—BUILDING LICENSE TO BE POSTED ON JOB:

It shall hereafter be unlawful for any person or owner to do any construction work or repairs on any elevator, escalator, dumbwaiter or like machine or device covered by this Code unless the license issued so to do is posted on the job in a conspicuous manner and according to this Code. (See Sec. A-215.)

Sec. C-104—AUTHORITY OF THIS CODE:

Any part of this Code, its parts, sections and rules shall apply to this division known as the elevator Code and the Commissioner of Buildings shall have full authority to make rules and regulations as provided in Section A-240.

Note—Read carefully all of part two, Division A.

Sec. C-105—WHEN UNLAWFUL TO PUT INTO SERVICE:

It shall be unlawful for any person, firm or corporation to operate or to put into service any elevator that has been installed, rebuilt or changed until after the same shall have been inspected and approved by the Bureau of Buildings.

Sec. C-106—RESPONSIBILITY:

(a) It shall be the duty of the owner of the property upon which an elevator is or may be installed to specify in any lease which he may execute, the party responsible for the care and maintenance of the elevator.

(b) It shall then become the duty of the designated party to make periodic inspections and maintain in proper working order all parts of the elevator installations.

Sec. C-107—INSPECTION:

(a) The following is the schedule of inspections required:

Hoistway-door and car-gate interlocks, contacts control apparatus, controller, automatic stop, limit stops, car and counterweight cables, safeties, guide rails and elevator machines, shall in passenger-elevator installations be inspected quarterly and in freight-elevators installations shall be inspected semi-annually.

Plunger shoes, bypasses and piston rods of hydraulic elevators shall be inspected at least once in three (3) years.

Inspection shall be made by a competent person or representative of the Bureau of Buildings. A certificate of inspection shall be posted in the car, stating the name of the inspector and the date of inspection.

Sec. C-108—AUTHORITY OF INSPECTOR:

(a) Whenever any elevator or parts thereof, or appurtenances thereto are defective, or unsafe, or liable to cause injury to persons or property, said Commissioner of Buildings may condemn such elevator or parts thereof and he may remove or cause to be removed such elevator from service and may, at his discretion, disconnect the power supply and lock the elevator against use.

(b) It shall be unlawful for any person, firm or corporation to put any such defective unsafe or condemned elevator into service, operate or permit such operation of the same until after all defects pertaining thereto shall have been remedied and said Commissioner has reinspected and approved said elevator.

(c) The Commissioner of Buildings and his assistants shall have the power and are authorized to enter any building in the City of Indianapolis, without the hindrance from any one, for the purpose of examining elevators and for the enforcement of the provisions of this Code, and the engineer and operator and all persons having charge of any such elevator, shall assist such inspector or inspectors in making such examination of any portion of such elevator, hatchway, enclosures, or operating machinery connected with any such elevator.

Sec. C-109—MAINTENANCE:

(a) Cable, guides and all parts of machinery shall be kept well lubricated. The oil in bearings and gear casings shall be renewed every six months.

The use of lubricant containing graphite or other opaque substance shall not be permitted on elevator cables.

(b) Pressure and discharge tanks of hydraulic elevators shall be thoroughly cleaned at least once every three (3) years.

(c) Pressure tanks of hydraulic elevators shall be tested with hydrostatic pressure fifty (50) per cent in excess of the maximum working pressure at least once every three (3) years.

Sec. C-110—INSTALLATION:

(a) Elevator hoistways and pits shall be kept clean. No rubbish shall be allowed to accumulate therein nor shall any part be used for storage.

(b) A hatch cover of the vertical lifting type for a platform elevator shall not be used for storage or a similar purpose.

(c) No explosives or highly inflammable substances shall be stored under or near any elevator hoistway.

(d) No material not a permanent part of the elevator equipment shall be permitted on the top or cover of any elevator car.

(e) No wire or current-carrying device shall be substituted for the proper fuse or circuit breakers in an elevator circuit.

(f) Freight elevators shall have legible signs posted on the car and at each landing prohibiting unauthorized persons from riding on the elevator car.

(g) No hand elevator shall be used for carrying safes or other concentrated loads of weight greater than the normal rated capacity of the elevator.

(h) The water level in the pressure tank of a hydraulic elevator should be maintained at about two-thirds (⅔) of the capacity of the tank.

(i) Operators shall be so clothed as to offer no undue accident hazard to themselves or the occupants of the car.

Sec. C-111—NOTIFICATION OF INJURY AND ACCIDENT:

In every case where any injury occurs to any person upon or about, and by reason of the operation or condition of any such elevator or appurtenances thereto, and in every case, of any accident affecting in any manner, the strength or efficiency of any elevator, it shall be the duty of the owner, lessee, occupant or person in control and possession of the premises and elevator wherein any such elevator is located, to notify the Bureau of Buildings immediately.

Sec. C-112—QUALIFICATIONS OF OPERATORS:

(a) Operators shall not be less than eighteen (18) years of age.

(b) Operators shall be free from serious physical or mental defects and shall be selected with consideration for their ability to perform their duties in a careful and competent manner.

Sec. C-113—TRAINING OF OPERATORS:

(a) One week's training under the direction of a competent operator shall be required before a new (inexperienced) operator is placed in charge of a passenger elevator.

(b) Two days' training under the direction of a competent operator shall be required before a new (inexperienced) operator is placed in charge of a freight elevator.

(c) Operators not having previous experience in handling passenger elevators shall not be placed in charge of cars operating at a speed in excess of six hundred (600) feet per minute until properly trained for this service.

Sec. C-114—INSTRUCTIONS TO OPERATORS.

(a) Always open the service switch of an electric elevator or lock the control mechanism of a hydraulic, steam or belted elevator before cleaning or oiling any part of your machine or regulator and when placing the elevator out of service.

(b) Be sure the control mechanism is in the "stop" position before closing the service switch.

(c) Make a trial inspection trip each morning before carrying passengers.

(d) Report any defects promptly to the person in charge.

(e) Do not attempt to make repairs unless instructed to do so.

(f) Carry no passengers or freight while inspections, repairs or adjustments are in progress and operate the car only in response to directions from the inspector or person in charge. Do not move the car when anyone is in the pit or on top of the car except as they may direct.

(g) See that the "locking device" and "safe-hoisting" attachments are in place before a safe or other heavy concentrated load is moved on or off the car platform.

(h) Do not ride in the elevator or allow others to ride while a safe or other heavy object in excess of the rated capacity of the elevator is being carried.

(i) Hoistway doors or gates shall always be closed and locked before the car is started. The car shall be brought to a stop at the landing level before the hoistway door is opened.

(j) Keep car gates, if any, closed while running, and where no car gates are provided keep passengers away from the open edge of the car platform.

(k) Limit the number of passengers to the rated capacity of the car and do not permit crowding.

(l) Do not reverse the control while passing a landing on receipt of a stop signal. In passenger service, continue the trip and respond to the signal on the next trip.

(m) Move control mechanism to the "stop" position on approaching the terminal landings. Do not depend on the limit switches in the ordinary operation of the car.

(n) If the power goes "off" while the car is in motion, move the control mechanism to "stop" position and start the car in the usual manner upon return of the power.

(o) If the car refuses to stop do not attempt to jump off. The car will be stopped by the application of the safeties if it attains excessive speed of descent or by the automatic terminal stops at either end of the hoistway.

(p) If the car should stop suddenly, call for the engineer in charge and operate the machine at his direction.

(q) If the car will not start, return the control to the "stop" position and look for the following causes:

(1) Open circuit in main line or service fuses.

(2) Open circuit in control-circuit fuses.

(3) Open circuit in the service circuit.

(4) Controlling device not properly functioning.

(5) Automatic switch contacts, slack-cable switch, limit switches, door contacts, etc., open.

(6) The brakes releasing improperly.

(7) Lack of lubrication in bearings or thrusts.

If this inspection shows no defects, remove part of the load.

(r) Before allowing freight to be loaded or unloaded, lock the control mechanism of hydraulic, steam or belted machines in the "stop" position or open the auxiliary control switch of an electric elevator.

(s) Familiarize yourself with the emergency devices, understand their function and know how to operate them.

(t) Never leave the car in the ordinary course of operation nor leave the control mechanism unprotected. When going off duty, for any reason, even for a few minutes, be sure that the power is disconnected or that the control mechanism is locked and the hoistway doors closed. When service is suspended for any reason during the ordinary operating hours display a "NOT RUNNING" sign at each landing.

(u) Learn these rules thoroughly and keep a copy on your person or in the car.

DIVISION C—PART TWO
HOISTWAY CONSTRUCTION FOR PASSENGER FREIGHT ELEVATORS AND FOR DUMBWAITERS

Sec. C-201—FIRE-RESISTING HOISTWAY ENCLOSURES:

(a) Passenger elevators in all buildings shall be installed in fire-resisting hoistways. (A-415.)

Exception: Elevators in private residences.

Note—Experience has demonstrated the value of the elevator as a life-saving device in case of fire. A simple form of fire-resisting construction (cement plaster on metal lath) will usually resist a fire for a greater length of time than the elevator can be used as an exit from a burning building. Fire-resisting hoistways are therefore required for all elevators.

(b) All landing openings in a fire-resisting hoistway enclosure shall be provided with fire-resisting doors.

Sec. C-202—CLEARANCE ON THE SIDES OF THE HOISTWAYS OF POWER ELEVATORS:

(a) The hoistway of a power elevator shall have a clearance of not less than three-fourths (¾) inch between the sides of the car and the hoistway enclosure, and not less than one (1) inch clearance between the car and its counterweights.

Exception: Platform and sidewalk elevators having a travel of more than thirty (30) feet.

(b) The clearance between the car platform and the landing thresholds shall be not less than three-fourths (¾) inch nor more than one and one-half (1½) inches.

Exception: Platform and sidewalk elevators having a travel of not more than thirty (30) feet.

TABLE ONE (1) OVERTRAVEL AND CLEARANCE FOR POWER ELEVATORS

Speed feet per min. Above	To and including	Overtravel at top Ft.	Clearance at top Ft.	Overtravel at bot. Ft.	Clearance at bot. Ft.
		FOR PLUNGER ELEVATORS			
0	50	2½	2	1	2
50	150	3	2	1½	2
150	300	5	2	2½	2
300	500	7	2	3½	2
		FOR POWER ELEVATORS OF OTHER TYPES			
0	150	3	2	1½	2
150	350	4	2	2½	2
350	500	5	2	3½	2
500	600	5½	2	4½	2
600	800	6	2	5½	2

(c) The clearance between a hoistway enclosure and a loading side of the car platform shall be not more than four (4) inches.

Exceptions: (1) Platform and sidewalk elevators having a travel of no more than thirty (30) feet; (2) Elevators having car gates provided with electric contacts.

(d) If two (2) or more cars are operated in adjacent hoistways, the clearance between cars shall be not less than two (2) inches.

(e) If "furring out" be necessary to comply with the foregoing requirements, the "furring" shall conform to the requirements of Section C-211, rule D, for hoistway enclosures.

Sec. C-203—PITS—OVERTRAVEL AND CLEARANCES:

(a) A pit shall be provided at the bottom of every power-elevator hoistway.

Exception: Platform elevators having a travel of not more than fifteen (15) feet.

(b) The minimum clearance and overtravel at the top and bottom of power-elevator hoistway shall be those given in table one (1).

Exceptions: (1) The pit for power sidewalk elevators shall be not less than two (2) feet deep; (2) No overtravel shall be required at the bottom of the hoistway of platform elevators having a travel not in excess of fifteen (15) feet.

(c) The floor of the pit shall be approximately level. Sufficient slope shall be allowed for drainage but no recess shall be allowed under the car sling.

The requirements of this paragraph may be waived if old foundation footings are encountered in a new installation and it is inadvisable to remove the footing entirely. The hazard due to an uneven pit, however, should be recognized and precautions taken to minimize this hazard.

(d) The movement necessary to compress the bumpers may be included in the overtravel at the bottom.

(e) A minimum overtravel of eighteen (18) inches shall be provided at the top for hand elevators. No overtravel is required at the bottom for hand elevators.

(f) No overtravel or clearance shall be required for hand dumb-waiters.

(g) The minimum overtravel at the top and the bottom of power dumb-waiter hoistways shall be as given in Table 2.

Exception: No overtravel shall be required at the top for "under-counter" dumb-waiters.

TABLE TWO (2) OVERTRAVEL FOR POWER DUMB-WAITERS

Speed Ft. per Min.		
Above	To and Including	Overtravel at top and bottom
0	100	9 inches
100	200	1 Foot 6 inches
200	500	2 Feet 6 inches

Sec. C-204—HOISTWAY WINDOWS AND PENTHOUSES:

(a) Windows in the hoistway enclosures of a power freight elevator shall be provided with vertical bars or grating having a clearance of four (4) inches as specified in Section C-202, clause c, if the car has an entrance toward this wall. The upper surface of the recess formed by or between the vertical bars shall be beveled as specified for projections in Section C-211, rule (G). (A-415.)

Exception: Elevators having car gates equipped with electric contacts.

(b) Windows in the hoistway enclosure below the seventh floor above the street and at least two (2) stories above the roof of an adjacent building shall be fitted on the outside with vertical metal bars not less than five-eighths (⅝) inch in diameter and spaced not more than ten (10) inches apart.

Note: This is the unusual method of indicating on the exterior of the building the location of an elevator hoistway, and serves to warn firemen attempting to enter the building or placing ladders against such windows.

In connection with the fire protection of hoistways involving such features as skylights, windows and platforms below overhead machinery, reference should be made to the requirements relating thereto of fire protection sections of this Code.

(c) Adequate permanent provisions for artificial light (electric light, if available) shall be made in the penthouses and machine rooms of power elevators.

The penthouse lighting switch, if electric light is used, or the lamp, if electricity is available, shall be within easy reach of the entrance to the penthouse.

It is recommended that the elevator service switch and the penthouse lighting switch be located at the lock jamb side of the penthouse entrance door. Both these switches shall be of the enclosed type.

(d) Safe and convenient access to the penthouse entrance shall be provided. When penthouse entrance is more than four (4) feet above the adjacent floor or roof surface, access shall be provided by means of an iron ladder or stairs with an incline not in excess of sixty (60) degrees from the horizontal.

The ladder or stairs shall be fitted with metal handrail above the outside stringers. When the entrance door opens outwardly a platform shall be provided not more than eight (8) inches below the door sill. The platform shall be not less than two (2) feet wide and shall project not less than two (2) feet beyond the "lock" jamb of the door. A guardrail shall be provided at the edge of this platform except where the ladder or stairs join the platform.

Elevator penthouses shall not be used as a public thoroughfare. Doors to elevator penthouses shall be fitted with pressure releasing locks which permit the door to be opened from the inside without a key.

(e) Penthouses of power elevators shall be constructed with a minimum headroom of six (6) feet above the platform required in Section C-206.

Sec. C-205—MACHINE SUPPORTS—LOADS OR SUPPORTS AND FACTORS OF SAFETY:

(a) All beams for the support of overhead machinery of power driven elevators hereafter installed shall consist of iron or steel and these beams shall rest on supports of steel, concrete, masonry, or wood of sufficient strength to sustain the required load. The factor of safety of all supports must be at least six (6). If vertical wood supports are used they shall be not less than eight (8) inches by eight (8) inches in size. All vertical supports shall rest on foundations of concrete or masonry.

(b) All machinery and sheaves shall be so supported and anchored as to effectually prevent any part becoming loose or displaced. The supporting beams shall be of steel, iron or reinforced concrete.

It shall not be necessary, however, to install beams under machinery anchored directly to independent foundations, to the floor of the machine room or to the platform if such foundation, floor or platform is properly constructed to support the loads.

(c) In computing loads on overhead supports, due allowance must be made for the additional stress imposed by the acceleration and retardation (32.2 feet per sec. per sec.) of the moving parts.

(d) No elevator machinery shall be hung underneath the supporting beams at the top of the hoistway.

Exception: (1) The idler or deflecting sheaves with their guards and frames; (2) Devices and their accessories for limiting or retarding the car speed; and (3) Dumb-waiter machines.

(e) The factor of safety based on the ultimate strength of the material and the loads assumed in this section shall be not less than the following:

For Steel 6
For Timber 10
For Reinforced Concrete 8

Sec. C-206—PLATFORMS UNDER MACHINERY:

(a) A flooring of iron, steel, wood or reinforced concrete, capable of sustaining a concentrated load of three hundred (300) pounds shall be provided at the top of the hoistway immediately below the sheaves or at the machine beams.

Exceptions: (1) The hoistways of elevators operating through automatic hatch covers; (2) Sidewalk elevators outside the building line; (3) Hand elevators; and (4) Dumb-waiters.

If a metal grating is used the mesh shall be not larger than one and one-half (1½) inches. Any grating with mesh larger than one (1) inch shall be covered by an additional screen of not larger than three-eighths (⅜) inch mesh. This screen shall be securely fastened in place.

(b) If the grating members are laid flat, they shall be supported by battens spaced not more than three (3) feet apart. If the grating members are placed on edge, there shall be thimbles between each two (2) members strung on metal rods running through the members. The rods shall be riveted at their ends and spaced not more than three (3) feet apart. Equivalent construction may be provided.

(c) Wood platforms in fire-resisting hoistways shall be not less than three (3) inches in thickness. If the platform is made of two (2) or more layers and any layer is less than three (3) inches in thickness, the layers shall be securely spiked or bolted together.

(d) The grating or flooring must fill the entire hoistway if the cross-sectional area is fifty (50) square feet or less, otherwise the platform shall extend not less than two (2) feet beyond the general contour of the sheaves or machines, and to the entrance of the hoistway at or above the level of the platform.

(e) If the platform does not entirely cover the hoistway, the open or exposed sides shall be provided with a standard handrail and toeboard, or with a screened railing not less than forty-two (42) inches high.

(f) Deflecting sheaves extending below the machine level shall be provided with cradles which comply with the requirements for Class B guards referred to in Section C-210.

Exception: Dumb-waiters.

Sec. C-207—STOPS FOR COUNTERWEIGHTS:

(a) Where winding drum machines are used there shall be a permanent, substantial beam or bar at the top of the counterweight guides and beneath the counterweight sheaves to prevent the counterweights from being drawn into the sheaves.

Exception: Dumb-waiters.

Sec. C-208—PIPES AND WIRING:

(a) The electrical conductors installed in or under an elevator or counterweight hoistway except the flexible cables connecting the car with the fixed wiring, shall be encased in metal conduits or shall be armored cables.

No pipes conveying gases or liquids which if discharged into the hoistway would endanger life, shall be installed in or under any elevator or counterweight hoistway.

No electrical conduits or cables, except such as are used to furnish or control power, light, heat or signals for the elevator or hoistways, shall have an opening, terminal, outlet or junction within the hoistway, but shall be continuous between outlets or terminals situated outside the hoistway.

Note: It is not intended to prohibit the interruption of long runs for the purpose of supporting or pulling in conductors, and pull boxes may be installed for this purpose.

Pipes, conduits and armored cables shall be securely fastened to the hoistway enclosure.

(b) No part of any electric circuit having a nominal voltage in excess of seven hundred and fifty (750) volts shall be used on any car-control system. Circuits of higher nominal voltages may, however, be used in machine rooms or penthouses for the operation of motors, provided that all control and signal wiring is thoroughly insulated from the power circuits and all machine frames and metal handropes are thoroughly grounded.

(c) All live parts of electrical apparatus in elevator hoistways shall be protected against accidental contact with current-carrying parts by suitable enclosing coverings. Metal coverings shall be thoroughly grounded. All wiring shall comply with the requirements of this Code.

Sec. C-209—THOROUGHFARES:

(a) No thoroughfare shall be permitted across the hatch cover of a hoistway whether inside or outside of a building, except over the hatch cover at the top landing of a platform or sidewalk elevator.

(b) A hatch cover of the vertical lifting type for a platform elevator shall not be used as a thoroughfare unless,

(1) There is a space of two (2) feet above the hatch cover when at the top of its travel, and

(2) Gates not less than thirty (30) inches high are placed at the exposed sides before the hatch cover is raised.

(c) A hatch cover of the swinging type for a sidewalk elevator shall not be arranged to open against the building nor shall it be used as a thoroughfare unless when vertically opened there is a space of eighteen (18) inches between the covers and any obstruction in the direction of opening.

(d) There shall be no thoroughfare under the hoistway of an elevator, or counterweight unless all of the following conditions exist:

(1) Bumpers or buffers are provided conforming to the requirements of such devices.

(2) The car and counterweights are provided with safety devices conforming to the requirements of such devices.

(3) There shall be a floor under the hoistway sufficiently strong to withstand without injury the impact of the car or counterweight descending with rated load and at normal speed, or at governor tripping speed where a governor is used.

Exceptions: Dumb-waiters.

Sec. C-210—STANDARD GUARDS:

(a) The standard railings, toeboards, guards for cables and machinery, etc., mentioned in this Code shall conform to the requirements of the Commissioner of Buildings in each case.

(b) When projections into elevator shafts are necessary, such as floors, beams, sills or bolts shall have guards fitted directly under such projections so as to push any projecting portion of the body back into the car instead of crushing it. These beveled guards shall be set at an angle of not less than sixty (60) degrees with the floor level. On new installations these guards shall be made of smooth metal not less than one-sixteenth (1/16) inch in thickness, or smooth concrete in first class buildings.

Sec. C-211—NON-FIRE RESISTING HOISTWAY ENCLOSURES:

(a) Where hoistways do not serve more than two (2) floors; they shall be enclosed to a height not less than six (6) feet from each floor on all sides not used for loading or unloading. Where material is stored near a hoistway enclosure the enclosure shall extend from floor to ceiling.

Exception: The hoistways of dumb-waiters or elevators serving more than two (2) floors shall be enclosed from floor to ceiling.

(b) Where an elevator is located adjacent to a stairway, that portion of the hoistway adjoining the stairway shall be enclosed to a height of not less than six (6) feet above each stair tread. An elevator and a stairway will not be permitted in the same shaft or well enclosure in any case. (See Section A-415.)

(c) The hoistways of power passenger and freight elevators shall be enclosed from door lintel to ceiling, on the sides used for loading and unloading.

Exceptions: (1) Platform elevators within a building having a travel not exceeding fifteen (15) feet; (2) Sidewalk elevators having a travel not exceeding thirty (30) feet; three (3) elevators operating through automatic hatch covers; and four (4) elevators having gates provided with car-gate electric contacts.

The enclosures shall be not more than four (4) inches from the edge of the car platform on the sides used for loading or unloading.

(d) Enclosures shall be building walls, solid or latticed partitions, grille work, metal grating, expanded metal, or wood not less than one and five-eighths (1⅝) of an inch thick.

Where wire grille work is used, the wire shall be not less than No. 13 Steel Wire Gauge (0.0915 in. diam.), and the mesh shall be not more than two (2) inches.

Where expanded metal is used, the thickness shall be not less than No. 13 U. S. Gauge (0.094 in. diam.)

Wood slats shall be not less than one and five-eighths (1⅝) inches thick.

The spacing between vertical bars shall be not less than one (1) inch, except where used as "furring" material required in Section 202. In this case the spacing between vertical bars or slats shall be not more than four (4) inches.

(e) When any of the following conditions exist, openings in the enclosures shall be covered with a netting of a square mesh not greater than one-half (½) inch and of wire not smaller than No. 20 Steel Wire Gauge (0.0348 in. diam.):

(1) The clearance between the enclosure and any part of the car, counterweight, or any sliding landing door is less than one (1) inch.

(2) The enclosure is grille or openwork having openings which will pass a one and one-half (1½) inch diameter ball.

(3) The openings in the enclosure are within reach of a person standing on a landing, stairway, floor or car platform.

(f) Projections extending one (1) inch or more from the general surface of the hoistway enclosure, and which are opposite a car entrance of a power elevator shall be beveled on the under side at an angle of not less than sixty (60) degrees from the horizontal or shall be guarded with metal plates or by wood faced with metal of not less than No. 11 U. S. Gauge (0.125 in.).

These plates or guards shall be firmly and permanently fastened to the hoistway enclosure.

Exception: Elevators having cars provided with car-gate electric contacts.

(g) Recesses, other than windows and landing openings in the general surface of the hoistway enclosure of a power freight elevator, which are opposite a car opening shall be filled in flush with the general surface of the hoistway to comply with Section C-211, rule D.

The under surface of a recess formed by or between vertical bars shall be beveled as specified for projections in Section C-211, rule F.

(h) Hoistways for freight elevators having hatch covers as set forth in Section 212 will be accepted in lieu of the enclosure herein required, provided that in addition to such hatch covers the hoistway shall be guarded on all sides not used for loading and unloading, by a standard railing and toeboard as described in Section 210. Such railing shall be placed not less than twelve (12) inches from the general line of the hoistway.

(i) The hoistway enclosure adjacent to a landing opening shall be of sufficient strength to support in true alignment the landing doors and gates with their operating mechanism and interlocks.

Sec. C-212—PROTECTION OF HATCH OPENINGS:

(a) Automatic hatch covers shall be capable of sustaining a uniformly distributed load of fifty (50) pounds per square foot when closed. The hatch covers of sidewalk elevators shall, when closed, be capable of sustaining a live load of three hundred (300) pounds per square foot. The dimensions of sidewalk openings shall not exceed five (5) feet at right angles to the curb, and seven (7) feet parallel to the curb.

(b) Wood hatch covers shall be metal-clad on their under side and edges, except at the top landing of sidewalk elevators, wood will not be permitted.

(c) Hinged hatch covers shall not be used if the elevator cars have a clear platform area of more than fifty (50) square feet. Hinges to hatch covers shall be approved and of sufficient strength and be securely fastened to withstand the service of normal operation. No means shall be provided for fastening hatch covers open, except for sidewalk elevators.

(d) The sidewalk landing of a sidewalk elevator shall be guarded on each exposed side by a gate not less than thirty (30) inches high when the hatch cover is open and the car is not at the landing.

The sidewalk landing shall also be guarded as specified above when the unattended car is at the landing.

Sec. C-213—COUNTERWEIGHT-RUNWAY ENCLOSURES:

(a) Runways for counterweights located outside of the elevator hoistway and for elevators operating through automatic hatch covers shall be enclosed throughout their height, whether located inside or outside of the building.

(b) Counterweight runways of power elevators located in the elevator hoistway shall be enclosed from a point twelve (12) inches above the floor of the pit to a point at least seven (7) feet above the floor of the pit except where compensating chains or cables which practically compensate for the weight of the hoisting cables are used. In this case counterweight enclosures shall not be required on the side facing the elevator.

(b) Access shall be provided for inspection, maintenance and repair of all counterweights and cables. Where swinging doors provide access, they shall be equipped with spring hinges to close the doors.

Sec. C-214—CABLE ENCLOSURES:

(a) Where cables pass through floors outside the hoistway enclosures, such cables shall be guarded to a height of at least six (6) feet from each floor with a standard approved power-transmission guard. The floor openings shall be not greater than necessary for the free passage of the cables.

Sec. C-215—GATE-COUNTERWEIGHT ENCLOSURES:

(a) Gate or door counterweights shall run in metal guides from which they cannot become dislodged or shall be "boxed in." The bottom of the guides or boxes shall be so constructed as to retain the counterweight rope breaks.

Sec. C-216—HOISTWAY-DOOR INTERLOCK:

(a) The functioning of a hoistway-door interlock, to prevent the movement of the car, shall not be dependent on the action of a spring or springs in tension, nor upon the closing of an electric circuit.

(b) Any forces used to perform any interlocking function shall be so arranged that their failure to cause the interlocking action will prevent the movement of the elevator car.

(c) A hoistway door or gate shall be considered closed and locked when within four (4) inches of full closure, if at this position and any other, up to full closure, the door or gate cannot be opened from the landing side more than four (4) inches.

(d) Interlocks may permit the starting of the elevator when the door is within four (4) inches or less of full closure, provided that the door can again be opened up to four (4) inches from full closure from any position within this range except that of full closure.

Exception: The interlock shall not prevent the movement of the car when the emergency is in temporary use or when the car is being moved by a car-leveling device.

Sec. C-217—HOISTWAY-DOOR AND CAR-GATE ELECTRIC CONTACT:

(a) The functioning of an electric contact to prevent the movement of the car, shall not be dependent upon the action of a spring or springs in tension nor upon the closing of an electric circuit.

(b) Electric contacts shall be designed so that they are directly opened by a lever or other device attached to and operated by the door or gate, or by the attendant.

(c) Car-gate contacts shall be held open by the opened gate, unless they are installed so as to be inaccessible from the elevator car.

Exception: The contact shall not prevent the movement of the car when the emergency release is in temporary use or when the car is being moved by a car-leveling device.

Sec. C-218—EMERGENCY RELEASE:

(a) The emergency release control shall be in the car, plainly visible to the occupants of the car and reasonably, but not easily, accessible to the operator.

(b) To operate the car under emergency conditions it shall be necessary for the operator to break a glass cover protecting the emergency release and to hold the emergency release in operating position. The emergency release shall be so constructed and installed that it cannot be readily tampered with or "plugged" in the operating position. (See Section C-421.)

(c) Rods, connections and wiring used in the operation of the emergency release, that are accessible from the car, shall be enclosed to prevent being tampered with readily.

Sec. C-219—CAR-LEVELING DEVICE:

Rules governing the construction and operation of car-leveling devices will be promulgated when these devices are more fully developed.

Sec. C-220—HOISTWAY DOORS FOR PASSENGER ELEVATORS:

(a) No automatic fire door, the functioning of which is dependent on the action of heat, shall lock any landing opening in the hoistway enclosure of any passenger elevator nor any exit leading from any hoistway landing door to the outside of the building

(b) Landing openings in passenger elevators hoistway enclosures shall be protected by sliding doors, combination sliding and swinging doors or by swinging doors. See Section A-415, rule E to rule R inclusive.

(c) The distance between the hoistway side of the landing door opposite the car opening and the hoistway edge of the landing threshold, shall be not more than four (4) inches. If the door slides in two (2) or more sections, the four (4) inch dimension applies to that section which closes against the door jamb.

No hardware, except that required for interlocking indicator and signal devices, shall project into the hoistway beyond the line of the landing threshold. The lower edge of the interlocking devices shall be beveled as required in Section C-211, rule F.

(d) Hoistway-door interlocks which conform to Section 216 shall be used on the hoistway doors of power passenger elevators.

(e) Provision shall be made to render the car operative independent of the position of the landing doors, in case of fire, panic, or other emergency, by means of an emergency release conforming to Section 218.

(f) Hoistway doors for hand passenger elevators shall be equipped with interlocks, unless (1) hoistway gates which close when the car leaves the landing are installed in addition to the hoistway doors; or (2) the hoistway door is made in two (2) parts one above the other, the lower part extending not less than thirty (30) inches above the floor and arranged to be opened only after the upper part has been opened.

(g) Hoistway doors shall be arranged to be opened by hand from the hoistway side, except when locked "out of service." Neither the main exit doors nor the doors at the lower terminal landing shall be locked "out of service" while the elevator is in operation.

(h) If the entire control of a power passenger elevator is located on the car, the hoistway doors shall be so arranged that they cannot be opened from the landing side, except by a key or a special mechanism. If the control is not locked entirely on the car, the hoistway doors shall be so arranged that unless the car is at the landing, the doors cannot be opened from the landing side except by a key or a special mechanism.

(i) The landing doors of a passenger hand elevator enclosure may be opened from the landing side of the door and

(1) The openings are equipped with gravity closing gates extending to the floor; or (2) If the hoistway door is made in two (2) parts, one above the other, the lower part extending not less than thirty (30) inches above the floor and arranged to be opened only after the upper part has been opened or (3) The landing door is equipped with two (2) spring locks or latches, one (1) located not less than six (6) feet above the floor.

(j) Provision shall be made for opening all landing doors from the landing side by means of a key or a special mechanism.

(k) Landing doors for passenger elevators shall be so arranged that it is not necessary to reach back of any panel, jamb or sash to operate them.

Sec. C-221—HOISTWAY DOORS AND GATES FOR FREIGHT ELEVATORS:

(a) Landing openings in freight-elevator hoistway enclosures, except for one-story sidewalk elevators, shall be equipped with doors or gates. If doors are used they shall comply with the fire-resisting requirements for doors in such enclosures.

Landing openings in the outside wall of a building shall be equipped with doors complying with the fire-resisting requirements for doors in such walls.

(b) Hoistway doors or gates shall withstand a force of seventy-five (75) pounds applied perpendicularly to the door or gate at any

point without permanent deformation and without being sprung from their guides.

(c) Hoistway gates made of grille, lattice or other openwork shall reject a ball two (2) inches in diameter.

(d) Gates shall extend from the landing threshold to a height of at least sixty-six (66) inches when closed, unless lack of headroom makes gates of this height impracticable. Nails shall not be used in wooden gates.

The openings between the slats or bars of such gates shall be not more than two (2) inches in width except of that on the side where the operating cable is operated, an opening may be made sufficiently large to allow for the operation of the cable. The bottom cross slat of the gate shall come to within two (2) inches of the floor when the gate is down or to within six (6) inches of the floor when the platform is equipped with a covering as herein provided for. In this case the gates shall be not less than forty-two (42) inches high, and—except top landing gates for elevators operating through automatic hatch covers shall be set back at least twelve (12) inches from the landing threshold and the car shall be provided on landing sides with warning chains suspended from the car platform.

Where lack of headroom precludes a standard gate at the lowest landing, the bottom rail of the gate may be placed not more than eighteen (18) inches above the floor.

Warning chains shall be not less than three (3) feet long and spaced not more than six (6) inches apart. They shall be of wire not smaller than No. 7 Steel Wire Gauge (0.177 in. diam.), and fastened to wood sills or cleats with one (1) inch staples.

(e) Collapsible gates are not recommended, but if used shall be so made and guarded as to prevent accidents due to shear. Nails shall not be used in wooden gates.

(f) The hoistway doors or gates for freight elevators and locks except when semi- or full-automatic gates or doors are used. Interlocks and electric contacts shall conform to the requirements of Rules C-216 and C-217, respectively.

(g) Provisions shall be made to render the car operative independent of the position of the landing doors in case of fire, panic or other emergency, by means of an emergency release conforming to Rule C-218.

(h) Semi- or full-automatic gates shall move in guides.

(i) Terminal and intermediate landing openings of elevators operating at a speed of not in excess of seventy-five (75) feet per minute, and designed for carrying automobiles and trucks, may be provided with full automatic doors or gates.

(j) Hoistway doors or gates closed by gravity and not by direct motion of the car shall be permitted only if the car speed does not exceed seventy-five (75) feet per minute.

(k) Semi-automatic gates or doors of power elevators shall be provided with a locking device which will prevent the normal opening of the gate or door unless the car floor is at or near the landing.

(l) A sign shall be placed on the landing side of all freight elevators that are equipped with automatic fire or trap doors as follows:

NEVER USE THIS ELEVATOR IN CASE OF FIRE; USE THE STAIRWAY

in letters two (2) inches high of metal or other durable material.

Sec. C-222—DOORS AT DUMBWAITER LANDINGS:

(a) Landing openings in dumbwaiter hoistway enclosures, except at the upper terminal landing of "under-counter" dumbwaiters serving only two (2) adjacent floors shall be equipped with gates or doors, unless the bottom of the opening is not less than thirty (30) inches above the floor.

(b) The upper terminal landing opening of "under-counter" dumbwaiters serving more than two (2) adjacent floors shall be provided with approved means to guard persons from falling down the hoistway.

(c) Landing doors of power dumbwaiters serving two (2) adjacent floors may be counterweighted to remain open if the bottom of the floor is not less than eighteen (18) inches above the floor.

(d) Landing openings for "button-control" dumbwaiter hoistways serving more than two (2) landings shall be protected with gates or doors equipped with electric contacts which prevent the operation of the machine while any hoistway gate or door is open.

(e) If the bottom of the opening is large enough to be mistaken for a door to a room, the landing door shall be in two (2) parts, one (1) above the other, the lower part extending not less than thirty (30) inches high above the floor, arranged to be opened only after the upper part has been opened, except where approved gates which close when the car leaves the landing are installed in addition to the landing doors.

(f) Landing openings of power dumbwaiters hoistways serving three (3) or more floors shall be provided with fire-resisting gates or doors conforming to the requirements specified in Section C-201, rule A and Section A-415.

Sec. C-223—LIGHTING AT LANDINGS:

(a) When the car of a power elevator is in service at the landing, the landing edges of the threshold and car platform shall be plainly visible. The minimum allowable illumination on car floor and landing threshold shall be 0.75 foot-candle.

Note: This illumination is approximately that given by a forty (40) watt metallic-filament lamp with a plain glass globe placed seven (7) feet three (3) inches from the landing edge of the car platform or of a sixty (60) watt lamp of the same type placed nine (9) feet from the landing edge.

Sec. C-224—LANDING FLOORS FOR PASSENGERS AND FREIGHT ELEVATORS:

(a) The door saddle shall be constructed and maintained so that persons will not readily slip thereon.

(b) If there is a railroad track upon any elevator landing, the tops of the rails shall be flush with the floor for a distance of six (6) feet from the threshold.

Sec. C-225—MACHINE-ROOM LOCATION:

(a) Elevator machine rooms shall be provided with ample illumination.

For machine rooms located in the penthouse, see Section C-204.

(b) Power-elevator machines shall be surrounded by substantial approved grille work or other enclosure unless located in machine,

engine or pump rooms in charge of an attendant or secure against unauthorized access.

Sec. C-226—ACCESS TO MACHINERY:

(a) Safe and convenient access shall be provided to power-elevator machinery. This access shall be exterior to and independent of the hoistway or car. If the parts are located on or over a platform at the top of the hoistway, access shall be above the level of the platform, if practicable. (See Section A-415.)

(b) Exposed gears, belts and other moving parts of elevator machinery shall be guarded in accordance with the standards as recommended by Commissioner of Buildings.

(c) When double-belted elevator machines are hung from ceilings, roofs or mezzanines, a working platform extending not less than eighteen (18) inches beyond the general contour of the machine shall be provided underneath the machine between the floor when the supporting beam is ten (10) feet six (6) inches or more.

The distance between the under side of this platform and the floor shall be not less than six (6) feet, six (6) inches, and the distance between the under side supporting beams and the platform shall be not less than five (5) feet, six (6) inches from the supporting beams when the distance from the supporting beams and the floor is more than twelve (12) feet.

This platform shall be capable of sustaining a concentrated load of three hundred (300) pounds per square foot, and provided with handrails and access ladder.

DIVISION C—PART THREE
POWER PASSENGER ELEVATORS

Sec. C-301—CAR AND ENCLOSURE CONSTRUCTION:

(a) Power passenger-elevator car enclosures shall not deflect more than one-quarter (¼) inch if subjected to a force of seventy-five (75) pounds applied at any point perpendicular to the enclosure. The car enclosure shall be secured to the car floor and sling in such a manner that it cannot work loose or become displaced in ordinary service.

(b) Power passenger-elevator cars shall have steel slings designed with a factor of safety of at least six (6) based on the rated load uniformly distributed, except that elevators in private residences and elevators of the plunger type which are not provided with counter-weights need not comply with the requirements of this paragraph.

(c) Except for a cable anchorage no cast iron in tension shall be used for a suspension member of any car sling. Plunger heads shall be of steel when subject to tension.

(d) Elevator cars shall be lighted at all times when in use. Electric light shall be used if current is available. The intensity of illumination shall be not less than 0.75 foot-candly at the landing edge of the car platform.

Note: This illumination is approximately that given by a forty (40) watt metallic-filament lamp with a plain glass globe placed seven (7) feet three (3) inches from the landing edge of the car platform or of a sixty (60) watt lamp of the same type placed nine (9) feet from the landing edge.

(e) No glass shall be used in elevator cars except to cover certificates, lighting fixtures and appliances for the operation of the car.

Note: It is recommended that no piece of glass exceed one (1) square foot in area.

Sec. C-302—CAR COMPARTMENTS:

(a) No passenger-elevator car except mine elevators shall have more than one (1) compartment.

Sec. C-303—CAR ENCLOSURES:

(a) Cars for passenger elevators shall be enclosed at sides and top, except the openings necessary for entrance or exit. An emergency exit is not considered a car opening.

(b) The car enclosure shall be solid from the car platform up to at least six feet in height, the remainder either "openwork" or solid, may be of metal or wood.

If of "openwork" it shall reject a ball two (2) inches in diameter. If the openings are larger than one-half (½) inch square they shall be covered with wire netting of not more than one-half inch square mesh and of wire not smaller than No. 20 Steel Wire Gauge (0.0348 in. diam.) to a height of at least six (6) feet from the car floor.

(c) No passenger-elevator car shall have more than two (2) entrances.

(d) Power passenger-elevator cars shall be provided with an emergency exit in the top of the car. This exit shall be not less than sixteen (16) inches wide and not less than four hundred (400) square inches in area. If there is an elevator in an adjacent hoistway without intervening enclosures and the vertical distance between any two (2) consecutive landing openings exceeds thirty (30) feet, there shall be provided in addition to the top exit an emergency side exit to the adjacent car.

(e) A car door or gate shall be provided at each entrance to power passenger cars and each door or gate shall be provided with car-gate electric contacts.

Exception: "Button-control" elevators may be operated with an open gate if there is no passenger in the car.

(f) Automatic Push Button Control Elevator Cars. All automatic push button control elevator cars shall be provided with a sliding door at the entrance of such car which shall be equipped with an electric interlocking switch which will prevent the car from moving until said door is closed.

(g) The car gate of passenger elevators shall be so placed in the car that there is at least a space of six (6) inches of car side wall between the car door opening and either adjacent corner of the car.

Exception: Elevator cars with an inner gate or car gate which must close in order to operate the car, as in push button type cars.

Sec. C-304—CAR COUNTERBALANCING ONE ANOTHER:

(a) Passenger-elevator cars shall not be arranged to counter balance one another.

Sec. C-305—PLATFORM ELEVATORS:

(a) Platform elevators used for passenger service shall conform to the requirements of power passenger elevators.

Sec. C-306—CAR SAFETIES AND SPEED GOVERNORS:

(a) Passenger elevators suspended by cables shall be provided with a "safety" attached to the underside of the car sling and capable of stopping and sustaining the car.

The "safety" shall be so constructed that if applied it cannot decrease its retarding force until the car has stopped and that no decrease in the tension of the governor cable or motion of the car or counterweight in the descending direction shall release the "safety".

(b) For elevators having a speed in excess of twenty (20) feet per minute, the "safety" shall be operated by a down speed governor. The "safety" shall be designed so that the retardation of the car shall not exceed 64.4 feet per second.

Note: For retardation between car speed and stopping distance at above retardation, see Fig. 2.

(c) The speed governor shall be "set" to cause the application of the "safety" before the speed of the descending car exceeds the maximum tripping speed given in Fig. 1, corresponding to the rated car speed.

No "car cafety" shall be permitted for stopping an ascending car. If a "safety" is used to stop an ascending car, the "safety" shall be applied to the counterweight.

(d) The governor shall be located where it cannot be struck by the car in case of overtravel.

(e) The motor circuit and the brake-control circuit shall be open before or at the time the governor trips.

(f) The governor cable shall be of iron, steel or phosphor bronze. The cable shall be not less than three-eighths (⅜) inch in diameter.

(g) The arc of contact between the governor rope and the driving sheave shall, in conjunction with a tension device, provide sufficient traction to cause proper operation of the governor.

(h) Elevators having winding-drum machines shall be provided with a "slack-cable" device which will cut off the power and stop the elevator machine if the car is obstructed in its descent.

(i) No car "safety" which depends on the completion or maintenance of an electric circuit for the application of the "safety" shall be used. Car "safeties" shall be applied mechanically.

(j) The gripping surfaces of car or counterweight "safeties" shall not be used to guide the car or counterweights.

(k) A pawl and ratchet shall not be considered a sufficient safety device.

(l) The car and counterweights shall respectively be brought to rest on the bumpers or buffers before the counterweights or car pass their limits of over-travel at the top of the hoistway.

Sec. C-307—CAR-SAFETY TESTS:

(a) A rated-capacity test under the supervision of a designated authority and in presence of the Commissioner of Buildings or his authorized assistants shall be made of every new elevator before the elevator is placed in regular service.

(b) Every installation of a "safety" designed to sustain the car shall be tested with the rated load on the car.

(c) The application of the "safety" by a speed governor shall be obtained by causing the car to descend at the governor tripping speed corresponding to the rated speed of the car as indicated in Fig. 1.

(d) With alternating current machines when the car and rated load are not sufficient to overhaul the machine at the governor tripping speed, the governor may be tripped by hand.

Sec. C-308—CAPACITY AND LOADING:

(a) The minimum carrying capacity of a power passenger elevator, shall be seventy-five (75) pounds per square foot of platform area inside the car enclosure.

(b) A metal plate shall be fastened in a conspicuous place in the car and shall bear the following information in not less than one-fourth (¼) inch letters or figures stamped in, etched or raised on the surface of the plate.

(1) The rated capacity of the elevator in pounds,

(2) The maximum number of passengers to be carried, based on one hundred and fifty (150) pounds per person.

(3) The rated speed in feet per minute at which the elevator is designed to operate.

(4) The cable data required by Section C-317, rule C.

(c) No passenger elevator shall be used for carrying safes or other concentrated loads greater than the rated capacity of the elevator, unless the elevator is provided with a "safe-hoisting" attachment designed for the "safe-lift" load. The car platform, car slings, sheaves, shafts and cables shall be designed for the "safe-lift" load with a factor of safety of not less than five (5). The car "safeties" for this type of elevator need not be designed to hold the "safe-lift" load.

(d) Passenger-elevator cars used for carrying safes or other concentrated loads shall be provided with a "locking device" which will hold the car at any landing independently of the hoisting cables while the safe or other object is being loaded or unloaded.

Sec. C-309—COUNTERWEIGHTS:

(a) Counterweights shall run in guides.

(b) If two (2) counterweights run in the same guides the car counterweight shall be above the machine counterweight and there shall be a clearance of not less than eight (8) inches between the counterweights.

(c) If an independent car counterweight is used, it shall not be of sufficient weight to cause undue slackening in any of the cables during acceleration or retardation of the car.

(d) Counterweight sections, whether carried in frames or not, shall be secured by at least two (2) tie rods passing through holes in the sections. The tie rods shall have lock nuts at each end, the lock nuts being secured by cotter pins.

Sec. C-310—CAR AND COUNTERWEIGHT BUMPERS OR BUFFERS:

(a) Car bumpers or buffers shall be installed in the pits under power passenger or freight elevators, where the speed is more than fifty (50) feet per minute. Spring bumpers or their equivalent may be used with elevators having a speed not exceeding two hundred and fifty (250) feet per minute.

Oil buffers or their equivalent shall be used with elevators having a speed greater than two hundred and fifty (250) feet per minute.

(b) The spring bumpers or oil buffers shall be designed to cause a retardation of the car not in excess of 64.4 feet per second per second:

(1) When descending with one (1) person in the car at rated car speed, and

(2) With fully loaded car at governor tripping speed.

(See figures one (1) and two (2).

Exception: For plunger elevators the bumpers or buffers shall stop the fully loaded car at the maximum operating speed.

(c) Bumpers or buffers shall be located symmetrically with reference to the center of the car.

(d) Adequate provision in the design of plunger elevators shall be made to stop the plunger as well as the car.

(e) Counterweight bumpers or buffers shall be installed under the counterweights of passenger elevators.

Sec. C-311—GUIDE RAILS:

(a) Car and counterweight guide rails of passenger elevators shall be of steel, except for elevators having a travel of not more than one hundred (100) feet per minute.

Note: It is recommended, however, that steel guide rails be used for all power passenger elevators.

Where the use of steel rails presents an accident hazard as in chemical or explosive factories, wood guide rails may be used for any rise or car speed.

(b) Guide rails, particularly where in contact with the guide shoes when the car is at the landing, shall be securely fastened with iron or steel brackets (or their equivalent) of such strength, design and spacing that the guide rails and their fastenings shall not deflect more than one-fourth (¼) inch under normal operation.

They shall withstand the application of the "safety" when stopping a fully loaded car or the counterweight. The guiding surfaces of the guide rails upon which "safeties" operate shall be finished smooth and the joints shall be tongued and grooved or doweled.

Guide rails and their fastenings shall be secured in position by clips or through bolts of not less than the following sizes:

6½ and 7½-lb. rails .....½-In. bolts
14 " " .....⅝ " "
30 " " .....¾ " "

The guide rails shall be "bottomed" on suitable supports and extended at the top to prevent guide shoes running off in case the overtravel is exceeded.

Cast iron shall not be used for guide rails.

(c) The weight of steel guide rails shall be not less than given in Table three (3).

The size of wood guide rails shall be not less than given in table four (4). (See rule A above.)

TABLE 3

WEIGHT PER LINEAL FOOT OF EACH GUIDE RAIL

Total weight of Car and Load: Total weight of Counterweights per pair of rails. (lb.)		Minimum weight of each Car Guide Rail (lb.)	Minimum weight of each counterweight Guide Rail (lb.)		
			With Guide Rail Safeties	Without Guide Rail Safeties	
Above	To and Including			Roping 1 to 1	Roping 2 to 1
0	4000	7 ½	7 ½	6 ½	6 ½
4000	15000	14	14	7 ½	7 ½
15000	40000	30	30	7 ½	14

TABLE 4

SIZE OF WOOD GUIDE RAILS

Total weight of Car and Load per Pair of Maple Guide Rails (lb.)		Size of each Guide Strip in Inches.
Above	To and including	
0	5,000	2 x2½
5000	8,000	2⅝x3

(d) When practicable but one (1) pair of car guide rails shall be used for passenger elevators.

When more than two (2) car guide rails are used, the car "safety" shall be so constructed and adjusted as to maintain the car floor substantially level when the "safety" operates.

Sec. C-312—MACHINES AND MACHINERY:

(a) Drums and leading sheaves shall be of cast iron or steel, and shall have finished grooves. U-grooves shall be not more than one-sixteenth (1/16) inch larger than the cables.

(b) The factors of safety based on the static loads (the rated load plus the weight of the car, cable, counterweight, etc.) to be used in the design of elevator machines shall be:

Eight (8) for wrought iron or wrought steel.

Ten (10) for cast iron, cast steel and other materials.

(c) Set-screw fastenings shall not be used in lieu of keys or pins.

(d) No friction gearing nor clutch mechanism shall be used for connecting the drums or sheaves to the main driving gear.

(e) No belt, nor chain-driven machine shall operate any passenger car.

(f) Worm gears having cast-iron teeth shall not be used for passenger elevator machines.

(g) Winding drum and traction machines for passenger elevators shall be equipped with brakes which are applied automatically by springs or gravity when the control is at the stop position. Electric passenger elevator machines shall be equipped with electrically released brakes.

Exception: When the rated load will not, within the limits of travel, accelerate the car speed above one hundred and fifty (150) per cent of rated speed, the brakes shall not be released until power has been applied to the motor.

(h) Under normal operating conditions the action of the brake magnet shall not be retarded by any motorfield discharge or counter-voltage nor by any single ground or short circuit.

Sec. C-313—HYDRAULIC MACHINES:

(a) Hydraulic elevator machines, whether of the vertical or horizontal type, shall be so constructed and so roped that the piston will be stopped before the car can be drawn into the overhead work. Stops of ample strength shall be provided to bring the piston to rest under full pressure, without causing damage to the cylinder or cylinder head.

(b) The traveling sheaves for vertical hydraulic elevators shall be guided. The guide rails and guide shoes shall be of metal.

(c) The side frames of traveling sheaves for vertical hydraulic elevators shall be either of structural or forged steel.

The construction, commonly known as the "U" strap connection shall not be used between the piston rods and the traveling sheaves.

(d) Where more than one (1) piston rod is used on the vertical pulling type, an equalizing crosshead shall be provided for attaching the rods to the traveling sheave frame, to insure an equal distribution of load on each rod.

Equalizing or cup washers shall be used under the piston rod nuts to insure a true bearing.

(e) Cylinder or hydraulic elevator machines shall be provided with means for releasing air or other gas.

(f) Piston rods of tension type hydraulic elevators shall have a factor of safety of not less than eight (8), based on the cross sectional area at the root of the thread. A true bearing shall be maintained under the nuts at both ends of the piston rod to prevent eccentric loading on the rods.

(g) The outlet of pressure tanks shall be located to prevent the probability of the entrance of air or other gas into the elevator cylinder.

(h) Automatic stop valves for elevators shall be packed with cup leathers, or other means shall be used to prevent sticking of the valve stems.

(i) Each pump connected to the pressure tank of a hydraulic passenger elevator shall be equipped with a relief valve, so installed that it cannot be shut off. The relief valve shall be of sufficient size and so set as to pass the full capacity of the pump at full speed without exceeding the safe working pressure of the pump or tank. The relief valve shall be piped to discharge into the discharge tank or pump section. Two (2) or more relief valves may be used to obtain the capacity.

(j) Elevator pumps unless equipped with pressure regulators which control the motive power, shall be equipped with automatic by-passes.

(k) Pressure tanks shall be tested and approved by the Commissioner of Buildings.

(l) Each pressure tank shall be provided with a water gage glass, having brass fittings and valves, attached directly to the tank and so located as to show the level of the water when the tank is more than half filled.

Each pressure tank shall have a pressure gage which correctly indicates pressure to at least one and one-half (1½) times the normal working pressure allowed in the tank. This gage shall be connected to the tank by a brass or other non-corrodible pipe in such a manner that the gage cannot be shut off from the tank except by a cock with a "T" or lever handle (the "T" or lever set in line with the direction of the flow.) The cock shall be in the pipe near the gage.

The tank shall be provided with a one-quarter (¼) inch pipe-sized valve connection for attaching an inspector's gage while the tank is in service. This is for testing the accuracy of the pressure gage.

(m) Pressure tanks that may be subjected to vacuum shall be provided with one or more vacuum valves to prevent collapse of the tanks.

(n) Pressure tanks shall be so located and supported that inspection may be made of the entire exterior.

(o) Discharge tanks open to the atmosphere shall be so designed that when completely filled the factor of safety shall be not less than four (4), based on the ultimate strength of the material. Discharge tanks shall be covered to prevent the entrance of material and shall be provided with a suitable vent to the atmosphere.

(p) Hydraulic elevators operated from a pressure tank where the fluid pressure is obtained by directly admitting steam, air or other gas to the tank shall comply with all the rules covering hydraulic elevators.

Sec. C-314—MACHINE SAFETIES AND TERMINAL STOPS:

(a) Power passenger elevators shall be provided at each end of the hoistway with at least two (2) independent means, exclusive of the manually operated car control (i. e., the car switch, push buttons, handrope or lever devices, etc.), to automatically stop the car within the limits of overtravel.

Exception: Hydraulic elevators.

Suitable bumpers or buffers will be considered one of the independent means required by this rule for elevators having traction machines, provided that when the car or counterweight is resting on the bumpers or buffers there is insufficient traction to raise the counterweight or car.

If one or more speeds slower than full speed are used, the slow-down device shall not be considered one of the independent means of stopping required by this rule.

(b) Hydraulic elevators shall be provided with an independent automatic means for gradually stopping the car at the upper and lower terminal landings independently of the operator.

If the speed of the elevator does not exceed one hundred and fifty (150) feet per minute, the means employed may operate in combination with the car control mechanism and the main operating valve.

If the speed of the elevator exceeds one hundred and fifty (150) feet per minute, an automatic stop valve shall be provided for this purpose. This valve shall be independent of the main operating valve and preferably in the piping between the main operating valve and the cylinder.

Sec. C-315—CONTROL:

(a) No passenger elevator having a speed greater than one hundred (100) feet per minute shall be controlled by a direct hand operated rope, cable or rod.

(b) No passenger elevator having a speed greater than one hundred and fifty (150) feet per minute, except by hydraulic elevators, shall be controlled by a rope or cable operated by a wheel or lever mechanism.

(c) Passenger elevators controlled by a rope or cable accessible from the outside of the hoistway shall be equipped with all the safeguards required for button control elevators.

(d) Overhead tension weight for handropes shall be secured by chains attached to the weights and to a suitable anchorage.

(e) Guards which will keep the handropes on the sheaves shall be installed, unless means are used to maintain the handropes in tension.

(f) No electric circuit having a nominal voltage in excess of seven hundred and fifty (750) volts to ground shall be used for any power passenger elevator control system.

(g) The handle of the "car switch" controlled elevators shall be arranged to return to the "stop" position and lock there automatically when the hand of the operator is removed.

The directional buttons of button-control elevators shall be arranged to return to the "open" position when the hand of the operator is removed.

(h) Electrically driven elevators shall have an emergency switch adjacent to the control apparatus on the car to cut off the source of power. In automatic button-control elevators the stop button on the car may be used as the emergency switch if it is a red button marked "STOP".

(i) A manually operated double-pole "disconnecting" switch shall be installed in the main line of electrically controlled elevator machines. This switch shall be located adjacent to and visible from the elevator machine. No provision shall be made to close the disconnecting switch from any other part of the building.

Note: It is recommended when practicable that this switch be located in the machine room at the lock-jamb side of the entrance door.

(j) The breaking of a circuit to stop an automatic button control elevator shall not depend on the operation of a spring or springs nor upon the completion of an electric circuit.

(k) The frames of electric elevator apparatus shall be thoroughly grounded. Handropes shall also be grounded.

(l) Electric "slack-cable" switches shall be enclosed.

(m) No control system shall be used which depends on the completion or maintenance of an electric circuit for the interruption of the power, for the application of electro mechanical brakes, for the operation of "safeties" or for the closing of a contactor by an emergency stop button except that this paragraph does not apply to dynamic-braking and speed-control devices.

(n) "Car-switch" or hand-lever control levers shall be so arranged that the movement of the lever toward the car gate (which the operator usually faces) will cause the car to descend and movement of the lever away from the gate will cause the car to ascend.

(o) On mechanically controlled elevators the operation of directional switches or operating valves shall not depend solely upon cast or malleable iron chains. If a handrope is used, the cable shall be securely anchored to the operating sheave or drum.

(p) No circuit breaker operated automatically by a fire alarm system shall cut off either the power or the control from a passenger elevator.

(q) Automatic button control elevators shall conform to the following requirements:

(1) If the car has started for a given landing no impulse can be given from any landing to send the car in the reverse direction until the car has reached the destination corresponding to the first impulse. It is permissible to stop the car at any intermediate landing to take on or discharge passengers going in the original direction.

(2) If the car has been stopped to take on or discharge passengers and is to continue in the direction de-

termined by the first impulse, it is permissible to start the car by the closing of the car gate.

(3) The car cannot be started under normal operation unless every hoistway door is closed and locked in the closed position. (Hoistway Unit Interlocking System).

(r) Electric elevators operated by polyphase alternating current motors shall be provided with relays of the potential type which will prevent starting the motor:

(1) If the phase rotation is in the wrong direction, or

(2) If there is a failure in any phase.

Sec. C-316—LIMITS FOR ACCELERATION AND RETARDATION:

Under normal operation, no passenger elevator shall have a maximum rate of acceleration or a retardation greater than fourteen (14) feet per second per second.

Note: For relation between car speed and accelerating distance, see Fig. 3.

Sec. C-317—CABLES:

(a) All power driven elevators shall have no less than two (2) hoistway cables.

(b) Car and counterweight cables for power passenger elevators shall be of iron or steel without covering, except that marline-covered cables are permitted where liability to excessive corrosion or other hazard exists. No chains shall be used for hoisting.

(c) Capacity Plates.

(1) Where winding drum machines are used the capacity plate shall bear the following information : (See Section C-308.)

CABLE SPECIFICATIONS

Cable	Number	Diameter in Inches	Rated Ultimate Strength in Lbs.
Hoisting			
Car Counterweight			
Machine Counterweight			

(2) Where traction machines are used, the capacity plate shall bear the following information:

CABLE SPECIFICATIONS

	Number	Diameter in Inches	Rated Ultimate Strength in Lbs.
Hoisting Cables			

Where hydraulic machines are used, the capacity plate required in Section 308 shall bear the following information:

CABLE SPECIFICATIONS

Cable	Number	Diameter in Inches	Rated Ultimate Strength in Lbs.
Hoisting			
Car Counterweight			

In addition a metal tag shall be attached to the cable fastenings. On this tag shall be given the diameter, ultimate strength, and material of the cable, and the date of the cable installation.

(c) Unless the ultimate strength and material are known, the loads shall be limited to the loads allowed for iron cables of the same diameter.

(d) The factor of safety based on static loads for car and counterweight cables for power passenger elevators shall be not less than the values given in Fig. 4, corresponding to the rated speed of the car.

(e) The number and diameter of the cables are determined by using the factor of safety found by rule D, above, together with the ultimate strength of the cable. The computed load on the cables shall be the weight of the car, plus its rated load, plus the weight of hoisting cables and the compensation.

(f) All cables anchored to a winding drum shall have not less than one (1) turn of cable on the winding drum when the car or counterweight has reached the extreme limit of its over-travel.

(g) (1) Where idler or sheaves are necessary for alignment of counterweight cables a size idler or sheaves as large as possible shall be used.

(2) (a) All tight sheaves and drums shall be keyed on the shaft. (b) The following shall be the schedule of cables within minimum size of sheaves and drums for elevators other than dumbwaiters:

⅜-inch cable shall have a 20-inch minimum diameter sheave or drum.

7/16-inch cable shall have a twenty (20) inch minimum diameter sheave or drum.

½-inch cable shall have a twenty (20) inch minimum diameter sheave or drum.

9/16-inch cable shall have a twenty-two (22) inch minimum diameter sheave or drum.

⅝-inch cable shall have a twenty-four (24) inch minimum diameter sheave or drum.

¾-inch cable shall have a thirty (30) inch minimum diameter sheave or drum.

⅞-inch cable shall have a thirty-six (36) inch minimum diameter sheave or drum.

1-inch cable shall have a forty (40) inch minimum diameter sheave or drum.

(3) Deflecting Sheaves.

Deflecting sheaves may be smaller where necessary to alignment of counterweight cables.

(h) No car or counterweight cable shall be repaired or lengthened by splicing.

(i) The winding drum ends of car or counterweight cables shall be secured by clamps on the inside of the drums or by one of the methods specified in the following paragraphs for fastening cables to cars or counterweights.

(j) The car and counterweight ends of cables shall be fastened by spliced eyes, by return loop, or by individual tapered babbitted sockets. Such fastenings are not required for the compensating counterweight cables of plunger elevators.

(1) Method of Splicing Cables.

If the spliced eye is used a metal thimble shall be placed within the eye and the splice made with not less than the following number of tucks: first strand, four (4) tucks; re-

mainder of strands, five (5) tucks. The eye shall be drawn tightly around the thimble, the strands drawn tightly after each tuck and the tuck smoothly laid. After the last tuck is made each strand shall be cut off not closer than one-fourth (¼) inch from the tuck and beaten down flush. The splices may be left bare or served with marline.

(2) Method of Making Return Loops.

When the two (2) ends of one (1) continuous cable are both secured to the winding drum, to the car or to the counterweight, a return loop, without cutting the cables, may be made at the counterweight or car. To form such loop the cable shall be passed around a metal thimble a "clamp" shall be placed on the double cable and securely bolted to prevent slipping of either leg of the cable through the clamp should the opposite leg be entirely released.

(3) Method of Socketing Cables.

If a babbitted socket is used the length of the socket shall be not less than four (4) times the diameter of the cable. The hole at the small end shall be as given in Table 5.

The small end of the socket shall be free from cutting edges. The hole at the large end of the socket shall be not less than three (3) times the diameter of the cable. The socket shall be drop-forged steel, steel casting, or formed in a substantial block of cast iron. The socket shall be of such strength that the cable will break before the socket is perceptibly deformed.

Before cutting, the cables shall be served with wire at the end of the length to be used. After cutting, the cable shall be served with wire at a distance from the end of the cable equal to the length of the socket plus two and one-half (2½) times the diameter of the cable.

Note: Large cables should be served for a distance of several inches to prevent unwrapping.

The socket shall be slipped over the cable and the serving at the end of the cable removed. The fiber core shall be removed to the remaining serving, the wires separated and thoroughly cleaned.

TABLE 5

RELATION OF CABLE TO SMALL DIAMETER OF CABLE SOCKET

Nominal Diameter of Cable in Inches	Inside Diameter of Small End of Cable Socket
¼ to 11/16 inclusive	shall not be more than 1/16 in. larger than Cable diameter.
¾ to 1 1/16 inclusive	shall not be more than 3/32 in. larger than Cable diameter.
1⅛ to 1½ inclusive	shall not be more than ⅛ in. larger than Cable diameter.

The wires shall be "turned in" toward the center of the cable for a distance of not less than two and one-half (2½) times the diameter of the cable.

The wires shall be sprinkled with powdered rosin or dipped in a suitable fluxing solution and the socket shall be put in place.

The socket and cable shall be warmed and poured full of melted babbitt or spelter metal. Care shall be taken not to overheat the metal thereby injuring the cable wires.

Whichever method is used for fastening the cable, the fastening shall be capable of sustaining a load of not less than eighty (80) per cent of the ultimate strength of the undisturbed portion of the cable.

Sec. C-318—CABLE EQUALIZERS:

(a) Equalizers shall be provided at car and counterweight ends of hoisting cables for traction elevators having two (2) or more cables. Equalizers shall be provided at car and counterweight if the cables to them wind in right-and-left-hand grooves of a winding drum. It is recommended that for traction elevators the equalizers consist of compression springs.

Sec. C-319—SIGNAL SYSTEMS:

(a) The hoistway of every power passenger elevator except automatic button-control elevators shall be provided with a signal system by means of which signals can be given from any landing whenever the elevator is desired at that landing.

(b) Automatic button-control elevators shall be provided with an audible emergency signal operative from the car.

DIVISION C—PART FOUR
POWER FREIGHT ELEVATORS

Sec. C-401—CAR CONSTRUCTION:

(a) Power freight elevator car enclosures shall not deflect more than one-fourth (¼) of an inch if subjected to a force of seventy-five (75) pounds applied at any point perpendicularly to the car enclosure. The car enclosure shall be secured to the car floor and sling in such a manner that it cannot work loose or become displaced in ordinary servivce.

(b) All elevators not designed for freight service exclusively shall be classed as passenger elevators, and shall be subject to all the provisions of this ordinance relative to passenger elevators.

(c) Power freight elevator cars shall have steel slings designed with a factor of safety of at least six (6) based on the rated load uniformly distributed. Elevators of the plunger type which are not provided with counterweights need not comply with the requirements of this paragraph.

(d) Elevators for carrying automobiles shall have car platforms of sufficient strength to support safely seventy (70) per cent of the live load concentrated equally at any two (2) points fifty-six (56) inches apart on a line parallel with the entrance sill of the car.

(e) Freight elevator platforms over sixteen (16) feet in length and with a capacity of five thousand (5,000) pounds or more shall either have a double set of guide posts or be of what is termed three (3) point suspensions, having one (1) set of guide posts and two (2) independent counterweight slings—one near either end of platform; all car weight cables to be attached to one (1) common car counterweight. All freight elevator platforms shall be enclosed on all sides except the sides used for loading or unloading to a height of not less than six (6) feet six (6) inches, or to the cross head if it be

less than six (6) feet six (6) inches. Said enclosures shall be of wood or metal or heavy screen wire of not less than No. 10 U. S. Standard Gauge, the mesh of which shall not be larger than one and one-half (1½) inch.

(f) All freight elevator platforms shall be equipped with a covering over the top either solid or made of wire screen not less than No. 10 wire, and with a mesh of not over one and one-half (1½) inch. except where solid doors are used or where the bottom cross slat of the gate comes within two (2) inches of the floor. The parts of such covering which face the openings to the shaft shall be constructed with a section not less than eighteen (18) inches in depth and extending the width of the opening of the platform, such section shall be so hinged as to raise when meeting an obstruction as the car descends.

(g) Except for cable anchorages no cast iron in tension shall be used for a suspension member of any car sling.

(h) Power sidewalk elevators shall be provided with either flat metal hatch cover tops or anchored bows of sufficient strength to open the hatch cover, and to be provided with some device that will stop the car before a person riding on it could be injured, if the hatch cover should fail to open.

(i) If there is a railroad or other track on the elevator car, the tops of the rails shall be flush with the car floor.

(j) Elevator cars shall be lighted at all times when in use. Electric light shall be used if current is available. The intensity of illumination shall be not less than 0.75 foot-candle at the edge of the car platform.

Note: This illumination is approximately that given by a forty (40) watt metallic-filament lamp with a plain glass globe placed seven (7) feet three (3) inches from the landing edge of the car platform or of a sixty (60) watt lamp of the same type placed nine (9) feet from the landing edge.

(k) No glass of any nature shall be used in elevator cars except to cover certificates, lighting fixtures and appliances necessary for the operation of the car.

Note: It is recommended that no piece of glass shall exceed one (1) square foot in area.

Sec. C-402—CAR COMPARTMENTS:

(a) No power freight elevator car except mine hoists and special elevators upon which no persons are permitted to ride, shall have more than one (1) compartment.

Sec. C-403—CAR ENCLOSURES:

(a) Cars for power freight elevators other than platform elevators shall be enclosed on all sides, except openings necessary for loading and unloading will be permitted, to a height of at least five (5) feet six (6) inches, or to the crosshead if the crosshead is lower.

(b) The car enclosure, either "openwork" or solid, may be of metal or wood.

If of "openwork" it shall reject a ball two (2) inches in diameter. If the openings are larger than one-half (½) inch square they shall be covered with wire netting of not more than one-half (½) inch square mesh and of wire not smaller than No. 20 Steel Wire Gage (0.0384 in. diam.) to a height of at least six (6) feet from the car floor, where the clearance to any part of the hoistway structure or the counterweight is less than five (5) inches.

(c) If the car enclosure is cut away at the front to provide access to the handrope, the enclosure shall be cut low enough to prevent injury to the operator's hand.

(d) Power freight-elevator cars shall be equipped with solid-top covers or wire grille work having a mesh that will reject a ball one and one-half (1½) inches in diameter and of wire not less than No. 10 Steel Wire Gage (0.135 in. diam.) or its equivalent. The top or cover shall be sufficiently strong to sustain a load of one hundred and fifty (150) pounds applied to any point.

Exceptions: (1) Elevators operating through automatic hatch covers; (2) Sidewalk elevators; (3) Platform elevators; (4) Elevators having automatic closing gates extending to the floor at all landings above the lowest landing; and (5) Elevators with landing doors which open only from the hoistway side except by a key and which are kept closed unless the car is at the landing.

(e) Car gates or doors for freight elevators when closed shall guard the full opening, except that they need not be more than five (5) feet six (6) inches high.

(f) Elevator cars operating in hoistways outside the building are enclosed only at the ground landing, shall be protected on the exposed side or sides either by independently operated bars or gates equipped with electric contacts, or by semi-automatic bars or gates.

Sec. C-404—CARS COUNTERBALANCING ONE ANOTHER: Power freight elevator cars shall not be arranged to counterbalance one another if persons are permitted to ride on them or to step on them for the purpose of loading or unloading, unless hoistway gates or doors are provided which are equipped with door interlocks or electric contacts.

Sec. C-405—CAR SAFETIES AND SPEED GOVERNORS:

(a) Freight elevators suspended by cables shall be provided with a "safety" attached to the under side of the car sling and capable of stopping and sustaining the car and rated load.

The "safety" shall be so constructed that if applied it cannot decrease its retarding force until the car has stopped and that no decrease in the tension of the governor cable or motion of the car or counterweight in the descending direction shall release the "safety".

(b) For elevators having a speed in excess of twenty (20) feet per minute the "safety" shall be operated by a down speed governor, and the "safety" shall be designed so that the retardation of the car shall never exceed sixty-four and four-tenths (64.4) feet per second per second.

Note: For relation between car speed and stopping distance at above retardation, see Fig. 2.

(c) The speed governor shall be "set" to cause the application of the "safety" before the speed of the descending car exceeds the maximum tripping speed given in Fig. 1.

No "car safety" shall be permitted for stopping an ascending car, if a "safety" is used to stop an ascending car the "safety" shall be applied to the counterweight.

(d) The governor shall be located where it cannot be struck by the car in case of overtravel.

(e) The motor circuit and the brake control circuit shall be opened before or at the time the governor trips.

(f) The governor cable shall be of iron, steel or phosphor bronze. The cable shall not be less than three-eighths (⅜) inch in diameter.

(g) The arc of contact between the governor rope and the driving sheave shall, in conjunction with a tension device, provide sufficient traction to cause proper operation of the governor.

(h) Elevators having winding drum machines shall be provided with a "slack cable" device which will cut off the power and stop the elevator machine if the car is obstructed in its descent.

(i) No "car safety" which depends on the completion or maintenance of an electric circuit for the application of the "safety" shall be used. "Car safeties" shall be applied mechanically.

(j) The gripping surfaces of car or counterweight "safeties" shall not be used to guide the car or counterweights.

(k) A pawl and ratchet shall not be considered a sufficient safety device.

(l) The car and counterweights shall respectively be brought to rest on the bumpers or buffers before the counterweights or car pass their limits of overtravel at the top of the hoistway.

Sec. C-406—CAR SAFETY TESTS:

(a) A rated capacity test shall be made of every new elevator before the elevator is placed in regular service.

(b) Every installation of a "safety" designed to sustain the car shall be tested with the rated load on the car.

(c) The application of the "safety" by a speed governor shall be obtained by causing the car to descend at the governor tripping speed corresponding to the rated speed of the car as indicated in Fig. 1.

(d) With alternating current machines when the car and rated load are not sufficient to overhaul the machine at the governor tripping speed, the governor may be tripped by hand.

Sec. C-407—CAPACITY AND LOADING:

(a) A metal plate shall be provided which shall be fastened in a conspicuous place in the elevator car and shall bear the following information in not less than one-fourth (¼) inch letters or figures, stamped, etched or raised on the surface of the plate.

(1) The capacity of the elevator in pounds.

(2) The rated speed at which the elevator is designed to operate.

(3) The cable data required in Section C-418.

The capacity of the elevator shall be also indicated in a conspicuous place in the car, in letters and figures not less than one (1) inch high, by the word CAPACITY, followed by figures giving the rated capacity in pounds.

(b) No freight elevator shall be used for carrying safes or other concentrated loads greater than the rated capacity of the elevator, unless the elevator is provided with a "safe hoisting" attachment, designed for the "safe-lift" load. The car platform, car slings, sheaves, shafts and cables shall be designed for the "safe-lift" load with a factor of safety of not less than five (5). The car "safeties" for this type elevator need not be designed to hold the "safe-lift" load.

Sec. C-408—COUNTERWEIGHTS:

(a) Counterweights shall run in guides.

(b) If two (2) counterweights run in the same guides, the car counterweight shall be above the machine counterweight and there shall be a clearance of eight (8) inches between the counterweights.

(c) If an independent car counterweight is used, it shall not be of sufficient weight to cause undue slackening in any of the cables during acceleration or retardation of the car.

(d) Counterweight sections, whether carried in frames or not, shall be secured by at least two (2) tie rods passing through holes in all the sections. The tie rods shall have lock nuts at each end. The lock nuts shall be secured by cotter pins.

Sec. C-409—CAR AND COUNTERWEIGHT BUMPERS OR BUFFERS:

(a) Car bumpers or buffers shall be installed in the pits under power freight elevators.

Spring bumpers or their equivalent shall be used with elevators having a speed greater than fifty (50) feet per minute and not exceeding three hundred and fifty (350) feet per minute.

Oil buffers or their equivalent shall be used with elevators having a speed greater than three hundred and fifty (350) feet per minute.

(b) The spring bumpers or oil buffers shall be designed to cause a retardation of the car at a rate not in excess of 64.4 feet per second per second.

(1) When descending with one (1) person in the car at rated car speed, and

(2) With fully loaded car at governor tripping speed.

Exception: For plunger elevators the bumpers or buffers shall stop the fully loaded car at the maximum operating speed.

(c) Bumpers or buffers shall be located symmetrically with reference to the center of the car.

(d) Adequate provision in the design of plunger elevators shall be made to stop the plunger as well as the car.

(e) Counterweight bumpers or buffers similar to those required for cars in Rule 409A shall be installed under the counterweights of freight elevators.

Sec. C-410—GUIDE RAILS:

(a) Car and counterweight guide rails of all power freight elevators shall be of steel except for elevators having a travel of not more than one hundred (100) feet and operating at a rated speed not in excess of one hundred (100) feet per minute.

It is recommended, however, that steel guide rails be used for all power freight elevators.

Where the use of steel rails presents an accident hazard, as in chemical or explosive factories, wood guide rails may be used for any rise or car speed, but shall be replaced frequently.

Guide rails, particularly where in contact with the guide shoes when the car is at the landing, shall be securely fastened with iron or steel brackets (or their equivalent) of such strength, design and spacing that the guide rails and their fastenings shall not deflect more than one-fourth (¼) inch under normal operation.

They shall withstand the application of the "safety" when stopping a fully loaded car or the counterweight. The guiding surface

of the guide rails upon which "safeties" operate shall be finished smooth and the joints shall be tongued and grooved or doweled.

Guide rails and their fastenings shall be secured in position by clips or through bolts of not less than the following sizes:

6½ lb. and 7½ lb. rails..... ½ inch bolts
14 lb. rails.....⅝ " "
30 lb. rails.....¾ " "

The guide rails shall be "bottomed" on suitable supports and extended at the top to prevent guide shoes running off in case the overtravel is exceeded.

TABLE 6

WEIGHT PER LINEAL FOOT OF EACH GUIDE RAIL IN POUNDS

Total Weight of Car and Load: Total weight of Counterweights per pair of Rails (lb.)		Minimum Weight of each Guide Rail (lb.)	Minimum Weight of each Counterweight Guide Rail, (lb.)		
			With Guide Rail Safeties	Without Guide-Rail Safeties	
Above	To and Including			1 to 1 Roping	2 to 1 Roping
0	4000	7½	7½	6½	6½
4000	15000	14	14	7¼	7½
15000	40000	30	30	7½	14

TABLE 7

SIZE OF WOOD GUIDE RAILS WHERE PERMITTED

Total Weight of Car and Load per pair of Maple Guide Rails (lb.)		Size of Each Guide Strip in Inches
Above	To and Including	
0	5000	2 x2½
5000	8000	2⅝x3

Cast iron shall not be used for guide rails.

(b) The weight of steel guide rails shall be not less than as given in Table 6.

(c) The size of wood guide rails shall be not less than given in Table 7.

Sec. C-411—MACHINES AND MACHINERY:

(a) Drums and leading sheaves shall be of cast iron or steel, and shall have finished grooves. Grooves shall be not more than one-sixteenth (1/16) inch larger than the cables.

(b) The factors of safety based on the static loads (the rated load plus the weight of the car, cables, counterweights, etc.) to be used in the design of elevator hoisting machines shall be:

Eight (8) for wrought iron or wrought steel.

Ten (10) for cast iron, cast steel or other materials.

(c) Set screw fastenings shall not be used in lieu of keys or pins.

(d) Worm gears having cast iron teeth shall not be used to drive power freight elevator drums or sheaves.

(e) Winding drum and traction machines for freight elevators shall be equipped with brakes which are applied automatically by

springs or gravity when the control is at the "stop" position. Electric freight elevator machines shall be equipped with electrically released brakes.

Except when the rated load will not, within the limits of travel, accelerate the car speed above one hundred and fifty (150) per cent of rated speed, the brakes shall not be released until power has been applied to the motor.

(f) Under normal operating conditions the action of the brake magnet shall not be retarded by any motor field discharge or counter voltage or by any single ground or short circuit.

Sec. C-412—HYDRAULIC MACHINES:

(a) Hydraulic elevator machines, whether of the vertical or horizontal type, shall be so constructed and so roped that the piston will be stopped before the car can be drawn into the overhead work. Stops of ample strength shall be provided to bring the piston to rest, when under full pressure, without causing damage to the cylinder or cylinder head.

(b) The traveling sheaves for vertical hydraulic elevators shall be guided. The guide rails and guide shoes shall be of metal.

(c) The side frames of traveling sheaves for vertical hydraulic elevators shall be either of structural or forged steel.

The construction commonly known as the "U" strap connection shall not be used between the piston rod and traveling sheaves.

(d) Where more than one piston rod is used on the vertical pulling type, an equalizing crosshead shall be provided for attaching the rods to the traveling sheave frame, to insure an equal distribution of load on each rod.

Equalizing or cup washers shall be used under the piston rod nuts to insure a true bearing.

(e) Cylinders of hydraulic elevator machines shall be provided with means of releasing air or other gas.

(f) Piston rods of tension type hydraulic elevators shall have a factor of safety of not less than eight (8), based on the cross section area of the thread. A true bearing shall be maintained under the nuts at both ends of the piston rod to prevent eccentric loading on the rods.

(g) The outlet of the pressure tanks shall be arranged to prevent the probability of the entrance of air or other gas into the elevator cylinder.

(h) Automatic stop valves for elevators shall be packed with cup leathers, or other means shall be used to prevent sticking of the valve stems.

(i) Each pump connected to the pressure tank of a hydraulic freight elevator shall be equipped with a relief valve so installed that it cannot be shut off. The relief valve shall be of sufficient size and so set as to pass the full capacity of the pump at full speed without exceeding the safe working pressure of the pump or tank. The relief valve shall be piped to discharge into the discharge tank or the pump section. Two (2) or more relief valves may be used to obtain the capacity.

(j) Elevator pumps, unless equipped with pressure regulators which control the motive power, shall be equipped with automatic by-passes.

(k) Pressure tanks shall be made and tested in accordance with the A. S. M. E. Boiler Code requirements for hydraulic pressure vessels.

(l) Each pressure tank shall be provided with a water gage glass having brass fittings and valves, attached directly to the tank and so located as to show the level of the water when the tank is more than half filled.

Each pressure tank shall have a pressure gage which correctly indicates pressure to at least one and one-half (1½) times the normal working pressure allowed in the tank. This gage shall be connected to the tank by a brass or other non-corrodible pipe in such a manner that the gage cannot be shut off from the tank except by a cock with a "T" or lever handle (the "T" or lever set in line with the direction of the flow). The cock shall be in the pipe near the gage.

The tank shall be provided with one-quarter (¼) inch pipe size valve connection for attaching an inspector's gage when the tank is in service. This is for testing the accuracy of the pressure gage.

(m) Pressure tanks that may be subjected to vacuum shall be provided with one or more vacuum valves to prevent collapse of the tanks.

Vacuum valves shall have openings of sufficient size to prevent the collapse of the tank if a vacuum occurs. If necessary more than one vacuum valve may be used to obtain sufficient capacity.

(n) Pressure tanks shall be so located and supported that inspection may be made of the entire exterior.

(o) Discharge tanks open to atmosphere shall be so designed that when completely filled the factor of safety shall be not less than four (4) based on the ultimate strength of the material. Discharge tanks shall be covered to prevent the entrance of foreign material and provided with a suitable vent to the atmosphere.

(p) Hydraulic elevators operated from a pressure tank where the fluid pressure is obtained by directly admitting steam, air or other gas to the tank shall comply with all the rules covering hydraulic elevators.

Sec. C-413—BELTED MACHINES:

(a) Belt or chain driven freight elevator machines shall be operated at a car speed not in excess of sixty (60) feet per minute.

(b) Double belted approved elevator machines are permitted when driven from a line shafting which also supplies power for other purposes.

(c) Single belted or chain driven elevator machines are prohibited for passenger elevators or for car platforms in excess of one hundred (100) square feet for freight elevators.

(d) Means shall be provided to stop the elevator belts of a double belted elevator machine without stopping other machinery driven from the same source of power.

(e) Elevator belts within seven (7) feet of the floor except when located within machine enclosures shall be guarded in accordance with the standards mentioned in Section 210.

(f) Belted elevators driven by electric motors shall have approved electric resistance controllers for such elevator motors. No motor will be permitted when the full line voltage is thrown onto the motor.

Sec. C-414—MACHINE SAFETIES AND TERMINAL STOPS:

(a) Power freight elevators shall be provided at each end of the hoistway with at least two (2) independent means exclusive of the manually operated car control (i. e., car switch, push buttons, handrope or lever devices, etc.) to automatically stop the car within the limits of overtravel.

Exception: Hydraulic elevators.

Suitable bumpers or buffers will be considered one of the independent means required by this rule for elevators having traction machines provided that when the car or counterweight is resting on the bumpers or buffers there is sufficient traction to raise the counterweight or car.

Stop balls securely fastened to the handropes may be considered one of the independent means of stopping.

If one or more speeds slower than normal speed are used, the slow-down device shall not be considered one of the independent means of stopping.

(b) Hydraulic elevators shall be provided with an independent automatic means for gradually stopping the car at the upper and lower terminal landings independently of the operator.

If the speed of the elevator does not exceed one hundred and fifty (150) feet per minute, the means employed may operate in combination with the car control mechanism and the main operating valve.

If the speed of the elevator exceeds one hundred and fifty (150) feet per minute, an automatic stop valve shall be provided for this purpose. This valve shall be independent of the main operating valve and preferably in the piping between the main operating valve and the cylinder.

Sec. C-415—CONTROL:

(a) No freight elevator having a speed greater than one hundred (100) feet per minute shall be controlled by a direct hand-operated rope, cable or rod.

(b) No freight elevator, except hydraulic elevators, having a speed greater than one hundred and fifty (150) feet per minute, shall be controlled by a rope or cable operated by a wheel or lever mechanism.

(c) No handrope shall be accessible from the outside of a building if the elevator hoistway is in the building. No handrope shall be accessible from the outside of the hoistway if the hoistway is located outside the building.

(d) Overhead tension weight for handropes shall be secured by chains or cables attached to the weights and to a suitable anchorage.

(e) Guards which will keep the ropes from leaving the sheaves shall be installed unless means are used to maintain the handropes in proper tension.

(f) Power freight elevators operated by means of a direct-operated handrope shall be provided with a centering device which will insure the operating mechanism being placed in the stop position when it is desired to stop the car.

Exception: Sidewalk elevators.

(g) No electric circuit having a nominal voltage in excess of seven hundred and fifty (750) volts to ground shall be used for any power freight elevator control system.

(h) The handle of the "car switch" control elevators shall be arranged to return to the "stop" position and lock there automatically when the hand of the operator is removed.

(i) Electrically driven elevators controlled by a handrope or car switch shall have an emergency switch on the car to cut off the source of power.

Exception: Elevators operating through automatic hatch covers.

In button controlled elevators the stop button on the car may be used as the emergency switch if it is a red button marked "STOP."

(j) The breaking of a circuit to stop an automatic button control elevator shall not depend upon the operating of a spring or springs nor upon the completion of an electric circuit.

(k) A manually operated double pole disconnecting switch shall be installed in the main line of electrically controlled elevator machines. This switch shall be located adjacent to and visible from the elevator machine. No provision shall be made to close this disconnecting switch from any other part of the building.

Note: It is recommended that where practicable this switch be located in the machine room at the lock-jamb side of the entrance door.

(l) The frames of electric elevator apparatus shall be grounded. Handropes shall be grounded.

(m) Electric "slack-cable" switches shall be enclosed.

(n) No control system shall be used which depends on the completion or maintenance of an electric circuit for the interruption of the power, for the application of electro-mechanical brakes, for the operation of "safeties," nor for the closing of a contact or by an emergency stop button, except that this paragraph does not apply to dynamic-breaking and speed control devices.

(o) "Car-switch" or hand-lever control levers shall be so arranged that the movement of the lever toward the opening (which the operator usually faces) will cause the car to descend and a movement of the lever away from the opening will cause the car to ascend.

(p) Power freight elevators controlled by handropes shall be equipped with rope locks for holding the car at any landing.

Exceptions: (1) Sidewalk elevators; (2) Elevators equipped with an emergency switch, and three (3) Elevators equipped with interlocks or electric contacts.

(q) No circuit breaker operated automatically by a fire-alarm system shall cut off either the power or the control from a power freight elevator.

(r) Automatic button-control elevators shall conform to the following requirements:

(1) If the car has started for a given landing it shall be impossible to give an impulse from any landing to send the car in reverse direction until the car has reached the destination corresponding to the first impulse. It is permissible, however, to stop the car at any intermediate landing to take on or discharge attendants or freight going in the original direction.

Exception: Elevators installed in building used exclusively by owner or by single tenant.

(2) If the car has been stopped to take on or discharge attendants or freight and is to continue in the direction determined by the first impulse, it is permissible to start the car by the closing of the car gate.

Exception: Elevators installed in buildings used exclusively by owner or by single tenant.

(3) It shall not be possible to start the car under normal operation unless every hoistway door is closed and locked in the closed position. (Hoistway Unit Interlock system.)

(s) Electrical elevators operated by polyphase alternating current motors shall be provided with relays of the potential type which will prevent starting the motor if:

(1) The phase rotation is in the wrong direction, or

(2) There is a failure in any phase.

Sec. C-416—LIMITS OF SPEED ACCELERATION AND RETARDATION:

(a) No platform elevator shall have a speed greater than thirty (30) feet per minute.

(b) The speed of elevators operating through automatic hatch covers shall not exceed fifty (50) feet per minute.

(c) Except automatic button-control elevators and elevators controlled exclusively by an authorized person, no power freight elevator shall have a speed in excess of one hundred (100) feet per minute.

(d) Under normal operation, no power freight elevator shall have a maximum rate of acceleration or retardation greater than fourteen (14) feet per second per second.

Note: For relation between car speed and acceleration distance see Figure 3.

Sec. C-417—LIMITS OF TRAVEL FOR FREIGHT ELEVATORS:

(a) Platform elevators within the building line, having a travel exceeding fifteen (15) feet, shall conform to the requirements for freight elevators.

(b) Sidewalk elevators having a travel exceeding thirty (30) feet shall conform to the requirements of power freight elevators.

Sec. C-418—HOISTING CABLES:

(a) Car and counterweight cables for power freight elevators shall be of iron or steel without covering except that marline-covered cables are permitted where liability to excessive corrosion or other hazard exists. Hoisting chains may be used only for power platform and sidewalk elevators.

(b) Where winding drum machines are used, the capacity plate required in Section C-407 A, shall bear the following information:

CABLE SPECIFICATIONS

Cable	Number	Diameter in inches	Rated Ultimate Strength in pounds
Hoisting			
Car Counterweight			
Machine Counterweight			

Where traction machines are used, the capacity plate required in Section C-407 shall bear the following information:

CABLE SPECIFICATIONS

	Number	Diameter in inches	Rated Ultimate Strength in pounds
Hoisting Cables			

Where hydraulic machines are used, the capacity plate required in Section C-407 shall bear the following information:

CABLE SPECIFICATIONS

Cable	Number	Diameter in inches	Rated Ultimate Strength in pounds
Hoisting			
Car			
Counterweight			

In addition a metal tag shall be attached to the cable fastenings. On this tag shall be stated the diameter, ultimate strength and material of the cables, and the date of the cable installation.

(c) Where the ultimate strength and material of the cables are not known, the loads shall be limited to the loads for iron cables of the same diameter.

(d) The factor of safety based on static loads for car and counterweight cables for power freight elevators shall be not less than the values given in Figure 5, corresponding to the speed of the car.

(e) The number and diameter of the cables are determined by using the factor of safety found in Section C-418, rule D, together with the ultimate strength of the cable. The computed load on the cables shall be the weight of the car, plus its rated load, plus the weight of hoisting cables and the compensation.

(f) Cables anchored to a winding drum shall have not less than one (1) turn of cable on the winding drum when the car or counterweight has reached the extreme limit of its overtravel.

(g) Sheaves and drums.

(1) All tight sheaves and drums shall be keyed on the shaft.

(2) The following shall be the schedule of cables with minimum size of sheaves and drums for elevators other than dumb waiters:

⅜ inch cable shall have a twenty (20) inch minimum diameter sheave or drum.

7/16 inch cable shall have a twenty (20) inch minimum diameter sheave or drum.

½ inch cable shall have a twenty (20) inch minimum diameter sheave or drum.

9/16 inch cable shall have a twenty-two (22) inch minimum diameter sheave or drum.

⅝ inch cable shall have a twenty-four (24) inch minimum diameter sheave or drum.

¾ inch cable shall have a thirty (30) inch minimum diameter sheave or drum.

⅞ inch cable shall have a thirty-six (36) inch minimum diameter sheave or drum.

One (1) inch cable shall have a forty (40) inch minimum diameter sheave or drum.

(h) No car or counterweight cable shall be lengthened or repaired by splicing.

(i) The drum ends of car or counterweight cables shall be secured by clamps on the inside of the drums or by one of the methods specified in the following paragraphs, for fastening cables to cars or counterweights.

(j) The car and counterweight ends of cables shall be fastened by spliced eyes, return loop, or by individual tapered babbitted sock-

ets. Such fastenings are not required for compensating counterweight cables of plunger elevators.

(1) Method of Splicing Cables: If the spliced eye is used a metal thimble shall be placed within the eye and the splice made with not less than the following number of tucks; first strand, two (2) tucks; second strand, three (3) tucks; third strand, four (4) tucks; remainder of strands, five (5) tucks. The eye shall be drawn tightly around the thimble, the strands drawn tightly after each tuck and the tucks smoothly laid. After the last tuck is made each strand shall be cut off not closer than one-fourth (¼) inch from the tuck and beaten down flush. The splice may be left bare or served with marline.

(2) Method of Making Return Loops: When the two (2) ends of one continuous cable are both secured to the winding drum, to the car or to the counterweight a return loop, without cutting the cable, may be made at the counterweight or the car. To form such loop the cable shall be passed around the thimble, a clamp shall be placed on the doubled cable and securely bolted to prevent slipping of either leg of the cable through the clamp should the opposite leg be entirely released.

(3) Method of Socketing Cables: If a babbitted socket is used the length of the socket shall be not less than four (4) times the diameter of the cable. The hole at the end shall be as given in Table 8.

The small end of the socket shall be free from cutting edges.

The hole at the large end of the socket shall be not less than three (3) times the diameter of the cable. The socket shall be a drop-forged steel, steel casting or formed in a substantial block of cast iron. The socket shall be of such strength that the cable will break before the socket is perceptibly deformed.

Before the cutting the cable shall be served with wire at the end of the length to be used. After cutting the cable shall be served with wire at a distance from the end of the cable equal to the length of the socket plus two and one-half (2½) times the diameter of the cable.

Note: Large cables should be served for several inches to prevent unwrapping.

The socket shall be slipped over the cable, and the serving at the end of the cable removed. The fiber core shall be removed to the remaining serving and the wires separated and thoroughly cleaned.

Nominal Diameter of Cable in Inches	Inside Diam. of Small End of Cable Socket
¼ to $1\frac{1}{16}$ inclusive	shall not be more than $\frac{1}{16}$ in. larger than cable diam.
¾ to $1\frac{5}{16}$ inclusive	shall not be more than $\frac{5}{32}$ in. larger than cable diam.
1⅛ to 1½ inclu.	shall not be more than ⅛ in. larger than cable diam.

The wires shall be "turned in" toward the center of the cable for a distance not less than two and one-half (2½) times the diameter of the cable.

The wires shall be sprinkled with powdered rosin or dipped in a suitable flaxing solution and the socket shall be put in place.

The socket and cable shall be warmed and poured full of melted babbitt or spelter metal. Care shall be taken not to overheat the metal, thereby impairing the cable wires.

(k) Whichever method is used for fastening the cable, the fastening shall be capable of sustaining a load of not less than

eighty (80) per cent of the ultimate strength of the undisturbed portion of the cable.

Sec. C-419—CABLE EQUALIZERS:

(a) Equalizers shall be provided at car and counterweight ends of hoisting cables for traction elevators having two (2) or more cables. Equalizers shall be provided for elevators having winding drums, if the cables wind in grooves on drums scored right and left hand.

It is recommended that for traction elevators, the equalizers shall consist of compression springs.

Sec. C-420—SIGNAL SYSTEMS:

(a) The hoistway of every power freight elevator, except automatic button-control elevators, shall be provided with a signal system by means of which signals can be given from any landing whenever the elevator is desired at that landing.

(b) Automatic button-control elevators shall be provided with an audible emergency signal that is operated from the car.

Sec. C-421—EMERGENCY CONCEALED MASTER SWITCH FOR PUSH BUTTON AND OTHER ELEVATORS:

(a) In all push-button elevators a master concealed switch shall be installed. The Commissioner of Buildings shall have the right to require such a master switch in any elevator he may see fit.

(b) The master switch shall be installed in a cabinet with a glass front on which shall be painted in letters the following:

BREAK THIS GLASS IN CASE OF ACCIDENT TO CAR.
PUSH THIS SWITCH AND OPERATE CAR AS USUAL.

(c) The master switch shall be so wired in an approved manner that all automatic and safety mechanism will be cut out so the car will operate in an emergency or during a fire located in any of the interlocks.

DIVISION C—PART FIVE
HAND ELEVATORS AND HAND INVALID LIFTS

Sec. C-501—CAR CONSTRUCTION:

(a) Hand invalid lifts, hospital elevators and elevators operating outside the building—except sidewalk elevators—shall have cars enclosed on the top and sides not used for entrances. The enclosure shall deflect not more than one-fourth (¼) inch subjected to a force of seventy-five (75) pounds applied at any point perpendicular to the car enclosure. The car enclosure shall be secured to the car platform or frame in such a manner that it cannot work loose or become displaced in ordinary service.

(b) Car slings shall be of metal or sound seasoned wood designed with a factor of safety of not less than four (4) for metal or six (6) for wood based on the rated load uniformly distributed. If of wood the frame members shall be securely bolted and braced.

(c) No glass shall be used in elevator cars except to cover certificates, etc. No piece of glass shall exceed one (1) square foot in area.

(d) Elevators operating in hoistways outside the building which are enclosed only at the ground landing shall be protected on the exposed side or sides either by independently operated gates or bars interlocked with the car control, or by semi-automatic gates or bars.

Sec. C-502—CAR COMPARTMENTS:

(a) No hand elevator car upon which persons are permitted to ride shall have more than one (1) compartment.

Sec. C-503—CARS COUNTERBALACING ONE ANOTHER:

(a) Hand elevator cars shall not be arranged to counterbalance one another if persons are permitted to ride on them or to step on them for the purpose of loading or unloading, unless hoistway gates or doors are provided which are equipped with interlocks or electric contacts and doorlocks.

Sec. C-504—CAR SAFETIES AND SPEED RETARDERS:

(a) Hand elevators shall have two (2) cables and in cases of a travel of more than fifteen (15) feet shall be provided with a "safety" attached to the under side of the car sling capable of stopping and sustaining the car and rated load.

(b) The "car safety" shall be applied automatically.

(c) No "car safety" shall be permitted for stopping an ascending car.

(d) A "speed retarder" may be used to apply the brakes if the car speed becomes excessive in either direction.

Hand elevators having a travel of more than thirty (30) feet shall be equipped with a brake which operates automatically.

Note: For hand brakes, see section C-509.

(e) The "speed retarder" shall be located where it cannot be struck by the car in case of overtravel.

Sec. C-505—CAPACITY AND LOADING:

(a) The minimum carrying capacity of hand invalid lifts and hospital elevators shall be thirty-five (35) pounds per square foot of platform area inside of the car enclosure.

(b) A metal plate shall be fastened in a conspicuous place in the elevator car and shall bear the following information, in not less than one-fourth (¼) inch letters or figures. These letters or figures shall be stamped, etched or raised on the surface of the plate.

(1) The capacity of the elevator in pounds.

(2) The maximum number of passengers to be carried, based on one hundred and fifty (150) pounds per person (if passenger elevator).

(3) The suspension data required in Section C-510.

(c) A rated capacity test shall be made of every new elevator before the elevator is placed in regular service.

Sec. C-506—COUNTERWEIGHTS:

(a) Counterweights shall run in guides.

(b) Counterweight sections of hospital elevators and invalid lifts whether carried in frames or not shall be secured by at least two (2) tie rods passing through holes in the sections. The tie rods shall have lock nuts at each end. The lock nuts shall be secured by cotter pins.

Sec. C-507—CAR AND COUNTERWEIGHT BUMPERS:

(a) Car bumpers of the spring type or their equivalent shall be installed in the pits of hand invalid lifts and hospital elevators.

(b) Bumpers shall stop the car when descending with its rated load. The bumpers shall be designed to cause a retardation of the car not in excess of 64.4 feet per second per second.

(c) Bumpers shall be located symmetrically with reference to the center of the car.

(d) Counterweight bumpers similar to those required for cars shall be installed under the counterweights if the space below the counterweight runway is used for any purpose.

Sec. C-508—GUIDE RAILS:

(a) Car and counterweight guide rails shall be of steel, wrought iron, or straight-grained, seasonad wood free from knots, shakes, dry rot or other imperfections. Guide rails shall be securely fastened with through bolts of such strength, design and spacing that the guide rails and their fastenings shall not deflect more than one-fourth (¼) inch under normal operation, particularly where in contact with the guide shoe when the car is at landing. Guide rails shall withstand the application of the "safety" when stopping a fully loaded car of the counterweight. The guiding surfaces of the guide rails for elevators requiring "safeties" shall be finished smooth. The guide rails shall be "bottomed" on suitable supports and extended at the top to prevent guide shoes running off in case the overtravel is exceeded.

Sec. C-509—MACHINE AND MACHINERY:

(a) Hand elevators shall be equipped with a hand brake that operates in either direction. When the brake has been applied it shall remain locked in the "on" position until released.

(b) The factors of safety based on the static loads to be used in the designs of all parts of hoisting machines shall not be less than five (5) for wrought iron or wrought steel, eight (8) for cast iron or other materials.

(c) The sheaves or idlers of hand invalid lifts and hospital elevators shall not be suspended in stirrups of cast iron from the under side of the supporting beams.

(d) No hand elevator machine shall be equipped with any means or attachment for applying any other power unless such elevator is permanently and completely converted into a power elevator complying with requirements of this Code for power elevators.

(e) Power shall not be applied to hand elevators by means of rope-grip attachment or clutch mechanisms.

Sec. C-510—HOISTING CABLES, ROPES AND CHAINS:

(a) The capacity plate required in Rule 505-B shall bear the following information:

SUSPENSION SPECIFICATIONS

Suspension Member	Material	Number Nominal Size	Rated Ultimate Strength in Lbs.
Hoisting			
Counter-weight			

(b) In addition a metal tag shall be attached to the suspension fastenings stating the size, rated ultimate strength and material of the suspension and the date of its installation.

(c) The factor of safety used in determining the size of the suspension member shall be five (5), based on the weight of the car and its rated load.

(d) Suspension members shall be so adjusted that either the car shall rest upon its bumpers or the counterweight upon the floor of the pit before the counterweight of the car strikes any part of the overhoistway construction.

(e) Suspension members secured to a winding drum shall have not less than one (1) complete turn of the suspension member around the winding drum when the car or counterweight has reached the extreme limit of its overtravel.

The drum end of cables shall be secured by clamps inside of the drum.

DIVISION C—PART SIX
DUMBWAITERS

Sec. C-601—CAR CONSTRUCTION:

(a) Dumbwaiter cars shall be of such strength and stiffness they will not deform appreciably if the load leans or falls against the sides of the car.

(b) Cars shall be made of wood or metal and of "solid" construction.

Cars for power dumbwaiters shall be reinforced with metal from the bottom of the car to the point of suspension.

Metal cars shall be of metal sections rigidly riveted or welded together.

Cars may be provided with hinged or removable shelves.

(c) Dumbwaiter cars, machines, and hoisting ropes or cables shall sustain the loads given in the following table. The motive power need not be sufficient to raise the structural capacity load.

Horizontal Dimensions in Inches.	Structural Capacity in Pounds.
24x24	100
24x30	150
30x30	300
36x36	500

(d) When any dumbwaiter car is of sufficient size as to permit the hauling of one (1) or more persons the installation shall be made to conform to a freight or passenger elevator.

Sec. C-602—DUMBWAITER MACHINES:

(a) Dumbwaiter machines shall be securely fastened to their supports. The factors of safety—based upon the ultimate strength of the material and the static load, i. e., the loading specified in Section C-601, plus the weight of the car, cables, counterweights, etc., used in the design of dumbwaiter machines—shall be not less than

six (6) for steel, and

nine (9) for cast iron or other materials.

(b) Sheaves or idlers shall not be suspended in cast iron stirrups from the under side of the supporting beam.

Sec. C-603—GUIDE RAILS:

(a) Guide rails shall be rigidly secured to the hoistway and the joints either tongued and grooved, doweled or fitted with splice plates.

(b) One set of guides may be used for both the car and the counterweight.

(c) Hand dumbwaiters having a capacity of not more than twenty (20) pounds and their counterweights shall have guides of wood, metal, metal and wood bolted together, metal tubes or spring steel wires maintained in tension by turnbuckles.

(d) Dumbwaiters having a capacity of more than twenty (20) pounds and a speed not in excess of one hundred (100) feet per

minute shall have guide rails of metal, wood, or metal and wood bolted together.

Sec. C-604—COUNTERWEIGHTS:

(a) Counterweights of dumbwaiters having a capacity exceeding one hundred (100) pounds or having a speed exceeding one hundred (100) feet per minute shall have their counterweight sections secured by at least two (2) tie rods passing through holes in all sections, unless suitable counterweight frames or boxes are provided. The tie rods shall have lock nuts at each end. The lock nuts shall be secured by cotter pins.

Sec. C-605—HOISTING CABLES:

(a) Power dumbwaiters shall be provided with one or more iron or steel hoisting cables. Where cables are exposed to corrosion, they may be covered with marline or other equivalent protective covering.

(b) The minimum factor of safety for static loads of car or counterweight cable shall be not less than the value given in Fig. 6, corresponding to the rated speed of the car.

(c) The number and diameter of the cables are determined by using the factor of safety found in Section C-605B and the rated ultimate strength of the cable. The computed load on the cables shall be weight of the car plus its rated load plus the weight of hoisting cables and compensation.

(d) No car or counterweight hoisting cable or power dumbwaiters shall be lengthened or repaired by splicing.

(e) The drum end of the car and counterweight cables shall be secured by clamps inside the drums.

(f) All cables secured to a winding drum shall have not less than one (1) turn of cable on the winding drum when the car or counterweight has reached the extreme limit of its overtravel.

Sec. C-606—SPEED AND CONTROL:

(a) No belt dumbwaiter shall have a speed greater than fifty (50) feet per minute.

(b) No power dumbwaiter controlled by a handrope shall have a speed greater than fifty (50) feet per minute.

(c) The speed of power dumbwaiters other than those mentioned in Section C-606 shall not exceed:

(1) One hundred (100) feet per minute if the travel is less than thirty (30) feet.

(2) One hundred and fifty (150) feet per minute if the travel is thirty (30) feet or more and less than fifty (50) feet.

(3) Two hundred and fifty (250) feet per minute if the travel is fifty (50) feet or more and less than one hundred (100) feet.

(4) Four hundred (400) feet per minute if the travel is one hundred (100) feet or more.

(5) Five hundred (500) feet per minute if the travel is in excess of one hundred (100) feet without intermediate landing, and the dumbwaiter is button-controlled and provided with a "slow-down" device.

(d) Guards which will keep the ropes on the sheaves shall be installed unless means are used to maintain the hand ropes in proper tension.

Sec. C-607—TERMINAL STOPS:

(a) Power dumbwaiters shall be equipped with brakes which are automatically applied when the power is cut off the motor.

Exception: Hydraulic dumbwaiters.

(b) Power dumbwaiters shall be provided at each terminal with independent means of manual operation to automatically stop the car within the limits of over-travel.

(c) Power dumbwaiters having a travel of more than thirty (30) feet and a capacity of more than one hundred (100) pounds and operated by winding-drum machines shall be provided with a "slack-cable" device which will cut off the power and stop the car if the car is obstructed in its descent.

Exception: Hydraulic dumbwaiters.

DIVISION C—PART SEVEN
ESCALATORS

Sec. C-701—ANGLE OF INCLINATION:

(a) The angle of inclination of an escalator shall not exceed thirty (30) degrees with the horizontal.

Sec. C-702—WIDTH OF ESCALATORS:

(a) The width of an escalator shall be measured between the balustrading at a vertical height of twenty-four (24) inches above the nose line of the treads.

(b) Escalators shall be not less than twenty-two (22) inches nor more than forty-eight (48) inches wide.

Escalators greater than twenty-nine (29) inches in width shall have a horizontal tread formation.

Sec. C-703—BALUSTRADING:

(a) Escalators shall be provided on each side with "solid balustrading". On the escalator side the "balustrading" shall be smooth, without depression or raised paneling or molding. Glass panels in "balustrading" shall be prohibited.

There shall be no abrupt changes in the width between the "balustrading" on the two (2) sides of the escalator. Should any change in the width be necessary, the change shall be not more than eight (8) per cent of the greatest width.

In changing from the greater to the smaller width the change in the direction of the "balustrading" shall not exceed fifteen (15) degrees from the line of the escalator.

(b) "Balustrading" shall be equipped with a hand-rail moving at the same speed and in the same direction as the travel of the escalator.

Sec. C-704—TREAD GUARDS:

(a) Stationary tread guards shall be provided on the escalator side of "balustrading" along the whole length of and immediately above the nose line of the escalator treads.

(b) Escalator treads and landings shall be of material affording secure foothold, such as wool or material used for "safety treads." If the landing is of concrete, it shall have edge insertions of metal, wood or other antislip material.

Sec. C-705—STRENGTH OF TRUSSES OR GIRDERS:

(a) Escalator trusses or girders shall be designed with a factor of safety not less than five (5), based on the static loads.

(b) The escalator truss or girder shall be designed to safely

retain the escalator treads in their runs if the tread chain breaks while supporting the maximum load.

Sec. C-706—TRACK ARRANGEMENT:

(a) The track arrangement for guiding the escalator tread shall prevent the displacement of the upper line of treads if the tread chain breaks.

Sec. C-707—CAPACITY AND LOADING:

(a) The maximum load permitted on an escalator twenty-four (24) inches or less in width shall be computed by the following formula:

Maximum Load=110 A

(b) The maximum load permitted on an escalator wider than twenty-four (24) but not exceeding thirty-six (36) inches shall be computed by the following formula:

Maximum Load=[110 plus 9 (W-24)]×A

(c) The maximum load permitted on an escalator wider than thirty-six (36) but not exceeding forty-eight inches shall be computed by the following formula:

Maximum Load=[218 plus 5 (W-36)]×A.

In these formulas, (W) is the width of the escalator in inches and (A) is the horizontal projected length in feet of the exposed treads. The maximum load is expressed in pounds.

Sec. C-708—LIMITS OF SPEED:

(a) The speed of an escalator shall not exceed one hundred (100) feet per minute.

Sec. C-709—Application of power:

(a) Escalators shall be driven by direct-connected electric motors. Two (2) or more escalators placed side by side and operated as a single unit may be driven by one (1) motor.

(b) The chain or chains used for driving escalators shall have a factor of safety of not less than ten (10).

Sec. C-710—SAFETIES:

(a) Every escalator "drive" shall be provided with an electrically released, mechanically applied brake which shall stop the escalator automatically when the power is cut off.

(b) There shall be an emergency "stop" button or other type of switch accessible to the public, conspicuously located at the top and at the bottom of each escalator runway.

The operation of either one of these buttons or switches shall cause the opening of the power circuit, application of the brake and stoppage of the escalator. It shall be impossible to start an escalator by means of these buttons or switches.

These buttons or switches shall be marked "ESCALATOR STOP BUTTONS" or "ESCALATOR STOP SWITCH".

(c) Escalators operated in the ascending direction shall be equipped with a safety mechanism to prevent accidental reversal of the escalator.

On a reversible escalator the safety mechanism shall be arranged to be inoperative when the escalator is descending and operative when the escalator is ascending. The safety mechanism shall be provided with a contactor, the function of which will cause the opening of the power circuit and the application of the brake.

(d) Escalators operating in a descending direction shall be provided with a safety mechanism to prevent the escalator attaining excessive speed.

(e) Escalators operated by polyphase alternating current motors shall be provided with relays of the potential type which will prevent starting the motor while—

(1) The phase rotation is in the wrong direction.

(2) There is a failure in any phase.

DIVISION D—ELECTRICAL

PART ONE—ADMINISTRATION

Sec. D-101—PERMITS: (See Sec. A-223Q and A-223R.)

(a) Before any electrical work shall be commenced for any building or structure or on any premises within the city a permit and license shall be obtained from the City Controller, so to do, after application to the Commissioner of Buildings and his approval thereof.

(b) No application for a permit shall be issued by the Commissioner of Buildings unless the person or persons, firm or corporation agree to do all the work for which a permit is granted according to the provisions of this Code and the approval issued thereunder either on said application or according to plans and specifications approved by the Commissioner of Buildings and kept on file with him. The Commissioner of Buildings may require affidavits to this effect in any case.

Sec. D-102—PLANS AND SPECIFICATIONS:

(a) Blue prints in duplicate shall be provided the Bureau of Buildings before application for building license and permit: for all electrical work in buildings or structures and on all premises both new or old and public and private.

(b) Such blue prints shall show:

(1) All construction and details.

(2) Exact location of all apparatus, the size and capacity thereof.

(3) The size of all conduits; location of all openings, cabinets and the capacity of all conductors.

Exception: Blue prints may be omitted by special permission or for any repairs not in excess of fifteen (15) dollars, which repairs are done by a licensed person.

Sec. D-103—CORRECTIONS TO BLUE PRINTS:

After such blue prints are read by the Bureau of Buildings any corrections to the same shall be made in acid by the applicant before a permit or building license is issued.

Sec. D-104—NUMBERING OF BLUE PRINTS:

All blue prints in sets shall be numbered and an index furnished on the first blue print setting forth each sheet and the character thereof.

Sec. D-105—ERRORS IN BLUE PRINTS AFTER PERMIT IS ISSUED NOT LEGAL:

After the blue prints are stamped as follows: "APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES," such approval shall not be considered as evidence to allow any person or persons to violate any law or Ordinance of this Code. Such above approval shall not guarantee any person or persons that the ap-

proved plans are in exact accordance with all building and zoning laws or ordinances, and any errors found later shall be immediately rectified and the construction or location of the electrical work changed to conform to the law, ordinance and this Code.

Sec. D-106—SCALE OF PLANS:

All plans shall be drawn to a scale of one-quarter (¼) of an inch to one (1) foot of actual structure or building measurement; except by special permission in writing from the Commissioner of Buildings one-eighth (⅛) inch to one (1) foot scale may be used in large buildings not used for apartment or tenement purposes.

Sec. D-107—REGISTERED ENGINEER:

The Commissioner of Buildings shall require plans and specifications of any electrical work to be approved by a registered professional engineer registered in the State of Indiana as such.

Sec. D-108—CHANGES NOT TO BE MADE IN PLANS AFTER PERMIT IS ISSUED:

No changes are to be made in any plan or specifications of construction after a building license has been issued except by special permission, in writing, from the Commissioner of Buildings.

Sec. D-109—APPROVAL OF PART OF BUILDING:

Nothing in this division shall be construed to prevent the Commissioner of Buildings from granting his approval for the performing of any part of the work, where approved plans of the same are on file at the Bureau of Buildings.

Sec. D-110—REVOCATION OF BUILDING LICENSE:

(a) Should the Commissioner of Buildings become convinced that the work under the building license is not proceeding according to the plans and specifications upon which such building license was issued, but is proceeding in violation of the law or ordinance or this Code, it shall be his duty to notify, by parole or otherwise, the owner or owners, or his agent, that the work is being done in violation of the approval, permit and ordinance and that such work shall immediately be stopped and changed to conform to the Building Code.

(b) Such building license may be revoked by parole or otherwise by the Commissioner of Buildings or his authorized assistants when it is believed any part of this Code is being violated. Such revocation of a building license shall be by letter to the applicant at the address shown on the building license application or in lieu thereof the Commissioner of Buildings or his authorized assistants may cause a tag, sticker or notice of such revocation of the license to be written on or attached to the building license, which is required by the law to be posted in a conspicuous place on the construction job.

Sec. D-111—BUILDING LICENSE TO BE POSTED ON THE JOB.

It shall hereafter be unlawful for any person or persons, firm or corporation to do any electrical work on any new or old structure, including repairs, in Indianapolis, unless said person or persons, firm or corporation, including the contractor, foreman or workman doing such work shall maintain in full view and in a conspicuous place during the construction or repair work called for by a permit and until the said work shall be finished and finally inspected, a building license for such work on such building or structure.

Sec. D-112—REMOVAL OF LICENSE—FINAL INSPECTION:
Such license shall not be removed until the permission so to do is granted by the Commissioner of Buildings or his authorized assistants, either by letter or parole. Such parole notice when final inspection is made shall be in the form of a sticker which shall be attached to the license by the inspector and signed by him.

Sec. D-113—PLANS AND SPECIFICATIONS OF JOB:
It shall further be unlawful for any person or persons, firm or member of a corporation to do any electrical work on any new or old building or structure or premises in Indianapolis unless there is maintained on such construction or repair job at all times during working hours a complete set of plans and specifications stamped: "APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES.'

Sec. D-114—LEGAL EXPIRATION OF ANY BUILDING LICENSE:
Every permit and license shall expire by limitation if active work has not been commenced within two (2) months of the date of issue.

Sec. D-115—REJECTION OF PLANS:
It shall be the duty of the Commissioner of Buildings to accept or reject any plan or set of plans within a reasonable time from date of filing same in his office pursuant to the provisions of this building Code and all Zoning laws and ordinances or other laws and ordinances in effect in the City of Indianapolis.

Sec. D-116—ORDINARY REPAIRS:
Ordinary repairs to the electrical work of buildings or structures or any of the appurtenances thereto, the value of which shall not exceed fifteen (15) dollars in any one (1) month or fifty (50) dollars in one year, may be made without notice to the Commissioner of Buildings.

Sec. D-117—ILLEGAL INSPECTION:
It shall be unlawful for any person, firm or corporation, organization or bureau to charge fees for inspection either directly or indirectly and to perform inspection work as required by this Code in lieu of that inspection and those fees required through the Bureau of Buildings. (See Sec. A-228.)

Sec. D-118—IRON CONDUIT AND ARMORED CABLE REQUIRED—WOOD MOULDING PROHIBITED.
(a) All wiring hereafter installed within the territory known as the fire limits described in Sec. A-301, shall be installed in approved metal conduit or armored cable.
(b) Approved metal conduit or approved armored cable will be required for all wiring in any of the following classes of buildings wherever located: Buildings occupied as asylums, sanitariums, hospitals, theaters, moving picture shows and airdomes, state, county, and city public buildings, public schools and livery stables, provided, however, that minor alterations and repairs may be made in existing systems when approved by the Commissioner of Buildings.
(c) No wood moulding will be permitted.

Sec. D-119—CUTTING OF WIRES:
No person shall maliciously cut, disturb, alter or change or cause to be cut, altered or changed any electrical apparatus or elec-

trical wires in such a manner as to render same inoperative or defective or not in accordance with the provisions of this Code.

Sec. D-120—COVERING OF CONCEALED WIRING:

No so-called concealed wiring shall be lathed over or in any manner covered from sight until inspected and accepted.

Sec. D-121—DEFECTIVE APPARATUS AND MATERIAL:

(a) The Commissioner of Buildings may condemn any electrical work or apparatus within any building or on any lot or premises or in any street or alley or other place which is unsafe in his opinion and has not been installed according to the provisions of this Code.

(b) The person or persons owning or using the same shall immediately cause the condemned work to be corrected to comply with the requirements of this Code.

(c) If the person owning or operating the defective apparatus, or wires, does not cause them to be corrected promptly upon notice of the Commissioner of Buildings, the said Commissioner or his authorized assistants may remove the fuses, disconnecting the wires or by other means completely disconnect the condemned work, and no person shall connect the same until the condemned work has been corrected and inspected and a certificate furnished by the Commissioner of Buildings.

Sec. D-122—CERTIFICATE OF INSPECTION:

(a) No person or persons shall connect or permit to be connected any electrical installation covered by this Code to a source of electrical energy until such installation has been approved by the Commissioner of Buildings and a certificate of approval attached to said installation.

(b) The certificate of approval shall be either in the form of a sticker or a tag. This certificate shall be blue in color and shall be signed by the inspector certifying the installation.

(c) In cases where the electrical work is not approved, the inspector shall cause a red tag to be fastened to the disapproved electrical installation. It shall be unlawful for any person to disturb or remove this tag until authorized so to do by the Commissioner of Buildings.

(d) It shall be unlawful for any person or owner to cause any defective electrical installation to be used or connected to a source of electrical energy until the defects have been removed and a certificate of approval issued.

Sec. D-123.—RECORD OF INSPECTION:

Each inspector shall keep a complete record of his inspection work and make a weekly report to the Commissioner. In case that the Commissioner shall appoint an inspector over any certain territory said inspector shall perform his duty properly and be responsible for the inspection work under his direction and within that district. Each inspector shall receive inspection slips and shall thereon keep a complete record of all inspections made and shall attach the final inspection tag on the building license as described in this Code.

Sec. D-124.—WIRING IN BASEMENTS OR CELLARS:

All wiring in open basements or cellars of all classes or grades of buildings shall be in metal conduit or armored cable or other approved protection medium.

Sec. D-125—BOARD OF ELECTRICAL EXAMINERS:

(a) That there be and is hereby created a Board for the examination and licensing of master electricians, to be known as "BOARD OF ELECTRICAL EXAMINERS," wh ch board shall consist of five members, to be constituted and appointed as follows:

The Commissioner of Buildings of the City of Indianapolis and the Electrical Engineer shall each be a member of said board, ex-officio; the Commissioner of Buildings of the City of Indianapolis shall appoint as the third member of said board some master electrician of good moral character of the City of Indianapolis, and these three members shall appoint two additional members, one of whom shall be a registered architect, and one a registered electrical engineer under the laws of Indiana, all of the City of Indianapolis.

(b) The term "master electrician" as used in this section is defined to mean and include any person, firm or corporation engaged in the business of, or holding themselves out to the public as engaged in the business of installing or repairing or contracting to install or repair wires, conductors and equipment used within buildings for the transmission of electric current for electric light, heat, power or signaling purposes covered by the Building Code of the City of Indianapolis, together with the fittings for the same necessary for the protection of such wires, conductors and equipment.

(c) The salary of the members of said board, other than the member who is the Commissioner of Buildings and Electrical Engineer of the Bureau of Buildings of the City of Indianapolis, shall be sixty ($60.00) dollars per year, or at the rate of five ($5.00) dollars per month, and said board shall have a right to employ some competent person not a member of the board as secretary at the compensation not in excess of twenty ($20.00) dollars per month.

(d) Said Board of Electrical Examiners shall meet at the office of the Commissioner of Buildings of the City of Indianapolis, or at such other place in the City Hall as may be assigned to them. Said board shall meet at least once a month at such time as may be fixed by said board, and when necessary for the efficient discharge of its duties said board may adjourn from time to time, and may hold special meetings upon the call of the chairman or of two members of said board. The majority of said board shall constitute a quorum, and it shall require the affirmative vote of a majority of said members to take any action at any regular or special meeting of said board.

(e) No person shall be entitled to receive a license as a master electrician, as provided in this section unless he passes the following qualifications: (1) Must be over twenty-one years of age and a person of good moral character; (2) Must be a graduate electrical engineer from a recognized university or college, with at least one year's practical experience as a master electrician; or have had at least three years' actual experience as an electrical workman or journeyman repairing and installing wires, conductors, and equipment used inside of buildings for the transmission of electric current for electric light, heat, power or signaling purposes covered by the Building Coed of the City of Indianapolis; (3) Must possess a fair knowledge of the laws of the State of Indiana and of the ordinances of the City of Indianapolis controlling the repair and installation of wires, conductors and equipment used within buildings for the transmission of

electric current for electric light, heat, power or signaling purposes covered by this Code.

(f) No firm or corporation shall be entitled to receive a license as a master electrician as provided in this section unless, if a firm, some member thereof, or if a corporation some officer or duly authorized representative thereof, shall possess the qualifications required in this section for master electrician, and apply for and secure a license as master electrician under this section in the name of such firm or corporation.

(g) Said Board of Electrical Examiners shall have power to adopt all necessary rules and regulations for the conduct of its own business and the examination of applicants for license as master electrician. Said board shall keep, or cause to be kept, proper records showing the names and addresses of all persons making application for license as master electrician, and to whom said board authorizes licenses to be issued.

(h) Said Board of Electrical Examiners shall issue its certificate signed by each member of said board, or a majority thereof, to each applicant for license as a master electrician complying with the requirements of this section. Said certificate shall be directed to the Controller of the City of Indianapolis and said Controller upon the receipt of such certificate shall issue a license to such person, firm or corporation, as the case may be, for a period of one year; or the remainder of the calendar year, after the date of the issuing of such license. All licenses and renewals of the same shall expire on the 31st day of December each year. No license shall be issued by the Controller to any person, firm or corporation as a master electrician except as provided in this section, and such license so issued shall be evidence in court of the business for which it is issued.

(i) Each applicant before taking examination shall pay to the Controller of said city the sum of fifteen ($15.00) dollars as the preliminary fee for the examination as master electrican and file the receipt of the Controller with the Secretary of said board for such payment. If the applicant is found to be qualified and is given a certificate as provided for in paragraph (h) of this section then he shall be entitled, upon the further payment to said Controller of ten ($10.00) dollars and the execution of a bond as provided for in this section, to receive a license from the Controller as a master electrician as provided in this part.

(j) Each person, firm or corporation applying for the license required by this section shall, before being granted a license by the Controller, make, execute and deliver to the Controller a bond in the sum of three thousand ($3,000) dollars, payable to the City of Indianapolis, such bond to be made for the use and benefit of the owner or any party in interest in the property where said master electrician furnishes any material, or performs any service, against loss or damage which may arise by reason of the work done or material furnished being in violation of the requirements of any law of the State of Indiana or any ordinance of the City of Indianapolis controlling such work. Such bond shall be executed by each applicant with any recognized and responsible surety company authorized to do business in Marion County, Indiana, as surety thereon.

(k) Each person, firm or corporation applying for the license as master electrician, as provided in this section, shall have the right

without further examination to obtain a license each year thereafter from said Controller upon the payment to the Controller of a license fee of five ($5.00) dollars, and the execution of a bond with security as herein required.

(l) Any person shall have the right to appear before the Board of Electrical Examiners for permission to do electrical wiring for himself or for any person, firm or corporation to the extent of the permission granted him in writing by said board as herein provided. Said permission shall definitely state what the person may do, and in no case shall such permission be construed to exclude the installation permit as required by this Code.

(m) The above and foregoing provisions of this section shall not apply to or govern electrical work done by any person, firm or corporation through a regular employee employed in whole or in part for such work, provided, however, that the owner of any such plant or building desiring to do such electrical work through his, their or its regular employees shall join with such employee, or employees, in an application to the Board of Electrical Examiners for a permit and license therefor. Such employee shall appear in person before said board and shall pass an examination the same as for a master electrician and after said board is satisfied that such employee joining such person, firm or corporation, in such application is qualified to do electrical work as provided in this section and as described in paragraph (e) hereof, said board shall issue such permit to such person, firm or corporation for said employee, so joining in said application, and upon presentation of such permit to the Controller of said city, such person, firm or corporation shall be entitled to receive a second grade license for said employee, to do electrical work on the premises of said person, firm or corporation upon the payment of the fee of five ($5.00) dollars per year without the execution of any bond. The work done under such license shall be limited to the employee named in such license and to the building or buildings owned by said person, firm or corporation, but not for any building under construction; and said board shall keep a proper record showing the name and address of each person, firm or corporation to whom such permit and second grade license is granted. If an employee named in any license issued to any person, firm or corporation under this paragraph shall for any reason cease to be an employee of such person, firm or corporation, then all rights under such licenses shall cease, and said person, firm or corporation shall be required to make a new application to said Board of Electrical Examiners the same as if he, they or it had never been granted any permit or license by such board.

(n) This section shall not apply to telephone companies, telegraph companies, electric light, heat and power companies, or electric railway companies operating under franchises or under the laws of the State of Indiana, in the installation and maintenance, removal or repair of their wires, conductors, apparatus and equipment used in connection with their business or plant. This section shall not apply to the manufacturers of electrical apparatus in conducting tests of apparatus of their own manufacture within the limits of their own plant.

(o) Any person, firm or corporation granted a license as master electrician, or a renewal thereof, in accordance with the provisions of this section, shall display the same in a conspicuous place in the place of business of such person, firm or corporation.

(p) No permit or license, or renewal thereof, granted under the provisions of the section shall be assignable or transferable, and every such license, or renewal of the same, shall specify the name of the person, firm or corporation to whom it is issued, and if issued to a firm the name of the member of such firm qualifying as such master electrician, and if issued to a corporation the name of the officer or representative of such corporation qualifying as such master eleectrician. If a member of the firm or an officer or representative of a corporation named in the permit or license, or renewal thereof, qualifying as such master electrician shall cease to be a member of such firm or shall cease to be the officer or representative of such corporation, then and in that event all rights of such firm or such corporation under such permit or license, or renewal thereof, shall cease and said firm or corporation shall be required to make a new application to said Board of Electrical Examiners as provided in this section the same as if it had never been granted any permit or license by such board.

(q) The Board of Electrical Examiners shall have power, with the approval of the Board of Public Safety, to suspend or revoke any license, or renewal thereof, granted by said Board for cause or any violation of the Building Code by any master electrician, to whom a license has been granted. Violation of any of the provisions of this Code shall be sufficient cause for the suspension or revocation of such license.

(r) Said Board shall not have the power to create any expense unless the money therefor has been duly appropriated by the Common Council of said City. Any expense incurred by said Board, including the salary of members and the compensation of the Secretary shall be paid on voucher approved by the Commissioner of Buildings.

DIVISION D—PART TWO
ELECTRICAL—GENERAL

Sec. D-201—GAGES:

(a) All wire sizes are given in the Brown and Sharp (American) gage.

Sec. D-202—VOLTAGES:

(a) Low potential shall mean six hundred (600) volts or less.

(b) High potential shall mean between six hundred and one (601) volts and five thousand (5,000) volts.

(c) Extra high potential shall mean above five thousand (5,000) volts.

(d) In the preceding paragraphs the potential considered is that at which the circuit operates, whether it is supplied by a generator or by a transformer.

(e) Throughout this Code, unless otherwise specifically stipulated, the requirements shall be considered to be based upon the use of low potential wiring, devices, apparatus and appliances. High potential and extra high potential systems are considered in Parts 3 and 31.

Sec. D-203—WIRE TERMINALS, SPLICES AND JOINTS:

(a) Stranded wires, other than those used in flexible cords, shall be soldered together before being fastened under clamps or binding screws and, whether stranded or solid, when they have a cur-

rent capacity greater than No. 8, they shall be soldered into lugs for all terminal connections, unless a solderless connector is used.

(b) Wires shall be so spliced or joined as to be mechanically and electrically secure without solder. The joints shall then be soldered, unless made with a splicing device, and shall be covered with an insulation equal to that on the wires.

Sec. D-204—RAILWAY SYSTEMS:

Lighting and power from railway wire shall not be permitted under any pretense from a system to which are connected trolley wires with a ground return, except in electric railway cars, electric car houses, power houses, passenger and freight stations connected with the operation of electric railways.

Sec. D-205—APPROVED MATERIALS, ETC.:

This Code shall be understood to treat only of approved materials, devices, fittings, appliances, machinery, apparatus and methods.

Sec. D-206—GENERAL PLAN OF INVESTIGATIONS:

(a) Materials, devices, fittings, apparatus and appliances designed for use under this Code shall be judged chiefly with reference to the following five considerations which also determine the classification by types, sizes, voltages, current capacities and specific uses:

(1) Suitability for installation and use in conformity with the requirements of this Code.

(2) Mechanical strength and durability, including for appliances designed to enclose and protect other equipment, the adequacy of the protection thus provided.

(3) Electrical insulation.

(4) Heating effects under normal conditions of use and also under abnormal conditions of use and also under abnormal conditions likely to arise in service.

(5) Arcing effects.

(b) Bases for the mounting of live parts shall be composed of approved non-combustible, non-absorptive insulating material, and the design shall be such that, considering the material used, the base will withstand the most severe conditions liable to arise in service. Bases with an area of over twenty-five (25) square inches shall have at least four (4) supporting screws. Holes of supporting screws shall be so located or counter-sunk that there will be at least one-half (½) inch measured over the surface, between the screw head or washer and the nearest live metal part, and in all cases, where between parts or opposite polarity, the screw head or washer shall be counter-sunk. Holes for supporting screws in link fuse cut-out bases shall be kept outside the area included by the outside edges of the fuse terminals. Nuts or screw heads on the under side of the base shall be counter-sunk and sealed with a water-proof compound.

(c) Terminal parts by which wire connections are made shall insure thoroughly good connections even under hard usage. For currents above thirty (30) amperes, lugs into which the connecting wires may be soldered, or approved solderless connectors, shall be used. For currents of thirty (30) amperes or less the parts to which wiring connections are made shall securely grip the conductors. Heavy clamps or screws with terminal plates having upturned lugs, or solderless connectors, may be used.

Note: Lugs or clamps are not required when leads are provided as part of the device.

(d) The set screw form of contact shall not be used.

(e) The maker's name, trademark or other indentification symbol shall be placed on fittings and materials, together with such other markings giving voltage, current, wattage or other appropriate ratings as are prescribed elsewhere in this Code.

DIVISION D—PART THREE
OUTSIDE WORK: POLE LINES

Sec. D-301—LINE WIRES:

(a) Line wires shall be so placed that moisture cannot form a cross connection between them, and shall not be in contact with anything but their supports. They shall be not less than one (1) foot apart except when in conduit or multiple-conductor cable or on approved racks or brackets.

(b) Line wires shall be at least eight (8) feet from the nearest point of buildings over which they pass, and if attached to roofs the roof structures shall be substantially constructed. Wherever feasible, wires crossing over buildings shall be supported on structures which are independent of the buildings.

Sec. D-302—JOINT LINES:

(a) Electric light and power wires shall not be placed on the same cross-arm with telegraph, telephone or other signal wires, and when placed on the same pole with such wires the distance between the two (2) inside pins of each cross-arms shall be not less than twenty-four (24) inches for circuits operating at a potential to ground not exceeding three hundred (300) volts, and shall not be less than thirty (30) inches for higher potentials.

(b) The grounding of metallic sheaths of cables shall conform to the requirements of Part 9 of this Code.

Sec. D-303—TROLLEY WIRES:

(a) Trolley wires shall be doubly insulated from the ground, wooden poles being considered as one (1) insulation.

(b) Trolley wires and feeders shall be provided with switches which will either disconnect them from the power station, or will so sectionalize them that they may be rendered dead in case of fire along the route.

(c) Where crossed by other wires, trolley wires shall be suitably guarded. If guard wires are employed, they shall be insulated from ground and rendered electrically discontinuous at intervals not exceeding three hundred (300) feet.

Sec. D-304—CONSTANT POTENTIAL POLE LINES, OVER FIVE HUNDRED (500) VOLTS:

Note: Overhead lines of this class unless properly arranged may increase the fire loss from the following causes:

Accidental crosses between such lines and low potential lines may allow the high voltage current to enter buildings over a large section of adjoining country. Moreover, such high voltage lines, if carried close to buildings, hamper the work of firemen in case of fire in the building. The object of these rules is such as to direct this class of construction that no increase in fire hazard will result, while at the same time care has been taken to avoid restrictions

which would unreasonably impede progress in electrical development.

It is fully understood that it is impracticable to include in this Code rules which will cover in detail all conceivable cases that may arise in construction work of such an extended and varied nature and it is recommended that the Commissioner of Buildings be freely consulted as to the specific methods to be followed in particular cases, and that the rules of the National Electrical Safety Code, part 2, be followed.

(a) Every reasonable precaution shall be taken in arranging routes so as to avoid exposure to contacts with other electric circuits. On existing lines, where there is a likelihood of contact, the routes shall be changed by mutual agreement between the parties in interest wherever possible.

(b) The lines shall not approach other pole lines nearer than a distance equal to the height of the taller pole line, and the extra high potential wires shall not be placed on the same poles with other wires, except that signal wires used by the company operating the high potential system, and which do not enter the property other than owned or occupied by such company, may be carried on the same poles.

(c) Where the lines must necessarily be carried nearer to other pole lines than is specified in paragraph B of this section, or where they must necessarily be carried on the same poles with other other wires, extra precautions to reduce the likelihood of a breakdown to a minimum shall be taken, such as the use of wires of ample mechanical strength, widely spaced cross-arms, short spans, double or extra heavy cross-arms, extra heavy pins, insulators, and poles thoroughly supported. In every case ample clearance between such high potential wires and all other wires and supporting structures shall be provided.

(d) Where the extra high potential lines cross other lines, the poles supporting the conductors at the higher level shall be of heavy and substantial construction.

(e) Where the lines approach to within twenty-five (25) feet of a building they shall be so placed that their height from the ground will equal the height of the cornice of the building.

For closer approach, the height shall conform to the following table:

Distance of wire from building	Elevation of wire above cornice of building
25	0
20	2
15	4
10	6
5	8

Note: It is evident that where the roof of the building continues nearly in line with the walls, as in Mansard roofs, the height and distance of the line must be reckoned from some part of the roof instead of from the cornice.

DIVISION D—PART FOUR
ELECTRICAL—SERVICES

Sec. D-401—GENERAL:

(a) Wires shall not be so interconnected as to form a shunt around any street fuse or switch.

(b) No overhead service, no underground service from a subway and no service from an isolated plant shall supply more than one (1) building, except by permission of the Commissioner of Buildings, unless the conductors are properly protected by fuses and are carried outside all the buildings but those served; provided, however, that wires or cables in conduit or duct placed under two (2) inches of concrete beneath a building, or buried in two (2) inches of concrete or brick within a wall, shall be considered as lying outside the building; and provided, further, that this requirement shall not apply to factory yards and buildings under single occupancy or management.

Sec. D-402—OVERHEAD, FROM MAIN TO BUILDING:

(a) Approved weatherproof or approved rubber covering shall be employed on single wires, and approved rubber covering on multiple conductor cables. Wires shall not be smaller than No. 10 if of soft copper, or smaller than No. 12 if of medium or hard-drawn copper.

(b) Wires or cables shall not approach nearer than eight (8) feet to buildings over which they pass, and, if attached to roofs thereof, shall be supported on substantial structures.

Note: It is recommended that wires passing over a building be supported on structures which are independent of the building.

Sec. D-403—ON EXTERIOR OF BUILDING:

(a) Wires or cables which are likely to come into contact with awnings, swinging signs, shutters or other movable objects shall be inclosed in approved conduit made weatherproof.

(b) Wires or cables exposed to the weather shall be supported on petticoat insulators placed at intervals not exceeding fifteen (15) feet, this interval being decreased if the wires are subject to disturbance; and the insulators shall be so designed or located as to hold individual wires at least one (1) foot apart and at least two (2) inches from the surface wired over; provided, however, that brackets, racks, supports or insulators especially approved for the location may be used if they separate individual wires at least six (6) inches and are placed at intervals not exceeding nine (9) feet.

(c) Multiple conductor cables shall be kept at least six (6) inches from adjacent woodwork and at least twelve (12) inches from overhanging projections of combustible material, unless approved fittings which afford equivalent protection are used.

(d) Wires not exposed to the weather may be supported on glass or porcelain knobs placed at intervals not exceeding four and one-half (4½) feet and retaining the wires at least one (1) inch from the surface wired over. Weatherproof or rubber covering shall be employed on conductors thus run.

Sec. D-404—ENTRANCE:

(a) All service wires shall enter the building at a point as near as practicable to the location of the service switch. They shall be rubber-covered from the point of support on the outside of the building nearest the entrance to the service switch and cutout, and shall not be smaller than No. 10.

Note: It is recommended that conductors entering buildings from overhead lines be encased in approved rigid metal conduit having weatherproof threaded joints and equipped with approved service head, and that all wires of same circuit be placed in the same

conduit. (See Section D-503, table one (1) for number and size of conductors permitted in service conduit.)

(b) The inner end of the service conduit shall enter the service cabinet, or be led up directly to an equivalent device enclosing all live metal parts, but need not be electrically connected to it if insulated from ground, and, if necessary, isolated or guarded.

(c) Where conduit is not used, drip loops shall be formed on the individual wires which shall then pass upward and inward through slanting non-combustible, non-absorptive, insulating tubes.

(d) Where a conduit enters from an underground distribution system it shall be tightly closed with asphaltum or other approved nonconductor, to prevent gases from entering the building.

Sec. D-405—SERVICE EQUIPMENT, WITHIN BUILDING: (a) A switchboard, or an approved cabinet containing a service switch, shall be placed at the nearest readily accessible point to the entrance of the service, and within the building.

(b) The service switch, unless mounted on a switchboard accessible only to qualified persons, shall be enclosed in a grounded metal case, shall indicate plainly whether it is open or closed, and shall disconnect all conductors of the circuit; except as outlined in (d); provided, however, that where the switch, fuses and meter are combined in an approved device or compact combination of such devices having no live parts or wiring exposed and which is capable of being sealed or locked, the switch may be so connected that it will not disconnect the fuses or the meter from the supply line, the potential coils of the meter may be connected on the supply side of the service cutout and the switch blade may be omitted in any grounded conductor if other means is provided within the cabinet for disconnecting such conductor.

(c) The service switch shall be operable without opening its enclosure unless additional switches are provided for control of individual circuits, as recommended below.

Note: Where the current of a single circuit, or group of circuits, is separately metered as in apartment house installations, a switch and cutout shall be installed to control such separate metered installation, the switch and cutout being enclosed and the switch being externally operable. The location of this switch and cutuot may or may not, be close to the meter.

(d) A switch controlling a 3-wire direct current or a single phase system having the neutral grounded shall be of such design that the neutral cannot be opened without opening both of the outer conductors, but may be so designed that either outside conductor may be opened without opening the other.

(e) A fuse or circuit breaker shall be placed in each ungrounded service conductor, and shall be controlled by the service switch, except as provided in rule B of this Section. Where not located on a switchboard, live parts of cutout bases or circuit breakers shall be inclosed.

(f) Premises on which are located private plants; the yard wires running from building to building shall not be considered as service wires; and cutouts shall not be required where the service wires enter buildings, provided the next fuse back thereof is small enough to properly protect the wires inside the building in question.

DIVISION D—PART FIVE

WIRING METHODS

Sec. D-501—OPEN WIRING:

(a) Supports shall be composed of approved non-combustible, non-absorptive insulating material, free from checks, rough projections or sharp edges which might injure the insulation on the conductor. If the supports are designed to grip the wires, either conductors, but may be so designed that either outside conductor screws or nails may be used to fasten the supports in place, but nails shall be long enough to penetrate the woodwork not less than one-half (½) the depth of the knob and fully the thickness of the cleat. Cushion washers shall be used with nails.

(b) Supports shall provide at least one-quarter (¼) inch separation between the securing screw or nail and the wire, and shall be designed for two (2) securing screws if of the split knob (or single wire cleat) type intended for wires larger than No. 4.

(c) Multiple wire cleats shall be so designed as to separate the wires at least two and one-half (2½) inches and maintain them at least one-half (½) inch from the surface wired over. Such cleats shall not be employed to support wires operating at a potential exceeding three hundred (300) volts.

(d) Knobs shall be so designed as to maintain the wire at least one (1) inch from the surface wired over, and shall conform to the following minimum dimensions:

Size of Wire Inclusive	Size of Base, Inches			Solid Knobs, Groove, Inches		Split Knobs, Thickness of Cap, Inches from Top of Wire Groove.
	Circular Knobs. Diameter.	Square Knobs or Single Wire Cleats. Width.	Length	Depth.	Diameter.	
14-10	1⅛	¾	1¾	5/16	¼	⅝
8-4	1½	⅞	2	5/16	5/16	⅝
2-00	2	1	2¼	7/16	⅝	⅝
000-300,000 C.M.	2½	1⅛	2¾	7/16	21/32	⅞
400,000-1,000,000 C.M.	3	1⅜	3¾	⅝	1¼	1

(e) Tubes and bushings shall conform to the following minimum dimensions.

Diameter of Hole	External Diameter.	Thickness of Wall.	External Diameter of Head.	Length of Head.
5/16 in.	9/16 in	⅛ in.	13/16 in.	½ in.
⅜	11/16	5/32	15/16	½
½	13/16	5/32	1 1/16	½

5/8	1 1/16	5/32	1 5/16	1/2
3/4	1 1/16	7/32	1 1/16	5/8
1	1 7/16	7/32	1 1/16	5/8
1 1/4	1 1/16	9/32	2 5/16	5/8
1 1/2	2 1/16	11/32	2 1/16	3/4
1 3/4	2 9/16	13/32	3 1/16	3/4
2	2 1/16	15/32	3 7/16	3/4
2 1/4	3 5/16	17/32	3 1/16	1
2 1/2	3 1/16	19/32	4 3/16	1

An allowance of 1/64 of an inch for variation in manufacturing will be permitted, except in the thickness of the wall.

(f) Wires located in dry places shall be of approved rubber-covered (R), slow-burning weatherproof (SBW), varnished cloth insulated (VC) or slow burning (SB) type.

(g) Wires located in damp places or in buildings especially subject to moisture shall be of the rubber covered type. Wires subjected to corrosive vapors shall be of the weatherproof, varnished cloth or rubber covered type, as may be directed by the Commissioner of Buildings. Where the environment is such that rapid deterioration of conductors or insulation is probable, the Commissioner of Buildings may require the wires to be suitably closed, coated or otherwise protected to better withstand the particular conditions of service.

(h) Wires shall not be laid in plaster, cement or similar finish, nor fished for any great distance or where the inspector cannot satisfy himself that the rules have been complied with. Wires shall not be fastened with staples.

(i) Twin wires shall not be used, except in conduit or where flexible conductors are necessary.

(j) Wires of No. 8 or larger supported on solid knobs shall be securely tied thereto. If wires are used for tying, they shall have an insulation of the same type as that of the wires which they confine.

(k) Wires in dry places shall be rigidly supported with a separation of two and one-half (2½) inches from each other and one-half (½) inch from the surface wired over, for voltage not exceeding three hundred (300) and a separation of four (4) inches and one (1) inch respectively, for voltages between three hundred and one (301) and six hundred (600). In damp places separation of at least one (1) inch from the surface wired over shall be maintained.

Note: Rigid supporting requires under ordinary circumstances, when wiring over flat surfaces, supports at least every four and one-half (4½) feet, this interval being shortened if the wires are liable to be disturbed. In buildings of mill construction, mains not smaller than No. 8, where not liable to be disturbed, may be separated about six (6) inches and run direct from timber to timber, being supported at each timber only.

(l) Wires shall not be dead-ended at a rosette, socket or receptacle unless the last support is within twelve (12) inches of the same.

(m) Wires exposed to mechanical injury shall be suitably protected by running boards not less than one-half (½) inch in thickness and three (3) inches in width, or by guard strips not less than seven-eighths (⅞) inch in thickness and at least as high as the

insulating supports, placed on each side of and close to the wiring.

Note: Protection may also be secured by resorting to another method of wiring, such as approved conduit or armored cable. This is desirable when crossing floor timbers. In unfinished attics or accessible roof spaces wires are considered to be exposed to mechanical injury if run on upper edges of joists.

(n) Open wiring shall not be placed in elevator shafts.

(o) Vertical wires exposed to mechanical injury on side walls shall be protected by a substantial boxing, extending upward to a point not less than seven (7) feet above the floor, said boxing shall be closed at the top by bushed holes through which the wires pass, and shall be provided with an air space of one (1) inch above the wires. A sleeve of metal pipe may be substituted for the boxing, in which case the insulation of each wire shall be reinforced by approved flexible tubing extending from the insulating support adjacent to the other end. If alternating current is used, all wires of a circuit shall be contained in one pipe.

Note: In damp places the wooden boxing may be preferable, because of the precautions which would be necessary to secure proper insulation if pipe were used. With this exception, however, iron pipe is considered preferable to the wooden boxing, and its use is recommended, as it is especially suitable for the protection of wires near belts, pulleys, etc.

(p) Wires located in damp places shall be so placed that an air space will be permanently maintained between them and pipes which they cross.

Note: Wires run in close proximity to water pipes or tanks are considered to be exposed to moisture. It is recommended that wires be run over, rather than under, pipes upon which moisture is likely to gather or which may leak.

(q) Wires shall be separated from any contact with walls, floors, timbers or partitions through which they pass by tubes or bushings composed of approved non-combustible, non-absorptive insulating material. If the bushing is shorter than the hole, a waterproof sleeve, such as an iron pipe, shall be inserted in the hole and an insulating bushing slipped into the sleeve at either end and in such a manner as to keep wire absolutely out of contact with the sleeve.

(r) Wires shall be permanently separated from adjacent metallic piping or other conducting material or from any exposed lighting, power or signal wire which approaches within two (2) inches, by a firmly fixed and continuous non-conductor, additional to the insulation on the wire. Where an insulating tube is used, it shall be secured at the ends.

Note: Deviations from this requirement may, where necessary, be allowed by the Commissioner of Buildings.

Wires run in unfinished attics, or roof spaces, are considered to be concealed.

Sec. D-502—KNOB-AND-TUBE WORK:

(a) Supports shall conform to the requirements for knobs, tubes and bushings, as prescribed in section D-501 of this Code.

(b) Wires shall be approved rubber-covered type.

(c) Wires shall be separated at least five (5) inches and maintained at least one (1) inch from the surface wired over. At distributing centers, meters, outlets, switches or other places where

space is limited and the five (5) inch separation cannot be maintained, each wire shall be encased in a continuous length of approved flexible tubing.

Note: It is recommended that wires be run singly on separate timbers or studding.

(d) Flexible tubing shall have a smooth interior and its outer surface shall be treated with a moisture repellant and shall not convey fire when ignited and held in a vertical position. The tubing shall be so designed that the interior lining, if there is one, cannot be removed in lengths greater than three (3) feet, and the tubing shall be sufficiently tough and tenacious to withstand any abrasion likely to be encountered in service.

(e) Where it is impracticable to employ insulating supports, the wires, if not exposed to moisture and if operated at a potential not exceeding three hundred (300) volts, may be finished if separately encased in approved flexible tubing extending in continuous lengths from one support to the next or to the outlet, or from one outlet to another, otherwise, approved conduit or approved armored cable shall be used.

(f) Where a change is made from concealed work to conduit or armored cable, an approved terminal fitting shall be used which provides a separate bushed hole for each wire, which wire shall then pass through the fitting without splice, joint or tap. In this case the terminal fitting need not be accessible.

(g) In installing wires the precautions as to rigid supporting, separation between wires and clearance from foreign objects, as prescribed in Section D-501 of this Code, shall be observed. Wires passing through cross timbers in plastered partitions shall be protected by an additional tube extending at least four (4) inches above the timber.

(h) Approved outlet boxes or plates shall be installed at all outlets, and the flexible tubing shall extend from the last knob into and be secured to such boxes or plates.

Sec. D-503—CONDUIT WORK:

(a) All surfaces of the conduit tube, elbows, bends and similar fittings shall be suitably protected from corrosion.

(b) No conduit smaller than one-half (½) inch, electrical trade size, shall be used; provided, however, that concealed extensions from existing branch circuit outlets in buildings of fireproof construction, may be made by means of approved flexible or rigid conduit, not smaller than five-sixteenths (5/16) inch, or other forms of metal raceway approved for the purpose, and fittings containing one (1) No. 14 rubber-covered wire. This conduit shall not be run in concealed spaces but may be laid on the face of the fireproofing and may be plastered over. Such extensions, shall be confined to the room or suite in which they originate.

(c) Finished conduit, as shipped shall be in ten (10) foot lengths, with each end reamed and threaded, and shall have an interior coating of a character and appearance which will readily distinguish it from ordinary pipe commonly used for other than electrical purposes. One (1) coupling shall be furnished with each length.

(d) Elbows or bends shall be so made that the conduit will not be injured. The radius of the curve of the inner edge of any elbow shall be not less than three and one-half (3½) inches.

(e) Conduit shall be installed as a complete system, without wires. It shall be continuous from outlet to outlet, or from fitting to fitting, and shall be mechanically connected to all fittings. The entire system shall be securely fastened in position.

Note: Ordinarily, this involves carrying service pipes and main runs into the cutout box or cabinet; but the requirements may be waived in the case of an underground service.

It is recommended that preference be given to outlet boxes and fittings having conductive coatings, in order to secure better electrical contact at all points of the conduit system.

It is recommended that for all sidewall and partition outlets in concealed work in new buildings under construction outlet boxes having a depth of approximately one and one-half (1½) inches be provided.

(f) A run of conduit, between outlet and outlet or between fitting and fitting, shall include not more than the equivalent of four (4) quarter bends, the bends at the outlets or junction boxes not being counted.

(g) Where a conduit enters a box or other fitting an approved bushing shall be provided to protect the wire from abrasion, unless the design of the box or fitting is such as to afford equivalent protection.

(h) Conduit shall be grounded as prescribed in Part 9 of this division, and at a point as near as practicable to the source of supply; provided, however, that this requirement shall not apply to service runs of any length or to isolated house conduit runs not exceeding twenty-five (25) feet, when these runs are insulated from ground and from other metal on the premises and are guarded when within reach from grounded surfaces.

(i) Conduit wire shall be of approved rubber-covered type or, if in a permanently dry location, of the varnished cloth insulated type. A double braid shall be provided for conductors larger than No. 8 and for all twin, twisted or multiple-conductor cables. Slow burning insulation may, however, be used in permanently dry and excessively hot locations by permission of the Commissioner of Buildings. All wires of No. 6 or larger shall be stranded. There shall be no splice or tap within the conduit proper.

(j) Wires shall not be drawn in until all mechanical work on the building has been completed, as far as possible. Wires of different systems shall not occupy the same conduit.

Note: Different systems are those which derive their supply from one (1) different source of current, (2) transformers connected to separate primary circuits, or (3) transformers having different secondary voltages.

(k) When alternating current is to be employed all conductors of a circuit shall be placed within one (1) conduit, except as provided in paragraph B of this section.

Note: It is recommended that this course be pursued in the case of direct current also, in order to obviate induction troubles if a change is made to alternating current at a later date.

(l) Except in the case of stage pocket and border circuits, or by permission of the Commissioner of Buildings, one (1) conduit shall not contain more wires than as specified in Table 1, of this section.

(h) Metal raceways shall be continuous from outlet to outlet, or from approved fitting to approved fitting. It may be extended through dry walls or dry partitions if in unbroken length where passing through; but, where the wall or partition is damp, or where the raceway passes through a floor, an iron pipe sleeve shall be placed over the raceway and shall extend clear of either side of the wall or partition, or from the ceiling below to a point at least three (3) inches above the flooring. Where protection from mechanical injury is necessary, the iron pipe sleeve shall extend to a point at least five (5) feet above the flooring.

(i) Metal raceways shall be grounded and as prescribed in Part 9 of this division, at a point as near as practicable to the source of supply; provided, however, that this requirement shall not apply to service runs of any length or to isolated house raceway runs not exceeding twenty-five (25) feet, when these runs are insulated from ground and from other metal on the premises and are guarded when within reach from grounded surfaces.

Sec. D-505—ARMORED CABLE:

(a) Wires of armored cables shall be of rubber-covered type. The armored cable shall carry a distinctive marker throughout its entire length.

(b) Where alternating current is to be employed, all conductors of a circuit shall be contained within one (1) armor; provided, however, that concealed extensions from branch circuit outlets in buildings of fireproof construction may be made by means of single, double or triple conductor armored cable with suitable fitting at outlets. This cable shall not be run in concealed spaces but may be laid on the face of the fireproofing and may be plastered over. Such extensions shall be confined to the room or suite in which they originate.

(c) Cable shall be continuous from outlet to outlet or from fitting to fitting, and the armor shall be mechanically connected to all fittings, the entire cable system being securely fastened in place.

(d) A lead sheath shall be interposed between the outer braid and the steel armor where cable is installed in so-called fireproof buildings in course of construction or in such buildings when completed if the cable will be exposed to moisture, or where the cable is exposed to the weather, or in breweries, stables or other damp places, provided, however, that the lead sheath shall not be required if the cable is laid against a brick wall or laid within ordinary plaster wall, unless these walls are continuously damp.

(e) All bends shall be so made that the armor of the cable will not be injured, and the radius of the curve of the inner edge of any bend shall not be less than one and one-half (1½) inches.

(f) The armor shall be grounded as prescribed in Part 9 of this Division, and at a point as near as practicable to the source of supply, provided, however, that this requirement shall not apply to service runs of any length or to isolated house cable runs not exceeding twenty-five (25) feet, when these runs are insulated from ground and from other metal on the premises and are guarded when within reach from grounded surfaces.

Sec. D-506—DECORATIVE LIGHTING SYSTEMS:

(a) Temporary installations of approved systems of decorative lighting shall be used only when permission therefor has been granted by the Commissioner of Buildings and where the difference of

duit and up to seven (7) No. 14 wires in three-quarter (¾) inch conduit. Three (3) No. 12 wires may be installed in a one-half (½) inch conduit, four (4) No. 10 wires in a three-quarter (¾) inch conduit and three (3) No. 8 wires in a three-quarter (¾) inch conduit.

TABLE 2. THREE-CONDUCTOR CONVERTIBLE SYSTEM.

Size of Wires				Size Conduit Electrical Trade Size
two	14	and one	10	¾ Inch
"	12	"	8	¾ "
"	10	"	6	1 "
"	8	"	4	1 "
"	6	"	2	1¼ "
"	5	"	1	1¼ "
"	4	"	0	1½ "
"	3	"	00	1½ "
"	2	"	000	1½ "
"	1	"	0000	2 "
"	0	"	250000	2 "
"	00	"	350000	2½ "
"	000	"	400000	2½ "
"	0000	"	550000	3 "
"	250000	"	600000	3 "
"	300000	"	800000	3 "
"	400000	"	1000000	3½ "
"	500000	"	1250000	4 "
"	600000	"	1500000	4 "
"	700000	"	1750000	4½ "
"	800000	"	2000000	4½ "

TABLE 3. STAGE POCKET AND BORDER CIRCUITS, AND ELSEWHERE BY SPECIAL PERMISSION

	Maximum Number of Wires in Conduit					
Size of Wire	Inch	Inch	Inch	Inch	Inch	Inch
	1	1¼	1½	2	2½	3
14	11	19	26	43	61	95
12		15	21	34	50	77
10		12	16	27	38	60
8			13	22	31	49
6					14	22

Note: For such groups or combinations, it is recommended that the conduit be of such size, that the sum of the cross-sectional areas of the several conductors will not be more than forty (40) per cent of the interior cross-sectionl area of the conduit.

(n) Wires in vertical conduits shall be supported at the following intervals:

No. 14 to No. 0 not greater than 100 ft.
No. 00 to No. 0000 not greater than 80 ft.
No. 0000 to 350000 C. M. not greater than 60 ft.
350001 C. M. to 500000 C. M. not greater than 50 ft.
50001 C. M. to 750000 C. M. not greater than 40 ft.
Above 750000 C. M. not greater than 35 ft.

Note: The following methods of supporting cables are recommended:

(1) By approved clamping devices constructed of or employing insulating wedges inserted in the ends of the conduits.

(2) By inserting junction boxes at the required intervals in which insulating supports of approved type are installed and secured in a satisfactory manner to withstand the weight of the conductors attached thereto, the boxes being provided with covers.

(3) In approved junction boxes, by deflecting the cables not less than ninety (90) degrees and carrying them horizontally to a distance not less than twice the diameter of the cable, the cables being carried on two (2) or more insulating supports, and additionally secured thereto by the wires if desired.

(o) Vertical wires of No. 2 or larger, shall not be deflected where they enter or leave a cabinet; provided, however, that wires of No. 2 to 250,000 C. M. inclusive, if brought into a cabinet or box opposite the panel lugs in which they terminate, may be deflected sufficiently to permit their attachment to the lugs, if the cabinet is no less than four (4) inches in width.

Sec. D-504—OTHER WIRE RACEWAYS:

(a) Raceways shall be used only in exposed dry locations and where the maximum difference of potential between the wires therein does not exceed three hundred (300) volts. They shall not be placed in elevator shafts. (See Section C-208.)

(b) Wooden raceways shall be coated, externally and internally, with two (2) layers of waterproofing, or shall be impregnated with a moisture repellant. The raceway shall be composed of two (2) parts, a backing and a capping, and shall afford suitable protection against abrasion of wires. It shall be so constructed as to thoroughly incase the wires, having a barrier of not less than one-half (½) inch thickness between wires, and having exterior walls which under grooves shall be not less than three-eighths (⅜) inch in thicknes and on the sides not less than one-quarter (¼) inch in thickness.

(c) Metal raceways shall be of such construction as will distinguish them from metal conduit. All surfaces of raceway, elbows, bends, and similar fittings shall be suitable protection from corrosion.

(d) Metal raceways and their elbows, couplings and similar fittings shall be so designed that the sections can be electrically and mechanically coupled together, while protecting the wires from abrasions. Holes for screws or bolts inside the raceway shall be so designed that when screws or bolts are in place their heads will be flush with the metal surface.

(e) Wires shall be of approved rubber-covered type, and shall be continuous from outlet to outlet, or from fitting to fitting. No joints or taps shall be located in the raceway proper.

(f) Not more than four (4) No. 14 wires, nor any circuit protected by fuses larger than twenty (20) amperes at one hundred and twenty-five (125) volts or ten (10) amperes at two hundred and fifty (250) volts shall be placed in any metal raceway.

(g) Where alternating current is to be employed in connection with metal raceway work, all wires of a circuit shall be placed in one raceway.

(m) Size of conduits for the installation of wires and cables. The following tables apply only to complete conduit systems, and do not apply to short sections of conduit used for the protection of exposed wiring from mechanical injury.

TABLE 1. TWO-WIRE AND THREE-WIRE SYSTEMS

Size of Wire	Number of Wires in One Conduit								
	1	2	3	4	5	6	7	8	9
	Minimum Size of Conduit in Inches								
14	½	½	½	¾	¾	1	1	1	1
12	½	½	¾	¾	¾	1	1	1	1¼
10	½	¾	¾	1	1	1	1¼	1¼	1¼
8	½	¾	1	1	1	1¼	1¼	1¼	1¼
6	½	1	1¼	1¼	1½	1½	2	2	2
5	¾	1¼	1¼	1¼	1½	2	2	2	2
4	¾	1¼	1¼	1½	2	2	2	2	2½
3	¾	1¼	1¼	1½	2	2	2	2½	2½
2	¾	1¼	1½	1½	2	2	2½	2½	2½
1	¾	1½	1½	2	2	2½	2½	3	3
0	1	1½	2	2	2½	2½	3	3	3
00	1	2	2	2½	2½	3	3	3	3½
000	1	2	2	2½	3	3	3	3½	3½
0000	1¼	2	2½	2½	3	3	3½	3½	4
200000 C.M.	1¼	2	2½	2½	3	3	3½	3½	4
225000	1¼	2½	2½	3	3	3½			
250000	1¼	2½	2½	3	3	3½			
300000	1¼	2½	3	3	3½	3½			
350000	1¼	2½	3	3½	3½	4			
400000	1¼	3	3	3½	4	4			
450000	1½	3	3	3½	4	4½			
500000	1½	3	3	3½	4	4½			
550000	1½	3	3½	4	4½	5			
600000	2	3	3½	4	4½	5			
650000	2	3½	3½	4					
700000	2	3½	3½	4½					
750000	2	3½	3½	4½					
800000	2	3½	4	4½					
850000	2	3½	4	4½					
900000	2	3½	4	4½					
950000	2	4	4	5					
1000000	2	4	4	5					
1100000	2½	4	4½	6					
1200000	2½	4½	4½	6					
1250000	2½	4½	4½	6					
1300000	2½	4½	5	6					
1400000	2½	4½	5	6					
1500000	2½	4½	5	6					
1600000	2½	5	5	6					
1700000	3	5	5	6					
1750000	3	5	5	6					
1800000	3	5	6	6					
1900000	3	5	6						
2000000	3	5	6						

Where single conductor, single braid, solid wires only, are used, four (4) No. 14 wires may be installed in a one-half (½) inch con-

potential between the wires of any circuit does not exceed one hundred and fifty (150) volts and where the number of outlets and lamps connected to them is in no case such as to place more than fifteen (15) amperes on a branch circuit fuse.

Sec. D-507—INSULATION RESISTANCE:

(a) A completed installation shall have a resistance between conductors, and between all conductors and ground, not less than:

Up to	5	amperes	4,000,000 Ohms
" "	10	"	2,000,000 "
" "	25	"	800,000 "
" "	50	"	400,000 "
" "	100	"	200,000 "
" "	200	"	100,000 "
" "	400	"	50,000 "
" "	800	"	25,000 "
" "	1600	"	12,000 "

(b) The above values shall be determined with all cutouts and safety devices in place. If lamp sockets, receptacles, fixtures and other appliances are also connected, the minimum resistance required shall be one-half (½) that specified in the table.

DIVISION D—PART SIX
CONDUCTORS

Sec. D-601—CLASSIFICATION AND CONSTRUCTION:

(a) Wires, cables and cords of all kinds except weatherproof wire shall have a distinctive marking the entire length of the coil so that they may be readily identified in the field. All wires, cables and cords shall also be plainly tagged or marked as follows:

(1) The maximum working pressure of voltage for which the wire was tested or approved. This may be omitted for slow-burning weatherproof and weatherproof wires.

(2) Name of the manufacturing company and trade-name of the wire.

(3) Month and year when manufactured.

(4) The proper type of letter for the particular style of wire or cable as given in the following sections of each type of insulation.

(b) For conductor sizes No. 8 and smaller the neutral conductor on all three (3) wire circuits and one (1) conductor on all two (2) wire circuits shall have a continuous indentifying marker readily distinguishing it from the other conductors. For rubber-covered wire the identification shall consist of a white or natural gray covering. When one of the circuit wires is to be grounded, the ground connection shall be made to this identified wire.

(c) Conductors, whether solid or stranded, shall not be of smaller size than No. 14 except as allowed for fixture work and for flexible cords.

Sec. D-602—RUBBER-COVERED WIRE:

(a) Classification.

R	Rubber-covered for voltages	0— 600
R 15	Rubber-covered for maximum voltages	1500
R 25	Rubber-covered for maximum voltages	2500
R 35	Rubber-covered for maximum voltages	3500

R 50 .....Rubber-covered for maximum voltages 5000
R 70 .....Rubber-covered for maximum voltages 7000
RL .....Rubber-covered, leaded
AC .....Wires for use in armored cable
ACL.....Leaded wired for use in armored cable.

(b) Rubber-covered wires shall be examined and tested at the factory and shall be labeled before shipment.

(c) All conductors and the individual wires of stranded conductors shall be tinned.

(d) Conductors shall be insulated for their entire length with a properly applied and properly vulcanized rubber compound. The insulation shall be of the nominal thickness given in the following table, the requirements of which vary according to the sizes of conductors and the maximum working pressure:

TABLE OF THICKNESS OF RUBBER INSULATION FOR RUBBER-COVERED WIRES AND CABLES IN 64TH INCHES

Size of Conductor		Type						
			R	R-15	R-25	R-35	R-50	R-70
American or B & S Gauge		For Working Pressures Not Over	600 Volts	1500 Volts	2500 Volts	3500 Volts	5000 Volts	7000 Volts
14 to 8	7/25 to 7/51		3	6	8	10	12	16
7 to 2	7/64 to 7/102		4	7	9	10	12	16
1 to 0000	19/64 to 19/107		5	8	10	10	12	16
C. M. 225,000 to 500,000	19/114 to 37/116		6	9	10	11	12	16
525,000 to 1,000,000	61/102 to 61/128		7	10	10	12	12	16
Over 1,000,000	91/114 to 91/128		8	10	10	12	14	18

Note: The second column above refers to wires and cables having standardized stranding as given in Table 2 of Section 610. The first column refers to solid conductors and to wires and cables stranded otherwise than in Table 2.

(e) All single conductor rubber-covered wires and cables shall have a covering of fibrous material, applied directly to the surface of the insulating wall. For any single conductor wire there shall be at least one (1) braid for sizes from No. 14 to and including No. 8. For all single conductor cables larger than No. 8 there shall be at least two (2) braids or a tape and a braid. For twin wires and twisted pair wires and for all multiple conductor cables there shall be a fibrous covering on each individual wire and in addition a braid enclosing the bunched conductors. For certain special service conditions, one or more additional coverings of fibrous material or of lead may be required. Fibrous coverings may be either braid or tape, but tape shall not be used for the outer covering. All braids shall be impregnated with a moisture-proof compound.

(f) Lead coverings may be applied to single or multiple conductors. Lead-covered multiple conductor cable with more than two (2) conductors shall, in all cases have the conductors spirally laid.

In all cases, the individual conductors of lead-covered cables shall have a fibrous covering, and except for two (2) conductor cables with conductors parallel, there shall be a fibrous covering over bunched conductors.

Sec. D-603—FLEXIBLE CORDS:

(a) All rubber-covered flexible cords shall be examined and tested at the factory and shall be labeled before shipment.

(b) Each conductor shall have a carrying capacity not less than that of a No. 18 wire.

(c) The insulation, except for heater cord (Type H) shall consist of a properly applied and properly vulcanized rubber compound of the nominal thickness given in the following table:

Gage	Thickness
18 and 16	1/32 inch
14 to 8	3/64 inch

When used where the voltage between any two (2) conductors or from any conductor to the ground is over three hundred (300) volts, the insulation on flexible cords shall be at least three sixty-fourths (3/64) of an inch in thickness for all conductor sizes No. 8 or less, except in street railway property where cords Nos. 16 and 18 supplying pendant lamps may have an insulation one thirty-second (1/32) of an inch in thickness.

(d) Each conductor shall, except for heater cord, be covered with a tight, close wind or fine cotton or some other method shall be employed to prevent a broken strand puncturing the insulation. Cords of the several types shall conform to the description in the following table:

Use	Type	Trade Name	Branch on Each Conductor	Reinforcement or Filler	Outer Cover
As Pendants or Portables in dry places					
Where not Subject to Hard Usage	C	Lamp Cord	Cot. or Silk		
	PD	Twisted Portable	Cot. or Silk		Cot.or Silk
	PO	Parallel Cord	Cot. or Silk		Cot.or Silk
	SJ	Type SJ	No Cot.Brd.	Sp.Rb. Jkt.	NoOut.Brd.
For Hard Usage	P	Reinforced Cord	Cot. or Silk	Rub. Jcket	Cot.or Silk
	S	Hard Service Cord	No Cot.Brd.	Sp.Rb. Jkt.	NoOut.Brd.
	CA	Armored Cord	Cot. or Silk		Armor
	PA	Arm. Reinf. Cord	Cot. or Silk	Rub. Jcket	Cot.& Arm.
Pendants D'mp places	CB	Brewery Cord	Cotton Wp.		
	CC	Canvasite Cord	Cotton Wp.		
	S	Hard Service Cord			Cotton Wp.
	SJ	Type SJ			
Portable D'mp places	PWp	Reinf. Cord Wp.	Cotton	Rub. Jcket	
	PkWp	Packinghouse Cd.	Cotton	Filler	Cotton Wp.
	PAWp	Arm. Reinf. Cord Wp.	Cotton	Rub. Jcket	2 Cot. both Wp.
	S	Hard Service Cord			Cot. Wp and Armor
	SJ	Type SJ			

Theater Stages	T S	Stage Cable See Type S above	Cotton Wp.	Filler	2 Cot. both Wp.
Theater Borders	B	Border light cable	Cotton Wp.		2 Cot. both Wp.
Elevator Lighti'g and Control	E S	Elevator Cable See Type S above	Cotton	Rub. Jcket and or	1 or more Cot.bth wp. 3 Cotton, outer 1Wp.
Portable Heaters	H	Heater Cord			

See also further descriptions following.

(Type C) For general use as pendants in dry places; as portables for use where not exposed to hard usage.

(Type CB and PO) These cords should hang freely in air.

(Type PD and PO) These cords are for use only in offices and Grade C and Grade E buildings and similar places where not liable to hard usage.

For Type PD the conductors are twisted together; for Type PO the conductors are laid parallel under the outer braid.

(Type T) This cord consists of not more than three (3) conductors, each not exceeding No. 4 twisted together and with a filler, the insulation on each conductor of No. 6 to No. 4 being one-sixteenth (1/16) of an inch in thickness.

(Type E) For elevator lighting this cord consists of conductors not smaller than No. 14 and for elevator control of conductors not smaller than No. 16.

(Type SJ) For general use pendant or portable in wet or dry locations.

(Type S) For general use pendant or portable in wet or dry locations and where extra hard service conditions exist, including theater stages, elevator lighting and control cables and garages.

(Type SJ and S) The rubber compounds for the insulation and jacket on these cords is of superior quality.

(Type H) For portable heating apparatus. This cord is for use with all smoothing and sad irons and with other heating devices requiring over two hundred and fifty (250) watts. The covering may consist of a layer of rubber or other approved material, a covering of asbestos and an outer braid enclosing either all the conductors as a whole, or each conductor separately.

(e) Other types of coverings shall be submitted for special examination and approved before used.

Sec. D-604—FIXTURE WIRE. TYPES F-32 AND F-64. (See Part 14.)

(a) Fixtures shall be wired with approved flexible cord or approved rubber-covered wire; provided, however, that in wiring fixtures the insulation will be subjected to temperatures in excess of one hundred and twenty (120) degrees Fahrenheit (49 degrees C). Wires having approved slow-burning or other heat-resisting coverings shall be used.

(b) All rubber-covered fixture wire shall be examined and tested at the factory and shall be labeled before shipment.

(c) The conductors of fixture wires may be either solid or standard, but shall not be smaller than No. 18 gage. If stranded conductor is used each conductor shall be covered with a tight close-wind of fine cotton or some other method shall be used to prevent a broken strand puncturing the insulation. Solid conductors shall be tinned.

(d) The insulation shall consist of properly applied and properly vulcanized rubber compound. The thickness of insulation shall be not less than one-sixty-fourth (1/64) of an inch for No. 18 wire and not less than one-thirty-second ($\frac{1}{32}$) of an inch for No. 16.

(e) Coverings shall be of braided cotton or silk or of other approved material and shall be sufficiently tenacious to withstand abrasion when being pulled into fixtures.

Sec. D-605—ARMORED CABLES AND CORD. TYPES AC, CA, PA AND PAWP: (Sec. D-505.)

(a) The conductors shall comply with the requirements for rubber-covered wires or cords of the specified types and construction.

(b) The cable or cord shall have a distinctive marker its entire length.

Sec. D-606—VARNISHED CLOTH INSULATED WIRE. TYPES VC: (See Part Five.)

(a) This insulation shall not be used where exposed to moisture.

(b) The insulation shall consist of layers of varnished cotton cloth applied and filled as may be specified, and shall have coverings conforming to the requirements for rubber-covered wire as prescribed in Section D-602 of this Code.

(c) The thickness of the insulation shall be not less than that prescribed in Section D-602 of this Code for the rubber insulation of rubber-covered wire of the same conductor size and voltage.

(d) No individual conductor, whether solid or stranded, shall be less than No. 14 gage. Conductors may be either plain or tinned.

Note: The use of varnished cloth insulation is not recommended under ordinary conditions in conductor sizes smaller than No. 6, but smaller sizes may be used for leads on motors, generators, oil-filled transformers, starters, oil switches, auto-transformers, starters, oil switches and other apparatus where oil may come in contact with the insulation and when such leads are furnished as part of the device.

In other cases varnished cloth insulated wires smaller than No. 6 may be used only by permission of the Commissioner of Buildings.

(e) The following tests shall be applied to varnished cloth insulated wires:

(1) On the wire as a whole; voltage test, insulation resistance test.

(2) On test specimens: heating test, dielectric strength.

Sec. D-607—SLOW-BURNING WEATHERPROOF WIRE—TYPE SBW.

Note: (See Part 5). This wire is not as burnable as weatherproof, nor as subject to softening under heat. It is not suitable for outside work.

(a) The insulation shall consist of two (2) coatings, one (1) to be fireproof and the other weatherproof. The fireproof coating shall be on the outside and shall comprise about six-tenths (6/10) of the total thickness of the wall.

(b), The thickness of the completed covering shall be not less than that prescribed in Section D-602 of this Code for rubber insulation of zero (0) to six hundred (600) volt rubber-covered wires.

Sec. D-608—SLOW-BURNING WIRE—TYPE SB.

Note: (See Part 5). This insulation is especially useful in hot, dry places where ordinary insulations would perish, and where wires are bunched as on the back of a large switchboard or in a wire tower, so that the accumulations of rubber insulation would result in an objectionable large mass of highly inflammable material.

(a) Slow-burning conductors especially designed and approved for use in fixtures as prescribed in Section D-604 of this Code need not necessarily comply with the requirements of paragraphs B and C of this section.

(b) The insulation shall consist of three (3) braids of cotton or other thread, all the interstices of which shall be filled with material having fire-resisting and insulating properties. Its surfaces shall be finished smooth and hard.

(c) The thickness of the completed covering shall be not less than that prescribed in Section D-602 of this Code for the rubber insulation of zero to six hundred (0-600) volt covered wires.

Sec. D-609—WEATHERPROOF WIRE—TYPE WP.

Note: (See Part 5). This wire is for use outdoors, where moisture is certain, and where fireproof qualities are not necessary.

(a) The insulating covering shall consist of at least three (3) braids, all of which shall be thoroughly saturated with a dense moistureproof compound. The thickness of the completed covering shall be not less than that prescribed in Section D-602 of this Code for the rubber insulation of zero to six hundred (0-600) volt rubber covered wires.

Sec. D-610—CARRYING CAPACITIES OF CONDUCTORS:

(a) The following tables, giving the allowable carrying capacities of copper wires and cables of ninety-eight (98) per cent, conductivity, according to the standard adopted by the American Institute of Electrical Engineers, shall be followed in placing interior conductors.

(b) For insulated aluminum wire the allowable carrying capacities shall be taken as eighty-four (84) per cent of those given in the table for respective sizes of copper wire with the same kind of insulation.

(c) Conductors of sizes Nos. 18 and 16 shall be used only for flexible cords and for fixture wires.

(d) Conductors may be placed in multiple only by permission of the Commissioner of Buildings.

(e) Varnished cloth insulated wires smaller than No. 6 shall be used only by permission of the Commissioner of Buildings.

TABLE I—ALLOWABLE CARRYING CAPACITIES OF WIRES

B. & S. Gage	Diameter of Solid Wires in Mils	Area in Circular Mils	Table A Rubber Insulation Amperes	Table B Varnished Cloth Insula. Amperes	Table C Other Insulation Amperes
18	40.3	1,624	3		5
16	50.8	2,583	6		10
14	64.1	4,107	15	18	20
12	80.8	6,530	20	25	25
10	101.9	10.380	25	30	30
8	128.5	16,510	35	40	50
6	162.0	26,250	50	60	70
5	181.9	33,100	55	65	80
4	204.3	41,740	70	85	90
3	229.4	52,630	80	95	100
2	257.6	66,370	90	110	125
1	289.3	83,690	100	120	150
0	325.	105,500	125	150	200
00	364.8	133,100	150	180	225
000	409.6	167,800	175	210	275
		200,000	200	240	300
0000	460.	211,600	225	270	325
		250,000	250	300	350
		300,000	275	330	400
		350.000	300	360	450
		400,000	325	390	500
		500,000	400	480	600
		600,000	450	540	680
		700,000	500	600	760
		800,000	550	660	840
		900,000	600	720	920
		1,000,000	650	780	1,000
		1,100,000	690	830	1,080
		1,200,000	730	880	1,150
		1,300,000	770	920	1,220
		1,400,000	810	970	1,290
		1,500,000	850	1,020	1,360
		1,600,000	890	1,070	1,430
		1,700,000	930	1,120	1,490
		1,800,000	970	1,160	1,550
		1,900,000	1,010	1,210	1,610
		2,000,000	1,050	1,260	1,670

1 Mil=0.001 inch.

TABLE 2—STANDARDIZED STRANDING

Strands		Cable		Allowable Carrying Capacities in Amperes		
No. of Strands	Mils Dia.	B. & S. Gage No.	Area in Cir. Mils	Outside Dia. over Copper	Table A Rubber Insulation	Table B Varnished Cloth Insulation	Table C Other Insulation
7/	25	22	4,490	.075	15	18	20
7/	32	20	7,150	.096	20	25	25
7/	40	18	11,370	.120	25	30	35
7/	51	16	18,080	.153	35	40	50
7/	64	14	28,740	.192	50	60	70
7/	81	12	45,710	.253	70	85	90
7/	91	11	58,000	.273	80	95	110
7/	102	10	72,680	.306	90	110	130
19/	64	14	78,030	.320	100	120	150
19/	72	13	98,380	.360	125	150	175
19/	81	12	124,900	.405	150	180	210
19/	91	11	157,300	.455	175	210	250
19/	107	*	217,500	.540	225	270	325
19/	114	9	248,700	.570	250	300	350
37/	91	11	306,400	.637	275	330	400
37/	97	*	347,500	.679	300	360	450
37/	102	10	381,200	.714	325	390	500
37/	116	*	484,300	.798	400	480	600
61/	102	10	633,300	.918	475	565	700
61/	107	*	698,000	.963	500	600	750
61/	114	9	798,300	1.030	550	660	825
61/	121	*	893,100	1.090	600	720	900
61/	128	8	1,007,000	1.150	650	780	1000
91/	114	9	1,191,000	1.250	725	870	1125
91/	128	8	1,502,000	1.410	850	1020	1350
127/	114	9	1,660,000	1.480	900	1100	1460
127/	128	8	2,097,000	1.660	1100	1300	1700

* These individual strands are odd sizes not listed in the American or B. & S. Wire Tables.

Sec. D-611—GENERAL REQUIREMENTS FOR USE OF CONDUCTORS:

(a) This article shall apply to wires, cables and cords generally, but the requirements of the other articles of this Code shall be complied with as to the selection of conductors and the method of their installation and use in particular locations and classes of work.

(b) No wires of size smaller than No. 14 shall be used except where permitted for fixture work or flexible cords.

(c) All splices and joints in conductors shall be made both mechanically and electrically secure without solder. The joints shall then be soldered unless made with some form of approved splicing device. All joints shall be covered with an insulation equal to that on the conductors.

(d) Stranded wires, except in flexible cords, shall be soldered before being fastened under clamps or binding screws, and, whether stranded or solid, when they have a conductivity greater than that of No. 8 shall be soldered into lugs for all terminal connections, except where an approved solderless terminal connector is used.

(e) Wires shall be separated from contact with walls, floors, timbers or partitions through which they may pass by non-combustible, non-absorptive insulating tubes, such as glass or porcelain, except at outlets where approved flexible tubing is required.

(f) The bushings used shall be long enough to bush the entire length of the hole in one continuous piece, or else the hole shall first be bushed by a continuous waterproof tube. This tube may be a conductor, such as iron pipe, but in that case an insulating bushing shall be pushed into each end of it, extending far enough to keep the wire absolutely out of contact with the pipe.

(g) Where not enclosed in approved conduit, raceways or armored cable, and where liable to come in contact with gas, water, or other metallic piping or other conducting material, wire shall be separated therefrom by some continuous and firmly fixed non-conductor creating a permanent separation.

(h) In wet places wire shall be so placed that an air space will be left between conductors and pipes in crossing and the former shall be run in such a way that they cannot come in contact with the pipe accidentally.

Note: It is recommended that wires be run over, rather than under, pipes upon which moisture is likely to gather or which, by leaking, might cause trouble on a circuit.

(i) Wires for electric light or power circuits shall not come nearer than two (2) inches to any other unenclosed electric light, power or signal wire without being permanently separated therefrom by some continuous and firmly fixed non-conductor. The non-conductor used as a separator shall be in addition to the regular insulation on the wire. Where tubes are used, they shall be securely fastened at the ends to prevent movement along the wire.

Exception: Departure from the requirements of paragraphs G, H, and I of this section may be permitted where necessary.

(j) Where exposed to mechanical injury wires shall be suitably protected.

(k) When crossing floor timbers in rooms where they might be exposed to injury, wires shall be installed in approved conduit or armored cable or be otherwise properly guarded. Where running boards are acceptable, they shall be not less than one-half (½) inch in thickness and not less than three (3) inches in width; where guard strips are acceptable they shall be not less than seven-eighths (⅞) inch in thickness and at least as high as the insulator, and shall be placed on each side of and close to the wires.

(l) Protection on side walls shall extend not less than seven (7) feet from the floor and shall consist of substantial boxing, retaining an air space of one (1) inch around the conductors, closed at the top, the wires passing through bushed holes; or approved metal conduit or pipe of equivalent strength may be used.

(m) When metal pipe is used in short runs to protect wires the insulation of each wire shall be reinforced by approved flexible tubing extending from the insulator next beyond the pipe at one end to the insulator next beyond the pipe at the other end. The two or

more wires of a circuit, each with its flexible tubing, if carrying alternating currents shall, or if direct current, may be placed within the same pipe.

Exception: In damp places the wooden boxing may be preferable because of the precautions which would be necessary to secure proper insulation if the pipe were used. With this exception, however, iron piping is considered preferable to the wooden boxing, and its use is recommended. It is especially suitable for the protection of wires near belts, pulleys, etc.

(n) When run in unfinished attics, or roof spaces wires shall be considered to be concealed, and when run in close proximity to water tanks or pipes, wires shall be considered to be exposed to moisture. In unfinished attics or roof spaces, wires shall be considered to be exposed to mechanical injury, and shall not be run across joists, they may be supported on knobs on the upper edge of each joist.

(o) Wires shall not be laid in plaster, cement or similar material.

(p) Wires shall not be fastened by staples.

(q) Wires shall not be fished for any great distance, or in any case, where the Commissioner of Buildings or his authorized assistants cannot be satisfied that the requirements of this Code have been complied with.

(r) Twin wires shall be used only in conduits, or where flexible conductors are necessary.

(s) In three (3) wire (not three (3) phase) systems, the neutral shall be of sufficient capacity to carry the maximum current to which it may be subjected. Natural gray, or white core wire shall be used for such neutral.

(t) When one of the circuit wires is to be grounded the circuit shall be so arranged that the grounded conductor is the one identified as prescribed in Section D-601-B of this Code.

(u) In alternating current systems in conduit, armored cable and metal raceways, the two (2) or more wires of a circuit shall be placed in the same conduit, armor or raceway.

Note: It is recommended that this course be pursued in the case of direct current, also, in order to obviate induction troubles if a change is made to alternating current at some later date.

(v) The wiring in any building or group of buildings, including the service connections thereto, shall be so arranged as not to serve a shunt around any street fuse or switch.

(w) Conductors in raceways or on insulators shall not be installed in elevator shafts. (See C-208.)

Sec. D-612—SPECIAL REQUIREMENTS FOR USE OF FLEXIBLE CORDS:

(a) When used where the voltage between any two (2) conductors or from any conductor to the ground is over three hundred (300) volts, the insulation on flexible cords shall be at least three sixty-fourths ($\frac{3}{64}$) of an inch in thickness for all conductor sizes No. 8 or less, except in street railway property where cords Nos. 16 and 18, supplying pendant lamps may have an insulation one thirty-second (1/32) of an inch in thickness.

(b) Flexible cord shall be used only for pendants, wiring of fixtures, portable lamps or motors, portable heating apparatus or other portable devices.

(c) For all portable work, including those pendants which are liable to be moved about sufficiently to come in contact with surrounding objects, flexible wires and cables especially designed to withstand this severe service shall be used; provided, however, that for portable lamps or other devices which are not liable to be moved about sufficiently to cause abrasion of the insulation, approved flexible cord of Type C may be used.

(d) When necessary to prevent portable lamps from coming in contact with inflammable materials, or to protect them from breakage, their flexible cord leads shall be equipped with handle, socket and substantial guard, the guard being securely attached to socket or handle.

(e) Unless provided with approved metal armor, flexible cords shall not be used in show windows or in show cases, except that approved portable cord may be used for the purpose of supplying current to portable lamps and other devices for exhibition purposes, and flexible cord may be used for chain fixtures.

(f) Flexible cords shall be protected by approved insulating bushings where they enter sockets.

(g) Flexible cords shall be so connected to all fittings that the strain will be taken from the joints and binding screws.

(h) Flexible cords shall, where passing through covers of outlet boxes, be protected by approved bushings especially designed for this purpose; or the cover shall be provided with a smooth, well-rounded surface on which the cord will bear. So-called hard rubber or composition bushings shall not be used.

Sec. D-613—SPECIAL REQUIREMENTS FOR USE OF CONDUCTORS IN CENTRAL AND SUB-STATIONS—INCLUDING MOTOR, TRANSFORMER AND STORAGE BATTERY ROOMS, ETC.:

(a) Wires shall be exposed to view and supported on approved non-combustible, non-absorptive insulators or placed on approved metal conduit, tile or other fireproof ducts. Conductors installed in conduit or ducts where exposed to moisture shall be lead sheathed and the sheathing shall be grounded. Except for low potential systems the insulation of the several conductors where leaving the metal sheath of cables shall be thoroughly protected from moisture and mechanical injury by means of a pothead or some equivalent method.

(b) Wires not in conduit shall be kept so rigidly in place that they cannot come in contact. Where they pass through floors or fire walls they shall be carried through individual openings in non-combustible, non-absorptive insulating tubes or their equivalent and not through a common open space.

(c) Where conductors are closely grouped as on switchboards, in wire towers, cableways, etc., the conductors shall each have a substantial flameproof outer covering. Flameproofing shall be stripped back on all conductors a sufficient distance from the terminals to give the necessary insulation for the voltage of the circuit on which the conductor is used.

DIVISION D—PART SEVEN
OUTLET BOXES AND CABINETS

Sec. D-701—OUTLET FITTINGS:

(a) Outlet boxes and plates, switch, junction and pull boxes and metal cabinets shall be well galvanized, enameled or otherwise

properly coated, inside and out, to prevent oxidation; provided, however, that hardwood may be used for cabinets housing devices of electric railway systems, or of open or concealed work, or wooden raceways.

Note: It is recommended that the protective coating be of conductive material such as tin or zinc, in order to secure better electrical contacts.

(b) Unused openings in outlet fittings or cabinets shall be effectively closed by metal plugs or plates, affording protection substantially equivalent to that of the wall of the fitting.

(c) Openings in outlets, fittings or cabinets shall be equipped, either separately or as a part of the fitting, with couplings or bushings which will serve to secure the conduit, raceway or armored cable to the fitting and at the same time protect the wires from abrasion. Where a hardwood cabinet is used with open work or concealed work, each opening shall be equipped with a non-combustible, non-absorptive insulating bushing which shall fit securely in the opening and be so closed by the wire and tape, if necessary, as to be dust tight. In dry places approved flexible tubing may be employed as an insulating bushing if it extends from the last insulating support and is firmly secured in place.

(d) Covers of outlet fittings through which flexible cords or duplex wire pendants pass shall be provided with approved bushings, or shall have smooth, well rounded holes upon which the cord or wire may bear. Where wires, other than flexible cord or duplex wire, pass through a metal cover there shall be provided a separate hole for each wire, said hole being equipped with a non-combustible, non-absorptive insulating bushing.

(e) Outlet fittings, and junction or pull boxes not over one hundred and fifty (150) cubic inches in size, shall be composed of pressed steel not less than 0.078 inch (No. 14 U. S. sheet metal gage) in thickness, or of cast metal having a wall thickness not less than one-eighth (⅛) inch.

(f) Junction or pull boxes of over one hundred and fifty (150) cubic inches in size shall be composed of metal and shall conform to the requirements for cabinets and cutout boxes, except that the covers may consist of single flat sheets secured to the box by screws or bolts instead of hinges.

Note: Boxes having covers of this form are for use only for enclosing joints in wires or to facilitate the drawing in of wires or cables. They are not intended to enclose switches, cutouts or other control devices.

(g) Outlet boxes intended for use where gas outlets are present shall be so designed that they may be securely fastened to the gas pipes in an approved manner.

(h) A fixture stud which is not an integral part of the outlet box shall be composed of malleable iron or other approved material.

(i) Switch and outlet boxes shall be so designed that they can be securely fastened in place independently of the support furnished by the conduit; provided, however, that approved boxes having threaded connection to exposed conduit may be supported by the conduit itself if the latter is firmly secured in place.

(j) Switch and receptacle boxes shall completely enclose the devices on sides and back, and shall provide a substantial support for them. The screws supporting the box shall not be used for the at-

tachment of the device contained therein. Floor outlet boxes shall be so designed as to protect receptacles and attachment plugs from mechanical injury and moisture.

(k) Metal covers of outlet boxes shall be of thickness equal to that of the wall of the box, or shall be lined with firmly attached insulating material not less than one thirty-second (1/32) inch in thickness. Covers of porcelain or other approved material may be used if of such form and thickness as to afford the requisite protection and strength.

(l) Flush switch and receptacle plates shall be not less than four hundredths (.04) inch in thickness.

(m) At each outlet of conduit, metal raceway, armored cable or concealed work an approved box or plate shall be provided with a cover, unless a fixture canopy is present.

(n) At other than fixture outlets, an approved terminal fitting having a separate, bushed hole for each wire shall be provided for the end of the conduit through which fitting the wires shall pass without splice, joint or tap.

(o) In buildings already constructed, where conditions are such that neither box nor plate can be installed, these fittings may be omitted by permission of the Commissioner of Buildings, provided the conduit or armored cable is properly bushed and secured in place.

(p) Junction boxes shall be so installed as to be accessible without removing any part of the building except as provided in section D-503, paragraph F of this Code.

Note: An attic which has sufficient headroom but which is reached only by a portable ladder and permanent hatch, is considered permanently accessible.

(q) Outlet boxes or plates, switch boxes and cabinets shall be so installed in walls or ceilings composed of plaster on wooden joints or studs that the front edge of the fitting will not set back of the finished surface of the plaster more than one-quarter (¼) of an inch. On wooden walls or ceilings the front edges of the fitting shall be flush with the finished surface, or project therefrom. A plaster surface which is broken or incomplete shall be repaired so that there will be no gaps or open spaces at the edge of the fitting.

Note: These requirements do not apply to walls or ceilings composed of concrete, tile or other non-combustible material.

(r) In making a surface extension from an existing outlet of concealed conduit or armored cable, a box extension ring or blank cover shall be mounted over the original box and electrically and mechanically secured to it. The extension shall then be connected to this box in the manner prescribed for the method of wiring employed in making the extension.

Sec. D-702—CABINETS AND CUTOUT BOXES:

(a) Cabinets and cutout boxes intended for outdoor use shall be of weatherproof type.

(b) Cabinets and cutout boxes which contain devices or apparatus connected within the cabinet or box to the wires of more than four (4) circuits, including branch circuits, meter loops, subfeeder circuits, power circuits, from lighting panels and similar circuits, but not including the supply circuit or a continuation thereof, shall have back wiring spaces or one or more side wiring spaces, side gutters or wiring compartments unless the wires leave the cabinet or cutout box directly opposite their terminal connections.

(c) The design and construction of cabinets and cutout boxes shall be such as to secure ample strength and rigidity.

(d) The spacing within the cabinets and cutout boxes shall be sufficient to provide ample room for the distribution of wires and cables placed in them and for a separation between metal parts of cabinets or cutout boxes and current carrying parts of devices and apparatus mounted within them as follows:

(1) There shall be an air space of at least one-sixteenth (1/16) of an inch, except at points of support, between the base of the device and the wall of any metal cabinet or cutout box on which the device is mounted.

(2) There shall be an air space of at least one (1) inch between any live metal part (including live metal parts of enclosed fuses) and the door, unless the door is lined with an approved insulating material or is of a thickness of at least that of No. 12 U. S. gage metal, when the air space shall be not less than one-half (½) inch.

(3) There shall be a space of at least two (2) inches between open link fuses and metal lined walls or metal, metal lined or glass paneled doors.

(4) Except as noted above, there must be an air space of at least one-half (½) inch between the walls, back, gutter partition, if of metal, or door of any cabinet or cutout box and the nearest exposed current-carrying part of devices mounted within the cabinet where the potentials do not exceed two hundred and fifty (250) volts. This spacing shall be increased to at least one (1) inch where the potentials exceed two hundred and fifty (250) volts.

(e) Cabinets and cutout boxes shall be deep enough to allow of the closing of the doors when thirty (30) amperes branch circuit panelboard switches are in any position, or when combination cutout switches are in any position, or when single throw switches are opened as far as their construction will permit.

(f) Side wiring spaces, side gutters or side wiring compartments of cabinets shall be rendered tight enclosures by means of covers, barriers or partitions extending from the bases of the devices contained in the cabinet to the door, frame or sides of the cabinet; provided, however, that where the enclosure contains only those wires or cables which are led from the cabinet at points directly opposite their terminal connections to devices within the cabinet, such covers, barriers or partitions may be omitted. Partially enclosed back wiring spaces shall be provided with covers to complete the enclosure.

(g) Wooden or composition cabinets, whether for flush or surface mounting, shall be of rigid or substantial design. Doors shall fit closely. The requirements for spacings, barriers and other details of construction, given elsewhere in this section, shall be followed, so far as they apply. Wooden cabinets shall be composed of well seasoned material, at least three-quarters of an inch in thickness thoroughly filled and painted. They shall be lined throughout with a non-combustible material such as one-eighth (⅛) inch rigid asbestos board firmly secured in place.

Linings of slate, marble or approved composition shall be at least one-quarter (¼) of an inch in thickness. Sheet metal lining

shall be at least sixty-three thousandths (.063) inch in thickness (No. 16 U. S. sheet metal gauge).

(h) Composition cabinets shall conform to the requirements for wooden cabinets, and shall be submitted for approval prior to installation.

DIVISION D—PART EIGHT
AUTOMATIC PROTECTION OF CIRCUITS AND APPLIANCES.

Sec. D-801—CUTOUT BASES:

(a) The requirements of this Part shall not apply to rosettes, attachment plugs, or protective devices for signal systems. The spacings of link fuse cutout bases shall be at least as great as those given in the following table, which applies only to plain, open fuse blocks, mounted on slate, marble or composition bases. If the copper fuse tips overhang the edges of the fuse block terminals, the spacings shall be measured between the nearest edges of the tips.

Ampere Capacity	Minimum Departition of Nearest Metal Parts Opposite Polarity	Minimum Break Distance
Not over 125 volts.		
0-10	¾ Inch	¾ In.
11-100	1 "	¾ "
101-300	1 "	1 "
301-1000	1¼ "	1¼ "
Not over 250 volts.		
0-10	1½ "	1¼ "
11-100	1¾ "	1¼ "
101-300	2 "	1½ "
301-1000	2½ "	2 "

(b) A space shall be maintained between the fuse terminals of link fuses of the same polarity of at least one-half (½) inch for voltages up to one hundred and twenty-five (125) and of at least three-quarters (¾) of an inch for voltages from one hundred and twenty-six to two hundred and fifty (250). This is the minimum distance allowable, and greater separation shall be provided when practicable.

(c) For three (3) wire systems link fuse cutouts shall have the break distance required for circuits of the potential of the outside wires, except that in one hundred and twenty-five to two hundred and fifty (125-250) volt systems with grounded neutral the cutouts in two (2) wire, one hundred and twenty-five (125) volt branch circuits may have the spacing specified for not over one hundred and twenty-five (125) volts.

(d) Except for sealable service and meter cutouts the fuse terminals of enclosed cutout bases (plug and cartridge types) shall be either the Edison plug, spring clip or knife blade type, to take the corresponding standard enclosed fuses. They shall be secured to the base by two (2) screws or the equivalent, so as to prevent them from turning, and shall be so made as to secure a thoroughly good contact with the fuse.

(e) End stops shall be provided to insure the proper location of the cartridge fuse in the cutout base.

(f) Cutout bases for enclosed fuses shall be classified as regards both current and voltages as given in the following table, and shall be so designed that the bases of one class cannot be used with fuses of another class rated for a higher current or voltage.

SEALABLE SERVICE AND METER CUTOUTS

Not over 250 volts	Not over 600 volts
0-30 amperes	0-30 amperes
31-60 "	31-60 "
61-100 "	61-100 "
101-200 "	101-200 "
201-400 "	201-400 "
401-600 "	401-600 "

SEALABLE SERVICE METER CUTOUTS

Not over 250 volts	Not over 600 volts
0-30 amperes	0-30 amperes
31-60 "	31-60 "
61-100 "	61-100 "
101-200 "	101-200 "

Sec. D-802—LINK FUSES:

(a) Contact surfaces or tips of link fuses shall be of copper or aluminum, having good electrical connections with the fusible part of the strip.

(b) Link fuses shall be stamped with eighty (80) per cent of the maximum current which they can carry indefinitely, thus allowing about twenty-five (25) per cent overload before the fuse melts.

Sec. D-803—ENCLOSED FUSES:

(a) The requirements of paragraph C to G inclusive, of this section, do not apply to fuses for rosettes, attachment plugs, car lighting cutouts and protective devices for signal systems.

(b) The casings of enclosed fuses shall be sufficiently tight so that lint and dust cannot collect around the fusible link and become ignited when the fuse is blown. For non-renewable fuses the fusible wire shall be attached to the terminals in such a way as to make it difficult for it to be replaced when melted.

(c) Enclosed fuses shall be classified to correspond with the different classes of cutouts, and shall be so designed that it will be impossible to put any fuse of a given class into a cutout which is designed for a current or voltage lower than that of the class to which the fuse belongs.

(d) All fuses shall be marked with the ampere capacity. On ferrule contact fuses this marking shall be on the tube or ferrules, and on knife blade fuses on the tubes or caps. In addition to the above marking each cartridge enclosed fuse shall be provided with a paper label, red for six hundred (600) volt fuses, navy blue for two hundred and fifty (250) volt fuses of fifteen (15) amperes or less capacity and green for two hundred and fifty (250) volt fuses of over fifteen (15) amperes capacity. The label for cartridge fuses shall bear the following: The name or trademark of the manufacturer and the voltage for which the fuse is designed.

(e) Plug fuses of fifteen (15) amperes capacity or less shall be distinguished from those of larger capacity as follows: by an hexagonal opening in the cap through which the mica or similar window shows; or by an hexagonal shaped recess in the top of fuses having porcelain or moulded composition tops, and when labels are used with such plug fuses the labels shall also be hexagonal in shape and fill the recess; or on plugs having solid metal caps, by an hexagonal impression either raised or lowered on the caps.

(f) The fuse terminals shall be sufficiently heavy to insure mechanical strength and rigidity. The styles of terminals, except for use in sealable service and meter cutouts, shall be as follows:

Not over 250 volts.

0-30 Amps.	A. Cartridge fuse (ferrule contact). B. Approved plugs or cartridge fuses in approved casings for Edison plug cutouts not exceeding 125 volts, but including any circuit of a three wire 125—250-volt system with grounded neutral.
31-60 "	Cartridge fuse (ferrule contact) for use also in approved casings for large size Edison plug type 250-volt cutouts.
61-100 " 101-200 " 201-400 " 401-600 "	Cartridge fuse (knife blade contact).

Not over 600 volts.

0-30 Amps. 31-60 "	Cartridge fuse (ferrule contact).
61-100 " 101-200 " 201-400 " 401-600 "	Cartridge fuse (knife blade contact).

Cartridge enclosed fuses and corresponding cutout bases, except for sealable service and meter cutouts shall conform to the dimensions given in the table attached.

TABLE OF DIMENSIONS OF THE STANDARD CARTRIDGE—ENCLOSED FUSE

Form 1 CARTRIDGE FUSE—Ferrule Contact.

Voltage	Rated Capacity. Amperes.		A Length Over Terminals. Inches.	B Distance between Contact Clips. Inches.	C Width of Contact Clips. Inches.
Not over 250	0-30	Form 1	2	1	½
	31-60		3	1¾	⅝
	61-100	Form 2	5⅞	4	⅞
	101-200		7⅛	4½	1¼
	201-400		8⅝	5	1¾
	401-600		10⅜	6	2⅛

Not over 600	0-30	Form 1	5	4	½
	31-60		5½	4¼	⅝
	61-100	Form 2	7⅞	6	⅞
	101-200		9⅝	7	1¼
	201-400		11⅝	8	1¾
	401-600		13⅜	9	2¼

Form 2. CARTRIDGE FUSE—Knife Blade Contact

D Diameter of Ferrules or Thickness of Terminal Blades. Inches	E Min. Length of Ferrules or of Terminal Blades outside of Tube. Inches	F Dia. of Tube. Inches.	G Width of Terminal Blades Inches		Rated Capacity Amperes
9/16	½	½		Form 1	0-30
13/16	⅝	¾			31-60
⅛	1	1	¾	Form 2	61-100
3/16	1⅜	1½	1⅛		101-200
¼	1⅞	2	1⅝		201-400
¼	2¼	2½	2		401-600
13/16	½	¾		Form 1	0-30
1 1/16	⅝	1			31-60
⅛	1	1¼	¾	Form 2	61-100
3/16	1⅜	1¾	1⅛		101-200
¼	1⅞	2½	1⅝		201-400
¼	2¼	3	2		401-600

Sec. D-804—CIRCUIT BREAKERS:

(a) Automatic overload circuit breakers shall be substantial in construction, and shall have ample metal for stiffness. The contact parts shall be arranged so that thoroughly good bearings are obtained. All breakers shall be provided with easily accessible means of tripping them by hand without injury to the operator.

Sec. D-805—GENERAL—FUSES AND CIRCUIT BREAKERS:

(a) Fuses or circuit breakers shall be provided on constant potential circuits to protect all ungrounded wires. (See Sec. D-807.)

(b) A fuse or circuit breaker shall be placed at every point where a change is made in the size of wire, unless the fuse or circuit breaker in the larger wire will protect the smaller. (See Sec. D-610.)

(c) A fuse or circuit breaker shall not be placed in any permanently grounded wire, except as called for in Section D-807 of this Code.

(d) Fuses and circuit breakers shall be in plain sight, or enclosed in an approved cabinet or cutout box, and readily accessible. Fuses shall not be placed in the canopies or shells of fixtures.

(e) Fuses and circuit breakers shall not be placed where exposed to mechanical injury or in the immediate vicinity of easily ignitable stuff or where exposed to inflammable gases or dust, or flyings of combustible material. Where the occupancy of the building is such that fuses and circuit breakers cannot be located so as not to be exposed as above, they shall be mounted in cutout boxes or cabinets, except oil switches, circuit breakers and similar devices which have approved casings.

(f) Fuses and circuit breakers, when located where exposed to moisture, as in basements and similar places, shall be mounted in approved cutout boxes or cabinets, and when located in wet places or outside buildings shall be mounted in approved weatherproof cutout boxes or cabinets.

(g) Except as provided in Sections D-808 and D-809 of this Code the rated capacity of fuses shall not exceed the allowable carrying capacity of the wire as given in section D-610 of this Code; and circuit breakers shall not be set more than thirty (30) per cent above the allowable carrying capacity of the wire unless a fusible cutout is also installed on the circuit.

(h) For the protection of wires having safe carrying capacities exceeding the rated capacity of the largest approved enclosed type fuses, approved enclosed fuses arranged in multiple may be used provided as few fuses as possible are used and the fuses are of equal capacity and provided the cutout terminals are mounted on a single continuous pair of substantial bus bars. The total capacity of the fuses shall not exceed the safe carrying capacity of the wires. This paragraph shall not apply to motor circuits.

(i) Fixture wires or flexible cords of No. 16 or No. 18 gage shall be considered as protected by fifteen (15) ampere fuses.

(j) Link fuses may be used only when mounted on approved bases which, except on switchboards, shall be placed in approved cutout boxes or cabinets. A space of at least two (2) inches shall be provided between the open-link fuses and metal, or metal lined walls or metal, metal lined or glass paneled doors of cabinets or cutout boxes.

(k) Fused rosettes shall not be used.

(l) An automatic circuit breaker, except as provided for generators in section D-1002 of this Code, when installed without other automatic overload protective devices, shall have one (1) pole in each ungrounded conductor.

(m) For all automatic circuit breakers the number of overload trip coils shall not be less than shown below:

SYSTEM	NUMBER OF OVERLOAD TRIP COILS
4 wire, 3 phase A. C.	3—(1 in each phase)
4 " 2 " A. C.	2—(1 in each phase in ungrounded wire)
3 " 3 " A. C.	2—(1 in each of 2 ungrounded wires)
3 " 2 " A. C.	2—(1 in each outside wire)
3 " 1 " A. C.	2—(1 in each outside wire)
3 " D. C.	2—(1 in each outside wire)
2 " A. C. or D. C. ungrounded	1
2 wire A. C. or D. C. grounded	1—(in the ungrounded wire)

(n) Paragraphs L and M of this section shall not be considered as prohibiting the use of two (2) single-pole circuit breakers for the protection of ungrounded two (2) wire circuits.

Sec. D-806—AT SERVICES:

(a) Fuses or circuit breakers shall be placed in all ungrounded service wires, either overhead or underground, in the nearest readily accessible place to the point where they enter the building, and arranged to cut off the current from all circuits and devices in the building other than the service switch and, under conditions specified below, the meter; except, however, that service fuses may be located at the outer end of the service conduit.

(b) When the service fuses are locked or sealed, or are located at the outer end of the service conduit, duplicate main fuses or branch fuses connected on the load side of the meter and enclosed in an approved casing or cabinet, so as to be readily accessible to the occupant of the building, shall be provided.

(c) Where service switch, service fuses and meter are combined in an approved self-contained device or compact combination of such devices having no exposed wiring or live parts, the potential coils of the meter may be connected on the supply side of the service cutout. Except when such devices are used or the service fuses are located at the outer end of the service conduit, the service switch shall be arranged to cut off the current from the service fuses.

(d) Except when mounted on switchboards under competent supervision, the service fuses shall be enclosed so that live parts will not be exposed to accidental contact.

(e) Locations having private plants, the yard wires running from building to building shall not be considered as service wires, so that fuses or circuit breakers will not be required where the wires enter buildings, provided the next fuse back is small enough to properly protect the wires inside the building in question.

Sec. D-807—FUSES FOR BRANCH CIRCUITS:

(a) For the purpose of this section the terms "branch circuits" and "outlets" are defined as follows: "Branch Circuit" is that portion of a wiring system extending beyond the final set of fuses or circuit breaker protecting it, and at points on which current is taken to supply fixtures, lamps, heaters, motors and current consuming devices generally; such points are designated as "outlets".

(b) By permission of the Commissioner of Buildings on systems having a grounded neutral or having one side grounded, and where the grounded conductor is identified and properly connected, two (2) wire branch circuits may be protected by a fuse in the ungrounded wire. No fuse shall be placed in the grounded wire. Otherwise, two (2) wire branch circuits shall be protected by a fuse in each wire.

(c) Three (3) wire branch circuits may be run from direct current or single phase alternating current systems having a grounded neutral, in which case the neutrals of the branch circuits shall not be interconnected except at the center of distribution.

(d) Branch circuits in general, and except as described below, shall be protected by fuses of no greater rated capacity than

Fifteen (15) amperes.....at 125 volts or less

Ten (10) amperes.....at 126 to 250 volts

(e) Fixture wire or flexible cord of No. 18 or No. 16 gage shall be considered as properly protected by fifteen (15) ampere fuses.

Note: Duplex receptacles for attachment plugs to be placed on each side of rooms (convenience outlets) are strongly recommended in order to facilitate the use of electrical appliances which, otherwise, must be connected to sockets designed primarily only as lamp holders.

(f) On a two (2) wire branch circuit and on either side of a three (3) wire branch circuit, the number of outlets shall not exceed twelve (12) except by permission of the Commissioner of Buildings.

(g) Branch circuits supplying only sockets of receptacles of the mogul type shall have the wire protected by fuses having a rated capacity not greater than

Forty (40) amperes.....at 125 volts or less
Twenty (20) amperes.....at 126 to 250 volts

(h) If protected by forty (40) or twenty (20) ampere fuses as above, wire not smaller than No. 12 shall be used for wiring fixtures with mogul sockets and receptacles and may also be used for taps not over eighteen (18) inches long from the circuit wires to the points of suspension of the fixtures.

(i) The number of mogul sockets on a two (2) wire branch circuit and on either side of a three (3) wire branch circuit shall not exceed eight (8) except by the permission of the Commissioner of Buildings.

Sec. D-808—PROTECTION OF MOTOR CIRCUITS:

(a) Conductors carrying the current of only one motor shall have a carrying capacity of at least one hundred and ten (110) per cent of the name plate current rating of the motor, the actual size to be determined by the rating of the fuses or the setting of the circuit breaker or overload relay protecting them.

(b) Except as provided in the following paragraph, each ungrounded conductor carrying the current of only one (1) motor or group of motors shall be protected in accordance with the general requirements for the protection of conductors; that is, the rated capacity of the fuses shall not exceed the carrying capacity of the conductors and circuit breakers shall not be set more than thirty (30) per cent above the carrying capacity of the conductors as given in Section D-610 of this Code.

(c) Where rubber covered or varnished cloth insulated wire is used in a branch circuit carrying the current of only one alternating current motor of a type having large starting current and this circuit is protected by fuses it may be protected in accordance with column C of Table 1 of Section D-610 of this Code, but in no case shall a rubber covered or varnished cloth insulated conductor in a branch circuit carrying the current of only one motor having a carrying capacity in accordance with columns A and B respectively of Table 1 of the aforesaid Section D-610 be less than one hundred and ten (110) per cent of the name plate current rating of the motor.

(d) Automatic overload protective devices may be omitted at the point where conductors carrying the current of only one motor are connected to the mains, provided their current carrying capacity is at least one-third (⅓) that of the mains, the length of the con-

ductors between the mains and the motor protective devices is not greater than fifteen (15) feet and they are suitably protected from mechanical injury.

(e) Where the motor running protective device is shunted during the starting period the portion of the motor branch circuit between the motor and its running protective device shall be considered to be sufficiently protected during the starting period by the next overload protective device back on the line if the rating of this fuse or the setting of this circuit breaker is not over three hundred per cent (300%) of the motor name plate current rating.

Note: To provide for the large starting current of certain types of alternating current motors without overfusing the conductors, wires considerably larger than one hundred and ten (110) per cent of the motor name plate current rating may be necessary in that part of the circuit supplying one (1) motor which is between the motor running protective device and the mains.

In the great majority of cases where alternating current motors requiring large starting currents are started by means of autotransformer starters, the necessary current carrying capacity of conductors in that part of the circuit supplying one (1) motor which is between the motor running protective device and the mains will not exceed the following percentages of the name plate current rating of the motors.

RATED FULL LOAD CURRENT	PERCENTAGE
0 to 30 amperes	250
Above 30 amperes	200

In nearly all cases where alternating current motors of the above type are started without autotransformer starters, the necessary current carrying capacity of conductors in that part of the circuit supplying one motor which is between the motor running protective device and the mains will not exceed three hundred (300) per cent of the name plate current rating of the motor.

To provide for the peak loads which are encountered in certain classes of service, such as operating valves, raising or lowering rolls, rolling tables, hoists, elevators, pumps, etc., without overfusing the conductors, motors will sometimes require cables considerably larger than one hundred and ten (110) per cent of the motor name plate current rating. In the majority of cases the current carrying capacity of conductors complying with the rules will not exceed the percentages of the name plate current rating of the motors given in the following tables:

	Percentage of name plate current rating.				
Classification of Service	5 min. rating	10 & 15 minute rating	30 & 60 minute rating	2 hour rating	Continuous rating
Operating valves raising or lowering rolls	110	120	150	200	250
Rolling tables	110	120	135	180	200
Hoists, rolls, ore and coal handling machines	110	115	120	150	170

Freight and passenger elevators, shop cranes, tool heads, pumps, etc.	110	110	110	120	140

(e) Alternating current motors operating freight or passenger elevators or cranes that are dependent on phase relation for the direction of rotation shall be protected by approved automatic circuit breakers (or reverse phase relays) operative in the event of any phase reversal that would cause a reverse motor rotation, or in the event of the motor being connected to the line single phase.

Sec. D-809—PROTECTION OF MOTORS:

(a) Each motor shall be protected by an automatic overload protective device (fuse, thermal cutout, overload relay or circuit breaker) except as provided in paragraph C of Section D-2006 of this Code. If fuses are used one (1) fuse shall be provided in each ungrounded conductor. If a circuit breaker is used, one pole shall be provided in each ungrounded conductor and the circuit breaker shall be so designed that its operation will open all of the ungrounded conductors simultaneously, except that for direct current and single phase alternating current motors on ungrounded circuits, one single pole breaker may be used in each conductor or a single pole circuit breaker in one conductor and a fuse in the other. The number of overload trip coils, relays or thermal cutouts shall not be less than shown in the following table:

MOTOR	NUMBER OF OVERLOAD TRIP COILS, RELAYS OR THERMAL CUTOUTS
4 wire, 2 phase A. C.....	2—1 in each phase in ungrounded wires.
3 " 2 " A. C.....	2—1 in each outside wire.
3 " 3 " A. C.....	2—1 in each of two (2) ungrounded wires.
2 " A. C. or D. C. Ungrounded	1 in either wire.
2 " A. C. or D. C. grounded	1 in the ungrounded wire.

(b) Motors may be grouped under the protection of a single set of fuses provided the rated capacity of the fuses does not exceed fifteen (15) amperes and the total wattage of the circuit does not exceed twelve hundred (1200) or provided each motor is protected by thermal cutouts. The number and size of the motors grouped with thermal cutout protection need be limited only by the maximum size of the fuses with which the thermal cutouts can be safely used and each thermal cutout shall be marked to indicate the size of this fuse.

(c) Fuses shall not be required in addition to circuit breakers.

(1) On main switchboards.

(2) Where otherwise subject to competent supervision.

(3) Where next back on the line there are fuses rated or a circuit breaker set at not over three hundred (300) per cent of the motor name plate rating.

(4) For circuits having a maximum capacity greater than that for which approved enclosed fuses are rated.

(d) If an alternating current starter when in the running position opens all of the ungrounded conductors of the circuit automatically under overload, and is equipped with the proper number of overload trip coils as given above it may also serve as a circuit breaker. If the overload release device of a direct current starter is inoperative during the process of starting the motor a separate circuit breaker or set of fuses shall be provided.

(e) Each continuous rated motor of over two (2) horse power used for constant load duty shall be protected by running fuses, thermal cutouts, relays or a circuit breaker in accordance with the following:

(1) If fuses or thermal cutouts are used their rated capacity shall not exceed one hundred and twenty-five (125) per cent of the name plate current rating of the motor, except that when no fuses or thermal cutouts of the required capacity exist, those of the next higher standard rating may be used.

(2) If a circuit breaker is used it shall have a continuous current capacity of at least one hundred and ten (110) per cent of the name plate current rating of the motor.

(3) If an overload relay is used, its rated capacity shall not be exceeded when the motor it protects is carrying one hundred and ten (110) per cent of its continuous current capacity as indicated on its name plate.

(4) If the circuit breaker or overload relay is of the time limit type it shall have a setting of not over one hundred and twenty-five (125) per cent, and if of the instantaneous type a setting of not over one hundred and sixty (160) per cent, of the name plate current rating of the motor.

Note: To comply with the above rule in the case of a squirrel cage or similar type motor having a large starting current it will be necessary to use a motor starter or double throw switch so designed that the protective device will be shunted or cut out of service during the starting period, unless a time limit circuit breaker or similar device is used which will prevent the opening of the circuit during the starting period.

(f) Where the motor running protective device is shunted during the starting period the motor and the portion of the motor branch circuit between the motor and its running protective device shall be considered sufficiently protected during the starting period by the next overload protective device back on the line if the rating of this fuse or the setting of this circuit breaker is not over three hundred (300) per cent of the motor name plate current rating.

(g) A switch used to shunt the motor protective device during the starting period shall be of such type that it will be held in off and running positions but cannot be left in the starting position without the proper running overload protective devices in the circuit.

(h) Continuous rated motors of two (2) horse power or less shall be considered sufficiently protected by the fuses or circuit breakers protecting the conductors of the motor circuits provided in Section D-808 of this Code.

(i) Motors of other than continuous rating or used on other than continuous load duty shall be considered as being sufficiently protected by the fuses or circuit breakers used to protect the conductors of the motor circuits.

Sec. D-810—PROTECTION OF GENERATORS:

See Section D-1003.

Sec. D-811—PROTECTION OF HEATING APPLIANCES:

(a) Heating appliances each of six (6) amperes or six hundred and sixty (660) watts or less, may be used on branch lighting

circuits; heating appliances each of ten (10) amperes or twelve hundred (1200) watts or less, may be grouped on a special circuit protected by fuses having a rated capacity not greater than fifteen (15) amperes. Each complete heating appliance, whether containing one or more heating elements, which is of more than ten (10) amperes or twelve hundred (1200) watts total capacity, shall be supplied by a separate branch circuit.

(b) Subdivided circuits of a heater need not be separately fused.

Sec. D-812—PROTECTION OF THEATRE FOOTLIGHTS AND BORDER LIGHTS:

Theater footlights and border lights shall be so wired that the number of outlets and the lamps connected to them shall in no case be such as to place more than fifteen (15) amperes on the branch circuit fuse.

Sec. D-813—PROTECTION OF SIGNS AND OUTLINE LIGHTING:

(a) Circuits shall be so arranged that the number of outlets and the lamps connected to them shall in no case be such as to place more than fifteen (15) amperes on the branch circuit fuse.

Sec. D-814—PROTECTION OF SWITCHBOARD INSTRUMETS:

(a) For the protection of instruments and pilot lights on switchboards, approved enclosed fuses of designs of not over two (2) amperes capacity may be used.

Sec. D-815—PROTECTION OF FEEDERS AT SUPPLY STATIONS:

(a) Each constant potential circuit entering or leaving a supply station, except grounded neutral conductors of three (3) wire systems, shall be protected from excessive current by an approved automatic overload circuit breaker or by an equivalent device of approved design. Such protective devices shall be as near as practicable to the point where the conductors enter or leave the building. For outgoing circuits not connected with other sources of power, however, the protective devices may be placed on the supply side of transformers or similar devices.

Sec. D-816—GROUND DETECTORS:

(a) Each distribution system originating in a station under attendance shall be provided with a reliable ground detector unless permanently grounded in accordance with Part 9 of this Division.

DIVISION D—PART NINE
GROUNDING

Sec. D-901—GENERAL:

(a) Where low potential circuits, arresters, equipment, conduit, armored cable, metal raceways and the like are grounded in accordance with this Part, they shall be so arranged that under normal conditions of service there will be no appreciable passage of current over the grounding conductor.

(b) Artificial grounds, such as buried plates, driven pipes or driven rods shall be embedded below permanent moisture level, where practicable. Each ground shall present not less than two (2) square feet of surface to exterior soil. Ground plates of copper shall be at least six hundredths (.06) of an inch in thickness. Ground plates of

iron shall be at least one-quarter (¼) of an inch in thickness. Ground pipes of iron or steel shall be not less than three-quarters (¾) of an inch in external diameter. Other approved ground rods shall be not less than one-half (½) inch in diameter.

Note: It is recommended that artificial grounds be located where the ground water level is nearest to the surface.

Additional area will generally be necessary to meet the requirements of paragraph E of this section.

(c) Where a system grounding wire is employed, it shall be effectually grounded at intervals which will satisfy the requirements as to current carrying capacity and resistance prescribed in this Part.

(d) The combined resistance of the grounding wire and the connection with the ground shall not exceed three (3) ohms for water pipe connections nor twenty-five (25) ohms for buried or driven grounds. Where it is impracticable to obtain with one ground artificial ground resistance as low as twenty-five (25) ohms, this requirement shall be waived, and two (2) artificial grounds, at least six (6) feet apart and with combined area of not less than four (4) square feet, shall be provided.

Sec. D. 902—DISTRIBUTION SYSTEMS:

(a) Two (2) wire direct current systems shall be grounded as provided herein, if fed from overhead circuits and the voltage of the system does not exceed three hundred (300) volts.

Note: It is recommended that two (2) wire direct current systems be grounded if a neutral point can be established and if the maximum difference of potential between the neutral points and any other point on the circuit does not exceed three hundred (300) volts.

It is recommended that two (2) wire direct current systems be not grounded if the potential to ground of either conductor exceeds three hundred (300) volts.

(b) Three (3) wire direct current systems shall be grounded as provided in this part and at the neutral, at one (1) or more supply stations but not at individual services.

(c) Alternating current systems shall be grounded as provided in this Part, if the maximum difference of potential between the grounded point and any other point on the circuit does not exceed one hundred and fifty (150) volts. Electric furnace circuits need not be grounded.

Note: It is recommended that such systems also be grounded as provided herein, if the difference of potential exceeds one hundred and fifty (150) volts but does not exceed three hundred (300) volts.

(d) The connection with the ground on alternating current systems shall be made at each service before being connected to the line; provided, however, that by permission of the Commissioner of Buildings the connection may be made on or near the transformer, or transformers, or by connection to a system ground wire.

(e) For alternating current systems, the point to be grounded shall be selected as follows:

Single phase, two (2) wire: On either conductor, and that point of the system which brings about the lowest voltage from ground of unguarded current-carrying parts of connected devices and also permit of most convenient grounding. Single phase, three (3) wire: On neutral conductor.

Two (2) phase and three (3) phase: At that point of the system which brings about the lowest voltage from ground of unguarded current-carrying parts of connected devices and also permits of the most convenient groundings.

(f) Where only one (1) phase of a two (2) phase or three (3) phase secondary system is employed for lighting, that phase shall be grounded, and at the neutral conductor if one is used.

(g) Where transformers supply a common set of mains such fuses as are installed shall be so placed as not to leave any portion of the secondary without ground protection after they have been blown.

(h) The grounded conductor of an interior wiring system shall have but one grounding connection within the building.

Sec. D-903—LIGHTING ARRESTERS AND GROUND DETECTORS:

(a) The ground connection shall be made at such a point that the grounding conductor will be as short and straight as practicable.

Sec. D-904—EQUIPMENT AND METAL RACEWAYS:

(a) The point of attachment of the grounding conductor to generators, motors, transformers, conduit, armored cable, metal raceway and the like shall, if practicable, be readily accessible.

(b) The point of attachment of the grounding conductor to conduit, armored cable and metal raceways shall be as near as practicable to the point where the conductors in the equipment receive their supply.

(c) Where the service conduit is grounded, its grounding conductor shall be run from it directly to the ground. No portion of the house conduit shall be used as a part of the grounding conductor.

Sec. D-905—GROUNDING CONDUCTORS:

(a) The grounding conductor shall invariably be composed of copper. Where practicable, it shall be without joint or splice.

(b) An automatic cutout shall not be placed in a grounding conductor or its connections, except in grounding conductors for equipment where its operation will disconnect from the supply conductors all leads contained in the equipment.

(c) The insulation and installation of the grounding wire shall conform to all requirements of this Code applying to wires of the voltage of the circuit to which the grounding wire is attached.

(d) All grounding wires shall be protected from mechanical injury. In the case of a lightning arrester grounding wire the protection shall be composed of non-magnetic material unless the grounding conductor is electrically connected to both ends of the protective covering.

(e) Where a secondary system is grounded at the service, the equipment, conduit, armored cable, metal raceway and the like have an ampere capacity not less than one-fifth (1/5) of the connected to the circuit grounding conductor, but otherwise shall have a separate grounding conductor of their own.

(f) The path to ground provided for a circuit shall, in general, have ampere capacity sufficient to insure the continuity and continued effectiveness of the path under conditions of excess current caused by accidental grounding of any normally ungrounded conductor of the circuit.

(g) The grounding conductor for a direct current system shall have an ampere capacity not less than one-fifth (1/5) of the conductor to which it is attached. In no case shall the grounding conductor be smaller than No. 8.

(h) The grounding conductor for an alternating current system shall have an ampere capacity not less than one-fifth (1/5) that of the conductor to which it is attached. In no case shall the grounding conductor be smaller than No. 8 and it need not be larger than No. 0.

(i) The conductor grounding a lightning arrester shall not be connected to an artificial ground provided for circuits or equipment, but shall be kept at a distance of at least twenty (20) feet where practicable. The grounding conductor shall have an ampere capacity sufficient to insure the continuity and continued effectiveness of the path to ground under conditions of excess current caused by or following the discharge of the arrester. No individual ground conductor shall have an ampere capacity less than No. 6.

(j) The ampere capacity of a conductor grounding equipment shall be not less than that given in the following table:

Capacity of nearest cutout protecting conductors to equipment	Size of grounding conductor
0 to 100 amperes	No. 10
101 to 200 "	No. 6
201 to 500 "	No. 4
Over 500 "	No. 2

No. 18 copper may be used as a conductor grounding portable equipment, the conductors to which are protected by fuses not greater than fifteen (15) amperes. For portable equipment using more than fifteen (15) amperes, the above table shall be as follows:

(k) Where instruments, meters or relays operate with windings or working parts at a potential of one hundred and fifty (150) volts or above to ground the cases and other exposed bare metal parts of these devices insulated from the current carrying parts shall be grounded unless isolated by elevation or protected by suitable insulating barriers or guards. The grounding conductor shall be not less than No. 12. Where instruments, meters or relays are operated from current or potential transformers, the cases and other exposed bare metal parts which are insulated from the current carrying parts shall be grounded. The grounding conductor shall be not less than No. 12. The secondary circuits of current and potential transformers shall be grounded. The grounding conductor shall be not smaller than the conductor of the secondary circuit.

(l) Sections of conduit, armored cable, metal raceways or other equipment shall be bonded together and the whole grounded, or each section shall be separately grounded. Equipment in the immediate vicinity of gas pipes shall be bonded thereto. This requirement shall not apply to service runs or to isolated lengths of conduit, armored cable or metal raceway not exceeding twenty-five (25) feet provided the runs are insulated from ground and adjacent grounded metal and are guarded when within reach from grounded surfaces.

(m) The conductor grounding conduit, armored cable and metal raceway shall be at least equivalent to No. 10 when the largest conductor contained in the equipment is not greater than No. 0 and

need in no case be larger than No. 4. The conductor grounding a service conduit shall be not less than No. 8.

(n) The conductor used for grounding a circuit wire may be used also for grounding equipment, conduit, armored cable, metal raceway and the like where the Commissioner of Buildings has granted permission and the secondary system is grounded at the service: otherwise, separate grounding conductors shall be used for grounding the circuit and for grounding the equipment, conduit, armored cable, metal raceway and the like.

Sec. D-906—GROUND CONNECTIONS:

(a) Where a non-conductive protective coating, such as enamel, is provided for equipment, couplings and fittings, such coating shall be completely removed from threads and other surfaces in order to insure a good contact between ground clamp and equipment. Pipes or rods used to provide a ground shall be cleaned of rust, scale, paint, etc., at the point of attachment of the ground clamp. The connection and contact with the ground shall be permanent and effective, and shall always be made on a water piping system if one is available.

Note: The protective grounding of electrical circuits and equipment to water piping systems, when performed in accordance with this Part, should always be permitted, since such grounding offers the most efficient protection to life and property and is not injurious to the piping systems.

(b) At supply stations, grounding conductors for circuits, equipment and lightning arresters shall be permanently and effectively connected to all available active, continuous, metallic underground piping systems between which no appreciable difference of potential normally exists; otherwise, to one system only. Elsewhere than at supply stations, the grounding conductor shall be connected to at least one such piping system, if available. Gas piping shall be avoided wherever practicable, except as provided in paragraph E of this section. Where underground metallic piping systems are not available, other grounds, which will provide the desired permanence and conductance, may be permitted.

(c) The point of connection to the piping system shall be located on the street side of water meters except where the conductor serves as a ground only for equipment, conduit, armored cable, metal raceway and the like or as a multiple ground for an alternating current secondary. In these latter cases the point of connection may be located near the equipment to be grounded, and care shall be taken to keep the connection with the underground piping system continuous and permanent, by bonding all parts of the piping system which are liable to become physically disconnected, such as at meters and service unions, by means of a shunt consisting of two (2) approved clamps and a conductor of the same size as the grounding conductor. Where practicable, the point of connection shall be in plain sight and readily accessible.

(d) The ground conductor shall be attached to the pipe or rod

(1) by means of an approved bolted clamp to which the conductor is soldered or otherwise connected in an approved manner, or

(2) by means of a brass plug screwed into the pipe and provided with a lug to receive the conductor, or

(3) by other approved means.

(e) Gas piping systems within buildings shall be used as a ground only when water piping is not available, and then only for grounding equipment; provided, however, that gas piping may serve as the sole ground for small fixtures located at a considerable distance from water piping. Where gas piping is so utilized, it shall be bonded to the water piping system at their point of entrance. Gas piping need not be insulated from otherwise well grounded fixtures.

(f) Rails or other grounded conductors of electric railway circuits shall not be used as a ground for other than railway lighting arresters and railway equipment, conduit, armored cable, metal raceway and the like, when other effective grounds are available.

(g) A copper bond of at least No. 8 must be shunted around gas meters and water meters.

DIVISION D—PART TEN
ROTATING MACHINERY AND ITS CONTROL APPARATUS

Sec. D-1001—GENERAL:

(a) The frame, except for portable motors, shall be grounded if the machine operates at a potential in excess of one hundred and fifty (150) volts and is accessible to other than qualified persons. Grounding shall be performed in the manner prescribed in Part 9 of this Division. When the frame is not grounded, owing to the voltage being below one hundred and fifty (150) or the generator being accessible only to qualified persons or the motor being portable, the frame shall be permanently and effectively insulated from ground.

(b) The frames of portable motors which operate at more than one hundred and fifty (150) volts shall be guarded or grounded.

Note: It is recommended that the frames of portable motors which operate at less than one hundred and fifty (150) volts be grounded when this can be readily accomplished.

(c) If terminal blocks are used, they shall be composed of approved non-combustible, non-absorptive insulating material, such as slate, marble or porcelain.

(d) Soft rubber bushings may be used to protect lead wires where they pass through the frame, provided they will not be exposed to oils, grease, oily vapors or other substances having a deleterious effect on rubber. Where so exposed, bushings composed of porcelain, micanite or hardwood treated with a preservative shall be used.

Sec. D-1002—GENERATORS:

(a) Generators shall be located in dry places. They shall not be placed in a room where any hazardous process is carried on, nor where they will be exposed to inflammable gases or flyings of combustible materials.

Note: It is recommended that waterproof covers be provided for use in an emergency.

(b) Where wooden base frames or wooden floors serve to insulate frames from ground they shall be kept filled with moisture repellant and be kept clean and dry.

(c) Direct current, constant potential generators, other than exciters for alternating current machines, shall be protected from excessive current by automatic cutouts of approved design; provided, however, that in central stations where the type of apparatus used and the nature of the system operated make protective devices in-

advisable and unnecessary, their omission may be permitted by the Commissioner of Buildings. Single pole protection shall be accepted for two (2) wire, direct current generators, if the protective device is actuated by the entire generator current and will completely open the generator circuit.

(d) If a generator not electrically driven supplies a two (2) wire grounded system, the protective device shall be so placed as to disconnect the generator from all wires of the circuit.

(e) Two (2) wire, direct current generators, used in conjunction with balancer sets to obtain neutrals for three (3) wire systems, shall be equipped with protective devices which will disconnect the three (3) wire systems in the case of excessive unbalancing of voltages.

(f) Three (3) wire, direct current generators, whether compound or shunt wound, shall be equipped with protective devices, one in each armature lead and so connected as to be actuated by the entire current from the armature. Such protective device shall consist either of a double pole, double coil, overload circuit breaker, or of a four (4) pole circuit breaker connected in the main and equalizer leads, and tripped by two (2) overload devices, one in each armature lead. Such protective devices shall be so interlocked that no one pole can be opened without simultaneously disconnecting both leads of the armature from the system.

(g) Where a generator and a transformer are intended to operate as a unit for stepping up or stepping down the voltage, and are both located in the same building, a protective device between them shall not be required.

(h) Each generator shall be provided with a nameplate giving the maker's name, the rating in kilowatts, if direct current, or kilovolt amperes, if alternating current, the normal volts and amperes corresponding to the rating, and the revolutions per minute.

Sec. D-1003—MOTORS:

(a) Motors shall not be operated in series-multiple or multiple-series except on constant-potential systems where permission has been granted by the Commissioner of Buildings.

(b) Motors having brushes or sliding contacts exposed to combustible dust shall be located in separate dust-tight rooms or non-combustible housings provided with effective ventilation from a source of clean air.

(c) In places where combustible dust is thrown into suspension in the air in sufficient quantity to produce explosive mixtures, such as flour mills, grain elevators, etc., or where it is impracticable to prevent dust or flying material collecting in dangerous quantities on or in motors, all motors shall be either of the totally enclosed type or placed in separate dust-tight rooms or non-combustible housings. Such rooms or housings shall be effectively ventilated from a source of clean air.

(d) Motors permanently located on wooden floors shall be provided with suitable drip pans, if so required by the Commissioner of Buildings.

(e) Adjustable speed motors, if controlled by means of field regulation, shall be so equipped and connected that they cannot be started under weakened field, unless this safeguard is incorporated in the design of the machine.

(f) Each motor shall be provided with a name plate giving the maker's name, the capacity in volts and amperes, the normal full-load speed and the interval during which it can operate, starting cold. The time interval given shall be either five (5), ten (10), fifteen (15), thirty (30), sixty (60) or one hundred and twenty (120) minutes or continuous.

(g) Each motor with its starting device shall be controlled by an indicating switch so arranged that the opening of the switch will disconnect all ungrounded motor leads; provided, however, that this requirement shall not apply to crane motors considered in Part 20 of this Division. A double-throw switch used to shunt the motor protective device during the starting period shall be of such a type that it cannot be left in the starting position without the proper running overload protective devices in the circuit. An automatic circuit breaker which disconnects all ungrounded wires of the circuit may serve also as a switch. The switch and starting device shall be located within sight of the motor, unless permission to locate them elsewhere is given by the Commissioner of Buildings. A single pole switch may be used to control a two (2) wire motor of not over one-quarter (¼) horse power, operating at a potential not exceeding three hundred (300) volts.

(h) The motor switch shall have a continuous duty rating at least equal to the current carrying capacity of the wires between the motor and its running overload protective device, and it may be of the disconnecting type if it is not intended to be operated under load and is so located or locked that it cannot be readily operated by unqualified persons.

(i) Except for auto starters the switch called for in the preceding paragraph may be omitted where the motor starter disconnects all ungrounded wires of the circuit. When auto starters are used a switch shall be provided on the supply side of each auto starter or group of auto starters and the switch shall be within sight of the starter or starters controlled.

Sec. 1004—AUTOTRANSFORMER STARTERS:

(a) Control apparatus, other than autotransformer starters, shall conform to the requirements of Part 17 of this Division.

(b) Coils and switches of autotransformer starters intended for use in dusty or linty places or where flyings of combustible material are present, shall be completely enclosed in substantial dustproof metal cases.

(c) Cases for coils or switches shall afford access to the interior for inspection and oil renewal, and shall be so constructed that when mounted on a plane surface the case will make contact with such surface only at points of support. An air space of at least one-quarter (¼) inch shall be maintained between the case and surface.

(d) The oil tank shall be marked in a suitable manner to indicate the proper oil level. When such device carries a visual oil indicator, the marking shall be for the proper oil level with the starter assembled. If the visual indicator is not used, markings shall indicate the oil level prior to assembling.

(e) The switch shall provide an off position, a running position and at least one starting position. It shall be so designed that it cannot rest in a starting position, or in any position which will render inoperative the overload protective devices in the circuit.

DIVISION D—PART ELEVEN
TRANSFORMERS UNDER SIX HUNDRED (600) VOLTS

Sec. D-1101—EXCEPTION:

(a) Nothing in this part shall be construed to apply to apparatus or fittings, the operation of which depends either wholly or in part upon special air-cooled transformers embodied in the devices; but all such apparatus or fittings shall be submitted for special examination and approval before being installed.

Sec. D-1102—GENERAL:

(a) No oil transformer shall be placed within any building other than a central station or a sub-station, except by permission of the Commissioner of Buildings, nor shall such a transformer be attached to a building except by permission of the Commissioner of Buildings and when separated therefrom by substantial supports.

(b) No air-cooled transformer operating at a potential exceeding six hundred (600) volts shall be placed within any building other than a central station or a sub-station.

(c) The construction of an air-cooled transformer shall be such that when mounted on a plane surface the casing will make contact with such surface only at the points of support, providing elsewhere an air space of at least one-quarter (¼) of an inch between casing and surface. If the surface is composed of combustible material, the air space shall be increased to at least one (1) foot, unless a slab of non-combustible, non-absorptive, insulating material is interposed.

Note: This will require a slab of slate, marble or soapstone, somewhat larger in area than the transformer.

This section shall not be construed to apply to bell ringing and other signaling transformers, which operate at a primary voltage not exceeding two hundred and fifty (250) volts.

(d) Transformer cases shall be grounded as provided in Part 9 of this Division.

DIVISION D—PART TWELVE
SWITCHES

Sec. D-1201—CONSTRUCTION OF KNIFE SWITCHES:

(a) A knife switch shall be deemed to be a switch having electrical connecting parts in the form of hinged or pivoted bars or blades and designed for manual operation.

(b) Under the term knife switch shall be included single or mulitiple pole switches, either with or without fuse terminals, switches having individual bases designed for either front or rear wiring connections; also switch parts without separate bases intended for mounting on switchboards and panelboards.

(c) Knife switches shall be plainly marked where the marking can be read when the switch is installed, with the current and the voltage for which the switch is designed, as follows:

30 to 1,000 amperes inclusive.

Classification	Markings
125 V., D. C. or A. C. Only for Switchboards and panelboards. (With or without fuses.)	125 V., Amps.
250 V., D. C. or 500 V., A. C. (Without fuses)	250 V., D. C. 500 V., A. C. Amps.

250 V., D. C. or A. C. (With fuses)..... 250 V., Amps.
500 V., A. C. (With 600-volt fuses)..... 500 V., A. C. Amps.
600 V., D. C. or A. C. (With or without fuses) 600 V., Amps.
Triple-pole: With 125 volt spacings between blades. For use on three (3) wire systems having 125 volts between adjacent wires and not over 250 volts between outside wires.... 125 V., Amps.
Triple-pole: With 250 volt spacings between blades. For use on three (3) wire systems having 250 volts between adjacent wires and not over 500 volts between outside wires..... 250 V., Amps.

For switches of capacities above one thousand (1,000) amperes, where the alternating current rating will generally be less than the direct current rating, the marking shall indicate the ampere rating definitely as A. C. or D. C. The frequency in cycles shall also be stated. Three hundred (300) ampere switches shall be used only on switchboards.

(d) Pieces carrying or used to hold the break and hinge jaws shall be secured to the base or mounting surface in such a manner as to prevent possible turning.

(e) The cross bar shall be secured to each blade in such a manner as to prevent turning and twisting.

(f) The spacings given below shall be considered standard and as the minimum allowable, except as otherwise provided for in this Part:

TABLE 1

For Switchboards and Panels Only.

Ampere Rating	125 V., D. C. or A. C. Opposite Polarity	Break Distance
30	1	¾
60	1¼	1

TABLE 2

For All Other Switches

Ampere Rating	125 V., D. C. or A. C.		250 V., D. C. or A. C.	
	Opp. Pol.	Break	Opp. Pol.	Break
30	1¼	1	1¾	1½
60	1½	1¼	2¼	2
100	1½	1¼	2¼	2
200 and 300	2¼	2	2½	2¼
400 and 600	2¾	2½	2¾	2½
800 to 6,000 incl.	3	2¾	3	2¾
	500 V., A. C.		600 V., D. C. or A. C.	
	Opp. Pol.	Break	Opp. Pol.	Break
30	2¼	2	4	3½
60	2¼	2	4	3½
100	2¼	2	4½	4
200 and 300	2½	2¼	4½	4
400 and 600	2¾	2½	4½	4
800 to 6,000 incl.	3	2¾	4½	4

The measurements given under Tables 1 and 2 shall be taken within the area of the switch base bounded by the contact parts of the switch mechanism (break and hinge jaws). The measurements outside the zone of the switch mechanism shall not be less than

given under Table 3. The dimensions given for break distances shall not apply to quick break attachments on switch mechanism.

TABLE 3

Spacing between Parts of Opposite Polarity outside the area bounded by the contact parts of the switch mechanism (except for Link Fuses).

When Mounted on Same Surface		When Clear of Surface
Not over 125 V.	¾ In.	½ Inch
Not over 250 V.	1¼ "	¾ "
Not over 600 V.	2 "	1¾ "

It is recommended that switches above 1,000 amperes capacity be not used to break currents, but only as disconnecting switches.

(g) When fuse terminals are provided the spacings for such terminals shall conform to the requirements of Part 8 of this Division.

(h) Switches rated above four hundred (400) amperes at six hundred (600) volts and six hundred (600) amperes at two hundred and fifty (250) volts, and therefore exceeding the capacities of standard sizes of cartridge enclosed fuses, may be arranged for fuses in multiple, provided as few fuses as possible are used, and the fuses are of equal capacity, and the multiple terminals for each pole are mounted in common.

(i) Switches marked with the combined rating, two hundred and fifty (250) volts, D. C., or five hundred (500) volts, A. C., shall not be provided with fuse terminals.

(j) Switches having fuse terminals and intended for use in ungrounded branch circuits shall have fuse terminals in each pole.

(k) Auxiliary contacts of a renewable or quick-break type or the equivalent shall be provided on all six hundred (600) volt switches designed for use in breaking currents from two hundred (200) to one thousand (1,000) amperes, inclusive.

Note: It is recommended that such auxiliary contacts be provided on all direct current switches rated at over two hundred and fifty (250) volts.

(l) Barriers designed to be placed between the poles of switches and not located within the influence of the arc formed by the opening of the switch shall be of non-absorptive insulating material. Barriers placed between the poles of switches and located within the influence of the arc shall be of non-combustible, non-absorptive, insulating material.

(m) Barriers designed to be placed between poles of switches at hinge jaws shall be of such size and so located as to provide a separation between contact parts measured in the shortest insulating surface path over the barrier equal to that required for switches without barriers, and to provide a separation between other current-carrying parts, as provided in paragraph F of this Section.

(n) Barriers placed between the poles of switches at the break jaws, and, therefore, located within the influence of the arc formed by the opening of the switch, shall be of such size and so located as to provide a separation between contact parts measured in the shortest path through air over the barrier equal to that required for switches without barriers.

(o) Switches designed for double throw and having three (3) or more poles, shall not have front connecting terminals for the hinge

contacts of the inner poles unless standard switch spacing between adjacent live metal parts of opposite polarity are secured either by increased spacing between poles or by the use of barriers as provided for in paragraphs L, M and N of this Section.

Sec. D-1202—INSTALLATION OF SWITCHES—GENERAL:

(a) Switches shall not be placed where exposed to mechanical injury or in the immediate vicinity of easily ignitable stuff or where exposed to inflammable gases or dust, or flyings or combustible material. Where the occupancy of the building is such that switches cannot be located so as not to be exposed as above, they shall be mounted in approved boxes or cabinets, except oil switches, circuit breakers and similar devices which have approved casings.

(b) Switches shall always be placed in dry, accessible places, and be grouped as far as possible.

(c) Switches when located where exposed to moisture as in basements and similar places, shall be mounted in approved boxes or cabinets, and when located in wet places or outside buildings shall be mounted in approved weatherproof switch boxes or cabinets.

Sec. D-1203—POSITION AND CONNECTION OF KNIFE SWITCHES:

(a) Single-throw knife switches shall be so placed that gravity will not tend to close them. Double-throw knife switches may be mounted so that the throw will be either vertical or horizontal as preferred, but if the throw be vertical a locking device shall be provided, so constructed as to insure the blades remaining in the open position when so set.

(b) When practicable switches shall be so wired that blades will be dead when the switch is open.

Note: It is recommended that up to two hundred and fifty (250) volts and thirty (30) amperes, approved indicating snap switches, instead of knife switches be used on lighting circuits.

Sec. D-1204—NUMBER OF POLES REQUIRED FOR SWITCHES:

(a) Single pole switches shall never be used as service switches, except as permitted in Section D-405 of this Code, nor be placed in any neutral or grounded wire. Three (3) way switches shall be classed as single pole switches, and shall be so wired that only one pole of the circuit will be carried to either switch.

(b) On constant potential circuits, all service switches and all switches controlling circuits supplying current to motors or heating devices, unless otherwise provided in this Code shall be so arranged that the opening of the switch will disconnect all the ungrounded wires.

(c) Where a circuit breaker serves as a switch, it shall conform to the requirements of this section as to the number of poles.

Sec. D-1205—MOUNTING OF SNAP SWITCHES AND FLUSH SWITCHES:

(a) Surface mounted snap switches shall be supported at outlets when possible by seven-eighths (⅞) inch blocks, fastened between studs flush with the back of lath, except when approved fittings or outlet boxes which will give proper support are used. When this cannot be done, base blocks not less than three-quarters (¾) of an inch in thickness securely screwed to the lathing shall be provided.

(b) Sub-bases of noncombustible, nonabsorptive insulating material, which will separate the wires at least one-half (½) inch from the surface wired over, shall be installed under all snap switches used in exposed knob and cleat work. Sub-bases shall also be used in raceway work; but they may be made of hardwood or they may be omitted if the switch is approved for mounting directly on the moulding.

(c) Where flush switches or receptacles are used, whether with conduit systems or not, they shall be enclosed in an approved switch or outlet box constructed of iron or steel, in addition to the porcelain enclosures of the switch.

Sec. D-1206—SPECIAL TYPES OF SWITCHES:

(a) In central stations and substations oil circuit breakers and switches shall wherever practicable be isolated from other switches and electrical apparatus.

(b) Time switches, sign flashers and similar appliances shall be of approved design and enclosed in approved cabinets.

DIVISION D—PART THIRTEEN
SWITCHBOARDS AND PANELBOARDS

Sec. D-1301—SWITCHBOARDS—LOCATION AND ACCESSIBILITY:

(a) Switchboards shall be so placed as to reduce to a minimum the danger of communicating fire to adjacent combustible material.

(b) Switchboards shall not be built up to the ceiling. A space of three (3) feet shall be left, if possible, between the ceiling and the board. The space back of the board shall be kept clear of rubbish and shall not be used for storage.

(c) Switchboards shall be accessible from all sides when the connections are on the back.

Note: It is recommended that all switchboards be set out from the wall, but they may be placed against a brick or stone wall when the wiring is entirely on the face.

(d) Switchboards shall be so located that they will not be exposed to moisture.

Sec. D-1302—SWITCHBOARDS—MATERIAL AND WIRING:

(a) The bases of switchboards shall be made of noncombustible material.

(b) Bus bars, if rigidly mounted, may be of bare metal.

(c) If the wiring is on the back, there shall be a clear space of at least eighteen (18) inches between the wall and the apparatus on the rear of board.

(d) Insulated conductors where closely grouped as in rear of switchboards shall each have a substantial flameproof outer covering.

(e) Flameproofing shall be stripped back on all conductors a sufficient distance from the terminals to give the necessary insulation for the voltage of the circuit on which the conductor is used.

(f) In wiring switchboards, the ground detector, voltmeter, pilot lights and potential transformers shall be connected to a circuit of not less than No. 14 wire that is protected by approved fuses. This circuit shall not carry over six hundred and sixty (660) watts.

Sec. D-1303—PANELBOARDS:

(a) The requirements of this Section shall apply to all panel and distributing boards used for the control of light and power

circuits, but not to such switchboards in central stations, sub-stations or isolated plants as directly control energy derived from generators or transforming devices.

(b) Switches, fuses and cutout bases used on panelboards shall conform to the requirements of Parts 12 and 8 respectively, of this Division, so far as they apply.

(c) In the relative arrangement of fuses and switches, the fuses may be placed between the bus bars and the switches or between the switches and the circuits, except in the case of service switches where the requirements of Part 4 of this Division shall be observed. When the branch switches are between the fuses and bus bars, the connection shall be so arranged that the blades will be dead when the switches are open.

(d) When there are exposed live metal parts on the back of board, a space of at least one-half (½) inch shall be provided between such live metal parts and the cabinet in which the board is mounted.

(e) The following minimum distances between bare live metal parts (bus bars, etc.) shall be maintained:

Between parts of opp. pol., except at switches and link fuses.

When mounted on the same surface		When held free in air.
Not over 125 volts	¾ In.	½ In.
Not over 250 volts	1¼ "	¾ "
Not over 600 volts	2 "	1 "

At switches or enclosed fuses, parts of the same polarity may be placed as close together as convenience in handling will allow.

At link fuses at not over one hundred and twenty-five (125) volts the spacing between parts of the same polarity shall be not less than one-half (½) inch and at not over two hundred and fifty (250) volts, not less than three-quarters (¾) of an inch.

Note: These spacings are intended to prevent the melting of a link fuse by the blowing of an adjacent fuse of the same polarity.

The spacings given in the first column shall apply to the branch conductors where enclosed fuses are used. Where link fuses or knife switches are used, the spacing shall be at least as great as those prescribed in Parts 8 and 12 respectively of this Division.

The spacing given in the second column shall apply to the distance between the raised main bars and between these bars and the branch bars over which they pass.

Note: It should be noted, that the above distances are the minimum allowable, and it is recommended that greater distances be adopted wherever the conditions will permit.

DIVISION D—PART FOURTEEN

FIXTURES, LAMP SOCKETS AND RECEPTACLES—PLUG RECEPTACLES AND OTHER OUTLET DEVICES

Sec. D-1401—CONSTRUCTION OF FIXTURES:

(a) Fixtures shall be composed of metal or wood, or such other material as may have been submitted for examination and approved. Materials other than metal shall be reinforced by metal or the fixtures shall be otherwise constructed to secure the requisite mechanical strength.

(b) All fixtures not made entirely of metal wireways shall be lined with metal unless approved armored conductors with suit-

able fittings are used. This requirement shall not apply to wireways in glass, marble or similar non-absorptive, non-combustible insulating materials.

(c) All methods of fastening arms, sockets, bodies, supports, and receptacles by threading, soldering, brazing or otherwise, shall be such as to secure in every case ample strength and reliability, and to prevent turning. Screw joints shall have not less than five (5) threads engaging. Tubing used in making threaded arms and stems shall be composed of metal having a thickness not less than five-hundredths (.05) of an inch. It shall not be kinked, flattened or cracked.

(d) All burrs and fins in wireways shall be removed and all sharp edges rounded, where practicable, so that wires may be drawn in and withdrawn without injury. Fittings having smooth, rounded edges, shall be placed at the entrance to casings of fixture stems.

(e) Fixtures exposed to moisture whether located indoors or outdoors, shall be so constructed that water cannot enter the wireways, sockets or other electrical parts.

(f) Fixture studs which are not a part of outlet boxes, hickeys, tripods and crowfeet shall be made of malleable iron or other approved material.

(g) All fixtures shall, where practicable, be sufficiently ventilated. All forms of fixtures in which the wiring is liable to be exposed to temperatures in excess of one hundred and twenty (120) degrees F. (49 degrees C.) shall be so designed or ventilated and installed as to operate at temperatures which will not cause deterioration of the wiring.

(h) Canopies and outlet boxes or plates shall, taken together, provide ample space for the reception of the wires and their connecting devices.

(i) Receptacles having exposed terminals shall not be placed in canopies unless completely enclosed in metal.

(j) Canopy insulators, used where insulating joints are required shall be of an approved type and shall be securely fastened in place, so as to separate the canopies effectively and permanently from the conducting surfaces from which they are intended to be insulated. The insulating strip or sheet shall be secured by rivets or screws which shall be so placed or countersunk that the desired effective insulation distance will be obtained.

Note: A strip of a good grade of hard fiber, one-sixteenth (1-16) of an inch in thickness, permanently attached to the canopy at the ends and at intermediate points in such a manner that the strip will extend permanently at least three-sixteenths ($\frac{3}{16}$) of an inch beyond the upper edge of the canopy rim, will be accepted. Where this is impracticable, a flat sheet of said fiber, cut to conform to the general outline of the canopy and having the edges of the sheet at least flush with the edges of the canopy may be employed, if permanently attached to the canopy.

(k) Insulating joints shall be composed of materials especially approved for the purpose. Those which are not designed to be mounted with screws or bolts shall have a substantial exterior metal casing, insulated from both screw connections.

Sec. D-1402—WIRING OF FIXTURES:

(a) No conductor shall be smaller than No. 18. On chains or other movable parts stranded conductors shall be used, unless the

wires are completely enclosed in metal. Where the fixture is externally wired, wires shall be secured in a manner which will not tend to cut or abrade the insulation, and the same shall be protected from abrasion where they pass through sheet metal pans, canopies, etc. No splice or tap shall be located within an arm or a stem.

Note: It is recommended that an approved splicing device or approved plug connections be used for attaching the fixture wires to the circuit wires.

(b) Each fixture shall be so wired that all screw shells of sockets will be connected to the same fixture stem wire, or supply wire, or terminal in the fixture, and this wire or terminal shall be marked in an approved manner by which it may be readily distinguished. The marked wire shall in all cases be the grounded wire.

(c) Chain fixtures shall be wired with flexible conductors so arranged that the weight of the fixture will not put tension on the conductors.

(d) Approved fixture wire, approved flexible cord or approved rubber-covered wire shall be employed, unless the wiring is exposed to temperatures in excess of one hundred and twenty (120) degrees Fahrenheit (49 degrees C.) in which case conductors having slow-burning or other heat resisting covering shall be used. Fixtures intended for outdoor use shall be wired with approved rubber-covered conductors. Wires shall always be so disposed as to avoid exposure to high temperatures as far as practicable. Fixtures intended for use in rooms where inflammable gases may exist shall consist of rigid stems, internally wired with approved rubber-covered conductors, soldered directly to the circuit, and shall be equipped with vapor tight globes.

(e) Fixture wires or the individual conductors of flexible cords used where the voltage between any two (2) conductors or between any conductor and the ground is over three hundred (300) volts, shall have insulation at least three-sixty-fourths ($\frac{3}{64}$) of an inch in thickness for sizes No. 8 and smaller.

(f) Wires of different systems shall not be contained in or attached to a fixture; nor shall electric gas lighting wiring, other than for the frictional system, be attached thereto.

(g) All wiring shall be free from short circuits and grounds, and shall be tested for these defects prior to being connected to the circuit.

Sec. D-1403—INSTALLATION OF FIXTURES:

(a) Fixtures shall be insulated from their supports by approved insulating joints, placed as close as possible to the ceiling or wall, except under the following conditions, where both insulating joint and canopy insulator may be omitted:

(1) Straight electric fixtures connected to knob-and-tube work, wooden raceways or open work, except on metal ceilings or on plaster walls or ceilings containing metal lathing.

(2) Straight electric fixtures where the screw shells of the sockets are connected to the grounded wire of the circuit and in which all wires have an approved insulation and which are metallically connected in a permanent and effective manner to metal conduit, armored cable or metal raceway systems or to gas piping, provided such gas piping is grounded in the manner prescribed in Part 9 of this Division.

(3) Straight electric fixtures where the screw shells of the sockets are connected to the grounded wire of the circuit and in which all wires have an approved insulation and which are permanently and effectively grounded to a separate ground wire not smaller than No. 14.

(b) Fixtures having so-called flat canopies, tops or backs shall not be installed where outlet plates are used.

Note: It is recommended that for all sidewall and partition outlets in concealed work in new buildings under construction outlet boxes having a depth of approximately one and one-half (1½) inches be used.

(c) No externally wired fixture shall be located in the immediate vicinity of especially inflammable material; nor shall any externally wired fixture other than of the chain type be placed in a show window. Armored cord pendants shall be considered to be internally wired fixtures.

(d) Where no gas pipe, conduit or other fitting which will provide proper support is present, the fixture shall be attached to a seven-eighths (⅞) inch block fastened between the studs or floor timbers and flush with the back of the lathing. Where this method cannot be employed, a wooden base block, not less than three-quarters (¾) of an inch in thickness, shall be provided. Such fixture support shall withstand a pull of four hundred (400) pounds.

(e) In cases where insulating joints are used a gas pipe shall be covered with insulating tubing back of the insulating joint or blind hickey. Where outlet tubes are used, they shall be of sufficient length to extend beyond the joint or hickey, and shall be firmly secured in place.

(f) Fixtures shall be so installed that the connections between the fixtures and the branch circuit wires will be easily accessible for inspection without requiring the disconnecting of any portion of the wiring unless the fixture is attached by an approved plugging device.

Sec. D-1404—LAMP SOCKETS AND RECEPTACLES:

(a) Lamp holding devices shall be classed according to the diameters of the lamp bases, as candelabra, medium, and mogul bases, to be known respectively as one-half (½) inch, one (1) inch and one and one-half (1½) inch nominal sizes, with ratings as specified in the following table:

RATINGS

Class	Nominal Diam.	Key			Keyless		
		Watts	Max. amp. at any Volts	Voltage	Watts	Max. amp. at any Volts	Voltage
Candelabra	½ in.	75	125	¾	75	125	1
Medium	1 in.	250	250	2½	660	250	6
	(a)	660	250	6	660	600	
Mogul	1½ in.				1500	250	
	(b)				1500	600	

(a) This rating may be given only to sockets having a switch mechanism which produces both a quick "make" and a quick "break" action.

(b) Rating to be assigned later, pending further discussion with manufacturers.

Miniature sockets and receptacles having screw shells smaller than the candelabra size may be used for decorative lighting systems, Christmas tree lighting outfits, and similar purposes.

Exceptions: Medium base key sockets and receptacles. Small isolated plants.

Note: It is recommended that six hundred and sixty (660) watt sockets and receptacles be used wherever the attachment of flexible cords thereto is likely.

Receptacles for attachment plugs (convenience outlets) are strongly recommended in order to facilitate the use of electrical appliances which otherwise, must be connected to sockets designed primarily only as lamp holders.

(b) The inside of metal shells shall be lined with insulating material, which shall absolutely prevent the shell from becoming a part of the circuit, even though the wires inside the sockets should become loosened or detached from their position under the terminal screws.

(c) The lining shall not extend beyond the metal shell more than one-eighth (⅛) inch, but shall prevent any current-carrying part of the lamp base from being exposed when a lamp is in the socket.

(d) The cap also shall be lined.

Note: In sockets and receptacles of standard forms a ring of any material inserted between an outer metal shell of the device and the inner screw shell for insulating purposes and separable from the device as a whole, is considered an undesirable form of construction. This does not apply where the outer shell is of porcelain, where such rings serve to hold the several porcelain parts together, and are thus a necessary part of the whole structure of the device.

(e) The socket as a whole shall be so put together that parts will not rattle loose or fall apart under the most severe conditions they are likely to meet with in practice. The base of the socket shall be secured or held in the shell in such a manner as to prevent turning or displacement relative to the shell.

(f) Lead wires furnished as a part of sockets and intended to be exposed after installation shall be of approved standard, rubber-covered wire, not less than No. 14 gage (No. 18 gage for candelabra sockets) and shall be sealed in place.

(g) If the socket is not attached to a fixture, the inlet shall be equipped with an approved insulating bushing, which, if threaded, shall not be smaller than three-eighths (⅜) inch in size. The edges of bushings shall be rounded and all inside fins removed in order to provide a smooth bearing surface for the wire.

Note: It is recommended that bushings having holes nine-thirty-seconds ($\frac{9}{32}$) of an inch in diameter be employed with plain pendant cord, and holes fifteen-thirty-second ($\frac{15}{32}$) of an inch in diameter with reinforced cord.

(h) In places where combustible dust is thrown into suspension in the air in sufficient quantities to produce explosive mixtures, dust-tight fixtures enclosing lamps and sockets shall be used. Such fixtures shall be supported by conduit hangers or chains to prevent any strain on the wires. Where rubber-covered wire is used it shall have insulation not less than three-sixty-fourths ($\frac{3}{64}$) of an inch thick.

(i) Sockets and receptacles installed over specially inflammable stuff or where exposed to flyings of combustible material shall be of the keyless type and, unless individual switches are provided, shall be located at least seven and one-half (7½) feet above the floor, or shall be otherwise so located or guarded that the lamps cannot readily be backed out by hand.

(j) Weatherproof sockets, especially approved for the location, shall be employed in damp or wet places or where corrosive vapors exist. If not attached to fixtures, they shall be hung from separate stranded wires not less than No. 14, which are soldered directly to the circuit wires, but supported independently thereof.

Note: It is recommended that these wires be twisted together, if the pendant is longer than three (3) feet.

(k) Where no fitting which will provide proper support is present, the receptacle shall be attached to a block in the manner providing for the support of a fixture under similar conditions.

(l) Flush receptacles shall be enclosed in approved metal boxes in addition to the porcelain enclosure of the receptacle mechanism.

(m) Attachment plugs and receptacles located in floors shall be enclosed in approved metal boxes especially designed for the purpose. Where the location is free from mechanical injury or moisture, a departure from this requirement may be permitted by the Commissioner of Buildings.

Sec. D-1405—ROSETTES:

(a) When designed for use with exposed wiring, rosettes shall be provided with bases which shall have at least two (2) holes for supporting screws, shall be high enough to keep the wires and terminals at least one-half (½) inch from the surface wired over, and shall have a porcelain lug under each terminal to prevent the rosette being placed over projections which would reduce the separation to less than one-half (½) inch.

(b) When designed for use with conduit boxes or wire raceways, rosette bases shall be high enough to keep wires and terminals at least three-eighths (⅜) of an inch from the surface wired over.

(c) Fuseless rosettes shall be rated at six hundred and sixty (660) watts, two hundred and fifty (250) volts, with a maximum current rating of six (6) amperes.

(d) Fused rosettes shall not be used.

DIVISION D—PART FIFTEEN
LAMPS

Sec. D-1501—ARC LAMPS:

(a) Arc lamps shall be equipped only with such resistances or regulators as are enclosed in noncombustible cases, said resistances or regulators shall be treated as sources of heat. An incandescent lamp shall not be used as a resistance or regulator. Economy and compensator coils shall be mounted on noncombustible nonabsorptive insulating supports, such as glass or porcelain, providing an air space is maintained of at least one (1) inch between frame and support. Such coils shall generally be treated as sources of heat.

(b) Arc lamps shall be equipped with globes and spark arresters. The globe shall be guarded by a wire netting having a mesh not exceeding one and one-quarter (1¼) inches. The globe, netting and spark arrester shall not be required where the lamp is of an enclosed type.

(c) Outdoor arc lamps shall be suspended at least nine (9) feet above the sidewalk, and fifteen (15) feet above the street. Indoor arc lamps shall be hung out of reach, or be suitably protected.

(d) Leads to arc lamps shall have a current carrying capacity approximately fifty (50) per cent in excess of the normal current

of the lamp. If the leads are larger than No. 14 and the lamp suspension provides for raising and lowering, the leads shall be composed of stranded wires.

(e) There shall be provided a cutout for each lamp or series of lamps.

Sec. D-1502—MERCURY VAPOR LAMPS:

(a) Enclosed mercury vapor lamps shall be equipped with only such resistances or regulators as are enclosed in noncombustible cases, such resistances or regulators shall be treated as sources of heat. Where these resistances or regulators are subject to flyings of lint or combustible material, all openings in their casings shall be covered by fine wire gauze.

(b) A cutout shall be provided for each enclosed mercury vapor lamp or series of lamps, except where not more than five (5) lamps are contained in a single frame and lighted by a single operation. By permission of the Commissioner of Buildings lamps may be so grouped that not more than four thousand (4,000) watts will be dependent upon one cutout.

(c) Fixtures carrying enclosed mercury vapor lamps shall be wired with insulated conductors not smaller than No. 12. Taps from circuit wires to points of suspension of fixtures shall not exceed eighteen (18) inches in length.

Sec. D-1503—GAS FILLED INCANDESCENT LAMPS:

(a) Gas-filled incandescent lamps shall not be equipped with medium bases if above two hundred and fifty (250) watts rating, nor with mogul bases if above fifteen hundred (1,500) watts rating. They shall not be located in show windows nor where liable to contact with inflammable material unless installed in approved fixtures equipped with shades or guards or suitably designed to operate at a safe temperature.

(b) Indoor fixtures carrying gas-filled incandescent lamps shall be wired with conductors having approved heat resisting insulation. Outdoor fixtures shall be wired with conductors having approved rubber covering.

DIVISION D—PART SIXTEEN
HEATING APPLIANCES

Sec. D-1601—EXCEPTION:

(a) This part shall not be construed to apply to heating appliances intended for use on circuits operating at a potential not exceeding fifty (50) volts.

Sec. D-1602—GENERAL:

(a) Each heating appliance shall be provided with a name-plate, giving the maker's name and the normal capacity in volts and amperes or in volts and watts.

(b) Each smoothing iron, sad iron and other portable heating appliance, which if intended to be applied to combustible material, shall be equipped with an approved stand.

Note: It is strongly recommended that each such heating appliance or group of appliances be used with an approved signal or with an approved protective device.

(c) Wires supplying smoothing irons, sad irons and all portable heating appliances requiring more than two hundred and fifty (250) watts shall conform to the requirements for heater cord, as

prescribed in Part 6 of this Division. Wires supplying stationary heating appliances shall conform to the requirements for rubber-covered wire, as prescribed in Part 6 of this Division; provided, however, that heat-resisting covering shall be used in place of rubber where wires outside the terminal box are subjected to a temperature in excess of one hundred and twenty (120) degrees Fahrenheit (49 degrees C.).

(d) Heating appliances each of six (6) amperes or six hundred and sixty (660) watts or less may be used on branch circuits. Heating appliances each of ten (10) amperes or twelve hundred (1,200) watts or less may be grouped on a special circuit protected by fuses having a rated capacity not greater than fifteen (15) amperes.

(e) Each complete heating appliance, whether containing one or more heating elements which is of more than ten (10) amperes or twelve hundred (1,200) watts total capacity shall be supplied by a separate branch circuit and shall be controlled by an indicating switch located within sight of the appliance and readily accessible, which switch shall disconnect all wires supplying the appliance.

(f) Single pole switches on the individual units of electric ranges, etc., shall not be considered as taking the place of the switch required by this section; but an approved attachment plug and receptacle of not more than thirty (30) amperes rating may serve in lieu of the switch.

(g) Portable heating appliances having a heating capacity not exceeding six (6) amperes or six hundred and sixty (660) watts may be connected individually to lighting circuits.

(h) Subdivided circuits of a stationary heating appliance need not be separately fused.

(i) Each portable heating appliance shall be equipped with an approved plug connector so designed that the plug may be pulled out to open the circuit without leaving any live parts so exposed as to permit accidental contact therewith. The connector may be located at either end of the flexible conductor or inserted in the conductor itself.

Sec. D-1603—STATIONARY HEATING APPLIANCES:

(a) Each heating appliance which is obviously intended by size, weight and service to be secured in a fixed position shall be so placed as to furnish ample protection between the appliance and adjacent combustible material.

(b) Metal frames of stationary heaters, operating on circuits above one hundred and fifty (150) volts to ground shall be grounded; provided, however, that where this is impracticable, grounding may be omitted by permission of the Commissioner of Buildings, in which case the frame shall be permanently and effectively insulated.

Note: It is recommended that the frame be grounded in all cases.

(c) Wires supplying stationary heating appliances shall, if not in conduit, be so located as to be protected from mechanical injury and moisture.

Note: It is recommended that conduit be employed.

DIVISION D—PART SEVENTEEN
RESISTANCE DEVICES

Sec. D-1701—CONSTRUCTION:

(a) Rheostats, resistance boxes and equalizers intended for use in dusty or linty places or where exposed to flyings of combustible

material shall be so constructed as to confine and quickly extinguish any arc or flame caused by the burning out of the resistive conductor and shall be equipped with dust proof face plates. For locations other than those above specified, these devices may be of any approved type.

(b) Reactive coils shall be composed of noncombustible material, mounted on noncombustible bases and treated generally as sources of heat.

(c) Condensers shall be provided with noncombustible cases and supports, and shall be installed in the manner provided for other apparatus operating with equivalent voltages and currents.

(d) Resistance devices shall be so constructed that when mounted on a plane surface the casing will make contact with such surface only at the points of support. An air space of at least one-quarter (¼) of an inch shall be maintained between the casing and the surface.

(e) The terminals of motor-starting rheostats shall be marked to indicate the part of the circuit to which each terminal is to be connected, as "line," "armature" and "field."

(f) Fixed and movable contacts shall be so designed and so connected to the resistive conductor that there will be a minimum of arcing and consequent roughening of the contacts, even with careless handling or in the presence of dirt. In motor starting rheostats, the point or plate on which the arm rests when in the starting position shall have no electrical connection with the resistive conductor.

(g) Motor starting rheostats shall be so designed that the contact arm cannot be left on intermediate segments. Such rheostats, if intended for use on direct current circuits, shall be equipped with automatic devices, which will interrupt the supply before the speed of the motor has fallen to less than one-third its normal value.

(h) Where insulated wire is used for connections between resistance elements and the contact device of a rheostat, except for motor starting service, the insulation shall be of the slow-burning type. For large rheostats and similar resistances where the contact devices are not mounted upon them, the connecting wires having slow burning insulation may be so arranged in groups that the maximum difference of potential between any two (2) wires in any group shall not exceed seventy-five (75) volts. Each group of wires shall either be mounted on non-combustible, non-absorptive insulators giving at least one-half (½) inch separation from the surface wired over, or, especially where it is necessary to protect the wires from mechanical injury, each group of wires may be encased in flexible tubing and placed in approved conduit, the flexible tubing extending at least one (1) inch beyond the ends of the conduit.

Sec. D-1702—INSTALLATION:

(a) Resistance devices shall be placed on a switchboard, or at a distance of at least one (1) foot from combustible material, or shall be separated therefrom by a slab or panel of non-combustible, non-absorptive material, such as slate, soapstone or marble. This slab shall be somewhat larger in area than the resistance device and shall be secured in position by its own supports which shall be independent of those fastening the resistance device, shall be countersunk at least one-eighth (⅛) inch below the rear surface of the slab and shall be covered with insulating material. The slab shall

have a thickness proportioned to the size and weight of the resistance device, in order to provide proper mechanical strength, and this thickness shall be not less than one-half (½) inch.

(b) Where exposed live parts of an autotransformer starter are liable to accidental contact, a railing shall be placed around them.

Sec. D-1703—LAMP RESISTANCES:

(a) Where protective resistances are necessary in connection with automatic rheostats, incandescent lamps may be used, provided they do not carry or control the main current nor constitute the regulating resistance of the device.

(b) When used as resistance, lamps shall be mounted in porcelain receptacles attached to non-combustible supports, and shall be so arranged that they cannot have impressed upon them a voltage greater than that for which they are rated. They shall in all cases be provided with a name plate, which shall be permanently attached beside the porcelain receptacle or receptacles and stamped with the wattage and voltage of the lamp or lamps to be used in each receptacle.

(c) Incandescent lamps may be used for the purpose of resistance in series with other devices by permission of the Commissioner of Buildings and when mounted in porcelain receptacles upon non-combustible supports and when so arranged that they cannot have impressed upon them a voltage greater than that for which they are rated.

DIVISION D—PART EIGHTEEN
STORAGE OR PRIMARY BATTERIES

Sec. D-1801—GENERAL:

(a) Wiring and appliances supplied by storage or primary batteries shall be subject to the general requirements of this Division of this Code, which apply to wiring and appliances fed from generators developing the same difference of potential.

Note: For battery installations for small isolated plants of less than fifty (50) volts, see part (30) of this division.

Sec. D-1802—SPECIAL REQUIREMENTS:

(a) The battery room shall be thoroughly ventilated.

(b) Wiring shall be exposed, and shall be installed in accordance with the requirements of Section D-501 of this Code.

(c) Storage batteries shall be mounted on non-absorptive, non-combustible insulators, such as glass or thoroughly vitrified glazed porcelain.

(d) Metal susceptible to corrosion shall not be employed in the cell connections of storage batteries.

DIVISION D—PART NINETEEN
LIGHTNING ARRESTERS

Sec. D-1901—IN STATIONS:

(a) A lightning arrester shall be connected to each overhead wire entering a station.

(b) Lightning arresters shall be located in readily accessible places, away from combustible materials and as near as practicable to the point where the wires enter the station.

(c) Lightning arresters shall be well isolated from other equipment and, if of the oil-filled type, shall be placed in a fireproof room or compartment.

(d) Lightning arresters shall be grounded as provided in Part 9 of this Division.

(e) All choke coils, or other attachments inherent to the lightning protection equipment, shall have an insulation from the ground or other conductors at least equal to the insulation required at the points of the circuit in the station.

(f) Kinks, coils and sharp bends in the wires between arresters and outdoor lines shall be avoided as far as practicable.

Sec. D-1902—RADIO EQUIPMENT:

See Part 27.

Sec. D-1903—SIGNAL SYSTEMS:

See Part 32.

Sec. D-1904—GROUNDING:

See Section D-903.

DIVISION D—PART TWENTY
CRANES AND HOISTS

Sec. D-2001—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division.

Sec. D-2002—WIRES:

(a) Wires, other than bare collector wires, shall be of approved rubber-covered or slow-burning type.

(b) Rubber-covered wire shall be not smaller than No. 12.

(c) Slow-burning wire shall be employed only between resistance and contact plates of rheostats or where exposed to severe external heat. Wires between resistances and contact plates shall conform to the requirements of Section D-1701, paragraph H, of this Code, except that such wires, if exposed to moisture, shall be of the rubber-covered type.

Sec. D-2003—INSTALLATION OF WIRES:

(a) Exposed wiring, other than collector wires, shall be supported one (1) inch from the surface wired over, two and one-half (2½) inches apart for voltages up to three hundred (300) and four (4) inches apart for voltages between three hundred and one (301) and six hundred (600); provided, however, that in dry places where space is limited each wire may be separately encased in approved flexible tubing securely fastened in place.

Sec. D-2004—COLLECTOR WIRES:

(a) Collector wires shall be secured at the ends by means of approved strain insulators, and shall be so mounted on approved insulators that the extreme limit of displacement of the wire will not bring the latter within less than one and one-half (1½) inches from the surface wired over.

(b) Main collector wires carried along runways shall be rigidly and securely attached to insulating supports placed at intervals not exceeding twenty (20) feet. When run horizontally, such wires shall be separated not less than six (6) inches; when run otherwise, not less than eight (8) inches. Where necessary, intervals between insulating supports may be increased up to forty (40) feet, the separation between wires being increased proportionately.

(c) Bridge collector wires shall be kept at least two and one-half (2½) inches apart and, where the span exceeds eighty (80) feet, insulating saddles shall be placed at intervals not exceeding fifty (50) feet.

Note: It is recommended that the distance between wires be greater than two and one-half (2½) inches, where practicable.

(d) Sizes of collector wire shall conform to the following table:

Distance between Rigid Supports	Size of wire.
0-30 feet	No. 6
31-60 "	No. 4
Over 60 "	No. 2

Sec. D-2005—COLLECTORS:

(a) Collectors shall be so designed as to reduce to a minimum the sparking between them and the collector wire.

Sec. D-2006—SWITCHES AND CUTOUTS:

(a) The main collector wires shall be protected by a cutout, and the circuit shall be controlled by a switch. The cutout and switch shall be so located as to be readily accessible from the floor.

(b) Where cranes are operated from cabs, the cutout and switch specified above shall be inserted in the leads from the main collector wires, and shall be so located in the cab as to be readily accessible to the operator.

(c) Where more than one motor is employed on a crane, each motor with its leads shall be separately protected by an automatic cutout in accordance with the provisions of Parts 8 and 10 of this Division; provided, however, that where two (2) motors operate a single hoist, carriage, truck or bridge and are controlled as a unit by one (1) controller, the pair of motors with their leads may be protected by a single automatic cutout. This cutout shall be located in the cab if there is one.

Sec. D-2007—CONTROLLERS:

(a) If the crane operates over readily combustible material, the resistance shall be placed in a well ventilated cabinet composed of non-combustible material, so constructed that it will not emit flame or molten metal.

Note: If the resistances are located in a cab, this requirement may be met by constructing the latter of non-combustible material enclosing the sides of the cab from the floor to a point at least six (6) inches above tops of resistances.

Sec. D-2008—GROUNDING:

(a) Motor frames, tracks and the entire frame of the crane shall be grounded as prescribed in Part 9 of this Division.

DIVISION D—PART TWENTY-ONE
ELEVATORS

Sec. D-2101—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19 inclusive of this Division.

Sec. D-2102—WIRES AND CABLES:

(a) The flexible or traveling cables of the operating and lighting circuits shall be of approved rubber-covered type, and shall have a substantial flameproof outer covering. They may be run in prop-

erly bushed approved conduit where attached to the car, or may be run exposed and attached directly to the outer surface of the car extending thence to switches or fixtures within the car.

(b) Conductors for lighting cables shall be not smaller than No. 14, and for control cables not smaller than No. 16.

(c) Conductors for lighting cables and control cables where located in shafts shall be encased in approved conduit or armor. Split tees and elbows may be used on conduit work except where the pipe contains feeders.

(d) Signal wires, other than those receiving energy from primary batteries or approved bell transformers shall be encased in approved conduit equipped with approved terminal bushings having an individual outlet hole for each wire.

(e) The wires of motor circuits between motors and control panels may be grouped together without any extra insulation of the separate wires, provided the complete group is either taped or corded and painted in a manner to make the same a rigid, self-supporting form not over three (3) feet long and not in a position liable to mechanical damage or subject to a temperature in excess of one hundred and twenty (120) degrees F. (49 degrees C.).

(f) All wires between main circuit resistances and the back control panels shall each have a flameproof outer covering as prescribed in Section D-1701, paragraph H, of this Code. All other wiring on control panels may be of the rubber-covered type, provided the wires are laid flat against the panel and held in such a manner as to be immovable and free from mechanical injury, and not subjected to a temperature exceeding one hundred and twenty (120) degrees F. (49 degrees C.).

Note: In a few cases it may be necessary to bunch wires of the operating circuit on the rear of the control panel. This is permitted, provided the wires are taped, and painted with an insulating paint.

Sec. D-2103—SWITCHES:

(a) A switch disconnecting all ungrounded wires of the motor circuit shall be located within sight of the motor, unless permission to locate it elsewhere is given by the Commissioner of Buildngs.

(b) In garages, match limit switches and other spark emitting devices shall be placed at least four (4) feet above the line of the lowest floor level.

Sec. D-2104—GROUNDING:

(a) Conduit or armored cable attached to elevator cars need not be grounded.

(b) Motor and motor generator sets mounted on metal beams which form part of the structural metal frame of a building shall be deemed to be grounded.

(c) The shifting cable need not be grounded if provided with approved strain insulators.

DIVISION D—PART TWENTY-TWO
EXTRA HAZARDOUS LOCATIONS

Sec. D-2201—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division.

(b) Extra hazardous locations shall comprise rooms or compartments in which highly inflammable gases, liquids, mixtures or other substances are manufactured, used or stored in other than original containers.

Note: See also—

Motors in the presence of combustible dust, section D-1003, paragraphs B and C. Sockets and receptacles over specially inflammable stuff. Section D-1404, paragraphs H and I. Externally wired fixtures in the presence of especially inflammable material, Section D-1403, paragraph C.

Sec. D-2202—WIRING:

(a) Armored cable or conduit shall be employed as the wiring method.

Sec. D-2203—ENCLOSURE OF LAMPS AND DEVICES:

(a) Lamps shall be enclosed in guarded vaporproof globes.

(b) Devices and apparatus which tend to create sparks or arcs and thus ignite the highly inflammable contents shall not be placed in extra hazardous locations unless such devices and apparatus are of the totally enclosed type, especially approved for the location.

Sec. D-2204—SPECIAL PRECAUTIONS:

(a) Switches and motors shall not be located under any hood or in any vent pipe.

DIVISION D—PART TWENTY-THREE
GARAGES

Sec. D-2301—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division.

(b) A garage shall be deemed to be a building or portion of a building in which one (1) or more self-propelled vehicles carrying volatile, inflammable liquid for fuel or power are kept for use, sale, storage, rental, repair, exhibition or demonstration purposes, and all that portion of a building which is on or below the floor or floors on which such vehicles are kept and which is not separated therefrom by tight, unpierced fire walls and fire doors.

Sec. D 2302—WIRING:

(a) Where the floor area is sufficient to permit the storage of more than two (2) vehicles, approved conduit or approved armored cable shall be employed as the wiring method; provided, however, that approved metal moulding may be employed in offices and show rooms. Where the floor space will accommodate not more than two (2) vehicles, any approved wiring method may be employed.

(b) Outlet and junction boxes shall be located at least four (4) feet above the floor.

(c) Approved reinforced cord shall be used for pendant lamps.

Sec. D-2303—PORTABLES:

(a) Approved portable cord designed for rough usage, such as hard service cord, stage cable or packinghouse cord shall be used to connect portable lamps, motors, or other appliances. The portable cord shall carry the male end of an approved pin-plug connector or equivalent, the female end being of such design or so hung that the connector will break apart readily at any position of

the cable. The connector shall be kept at least four (4) feet above the floor.

(b) Portable lights shall be equipped with approved keyless sockets of moulded composition or metal sheathed porcelain type, the socket being provided with handle, hook and substantial guard.

Sec. D-2304—CHARGING CABLES:

(a) Approved stage cable shall be used for charging purposes.

(b) Connectors shall be of approved type and of at least fifty (50) amperes capacity, and shall be so designed or so hung that at least one (1) will break apart readily at any position of the cable. Live parts shall be guarded from accidental contact. The fixed, or wall, connector shall be kept at least four (4) feet above the floor and, if not located on a switchboard or changing panel, shall be guarded from accidental contact.

Sec. D-2305—SWITCHBOARDS AND CHARGING PANELS:

(a) Where spark producing devices are not located at least four (4) feet above the floor or placed in vapor proof enclosures, switchboards and charging panels shall be located in a room or inclosure provided for the purpose.

Sec. D-2306—GENERATORS AND MOTORS:

(a) Generators or motors which do not actually form part of the vehicle equipment shall be of the totally enclosed type, or located at least four (4) feet above the floor when the motor is located more than four (4) feet above the floor and is not of the totally enclosed type, it shall be equipped with wire screens of not less than No. 14 mesh, placed over openings at the commutator end.

Sec. D-2307—SPECIAL PRECAUTIONS:

(a) Cutouts, switches and receptacles shall be placed at least four (4) feet above the floor. Cutouts and switches attached to portable apparatus shall be placed in approved cabinets.

(b) Cutouts and switches shall be enclosed in approved boxes or cabinets unless placed on switchboards or charging panels in the manner prescribed in Section D-2305 above.

(c) Hatch limit switches of elevators shall be located at least four (4) feet above the lowest floor level.

(d) Where fireproof garages are constructed with more than one floor and an approved vehicle ramp connects all floors, the electrical switches, cutouts and other equipment may be placed closer than four feet to the floor on all floors above the first floor and basement, providing the method of installation is approved by the Commissioner of Buildings.

DIVISION D—PART TWENTY-FOUR
MOTION PICTURE STUDIOS AND FILM VAULTS

Sec. D-2401—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive of this division, and Section 507 of Division A.

(b) A motion picture exchange, factory, laboratory or studio shall be deemed to be that building or portion of a building in which closed in approved outlet boxes equipped with open-end guards riveted rewound, repaired, stored, etc.

Sec. D-2402—WIRING:

(a) Approved conduit, metal raceway or armored cable shall be employed as the wiring method.

(b) Side wall lamp outlets shall consist of receptacles enclosed in approved outlet boxes equipped with open-end guards riveted to the covers of the boxes.

(c) Pendant lamps shall be suspended by means of approved reinforced cords, armored cord or armored cable and shall be protected by substantial wire guards.

(d) Each lamp portable shall be composed of approved hard service flexible cord, approved composition or approved metal-sheathed porcelain keyless socket, handle, hook and substantial guard. The cord shall carry the male end of an approved pin plug connector or equivalent, the female end being of such design or so hung that the connector will break apart readily at any position of the cord. The connector shall be kept at least one (1) foot above the floor.

(e) At patching tables, approved composition or metal-sheathed porcelain keyless sockets shall be employed and shall be equipped with suitable means to guard lamps from mechanical injury.

(f) In film storage vaults lamps shall be installed on rigid fixtures and inclosed in vaporproof globes. Such lamps shall be controlled by a double pole switch, located outside the vault. Electrical motors or portable lamps shall not be placed in the vault.

(g) Motors shall be of the enclosed type. Rheostats shall be placed in cabinets which enclose all live parts, leaving only the operating handles exposed.

DIVISION D—PART TWENTY-FIVE
MOTION PICTURE PROJECTORS AND EQUIPMENT

Ses. D-2501—GENERAL:

See Part (10) Division A.

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive of this Division.

(b) The so-called professional types of projectors, such as are commonly used in theaters and motion picture houses, shall be located in fireproof booths.

Note: The professional projector employs a film which is one and three-eighths (1⅜) inches wide and has on each edge 5.4 perforations per inch.

(c) Projectors of the non-professional or miniature type, if employing only approved slow burning (cellulose acetate or equivalent) film, may be operated without a booth.

Sec. D-2502—PROJECTORS OF PROFESSIONAL TYPE:

(a) The arc lamp house shall be composed entirely of metal having a thickness not less than No. 24 U. S. sheet metal gage (0.25 inch) except where the use of approved insulating material is necessary. Details of construction shall conform to the requirements of section D-1501, of this Code. An incandescent lamp inclosure shall conform to the above requirements so far as may be practicable.

(b) Wires not smaller than No. 4 shall be employed to supply the projector outlet.

(c) Rheostats, transforming devices and any substitute therefor, shall be of types expressly designed and approved for the purpose. They shall be judged as component parts of the projector equipment as to installation and location.

(d) Top and bottom magazines shall be so designed in some approved manner as to prevent the entrance of flame. No solder shall be used in their construction. The front side of each magazine shall consist of a door swinging horizontally and equipped with a substantial latch.

(e) An automatic shutter shall be provided and permanently attached to the gate frame. The construction of the shutter shall be such as to shield the film from the beam of light whenever the film is not running at operating speed.

(f) Motor-driven projectors shall be of a type expressly designed and approved for such operation. Such projectors shall be used only by permission of the Commissioner of Buildings, and when the projector is in charge of a qualified operator.

Sec. D-2503—ENCLOSURES FOR PROJECTORS OF PROFESSIONAL TYPE:

(See Sec. A-1009.)

(a) The enclosure shall be constructed of suitable fireproof material, shall be properly lighted and shall be large enough to permit the operator to walk freely on either side of or back of the projector.

Note: It is recommended that two (2) inches of approved lath and plaster be used.

(b) Ventilation shall be provided by means of two (2) vent pipes having a cross-sectional area of not less than one hundred (100) square inches for each vent and such vent pipes shall lead to the outside of the building or to a special non-combustible flue. The vent pipes shall be kept at least one (1) inch from combustible material or separated therefrom by approved non-combustible, heat-insulating material not less than one-half (½) inch in thickness.

(c) A draft in one vent pipe shall be maintained by an exhaust fan having a capacity of at least fifty (50) cubic feet per minute. The fan motor shall be so installed that fumes passing through the flue cannot come in contact with it, shall be connected to the emergency service and shall not be controlled from the booth.

(d) Openings in the enclosure shall be equipped with doors or shutters of fire resisting material equivalent to that of the enclosure. Such door or shutter shall entirely close its opening, and shall be arranged to be held in the closed position by spring hinges or equivalent devices.

(e) Rewinding of films shall be performed in the enclosure if practicable; otherwise, in a separate fireproof room provided for the purpose. Extra films shall be kept in individual metal boxes having tight fitting covers. Reels carrying films under examination or in process of rewinding shall be enclosed in magazines or approved metal boxes similar to those of the projector, and not more than two (2) feet of film shall be exposed.

(f) A motor-generator installed in the projector enclosure shall have the commutator end or ends suitably protected from mechanical injury by wire screens or other suitable means.

Sec. D-2504—PROJECTORS OF NON PROFESSIONAL TYPE:
(a) Motion picture projecting machines not intended for installation and use in permanent and ventilated booths shall be permitted only for projecting film of an approved slow burning (cellulose acetate or equivalent) type.
Exception: Class D Buildings.
(b) All such equipment shall be expressly approved including current controlling devices and other essential operating parts.
(c) The source of illumination of the projected view shall be an incandescent lamp of a pattern expressly intended for stereopticon use or for motion picture projection.
(d) Rheostats, transformers, switches and other current controlling devices shall be attached to and form an integral part of the projector or its housing and shall have no live parts exposed.
(e) The slow burning (cellulose acetate or equivalent) film shall have a permanent distinctive marker for its entire length identifying the manufacturer and the slow burning character of the film stock.
(f) Machines shall be marked with the name or trademark of the maker, and with the voltage and current rating for which they are designed, and shall also be plainly marked, "For use with slow burning films only."

DIVISION D—PART TWENTY-SIX
ORGANS

Sec. D-2601—GENERAL:
(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division. They shall be deemed to apply to those electrical circuits and parts of electrically operated organs which are employed for the control of the sounding apparatus keyboards.

Sec. D-2602—SOURCE OF ENERGY:
(a) The source of energy shall be either a self exciting generator rated at not over fifteen (15) volts, or a primary battery.
(b) The generator shall either be permanently and effectively insulated both from ground and from the motor driving it, or both generator and motor frames shall be grounded as prescribed in Part 9 of this Division.

Sec. D-2603—CABLES:
(a) All wires except common return wires inside the organ proper, the organ sections and the organ console, shall be cabled.
(b) The separate wires of the cable shall be not smaller than No. 26 and shall have either rubber, cotton or silk insulation. The cotton or silk may be saturated with paraffine, if desired.
(c) The separate wires shall be either bunched or cabled. In either event they shall be enclosed in one or more braided outer coverings. A tape may be substituted for an inner braid. The outside covering of a cable not run in conduit shall either be flameproof, or covered with a closely wound fireproof tape.
(d) The common return wire shall be not smaller than No. 14, shall be of either the rubber covered or the slow burning type and shall not be contained in the cable. It may be run in contact with the cable or placed under an additional covering enclosing both cable and return wire.

Sec. D-2604—WORKMANSHIP AND MATERIAL:

(a) All wiring and devices within the organ or any of its parts shall be neatly disposed and securely fastened.

Note: It is not found to be either necessary or feasible in organ structures to require the use of noncombustible, nonabsorptive insulating material for the supports or enclosures of current carrying parts.

(b) Cables between parts of the organ and between the console and the organ shall be installed in a workmanlike manner, shall be securely fastened in position and shall be kept from contact with other wires. Conduit may be used, but shall not be required.

Sec. D-2605—FUSES:

(a) Circuits shall be so divided and protected at the source by approved enclosed fuses of not over thirty (30) amperes rating that every wire will be protected by one (1) or more such fuses. No other fuses in the organ circuit shall be required.

DIVISION D—PART TWENTY-SEVEN
RADIO EQUIPMENT

Sec. D-2701—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive of this Division.

(b) Transformers, voltage reducers, keys and other devices employed shall be of types expressly approved for radio operation.

Sec. D-2702—FOR RECEIVING STATIONS ONLY:

(a) Antenna and counterpoise outside buildings shall be kept well away from all electric light or power wires of any circuit of more than six hundred (600) volts, and from railway, trolley or feeder wires, so as to avoid the possibility of contact between the antenna or counterpoise and such wires under accidental conditions.

(b) Antenna and counterpoise where placed in proximity to electric light or power wires of less than six hundred (600) volts, or signal wires, shall be constructed and installed in a strong and durable manner, and shall be so located and provided with suitable clearance as to prevent accidental contact with such wires by sagging or swinging.

(c) Splices and joints in the antenna span shall be soldered unless made with approved splicing devices.

(d) The preceding paragraphs A, B and C shall not apply to light and power circuits used as radio receiving antenna, but the devices used to connect the light and power wires to radio receiving sets shall be of an approved condenser type.

(e) Lead-in conductors shall be of copper, approved copper-clad steel or other metal which will not corrode excessively, and in no case shall they be smaller than No. 14, except that bronze or copper-clad steel not less than No. 17 may be used.

(f) Lead-in conductors on the outside of buildings shall not come nearer than four (4) inches to electric light and power wires unless separated therefrom by a continuous and firmly fixed nonconductor which will maintain permanent separation. The nonconductor shall be in addition to any insulating covering on the wire.

(g) Lead-in conductors shall enter the building through a noncombustible, non-absorptive insulating bushing slanting upward toward the inside.

(h) Each lead-in conductor shall be provided with an approved protective device (lightning arrester) which will operate at a voltage of five hundred (500) volts or less, properly connected and located either inside the building at some point between the entrance and the set which is convenient to a ground, or outside the building as near as practicable to the point of entrance. The protector shall not be be placed in the immediate vicinity of easily ignitable stuff, or where exposed to inflammable gases or dust or flyings of combustible materials.

(i) If an antenna grounding switch is employed, it shall, in its position form a shunt around the protective device. Such a switch shall not be used as a substitute for the protective device.

Note: It is recommended that an antenna grounding switch be employed, and that in addition a switch rated at not less than thirty (30) amperes, two hundred and fifty (250) volts, be located between the lead-in conductor and the receiver set.

(j) If fuses are used, they shall not be placed in the circuit from the antenna through the protective device to ground.

Note: Fuses are not required.

(k) The protective grounding conductor may be bare and shall be of copper, bronze or approved copper-clad steel. The grounding conductor shall be not smaller than No. 17 if of bronze or copper-clad steel. The grounding conductor shall be run in as straight a line as possible from the protective device to a good permanent ground. Preference shall be given to water piping. Other permissible grounds are grounded steel frames of buildings or other grounded metal work in the building, and artificial grounds such as driven pipes, rods, plates, cones, etc. Gas piping shall not be used for the ground.

(l) The protective grounding conductor shall be guarded where exposed to mechanical injury. An approved ground clamp shall be used where the grounding conductor is connected to pipes or piping.

(m) The grounding conductor may be run either inside or outside the building. The protective grounding conductor and ground, installed as prescribed in the preceding paragraphs K and L, may be used as the operating ground.

Note: It is recommended that in this case the operating grounding conductor be connected to the ground terminal, of the protective device.

If desired, a separate operating grounding connection and ground may be used, the grounding conductor being either bare or provided with an insulating covering.

(n) Wires inside buildings shall be securely fastened in a workmanlike manner and shall not come nearer than two (2) inches to any electric light or power wire not in conduit unless separated therefrom by some continuous and firmly fixed non-conductor, such as porcelain tubes or approved flexible tubing, making a permanent separation. This non-conductor shall be in addition to any regular insulating covering on the wire. Storage battery leads shall consist of conductors having approved rubber insulation.

Note: It is recommended that the circuit from the storage battery be properly protected by fuses as near as possible to the battery.

Sec. D-2703—FOR TRANSMITTING STATIONS ONLY:

(a) Antenna and counterpoise outside buildings shall be kept well away from all electric light or power wires of any circuit of more than six hundred (600) volts and from railway, trolley or feeder wires, so as to avoid the possibility of contact between the antenna or counterpoise and such wires under accidental conditions.

(b) Antenna and counterpoise where placed in proximity to electric light or power wires of less than six hundred (600) volts, or signal wires, shall be constructed and installed in a strong and durable manner, and shall be so located and provided with suitable clearance as to prevent accidental contact with such wires by sagging or swinging.

(c) Splices and joints in the antenna and counterpoise span shall be soldered unless made with approved splicing devices.

(d) Lead-in conductors shall be of copper, bronze, approved copper-clad steel or other metal which will not corrode excessively and in no case shall be smaller than No. 14.

(e) Antenna and counterpoise conductors and wires leading therefrom to the ground switch, where attached to buildings, shall be firmly mounted five (5) inches clear of the surface of the building, on non-absorptive insulating supports such as treated pins or brackets, equipped with insulators having not less than five (5) inches creepage and air-gap distance to inflammable or conductive material. Suspension type insulators may be used.

(f) In passing the antenna or counterpoise lead-in into the building a tube or bushing of non-absorptive insulating material, slanting upward toward the inside, shall be used and shall be so insulated as to have a creepage and air-gap distance of at least five (5) inches to any extraneous body. If porcelain or other fragile material is used it shall be protected where exposed to mechanical injury. A drilled window pane may be used in place of a bushing, provided five (5) inches creepage and air-gap distance is maintained.

(g) A double-throw knife switch having a break distance of at least four (4) inches and a blade not less than one-eighth (⅛) inch by one-half (½) inch shall be used to join the antenna and counterpoise lead-in to the grounding conductor. The switch may be located inside or outside the building. The base of the switch shall be of non-absorptive insulating material. This switch shall be so mounted that its current carrying parts will be at least five (5) inches clear of the building wall or other conductors. The conductor from grounding switch to ground shall be securely supported.

Note: It is recommended that the switch be located in the most direct line between the lead-in conductors and the point where grounding connection is made.

(h) Antenna and counterpoise conductors shall be effectively and permanently grounded at all times when the station is not in actual operation and unattended, by a conductor at least as large as the lead-in and in no case smaller than No. 14, copper, bronze or approved copper-clad steel. This grounding conductor need not have an insulated covering or be mounted on insulating supports. The grounding conductor shall be run in as straight a line as possible to a good permanent ground. Preference shall be given to water piping. Other permissible grounds are the grounded steel frames of buildings and other grounded metal work in buildings and artificial

grounding devices such as driven pipes, rods, plates, cones, etc. The grounding conductor shall be protected where exposed to mechanical injury. A suitable approved ground clamp shall be used where the ground conductor is connected to pipes or piping. Gas piping shall not be used for the ground.

Note: It is recommended that the protective grounding conductor be run outside the building.

(i) The radio-operating grounding conductor shall be of copper strip not less than three-eighths (⅜) inch wide by one-thirty-second (1/32) of an inch thick, or of copper, bronze, or approved copper-clad steel having a periphery, or girth, of at least three-quarters (¾) of an inch such as No. 2 wire, and shall be firmly secured in place throughout its length.

(j) The operating grounding conductor shall be connected to a good permanent ground. Preference shall be given to water piping. Other permissible grounds are grounded steel frames of buildings or other grounded metal work in the building, and artificial grounding devices such as driven pipes, rods, plates, cones, etc. Gas piping shall not be used for the ground.

(k) When the current supply is obtained directly from lighting or power circuits, the conductors shall be installed in approved metal conduit, armored cable or metal raceways, even if lead covered wire is used.

(l) In order to protect the supply system from high potential surges and kick-backs there shall be installed in the supply line as near as possible to each radiotransformer, rotary spark gap, motor and generator or motor generator sets and other auxiliary apparatus one of the following.

(1) Two (2) condensers (each of not less than one-half (½) microfarad capacity and capable of withstanding six hundred (600) volts test) in series across the line with a mid-point between the condensers grounded; across (in parallel with) each of these condensers shall be connected a shunting fixed spark-gap capable of not more than one-thirty-second (1/32) inch separation.

(2) Two (2) vacuum tube type protectors in series across the line with the mid-point grounded.

(3) Resisters having practically zero inductance connected across the line with the mid-point grounded.

Note: It is recommended that this third method be not employed where there is a circulation of power current between the mid-point of the resisters and the protective ground of the power or circuit.

(4) Electrolytic lighting arresters such as the aluminum cell type.

DIVISION D—PART TWENTY-EIGHT
SIGNS AND OUTLINE LIGHTING

Sec D-2801—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division and Part 4 of Division B.

Sec D-2802—MATERIAL:

(a) Metal used in the construction of sign boxes, cabinets or outline troughs shall be not less than No. 28 U. S. sheet metal gage

Sec. D-2910—PORTABLE CONDUCTORS:

(a) Pin-plug connectors shall be so designed that tension on the cable will not cause serious mechanical strain on the connections. The female half shall be attached to the live end of the cable.

(b) Flexible conductors used for receptacles to arc lamps, bunches or other portable equipments shall be approved stage cable except that for the purpose of feeding a stand lamp under conditions where conductors are not liable to severe mechanical injury, an approved reinforced cord may be used, provided cutout designed to protect same is not fused over fifteen (15) amperes capacity.

Sec. D-2911—LIGHTS ON SCENERY:

(a) Brackets shall be wired internally, and the fixture stem shall be carried through to the back of the scenery, where a suitable bushing shall be placed on the end of the stem. Fixtures shall be securely fastened in place.

Sec. D-2912—STRING OR FESTOONED LIGHTS:

(a) Joints in wiring shall be staggered where practicable.

(b) Lamps enclosed in lanterns or similar devices shall be equipped with approved guards.

Sec. D-2913—SPECIAL ELECTRICAL EFFECTS:

(a) Devices used for simulating lightning, waterfalls, etc., shall be so constructed and located that flames, sparks, etc., cannot come in contact with combustible material.

DIVISION D—PART THIRTY
SMALL ISOLATED PLANTS

Sec. D-3001—GENERAL:

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division.

(b) This part shall be deemed to apply particularly to isolated plants which employ as their prime mover a stationary internal-combustion engine, with its necessary fittings, connected to an electric generator either with or without an auxiliary storage battery with its control devices, and operating at a potential of less than fifty (50) volts.

(c) Attention shall be given to the relatively low voltage at which these plants operate, thus requiring a greater current for equivalent energy and making necessary a greater ampere capacity of conductors, fittings, devices and appliances, as compared with those of the standard zero to six hundred (0-600) volt classification used on commercial circuits.

Sec. D-3002—SOCKETS AND RECEPTACLES:

(a) Lamp sockets and receptacles shall be of the two hundred and fifty (250) volt, two hundred and fifty (250) watt classification and shall be rated at not over three and one-half (3½) amperes.

(b) Lamp sockets and receptacles shall be rated at not less than forty (40) watts each, for purposes of installation.

Sec. D-3003—AUTOMATIC CUTOUTS:

(a) Fuses shall be so placed that no set of small motors, small heating appliances or incandescent lamps, nor more than eight (8) lamp sockets or receptacles, requiring more than three hundred and twenty (320) watts, shall be dependent upon one (1) cutout.

(b) The fuses in the branch circuit shall not exceed ten (10) amperes rating.

which are placed at intervals not exceeding one (1) foot, the receptacles themselves shall be considered to afford the necessary support and spacing of the wires. Where the interval between receptacles exceeds one (1) foot but is less than two (2) feet, an additional noncombustible, non-absorptive insulator maintaining a separation and spacing equivalent to the receptacle shall be used.

(c) Where flexible tubing must be employed in outline lighting, the ends shall be sealed and painted with a moisture repellant and the tubing shall be kept at least one-half (½) inch from the surface wired over.

Sec. D-2806—GROUNDING:

(a) Troughs used for outline lighting shall be grounded as provided in Part 9 of this Division.

DIVISION D—PART TWENTY-NINE
THEATERS—INCLUDING MOTION PICTURE HOUSES—PUBLIC ASSEMBLY

Sec. D-2901—GENERAL: (See Parts 5 and 10, Division A.)

(a) The requirements of this Part shall be deemed to be additional to, or amendatory of, those prescribed in Parts 1 to 19, inclusive, of this Division.

(b) Emergency lights shall be deemed to be exit lights and all lights in lobbies, stairways, corridors and other portions of the theater or public assemblies to which the public has access, which are normally kept lighted during the performance.

Sec. D-2902—SERVICES:

(a) Where the supply can be obtained from two (2) separate street mains, two (2) separate and distinct services shall be installed, one (1) service being of sufficient capacity to supply current for the entire equipment of the theater, the other service being of sufficient capacity to supply current for all emergency lights.

(b) Where the supply cannot be obtained from two (2) separate sources, the feed for the emergency lights shall be taken from a point on the street side of the main service fuses. By "emergency lights" are meant exit lights and all lights in lobbies, stairways, corridors and other portions of the theater or public assemblies to which the public have access, which are normally kept lighted during the performance.

(c) Where the source of supply is an isolated plant located in the building, an auxiliary service of capacity sufficient to supply all emergency lights shall be obtained from some outside source, or from an adequate storage battery installed upon the premises.

Sec. D-2903—AUDITORIUM:

(a) Approved conduit, metal raceway or armored cable shall be employed as the wiring method.

(b) Receptacles shall be inclosed in boxes.

(c) Not more than one (1) set of fuses shall be interposed between service fuses and exit lights.

(d) Emergency lights shall not be connected to or controlled by the stage control, but from the lobby or other convenient place in the front of the theater.

(e) All fuses shall be inclosed in approved cabinets.

Sec. D-2904—STAGE:

(a) Approved conduit or armored cable shall be employed as the wiring method.

(b) The switchboard shall be of the dead-front type, and shall carry a metal hood running the full length of the board and protecting the latter from falling objects.

(c) Dimmers shall be so connected that they will be dead when their respective current switches are open.

(d) Footlights shall be wired by either the conduit or the armored cable method, receptacles being inclosed in approved boxes, or the wires shall be encased in metal trough composed of No. 20 U. S. sheet metal gage (.375 inch), treated to prevent oxidation. Conductors shall be soldered to receptacle terminals, which shall be kept at least one-half (½) inch from the metal of the trough.

(e) Footlights, border lights and proscenium sidelights shall be so wired that the number of outlets and the lamps connected to them shall in no case be such as to place more than fifteen (15) amperes on a branch circuit fuse.

(f) Borders and proscenium sidelights shall be constructed as prescribed in paragraph D of this section, shall be suitably stayed and supported, and shall be so designed that the flanges of the reflectors or other adequate guards will protect the lamps from mechanical injury and from accidental contact with scenery or other combustible material.

(g) Border cables shall be of approved type and suitably supported. They shall be employed only where flexibility is required.

(h) Approved slow-burning wire shall be used for wiring the border.

(i) Borders shall be suitably suspended. If wire rope is used each length shall be insulated by at least one (1) strain insulator, placed close to the border.

(j) Stage and gallery pockets shall be approved type, insulated from ground and controlled from the switchboard. Feeds for arc pockets shall be not smaller than No. 6, and the receptacles shall have a capacity of not less than thirty-five (35) amperes. Feeds to pockets shall be of ample size to supply all receptacles therein at full rating. Plugs for arc and incadescent pockets shall not be interchangeable.

(k) Lamps installed in scene docks shall be so located and guarded as to be free from mechanical injury.

(l) Curtain motors shall be of the inclosed type.

(m) Where stage flue dampers are released by an electrical device, the circuit operating the latter shall be normally closed, and shall be controlled by at least two (2) approved single pole switches enclosed in approved iron boxes having self-closing doors without locks or latches, one (1) switch being placed at the electrician's station and the other where designated by the Commissioner of Buildings. The device shall be designed for the full voltage of the circuit to which it is connected, no resistance being inserted. It shall be located in the loft above the scenery and shall be inclosed in a suitable iron box having a tight, self-closing door.

Sec. D-2905—DRESSING ROOMS:

(a) Approved conduit or armored cable shall be employed as the wiring method.

(b) Pendants for lights shall be composed of approved reinforced cord, armored cable or armored cord.

(c) Lamps shall be protected by approved guards sealed or locked in place.

Sec. D-2906—PORTABLE ARC LAMPS:

(a) Arc lamps shall be substantially constructed entirely of metal not less than No. 20 U. S. sheet metal gage (.0375 inch), except where approved insulating material is necessary. The design shall be such as to provide proper ventilation while retaining sparks, and to prevent carbon or other live parts of lamp from making contact with metal of hood.

(b) Hoods for other than lens lamps shall have the front opening equipped with a self-closing hinged door frame carrying either wire gage or glass. Hoods for lens lamps may have a stationary front, and a solid door on either back or side.

(c) Mica shall be used for the insulation of the lamp frame.

(d) Arc lamp frames and standards shall be so installed and guarded as to prevent their becoming grounded.

(e) The switch on the standard shall be of such design that accidental contact with any live part will be impossible.

(f) Stranded connections in lamps at switch and rheostat shall be provided with approved lugs.

(g) Rheostats shall be enclosed in a substantial properly ventilated metal case affording a clearance of at least one (1) inch between case and resistance element. If the rheostat is mounted on the standard, a clearance of three (3) inches above the floor shall be maintained.

(h) A qualified operator shall be employed for each lamp, or for each two (2) lamps not more than ten (10) feet apart and so placed that one operator can properly watch and care for both.

Sec. D-2907—PORTABLE BUNCHES:

(a) Substantial metal shall be employed and the wiring shall not be exposed.

(b) Where the cable passes through the metal an approved bushing shall be employed and the cable shall be so anchored as to relieve the connections of any mechanical strain.

Sec. D-2908—PORTABLE STRIPS:

(a) Portable strips shall conform to the requirements of paragraphs D, E, and F of section 2904, of this Division.

(b) Where the cable passes through the metal an approved bushing shall be employed, and the cable shall be so anchored as to relieve the connections of serious mechanical strain.

Sec. D-2909—PORTABLE PLUGGING BOXES:

(a) The construction shall be such that no current-carrying part will be exposed.

(b) Each receptacle shall have a current carrying capacity of thirty (30) amperes, and shall be protected by approved fuses mounted on slate or marble bases enclosed in a fireproof cabinet equipped with self-closing doors.

(c) Bus bars shall have a current carrying capacity equal to the sum of the ampere rating of all the receptacles. Approved lugs shall be provided for the connection of the master cable.

wires are completely enclosed in metal. Where the fixture is externally wired, wires shall be secured in a manner which will not tend to cut or abrade the insulation, and the same shall be protected from abrasion where they pass through sheet metal pans, canopies, etc. No splice or tap shall be located within an arm or a stem.

Note: It is recommended that an approved splicing device or approved plug connections be used for attaching the fixture wires to the circuit wires.

(b) Each fixture shall be so wired that all screw shells of sockets will be connected to the same fixture stem wire, or supply wire, or terminal in the fixture, and this wire or terminal shall be marked in an approved manner by which it may be readily distinguished. The marked wire shall in all cases be the grounded wire.

(c) Chain fixtures shall be wired with flexible conductors so arranged that the weight of the fixture will not put tension on the conductors.

(d) Approved fixture wire, approved flexible cord or approved rubber-covered wire shall be employed, unless the wiring is exposed to temperatures in excess of one hundred and twenty (120) degrees Fahrenheit (49 degrees C.) in which case conductors having slow-burning or other heat resisting covering shall be used. Fixtures intended for outdoor use shall be wired with approved rubber-covered conductors. Wires shall always be so disposed as to avoid exposure to high temperatures as far as practicable. Fixtures intended for use in rooms where inflammable gases may exist shall consist of rigid stems, internally wired with approved rubber-covered conductors, soldered directly to the circuit, and shall be equipped with vapor tight globes.

(e) Fixture wires or the individual conductors of flexible cords used where the voltage between any two (2) conductors or between any conductor and the ground is over three hundred (300) volts, shall have insulation at least three-sixty-fourths ($\frac{3}{64}$) of an inch in thickness for sizes No. 8 and smaller.

(f) Wires of different systems shall not be contained in or attached to a fixture; nor shall electric gas lighting wiring, other than for the frictional system, be attached thereto.

(g) All wiring shall be free from short circuits and grounds, and shall be tested for these defects prior to being connected to the circuit.

Sec. D-1403—INSTALLATION OF FIXTURES:

(a) Fixtures shall be insulated from their supports by approved insulating joints, placed as close as possible to the ceiling or wall, except under the following conditions, where both insulating joint and canopy insulator may be omitted:

(1) Straight electric fixtures connected to knob-and-tube work, wooden raceways or open work, except on metal ceilings or on plaster walls or ceilings containing metal lathing.

(2) Straight electric fixtures where the screw shells of the sockets are connected to the grounded wire of the circuit and in which all wires have an approved insulation and which are metallically connected in a permanent and effective manner to metal conduit, armored cable or metal raceway systems or to gas piping, provided such gas piping is grounded in the manner prescribed in Part 9 of this Division.

Sec. D-3004—BATTERIES:

(a) Batteries shall be located in rooms or spaces having natural means of ventilation.

(b) Battery jars and cells, if not composed of insulating material such as glass or hard rubber, shall be mounted on insulating supports of glass or porcelain.

Sec. D-3005—GROUNDING:

(a) The grounding of circuits or equipment shall not be required.

DIVISION D—PART THIRTY-ONE
SYSTEMS AND VOLTAGES OF OVER 600 VOLTS

Sec. D-3101—SERIES ARC LIGHTING:

(a) Constant current systems shall not be installed in buildings, except by permission of the Commissioner of Buildings.

(b) Wires shall be of approved rubber-covered type and shall be kept in plain sight except where the Commissioner of Buildings requires that they be encased.

(c) Wires shall be supported on glass or porcelain insulators which rigidly separate the wires at least eight (8) inches and maintain them at least one (1) inch from the surface wired over. This requirement shall not apply to locations where such separations are impracticable, as inside lamps, on hanger boards, etc.

(d) Wires on side walls shall be encased in a boxing as provided in Section D-501, paragraph O, of this Code.

(e) Wires crossing floor timbers in cellars or rooms where they might be exposed to injury shall be installed on running boards or protected by guard strips as provided in Section D-501, paragraph M, of this Code.

(f) The service shall enter through an approved double-contact switch, mounted in a moisture proof non-combustible case, so located as to be readily accessible to police or firemen. This switch shall be of the indicating type, shall close the main circuit and disconnect the branch wires when turned "off' and shall be so designed that it will automatically continue its action when once started. It shall prevent an arc between the points under all circumstances.

(g) Arc lamps shall conform generally to the requirements of Part D-1501, of this Code. When hanger boards are not used, lamps shall be hung from insulating supports other than their conductors.

(h) Incandescent lamps shall be suspended from hanger boards by rigid pipes, and shall not be attached to gas fixtures. Each lamp shall be provided with an automatic cutout. No electromagnetic switching device shall be employed, nor shall the lamps be connected in multiple-series or series-multiple.

Sec. D-3102—VACUUM TUBE SYSTEMS:

(a) The tube shall be so installed as to be free from mechanical injury or contact with inflammable material. Coils and regulating apparatus shall be mounted on a slate base and enclosed in well ventilated, grounded, approved steel cabinet having walls not less than one-tenth (1/10) inch in thickness, the ventilation being so designed as to prevent the emission of flame or sparks.

(b) Wiring leading to the above cabinet shall conform to the requirements of Part 5 of this Division, if such wire operates at a potential not exceeding three hundred (300) volts.

Sec. D-3103—WIRING:

(a) Wires operating at a potential exceeding five thousand (5,000) volts shall not be installed in or above buildings other than central stations, sub-stations or transformer vaults.

(b) Elsewhere than in central stations, sub-stations and generator, transformer, switching and motor rooms, all apparatus and wiring connected to the high voltage circuits shall be completely enclosed by substantial shields or casings; grounded as prescribed in Part 9 of this Division; and the conduit shall properly enter and be secured to such shield or casing, or to suitable terminal boxes secured or bolted to the casing.

(c) Generator, switching and motor rooms shall be securely locked, or other provision shall be made to limit access only to qualified persons.

(d) Elsewhere than in central stations, sub-stations and generator, transformer, switching and motor rooms, the wiring shall consist of approved multiple-conductor grounded metal sheathed cable enclosed in approved grounded conduit. Where the cable is not exposed to moisture, the metal sheath may be omitted by permission of the Commissioner of Buildings.

Where moisture is absent, the metal sheath need not be continued over splices; but where the metal sheath is required over the rest of the cable the ends of the sheath shall be belled out and bound around the splices by No. 6 copper wire and ground clamps.

(e) Air-break disconnectors shall be installed between oil switches used as service switches and the supply wires.

(f) Where a cable emerges from its metal sheath, the insulation of the several conductors shall be thoroughly protected from moisture and mechanical injury by a pothead or equivalent device.

(g) Open work may be employed in central stations, sub-stations, generator, transformer and switching rooms and motor rooms adjoining an outside wall where the wires entering the motor room are not in conduit, provided the wires are rigidly supported on glass or porcelain insulators which keep them at least one (1) inch from the surface wired over and eight (8) inches apart except at apparatus and devices.

Note: Rigid supporting requires supports about four and one-half (4½) feet apart when wiring along flat surfaces under ordinary conditions.

Sec. D-3104—MOTORS:

(a) Motors operating at a potential exceeding twenty-five hundred (2500) volts to ground shall not be installed elsewhere than in central stations, sub-stations and generator and motor rooms.

Sec. D-3105—TRANSFORMERS AND APPARATUS:

(a) Transformers installed in central stations and sub-stations shall be so located that fire and smoke from burning coils or boiling oil will do no harm.

Note: It is recommended that air cooled transformers be isolated as much as possible, and that, if air blast is employed, the ducts be fireproof.

It is further recommended that oil-field transformers be placed in a compartment constructed in accordance with section 3107 of this Part.

(b) Transformers shall not be installed in buildings other than central stations or sub-stations, except by permission of the Com-

missioner of Buildings. Where such permission has been granted, transformers shall be located as near as possible to the point at which the primary wires enter the building and shall be contained in an enclosure of fire-resistive material large enough to provide an air space of at least six (6) inches on every side of the transformers. This enclosure shall be securely locked, access being allowed only to authorized persons, and shall be thoroughly ventilated.

Note: It is recommended that ventilation be secured by means of a chimney or flue leading out of doors.

(c) Transformer cases shall be grounded as provided in Part 9 of this Division; provided, however, that cases or frames or transformers used exclusively to supply current to switchboard instruments need not be grounded if they are installed and guarded as required for the maximum potential at which they operate.

(d) Oil-filled transformers, when not located in central stations or sub-stations, shall be enclosed in fireproof vaults, constructed in accordance with section 3107 of this Part.

Sec. D-3106—SWITCHES:

(a) Oil switches and breakers shall be isolated from other switches and electrical apparatus wherever practicable. When operated at a potential exceeding seventy-five hundred (7500) volts, they shall be of the remote control type, and shall be placed in separate fireproof cells or compartments.

Note: It is recommended that oil switches be used to control transformers in the transformers vaults.

Sec. D-3107—TRANSFORMER VAULTS:

(a) The enclosure shall consist of concrete not less than six (6) inches in thickness, or of brick not less than eight (8) inches in thickness, except that when the total transformer capacity so enclosed is not over one hundred (100) kilovolt amperes the above thickness may be reduced to four (4) inches, provided approved fireproof material is employed and the construction of the vault is specifically approved by the Commissioner of Buildings.

Note: It is recommended that outside walls of the building, if of fireproof construction, constitute one or more of the walls of the vault or enclosure.

(b) The enclosure shall be provided with means for ventilation which will prevent the development of room temperatures in excess of those at which the transformers installed therein may be safely operated. Limiting temperatures shall be determined in accordance with and in the manner prescribed by the standardization rules of the American Institute of Electrical Engineers, and temperatures under full load shall not exceed the values given in such rules. All ventilating openings not connected to chimneys or flues shall be provided with automatic or manually controlled dampers to prevent the emission of smoke or fire.

Note: It is recommended that damper controls be arranged to be operated from a point outside the vault.

(c) Where practicable, a suitable drain shall be provided which will carry off any accumulation of oil or water that may collect in the vault. Floor and drain shall have a pitch of not less than one-quarter (¼) of an inch per foot. In vaults containing transformers having a total capacity of one hundred (100) kilovolt amperes or less the drain may be omitted if the enclosure is so constructed as to retain all the oil used within the vault.

(d) Unless access is from the outside of the building only, the doorway to the vault shall be thoroughly closed by means of an approved tight-fitting fire door. A door sill not less than four (4) inches in height shall be provided. In all cases the sill shall be of sufficient height to confine within the vault the oil from the largest transformers installed.

Sec. D-3108—TRANSFORMERS IN FURNACE ROOMS:

(a) The requirements of Sections 3106 and 3107 of this Part shall be followed as far as practicable, provided, however, that by permission of the Commissioner of Buildings oil-filled transformers having a total rating of seventy-five (75) kilovolt amperes or less may be located in furnace rooms of fire resisting construction, if surrounded by concrete curbs not less than six (6) inches high and forming a basin of sufficient capacity to retain all the oil used in such transformers.

Note: This is to guard against the possibility of molten metal from the furnace coming in contact with the transformer case, and also to prevent oil from the transformers reaching the furnace.

DIVISION D—PART THIRTY-TWO
SIGNAL SYSTEMS

Sec. D-3201—GENERAL:

(a) The provisions of this Part shall apply to telephone, telegraph (except radio) district messenger and call-bell circuits, fire and burglar alarm and similar systems.

Note: Such systems are hazardous only because of their liability to become crossed with electric light, heat or power circuits.

Sec. D-3202—OUTSIDE WIRES:

(a) Outside wires shall be placed in underground ducts or strung on poles. They shall not be run across or attached to roofs except by permission of the Commissioner of Buildings.

(b) Underground wires shall not be placed in a duct, handhole or manhole containing electric light or power wires. Where a handhole or manhole is divided into sections by means of partitions of brick, concrete or tile, each compartment shall be considered as separate handhole or manhole.

(c) Overhead wires shall not be attached to a cross arm carrying electric light or power wires, nor shall they, when on the exterior walls of buildings, be brought closer than four (4) inches to electric light or power wires unless one (1) system is in conduit or is permanently separated from the other system by a continuous and firmly fixed non-conductor, additional to the insulation on the wires.

(d) The metal sheath of aerial cables which are liable to contact with electric light or power wires shall be interrupted close to the entrance to a building, by an insulating joint or equivalent device.

(e) The distance between the two (2) inside pins of any crossarm of a pole carrying signal and electric light and power wires shall be not less than twenty-four (24) inches.

Note: It is recommended that signal wires, being smaller and more liable to break and fall, be placed on the lower crossarms.

(f) Aerial cables of the metal-sheathed type may have paper or other suitable insulation. If the metal sheath is omitted each wire shall have one thirty-second (1/32) inch rubber insulation and the bunched wires shall be covered with a substantial braid.

(g) Wires from the last outdoor support to the protector, and wires attached to buildings shall conform to the requirements of paragraph F of this section, and in addition shall carry a substantial braid on each wire. Where not in conduit, such wires shall be separated from woodwork and supported on glass or porcelain insulators.

(h) Wires shall enter buildings either through non-combustible, non-absorptive, insulating bushings, or through approved rigid conduit. Conduit or bushings shall slope upward from the outside, or, where this cannot be done, drip loops shall be formed in the wires immediately outside the point of entrance. The conduit shall be equipped with an approved service head. More than one (1) wire may enter through one (1) conduit or bushing.

Sec. D-3203—IN BUILDINGS—GENERALLY:

(a) Wires beyond the protector, or wires inside buildings where no protector is employed, shall be neatly arranged and secured in place in a convenient, workmanlike manner. They shall not approach nearer than two (2) inches to any electric light or power wire unless one (1) system is in conduit or the two (2) systems are permanently separated by a continuous and firmly-fixed non-conductor, additional to the insulation on the wires.

Note: The wires would ordinarily be insulated but the kind of insulation is not specified, as reliance is placed on the protector to stop all dangerous currents. Porcelain tubes or approved flexible tubing are considered suitable non-conductors.

(b) Wires bunched together in a vertical run shall have a fire-resisting covering sufficient to prevent the carrying of fire from floor to floor. This requirement shall not apply if the wires are encased in non-combustible tubing, or are located in a fireproof shaft having fire stops at each floor.

(c) Signal wires and electric light and power wires may be run in the same shaft if the two (2) systems are separated at least two (2) inches, or if either system is encased in non-combustible tubing.

(d) Signal wires shall not be placed in a tube containing electric light or power wires.

(e) Transformers or other devices supplying current to signal systems from electric light or power circuits shall be of a type expressly approved for such service. The secondary wiring shall conform to the requirements of this Part and the primary wiring to the requirements of Parts 1 to 19, inclusive, of this Division.

Sec. D-3204—IN BUILDINGS—WHERE THE DISTRIBUTION SYSTEMS CONSISTS OF AERIAL WIRES:

(a) An approved protector shall be placed as near as practicable to the point of entrance to the building. The protector shall be mounted on a non-combustible, non-absorptive insulating base and shall consist of an arrester between each line wire and ground and a fuse in each line wire, the fuses protecting the arrester. The protector terminals shall be plainly marked to indicate "line," "instrument" and "ground".

(b) The protector shall not be placed in the immediate vicinity of easily ignitable material or inflammable gases, or dust or flyings of combustible material.

(c) Where the entire street circuit is run underground a protector shall not be required unless the circuit within the block is so placed as to be liable to accidental contact with electric light or

power wires operating at a potential exceeding two hundred and fifty (250) volts.

Sec. D-3205—GROUNDING:

(a) The ground conductor of the protector shall consist of not less than No. 18 copper, having one-thirty-second (1/32) inch rubber insulation, covered with a substantial braid. Where necessary, it shall be guarded from mechanical injury.

(b) The ground conductor shall be run in as straight a line as possible to a permanent and effective ground. Where connection is made to a gas pipe, attachment shall be made between the meter and the street main. In every case the attachment shall be made as close to the earth as practicable.

Note: A suitable ground may be obtained by connection to either a water pipe or gas pipe, preferably to the former. A ground rod or pipe driven into permanently damp earth is acceptable, in the absence of a piping system.

(c) The ground conductor shall be attached to the pipe by means of an approved bolted clamp to which the conductor is soldered or otherwise connected in an approved manner, or the pipe shall be tinned with rosin flux solder after which the conductor shall be wrapped around the pipe and thoroughly soldered to it.

(d) Steam or hot water pipes shall not be employed as a ground for protectors.

DIVISION E—PART ONE
SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—SMOKE ABATEMENT

Sec. E-101—DIVISION OF SMOKE ABATEMENT:

There is hereby established a division of the Bureau of Buildings of the City of Indianapolis to be known and designated as the Division of Smoke Abatement.

All employees in said Division of Smoke Abatement shall be appointed according to law and shall be under the supervision and control of the Commissioner of Buildings.

The Division of Smoke Abatement shall be charged with the inspection and control of the installation and maintenance of heating, power and fuel burning equipment, abatement of smoke, the examination and approval of plans of all heating, power and fuel burning installations installed or reconstructed in any building, location or on any premises within the jurisdiction of the City of Indanapolis.

Sec. E-102—HEAD OF DIVISION:

The head of the Division of Smoke Abatement shall be a registered, professional engineer and shall be designated as Combustion Engineer. He shall be qualified by technical training in the theory and practice of heat, power and combustion engineering. He shall also be familiar with the design, construction and operation of steam boilers and furnaces in the theory and practice of smoke prevention and abatement.

Sec. E-103—DENSITY SCALE:

That for the purpose of determining by comparison the degree of darkness of smoke emitted within the City of Indianapolis, a color scale of measurement shall be, and the same is hereby adopted as follows: One thickness of gray glass of sufficient capacity to

cut off sixty (60) per cent of the light from a flame having the lighting power of sixteen (16) candles shall be taken as the basis of said scale, and four (4) thicknesses of such glass shall be known and designated as number one (1) scale.

Sec. E-104—SMOKE WHEN A NUISANCE:

The production, emission, or escape of smoke, within the City of Indianapolis, of a greater degree of darkness than number one (1) scale, as described in the preceding section, from any fire or fires, whether same be active or burning or banked or in a state of rest, or whether said smoke be suffered or permitted to escape through a stack flue or chimney or from an open space, except for a period or periods aggregating six (6) minutes in any one (1) hour during which time the firebox, or fireboxes, is being cleaned out or a new fire, or fires, built therein, is hereby declared a nuisance and may be summarily abated by the Combustion Engineer or by any one whom he may duly authorize for such purpose. Such abatement may be in addition to the fine hereinafter provided. Any person, firm or corporation who shall suffer or permit the production, emission or escape of smoke, within the City of Indianapolis, of a greater degree of darkness than number one (1) scale as described in the preceding section, from any fire or fires whether same be active or burning or banked or in a state of rest, or whether said smoke be suffered or permitted to escape through a stack, flue or chimney or from an open space except for a period or periods aggregating six (6) minutes in any one hour during which time the fire box is being cleaned out or a new fire built therein shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not less than two (2) dollars nor more than five hundred dollars ($500.00) for each offense; and each emission of smoke in violation of the provisions of this Section shall constitute a separate offense for each and every day on which such violation shall continue.

Sec. E-105—PERMIT REQUIRED:

It shall be unlawful to erect new plants or reconstruct, alter or repair any existing plant for producing heat or power or either of them or to install piping and radiation or to erect any new chimney or stack connected with fuel burning plants in the City of Indianapolis until plans and specifications of the same have been filed in the Bureau of Buildings and approved by the Combustion Engineer and a permit issued for such erection, reconstruction, alteration or repair. Plans and specifications shall be filed with the Combustion Engineer and shall be in duplicate and shall show the amount of work and the amount of heating to be done by such plant and all appurtenances thereto—including all provisions made for the purpose of securing complete combustion of the fuel to be used and for the purpose of preventing smoke; said plans and specifications shall also contain a statement of the kind of fuel proposed to be used and said plans and specifications shall also show the building, room or apartment in which such plant shall be located showing clearance, location of chimney, proposed breeching and doors; windows, air-shafts, fans and other means of ventilation. Upon the approval by the Combustion Engineer of such plans and specifications a duplicate set of which shall be left on file in said office and upon the payment of the fees as provided in Section A-223 the Commissioner of Buildings shall within a reasonable time issue a permit for the erection, reconstruction, alteration, repair or maintenance of such

plants. The Combustion Engineer or his authorized assistant shall see that the execution of the work permitted is carried out in conformity with the plans and specifications, with special reference to the clearances, the size and construction of chimneys used, the provision for the prevention or abatement of smoke, and the provisions for proper ventilation.

In the event the work of erection, alteration, reconstruction or repair does not conform with the approved plans or specifications or this Code the Commissioner of Buildings or his authorized assistant shall have the power to stop the work and require any work which is not in conformity with the approved plans and specifications to be changed so as to comply.

After a permit has been issued for the installation of smoke producing equipment or any of the appurtenances thereto which has been installed in accordance with the complete plans and specifications on file with the Combustion Engineer any repairs to such installation or equipment may be made without further permit, provided such repairs are made in conformity with the said plans and specifications on file.

Sec. E-106—PERMIT DOES NOT EXEMPT:

The issuance and delivery by the Commissioner of Buildings of a permit or approval shall not be held to exempt any person, firm or corporation to whom any such permit of approval has been issued or delivered or who is in possession of any such permit or approval from prosecution on account of the emission or issuance of smoke in violation of the density scale for the period or periods of time as herein provided.

Sec. E-107—RIGHT OF EMPLOYEES TO ENTER UPON PREMISES:

The employees of the Division of Smoke Abatement, in the execution of their duties shall have the right to enter upon any premises in the City of Indianapolis, and to inspect fuel burning equipment or any of the appurtenances thereto, at all reasonable hours, except, that in private residences and in single family units, they shall not have the right to enter between the hours of six o'clock P. M. and eight o'clock A. M.

Any person who shall, after proper identification, deny admittance to such person or persons or interfere with him or them in the performance of his or their duties shall be punished as hereinafter provided.

Sec. E-108—EXCEPTIONS:

The provisions of this Ordinance shall not apply to metallurgical furnaces, or similar direct coal fired industrial furnaces which cannot from the nature of the process involved be controlled for the emission of smoke as determined by the Combustion Engineer.

Sec. E-109—USE OF SMOKELESS FUEL:

It shall be unlawful to use other than smokeless fuel in any water heater or combination water heater and garbage burner or in any portable boiler of the vertical or locomotive type whether same be used as a stationary boiler or is a part of a steam shovel, steam roller, traction engine, ditching machine or other contrivance unless such machine or contrivance is provided with a smoke preventing device or method which is sufficient to insure conformity to the requirements of this ordinance relative to the emission of smoke.

Sec. E-110—WHO SHALL INSTALL EQUIPMENT OF COMBUSTION:

(a) It shall be unlawful for any person, firm or corporation to install or contract to install any power plant, stationary boiler, hot air furnace, oil burning furnace, oil burning equipment, or any other equipment of combustion for which a permit is required which uses either oil or similar liquid or coal for fuel; without first making, executing, and delivering to the City Controller a bond in the sum of Five Thousand ($5,000.00) Dollars payable to the City of Indianapolis, such bond to be made for the use and benefit of the owner or any party in interest in the property where said person furnishes any material, or performs any service, against loss or damage which may arise by reason of the work done or material furnished being in violation of the requirements of any law of the State of Indiana or any ordinance of the City of Indianapolis controlling such work, or installed in such a manner as to make unlawful smoke when operated in a manner reasonable with the specifications as set forth by the person installing such material or equipment. Such bond shall be executed with any recognized and responsible surety company authorized to do business in Marion County, Indiana, as surety thereon.

(b) Any person, firm or corporation who has contracted or agreed in writing or otherwise to install equipment of combustion on any lot or premises or within any building or structure within the City of Indianapolis shall guarantee that such equipment of combustion shall not issue smoke in violation of this ordinance when such equipment is operated in a manner reasonable with the specifications as set forth by said person, firm or corporation installing such equipment.

(c) If the owner of any equipment of combustion, which has been installed after the passage of this ordinance, shall be unable to cause the equipment to be operated in a reasonable manner without issuing smoke in violation of this ordinance the said owner shall have a right for damages against the person, firm or corporation who has installed said equipment, said damages to be paid out of the surety bond furnished the City of Indianapolis by the company installing such equipment.

(d) The owner of any such defective equipment of combustion shall have no rights against the surety bond after the expiration of one year from the date of the final inspection and approval of said apparatus by the division of smoke abatement in the Bureau of Buildings of the City of Indianapolis.

(e) Such surety bond shall remain in effect for one year after the final inspection is made by the Bureau of Buildings and shall be issued for a minimum period of eighteen (18) months.

(f) Such surety bond shall be renewed as often as is necessary to insure work done on any permit to be within the requirements of this ordinance, one (1) year from the date of final inspection of said work.

Sec. E-111—TESTS OF APPARATUS OF COMBUSTION:

(a) The Commissioner of Buildings upon recommendation of the Combustion Engineer may require tests to be made of any equipment of combustion. Such tests shall be made under the direction of the Combustion Engineer or he may accept authorized tests of any recognized testing laboratory accessible to him and the person

applying for a permit to install said equipment of combustion. The expense of such tests shall be borne by the applicant for a permit to install said equipment.

(b) Such tests shall cover whatever requirements are made by the Combustion Engineer in order to enable him to determine the suitability of the particular type of apparatus of combustion in relation to the use to be made of the same under practical operating conditions.

(c) If such tests are made and the results are not in accordance with the provisions of this Code or will not produce an installation which will conform to this Code when operated under practical conditions the Commissioner of Buildings shall refuse a permit to be issued to install such equipment.

(d) When tests are required a permit shall not be issued until such tests are made and have been accepted by the Commissioner of Buildings.

Sec. E-112—FINAL INSPECTION:

No equipment of combustion shall be placed into service until a final inspection has been made by an authorized representative of the Commissioner of Buildings and the final inspection certificate issued therefor.

Sec. E-113—REINSPECTION OF EQUIPMENT OF COMBUSTION:

Whenever any flue or stack shall issue smoke in violation of this ordinance, the Commissioner of Buildings may cause the whole equipment of combustion to be reinspected and corrections made. Upon reinspection of any equipment of combustion the owner or owners or persons in charge or control of the same shall pay to the City Controller the reinspection fee as herein described within thirty (30) days from the date of inspection notice.

DIVISION E—PART TWO
SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—BOILER SETTINGS

Sec. E-201—GENERAL:

(a) Ten (10) square feet of heating surface shall be deemed sufficient for one (1) boiler horsepower.

(b) Heating surface shall be construed to mean all boiled surfaces which have water on one side and hot gases on the other not excepting such surfaces as are covered by arches or tiles used in the furnace construction.

(c) Each high pressure boiler, installation of more than one hundred fifty (150) rated horsepower using coal as a fuel shall be provided with an approved automatic mechanical stoker.

(d) The projected grate area of any boiler using coal as a fuel shall be (a) not less than one sixtieth (1/60) of the heating surface where mechanical stokers are used, and (b) not less than one forty-fifth (1/45) of the heating surface in hand fired furnaces.

(e) The provisions of this Code are intended to cover in a general way conditions usually met within practice: For special conditions not generally met within practice the Combustion Engineer shall have the power to make such requirements as are necessary.

Sec. E-202—HORIZONTAL RETURN TUBULAR BOILER SETTINGS:

(a) The distance between the shell and the dead plate for hand fired horizontal return tubular boilers using coal as a fuel shall be not less than the following, according to the diameter of the shell:

Dia. of Shell in Inches	Distance Between Shell and Dead Plate in Inches
42 and less	30
48	32
54	34
60	38
66	40
72	42

Where it is proposed to use oil, powdered coal or sawdust and shavings as a fuel the distance between the shell and the dead plate shall not be less than the diameter of the shell and in no case less than sixty (60) inches.

Furnaces designed for burning sawdust and shavings or a combination of sawdust, shavings and coal, shall be of the full extension type. Sawdust and shavings shall not be blown into the furnace. Such furnaces shall be provided with a means of introducing auxiliary air over the fire and shall be provided with deflecting arches or mixing piers and wing walls.

(b) Flat grates shall be of the shaking or rocking type and shall provide not less than forty (40) per cent air space.

(c) All hand fired furnaces shall be provided with fire doors having auxiliary air openings equal to four (4) square inches for each square foot of grate surface. Liners for such doors shall be set at least three (3) inches from the inner door surface and shall provide at least three (3) inches free air space between the lower edge of the liner and the lower edge of the door. Other methods of supplying auxiliary air will be approved provided such methods admit an equivalent of air.

Note: Furnace fire doors should be provided with dampers with ratchet adjustment.

(d) All hand fired furnaces for boilers carrying more than twenty (20) pounds steam gauge pressure shall be provided with combustion tubes or other approved devices or methods of inducting auxiliary air above the fire and mixing same with the combustible gases. There shall be one combustion tube for each two hundred fifty (250) square feet of heating surface or fraction thereof, and the number of tubes shall never be less than three (3). Figures eleven (11) and twelve (12) show two types of combustion tubes.

(e) All hand fired furnaces shall be provided with special brick work in the form of arches or mixing piers and wing walls which will restrict the gas passage at the bridge wall and the same shall be so arranged as to present high temperature surfaces to the gases and provide a maximum amount of mixing. Figures thirteen (13), fourteen (14) and fifteen (15) show typical boiler setting plans.

(f) All hand stokers whether they be hand or mechanically fed shall be provided with special brick work as provided in rule (E) of Section E-202. Such stokers shall be provided with auxiliary air inlets or their equivalent as provided in rule C of section E-202.

(g) Side inclined overfeed mechanical stokers installed under horizontal return tube boilers shall have full extension furnaces and shall have mixing piers and wing walls or deflection arches in the rear. The vertical distance between the shell and feed plate shall be not less than thirty (30) inches.

(h) Front inclined overfeed mechanical stokers installed under horizontal return tube boilers shall have full extension furnaces and shall have mixing piers and wing walls or deflection arches in the rear. The vertical distance between the shell and the feed plate shall be not less than thirty (30) inches.

(i) Underfeed mechanical stokers installed under horizontal return tube boilers shall have a distance between the shell and the grate line of at least eight-tenths (.8) of the diameter of the shell but in no case less than forty-eight (48) inches.

(j) Chain grate stokers installed under horizontal return tube boilers shall have a minimum distance between the shell and the grates of forty-eight (48) inches. Such stokers shall be provided with an ignition arch the length of which is at least three-fifths (3/5) the grate length and in no case less than five (5) feet.

Sec. E-203—WATER TUBE BOILER SETTINGS:

(a) Hand Fired.

(1) Each hand-fired water tube boiler of the highly inclined or vertical type shall have a full extension furnace provided with a furnace arch extending at least four (4) feet back of the grate and provided with fire brick mixing piers or other approved construction. If the arch of the extension is in the same horizontal plane as the standard arch of the settings, and the standard arch of the setting is at least four (4) feet long, then the arch of the extension back of the grate may be omitted.

(2) Each hand fired vertically baffled water tube boiler shall have a full extension furnace with an arch extending at least four (4) feet back of the grate and provided with mixing piers, wings or arches.

(3) For hand fired horizontally baffled water tube boilers one of the following constructions shall be used:

(a) Each hand fired horizontally baffled water tube boiler shall have the lower row of tubes tiled to the bridge wall, from which point the furnace construction shall be the same as for horizontal return tubular boilers; or

(b) Each hand fired horizontally baffled water tube boiler shall have the lower row of tubes tiled to the bridge wall, from which point a fire brick arch shall extend to the gas passage at the rear. In addition to the fire brick arch there shall be a deflection arch at least thirteen (13) inches thick placed back of the bridge wall. The area of the passage over the bridge wall shall be approximately twenty-five (25) per cent of the grate area. The area of the passage between the rear of the bridge wall and the front of the deflection arch shall be approximately thirty-seven per cent (37%) of the grate area. The area of the passage under the deflection arch shall be approximately fifty per cent (50%) of the grate area. The distance from the grate to the tubes shall be not less than forty-eight (48) inches; or

(c) An extension furnace with a brick arch not less than three (3) feet above the grate. The lower row of tubes shall be encased with tile to the gas passage at the rear. There shall be a deflection arch described in (b) above approximately thirteen (13) inches thick. The area of the passage over the bridge wall shall be approximately twenty-five per cent (25%) of the grate area. The area of the passage between the rear of the bridge wall and the front of the deflection arch shall be approximately thirty-seven per cent (37%) of the grate area. The area of the passage under the deflection arch shall be approximately fifty per cent (50%) of the grate area.

(b) Stoker Fired.

(1) Chain grate stokers shall have an ignition arch with a minimum length equal to three-fifths (3/5) of the length of active grate which arch shall in no case be less than five (5) feet in length.

Note: It is recommended that the waterback be constructed five (5) feet back of the inner side of the front header.

(a) Chain grate stokers which are installed under vertically baffled water tube boilers, to be operated up to one hundred and fifty (150) per cent rating, shall be so set as to give a distance of at least seven feet and six inches (7′ 6″) from a point on the grates three (3) feet in front of the water back to the lowest row of tubes. This distance shall be increased at least to ten (10) feet for boilers subject to overloads ranging from one hundred and fifty (150) to two hundred (200) per cent rating and shall be increased to at least twelve (12) feet for boilers subject to overloads greater than two hundred (200) per cent.

(b) Chain grate stokers installed under horizontally baffled water tube boilers operated up to one hundred fifty (150) per cent rating shall have a minimum distance of forty-eight (48) inches from the grates to the lowest row of tubes measured at the water back. This distance shall be increased to at least sixty (60) inches for boilers which are to be operated continuously above one hundred fifty (150) per cent rating. The lower row of tubes shall be encased to the gas passage in the rear.

(c) Chain grate stokers installed under water tube boilers of the vertical or highly inclined type shall have extension furnaces; such installations which are to be operated under one hundred and fifty (150) per cent rating shall be so set as to give a minimum distance of seven (7) feet six (6) inches from a point on the grate three (3) feet in front of the water back to the tubes measured in a direct line through the path of flame travel. This distance shall be increased to at least ten (10) feet for boilers subject to overloads ranging from one hundred and fifty (150) to two hundred (200) per cent rating and shall be increased to at least twelve (12) feet for boilers subject to overloads greater than two hundred (200) per cent. All settings of the highly inclined type shall be

provided with the standard arch for boilers of this type.

(2) Front Inclined Overfeed Stokers.

(a) Front inclined overfeed stokers installed under vertically baffled, vertical or highly inclined water tube boilers shall have full extension furnaces with arches extending to the rear end of the grate. The distance from the midpoint of the grates to the first row of tubes through the path of flame travel shall be not less than eight (8) feet for boilers which are to be operated up to one hundred and fifty (150) per cent rating. This distance shall be increased to at least ten (10) feet for boilers which are to be operated above one hundred and fifty (150) per cent rating. Such furnace shall be provided with means of mixing the gases.

(b) Front inclined overfeed stokers installed under horizontally baffled water tube boilers shall have arches extending over the entire grate surface. The vertical distance front header to the floor line shall be not less than seven feet six inches (7′, 6″). The lower row of tubes shall be encased to the gas passage in the rear. Such furnaces shall be provided with means of mixing the gases.

(3) Side Inclined Overfeed Stokers.

(a) Side inclined overfeed stokers installed under vertically baffled vertical or highly inclined type water tube boilers shall have full extension furnaces with arches extending not less than four (4) feet back of the grate in addition to any other standard arches, except where the standard arch would be an extension of the oven arch. Such furnace shall be provided with means of mixing the gases.

(b) Side inclined overfeed stokers installed under horizontally baffled water tube boilers shall have arches extending over the entire grate surface and shall have the bottow row of tubes encased with tile to the gas passage in the rear. The vertical distance between the front header and the floor line shall be not less than seven feet six inches (7′, 6″). Such furnaces shall be provided with means of mixing the gases.

(4) Underfeed Stokers.

(a) Underfeed stokers installed under horizontally baffled water tube boilers shall have a minimum average distance between the tubes and the grate line of at least sixty (60) inches.

Note: This distance will give satisfactory results for loads up to one hundred and fifty (150) per cent rating. For greater loads this distance should be increased to keep furnace temperatures down to a reasonable figure.

(b) Underfeed stokers installed under vertically baffled water tube boilers shall have an average minimum distance between the tubes and the grate line of at least seven feet six inches (7′, 6″).

(c) Underfeed stokers installed under vertical or highly inclined water tube boilers shall have a minimum distance, center of grate line to tubes through the mid-

point of the furnace gas passage, of seven feet six inches (7′, 6″).

Note: This distance will give satisfactory results for loads up to one hundred fifty (150) per cent rating. For greater loads this distance shall be increased and ample combustion space provided by setting roofs or arches higher.

Sec. E-204—STRAIGHT DRAFT BOILERS:

(a) All straight draft boilers of the vertical or locomotive type shall use only smokeless fuel or shall be provided with a smoke eliminating device or method which will insure smokeless combustion within the definition of this Code.

DIVISION E—PART TWO

SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—BOILER SETTINGS

COMBUSTION IN A FURNACE:

Note: Combustion of coal takes place partly in the fuel bed and partly in the space above or beyond the fuel bed which is commonly called the combustion space. The process of combustion in the fuel bed consists chiefly of the gasification of the fuel. The products of this gasification are mainly CO_2, CO, CH_4 and H_2. The combustible gases rising from the fuel bed are burned in the combustion space by uniting with the oxygen in the air admitted through the firing door or other openings specially provided for the purpose, and the combustion is complete if the supply of air and the size of the combustion space are sufficient. The process of combustion in a hand fired furnace is well illustrated by Fig. 21, which shows the percentages of the three principal gases at various distances from the grate.

The fuel bed in most types of furnaces acts primarily as a gas producer. With a six (6) inch fuel bed the oxygen in the air rising from the grate is used for combustion in the first four (4) inches from the grate. At a distance of four (4) inches from the grate the CO_2 content of the gases has reached or passed a maximum of ten (10) to sixteen (16) per cent and begins to drop. At the surface of the fuel bed the gases contain no oxygen, only six (6) to eight (8) per cent of CO_2 and twenty (20) to thirty-two (32) per cent of the combustible gases.

The composition of the gases is practically independent of the rate of air supply. The larger the quantity of air forced through the fuel bed, the faster the fuel burns or gasifies, but the ratio between weight of air supplied and weight of fuel burned remains constant at about seven (7) to one (1).

Since at the surface of the fuel bed the gases contain twenty (20) to thirty-two (32) per cent combustible gas and practically no free oxygen to obtain complete combustion additional air must be introduced over the fuel bed. This statement is true for practically all fuels including coke. As a general statement about one-half of the fifteen (15) pounds of air used to burn one (1) pound of coal in a boiler furnace is supplied through the fuel bed; the other half must be supplied over the fuel bed.

This is in substance the conclusions drawn in Technical Paper 137 United States Bureau of Mines from a large number of tests.

DIVISION E—PART THREE
SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—BREECHINGS AND DAMPERS

Sec. E-301—BREECHINGS:

(a) Breechings shall be so designed as to offer a minimum of resistance to the flow of gases. The areas shall be large enough that a reasonable accumulation of flue dust or soot will not cause any noticeable choking. Connecting flues shall be so designed that the entering gases tend to flow parallel with the gases moving through the main breeching.

(b) Breeching shall have cross sectional area of not less than twenty-two (22) per cent of the grate area for ordinary operating conditions and shall have a cross sectional area of not less than twenty-eight (28) per cent of the grate area for boilers which are to be operated continuously at one hundred and fifty (150) to two hundred (200) per cent rating.

(c) Breechings of circular cross section cause less draft loss than those of rectangular or square section; therefore for breechings having a rectangular cross section at least ten (10) per cent shall be added to the required area if the ratio of the sides is one (1) to four (4) and at least thirty (30) per cent if the ratio is one (1) to six (6).

Note: It is advisable to use semi-circular tops on square or rectangular breechings.

(d) Breechings shall be short and direct. If a turn is necessary it shall be designed with a long sweep bend the inside radius of which is not less than one and one-half (1½) times the diameter or width of the breeching.

(e) Connections entering the breeching at an angle greater than forty-five (45) degrees shall have the entrance corner, around which the gas must move, rounded by a radius equal to the width of the connection.

(f) The Combustion Engineer shall require breechings to be provided with deflecting and dividing plates where he may deem the same necessary to facilitate the movement of gas.

Note: It is recommended that all connections to the chimney be made through an easy upward bend in order to make the entrance angle about forty-five (45) degrees.

(g) Breechings on the outside of the building shall be protected with insulation in an approved manner. Insulation shall be placed on the outer surface. Stiffening angles shall always be placed on the outside of the breeching.

Note: It is advisable to insulate all breechings.

(h) Breechings shall be provided with cleanout doors. One (1) cleanout door shall be provided in the far end of the breeching and one (1) or more in the side or bottom along the run.

(i) Underground breechings shall not be installed. Breechings shall not dip below the horizontal.

(j) Breechings shall be constructed of metal or other approved material which is not subject to leakage.

Sec. E-302—DAMPERS:

(a) Dampers shall be made the full area of the breeching or uptake and shall be reasonably gas tight.

(b) Dampers shall be swung about the longer axis and shall be so constructed as to offer the least resistance to the gas flow.

(c) Dampers shall be provided with control levers or handles at the front of the setting. Such levers or handles shall be located in a particularly convenient and readily accessible position and be so arranged that they definitely indicate how wide the dampers are open.

(d) Each boiler shall be provided with an independent damper. It shall be so designed that when the boiler is idle there will be the least possible leakage.

(e) When there are two (2) or more boilers connected to the same breeching there shall be a damper in the main breeching.

DIVISION E—PART FOUR
SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—DRAFT

Sec. E-401—DRAFT LOSS THROUGH BOILER SETTINGS:

(a) The draft loss through a boiler setting is dependent upon many factors some of which are variable and are greatly affected by operating methods used and the provisions made for developing the required rating in the most efficient manner. In determining the draft loss through proposed boiler installations the Combustion Engineer may make such assumptions and requirements as are in his judgment necessary.

(b) The curves in Fig. 16 shall be used to determine the required intensity of draft (natural draft) in the furnace.

(c) The curves in Fig. 17 show pressure drops, furnace to stack side of damper, for the various types of boilers at different rates of driving, under conditions of operation usually found.

It is impossible to establish pressure drop valves for the different boilers of the various types for all conditions met with in practice, therefore any such set of curves should be used only as a guide to determine the maximum pressure drop through proposed installations.

The boiler manufacturer shall submit specific pressure drop figures for proposed installations covering the anticipated range of operation stating the assumptions made or the conditions under which these figures were obtained.

(d) The curves in Fig. 18 show flue gas temperatures at dampers for the various types of boilers at different rates of driving. These curves are representative of operating conditions usually found, but any such set of curves should be used only as a guide in determining breeching areas and chimney heights and diameters.

The boiler manufacturer shall submit specifice temperature figures for proposed installations covering the anticipated range of operation stating the assumptions made or the conditions under which these figures were obtained.

Sec. E-402—DRAFT LOSS THROUGH BREECHINGS:

(a) An allowance for a pressure drop of five hundredths (.05) of an inch of water shall be made for each turn in the breeching. An allowance for a pressure drop of one one hundredth (.01) of an inch of water shall be made for each ten (10) feet in length of breeching or fraction thereof.

(b) An allowance for a pressure drop of five hundredths (.05) of an inch of water for each boiler connected to the breeching shall be made to provide for leakage around dampers of idle boilers.

DIVISION E—PART FIVE

SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—CHIMNEYS

Sec. E-501—GENERAL:

(a) Chimneys shall be located so as to give the shortest and most direct run of breeching to the stack.

(b) Foundations for masonry chimneys shall be so designed as not to exceed the soil bearing values as given in Section B-108. Foundations for self-supporting metal or reinforced concrete chimneys shall be designed for shear and flexure in addition to stability.

(c) To determine the stresses at any point, the chimney shall be treated as a cantilever uniformly loaded with a wind pressure of twenty-five (25) pounds per square foot of projected exposed area.

(d) Chimneys shall be designed for maximum overload according to draft required as provided in Sections E-401 and E-402.

(e) In no case shall a chimney serving a boiler capacity of one hundred and fifty (150) horsepower or more using coal as a fuel be less than one hundred (100) feet in height above grade.

(f) The height of a chimney, above its flue opening, shall be not less than that as determined by the following formula:

$$H=\left(\frac{D+0.2}{K}\right)$$

H=Height of chimney in feet above center line of flue opening.

D=Draft in inches of water required at chimney flue opening.

Flue Gas Temperature Degrees F.	K
750	.0080
700	.0077
650	.0074
600	.0071
550	.0067
500	.0063
450	.0059
400	.0054
350	.0049

Barometric Pressure..... 30 inches

Atmospheric Temperature..... 60 degrees F.

(g) The least diameter of the chimney shall be not less than that determined by the following formula:

$$D=\sqrt{\frac{H.P.}{2.0\sqrt{H}}}$$

D=Least diameter of chimney in feet.

H. P.=Maximum horse power to be served.

H=Height of chimney above center of flue opening in feet.

(h) Chimneys having flue openings diametrically opposed shall be provided with a baffle wall to facilitate the movement of gas.

Sec. E-502—GUYED SHEET METAL STACKS.

(a) Guyed sheet metal stacks shall be of such gage as will allow for corrosion, the support of its own weight and prevent buckling

under initial tension of the guy wires and the stress due to wind pressure.

Since the thickness of plate used varies considerably and is largely governed by the degree of permanence required the following table of diameters and thicknesses are given as minimum requirements.

Diameter, Inches	Thickness of Shell B. W. G.
18	12
20	12
22	10–12
24	10–12
26	10
28	10
30	8–10
36	$\frac{3}{16}$ -No. 10
42	¼"-No. 10
48	¼"-No. 8

Rivets should not be less than:
$\frac{5}{16}$" in diameter for No. 12 gage.
$\frac{7}{16}$" in diameter for $\frac{3}{8}$" plate.
$\frac{7}{16}$" to ½" in diameter for ¼" plate.

The circumferential pitch should not be more than three (3) inches and the longitudinal pitch from three (3) to four (4) inches.

It is considered best practice to assemble the sections so that the lower end of the upper section slips into the lower section.

(b) Guys shall be not less than one-half (½) inch wire rope or its equivalent and shall have turnbuckles. The anchorage shall be such that it will withstand its portion of the wind load. Guys shall be figured by placing the entire overturning load on one (1) strand of each set.

(c) Stacks of one hundred (100) feet or less shall have at least two (2) sets of four (4) guys each. Stacks over one hundred (100) feet shall have at least three (3) sets of four (4) guys each. The upper sets of guys shall be placed not more than twelve (12) feet down from the top. When there are two (2) sets the lower set shall be placed two-thirds (⅔) the distance from the ground to the upper set. When there are three (3) sets the lower set shall be placed half the height of the upper set and the middle set about half way between the upper and lower set. Guys shall be anchored at a distance from the stack equal to their height above point of anchorage.

(d) In manufacturing establishments smoke stacks built of iron or steel shall not be used or erected in such a manner as to pass through the floors or roofs of such buildings unless such metallic smoke pipes, flues or stacks are separated from any woodwork with a ventilating air space at least twelve (12) inches in any direction and in addition surrounded by a substantial layer of incombustible material approved by the Commissioner of Buildings for the purpose.

Sec. E-503—SELF-SUPPORTING METAL CHIMNEYS:

(a) The maximum stress for single riveted joints shall not exceed eight thousand (8,000) pounds per square inch and for double riveted joints ten thousand (10,000) pounds per square inch.

(b) The diameter of rivets shall be greater than the thickness

of the plate but never less than one-half (½) inch. The pitch shall be two and one-half (2½) times the diameter of the rivets and always less than sixteen (16) times the thickness of the plate.

(c) The joints in the base section shall be double riveted with rivets staggered. Foundation bolts shall have a maximum fiber stress of twelve thousand (12,000) pounds per square inch. The neutral axis for computing stress in the bolts shall be considered to pass tangent to the bolt circle and the fiber stress in the bolts shall be taken as proportional to their distance from the axis.

Note: It is recommended that a brick lining be provided the thickness of which will be sufficient to support its own weight. Fire brick should be used to a height of at least thirty (30) feet above the breeching opening, common brick may be used from this point to the top. Such lining should be set in contact with the shell and thoroughly grouted to prevent depreciation.

Sec. E-504—MASONRY CHIMNEYS:

(a) The thickness of any section of a masonry chimney or stack shall be such that the resultant stress of wind and weight of the shaft will not put the masonry in tension on the windward side or compression on the leeward side in the outer fiber in excess of the following values:

Tension twenty-five (25) pounds per square inch.

Compression two hundred (200) pounds per square inch.

(b) Masonry chimneys shall be reinforced with wrought iron or steel bands at least three-eighths (⅜) inches by three (3) inches placed at the following points, one above and one below flue opening, one twelve (12) inches below and one twelve (12) inches above top of lining, one ten (10) feet above top of lining and two at the top of the chimneys.

(c) Masonry chimneys shall be lined for a distance of at least thirty (30) feet above the flue opening for flue gas temperatures up to six hundred (600) degrees Fahr. and for higher temperatures shall be carried up at least half the chimney height. For extremely high temperatures the lining shall be carried the full height of the chimney. Linings shall be independent of the shaft and shall be separated from it by an air space of at least two (2) inches.

(d) Masonry stacks shall be laid up with lime mortar strengthened with cement. The following proportions are recommended: one (1) part by volume of cement; two (2) of lime, and six (6) of sand for upper masonry, one (1), two and one-half (2½), and eight (8) respectively for lower masonry and one (1), one (1) and four (4) respectively for the cap.

Sec. E-505—REINFORCED CONCRETE CHIMNEYS:

(a) The unit compressive stress in the concrete shall not exceed three hundred and fifty (350) pounds per square inch based on two thousand (2,000) pound concrete.

(b) The allowable unit tensile stress in the steel shall not exceed eighteen thousand (18,000) pounds per square inch. Steel shall be lapped at least sixty (60) diameters and embedded at least forty-five (45) diameters.

(c) Reinforced concrete stacks shall be lined with fire brick to a point at least fifty (50) feet above the flue opening and shall have at least a four (4) inch air space.

(d) Care shall be taken to provide sufficient temperature reinforcing steel both vertical and circumferential at all points of

the shaft. Reinforcing shall be doubled in the region of the top of the lining and the flue opening. The amount of circumferential steel used shall be sufficient to resist the diagonal tension plus all temperature stress.

(e) To compensate for the reduction of area of the flue opening the remainder of the wall shall be thickened on the inside for at least five (5) feet above and below the opening.

(f) Vertical reinforcing shall be bent around the flue opening by adding at least five (5) extra vertical bars of the same size as the other vertical steel bending and placing the same on each side of the opening. At least three (3) rings of steel shall be placed above and below the opening.

DIVISION E—PART SIX

REGULATIONS FOR THE INSTALLATION OF WARM AIR FURNACE HEATING PLANTS

Sec. E-601—DEFINITION:

Warm air furnace heating plants, to which this Code refers, shall consist of one or more warm air furnaces, enclosed within casings, together, with necessary appurtenances thereto, consisting of warm air pipes and fittings, cold air or recirculating pipes, boxes and fittings, smoke pipes and fittings, registers, borders and face plates, the same being intended for heating buildings in which they may be installed.

Sec. E-602—PROVISION TO BE MADE IN BUILDINGS UNDER CONSTRUCTION FOR RECEPTION OF WARM AIR FURNACE HEATING PLANTS:

The following provisions shall be made by the owner, architect or by any building contractor or by any person or persons constructing any new or repairing any old building wherein a warm air furnace heating plant is to be installed.

(a) Where warm air register boxes, heads, pipes or stacks are to be installed, joists shall be set no less than sixteen (16) inches on centers and shall be butted and not lapped. Studding shall set directly over and under joists, leaving a space of not less than fourteen (14) inches between studs and joists. Wherever joists are cut, headers must be put in to support joists.

(b) All houses that have studded exterior walls shall have the floors thereof extended to the outside sheathing and all spaces between studding shall be closed at the attic line, besides the fire-blocking herein mentioned.

Note: It is strongly recommended that the attic be tightly floored to reduce heat losses.

(c) All partition walls (or sections of these walls) in which heat stacks to second floor rooms are to be installed, shall be built of at least two (2) by six (6) inch studding.

Sec. E-603—METHOD FOR DETERMINING THE SIZE OF WARM AIR PIPE, WALL STACKS AND FURNACES FOR USE IN GRADE C AND D BUILDINGS:

The size of the basement warm air pipes shall be calculated from the following factors:

(a) First floor rooms.

Divide square feet of glass by twelve (12).

Divide square feet of net outside wall by factor "F" from the following table.

Divide cubic contents by eight hundred (800).

(See Note No. 8.)

Add together the above and multiply by nine (9).

The result is the area of the basement pipe.

The sum of:

Glass (Sq. ft.) (Note 1)÷12]
Net Wall (Sq. ft.) (Note 2)÷F } Multiplied by 9=area of Basement
Cubic Contents (Note 8)÷800] Pipe (Note 7)

(b) Second floor rooms.

Divide square feet of glass by twelve (12).

Divide square feet of net outside wall by factor "F" from the following table.

Divide cubic contents by eight hundred (800). (See Note No. 8.)

Add together the above and multiply by six (6).

The result is the area of the basement pipe.

The sum of:

Glass (Sq. ft.) (Note 1)÷12]
Net Wall (Sq. ft.) (Note 2)÷F } Multiplied by 6=area of Basement
Cubic Contents (Note 8)÷800] Pipe (Note 7)

(c) Third floor rooms.

Divide square feet of glass by twelve (12).

Divide square feet of net outside wall by Factor "F".

Divide cubic contents by eight hundred (800), (See Note 8).

Add together the above and multiply by five (5). (See Note 7.)

The result is the area of the basement pipe.

The sum of:

Glass (Sq. ft.) (Note 1)÷12]
Net Wall (Sq. ft.) (Note 2)÷F } Multiplied by 5=area of Basement
Cubic Contents (Note 8)÷800] Pipe (Note 7)

Method of Determining Size of Wall Stacks.

(d) First floor rooms.

Same as determined under (A).

(e) Second floor rooms.

Deduct thirty (30) per cent from basement pipe area determined in (B).

(f) Third floor rooms.

Deduct thirty (30) per cent from basement pipe area determined in (C).

FACTOR "F" FOR OUTSIDE WALLS

Character of outside wall	Factor "F"
8″ Brick Wall Plastered one side	40
8″ Brick Wall Air space, plastered	57
8″ Brick Wall Furred and plastered	62
12″ Brick Wall Plastered one side	51
12″ Brick Wall Air space, plastered	68
12″ Brick Wall Furred and plastered	71
Brick, hollow tile, plaster	50
Brick, paper, sheathing, stud, lath and plaster	68
8″ Hollow tile, stucco and plaster	45
12″ Hollow tile, stucco and plaster	65
8″ Hollow tile stucco, furring and plaster	48
12″ Hollow tile, stucco, furring and plaster	71
Cement Block plain	23

Cement Block, furring and plaster..... 36
Frame Wall, weatherboarding, sheathing, lath and plaster..... 51
Frame Wall, weatherboarding, paper, sheathing, lath and plaster 62

(1) In obtaining glass surface use full casement opening. An outside door is figured as glass.

(2) To obtain net outside wall multiply height by width and deduct the glass in all windows and outside doors.

(3) For rooms having north, northeast and northwest, add 15% to pipe area. For east and west exposure, add ten (10) per cent.

(4) For cold ceilings and floor, add one-half (½) net area of ceiling or floor to net exposed wall (cold ceilings and floors are those next to unheated attics and basements or floors over unexcavated parts.)

(5) Use no warm air pipe less than eight (8) inches in diameter. If a basement warm air pipe figures greater area than any standard commercial size then the next larger size shall be used.

(6) It is understood in using the above values for determining basement warm air pipe areas, that these pipes should be run comparatively straight and that they shall not be over fifteen (15) feet in length. Pipes having sharp turns shall have extra capacity.

(7) These formulas are for seventy (70) degrees inside temperature with zero temperature outside. For a temperature of ten (10) degrees below, add ten (10) per cent to the capacity of each pipe.

(8) The value of eight hundred (800) (used in cubic contents) is for an estimated air change of one room volume per hour. If it is desired to provide for one and one-half (1½) room volume use the figure six hundred (600). If for two (2) room volume use the figure four hundred (400). The factors nine (9), six (6), and five (5) in section (A), (B) and (C) are calculated for a register air temperature of one hundred seventy-five (175) degrees F.

Sec. E-604—TRANSITION, FITTINGS AND STACKS:

Transition from warm air pipes to stacks shall be made with a well designed elbow or boot, and no stack shall be less than seventy (70) per cent of the warm air pipe area.

Sec. E-605—METHOD OF DETERMINING SIZE OF REGISTERS:

All registers shall have a free area at least equal to the calculated area of the basement pipe.

Sec. E-606—METHOD OF DETERMINING SIZE OF FURNACE:

Add together the actual warm air pipe areas, in square inches, as obtained in Section E-603 and divide same by the number of square feet of grate surface of the proposed installation and apply this figure to the chart, Figure 19, in the following manner: Along the left hand margin find the number computed above and follow the line horizontally to the right until it intersects the diagonal line; from this point project a vertical line downward to the bottom margin where the required minimum number of square feet heating surface per square foot of grate may be read. This number shall be equal to or less than the total number of square feet of heating sur-

face of the proposed installation, divided by the square feet of grate surface.

Any person, or persons, firm or corporation installing warm air furnace heating plants shall furnish the Bureau of Buildings upon request with data giving heating surface, grate surface, and free area within the casing of any warm air furnace heating plant, before a permit shall be issued for the installation of the same.

No warm air furnace shall be installed having more than three hundred forty (340) square inches of leader pipe for one (1) square foot of grate surface.

No warm air furnace shall be installed having less than eighteen (18) square feet of heating surface for one (1) square foot of grate surface.

No furnace shall be installed having a free area less than ten (10) per cent greater than the combined leader pipe area.

Heating surface shall be construed to mean all surfaces of the ash pit and fire pot which are passed over by the circulating air within the casing and are higher in temperature than the circulating air and all surfaces of the dome and radiator, etc., which have not gases on one side and circulating air on the other.

Grate surface shall be construed to mean the clear area of the opening within which the grates are placed.

Free area shall be construed to mean the smallest unobstructed area between the heating surfaces and the casing.

Sec. E-607—LOCATION OF FURNACE FOR MULTIPLE PIPE SYSTEMS:

The location of the furnace shall equalize the length of warm air runs as far as possible, yet give necessary preference to pipes supplying living rooms, dining rooms and main halls.

Sec. E-608—FOUNDATIONS:

Furnace foundations of brick, cement or other incombustible material must be provided. Said foundations shall extend at least fifteen (15) inches at rear and sides of the furnace casing and at least thirty-six (36) inches in front of the furnace casing. All foundations shall be level.

Sec. E-609—SETTING OR ASSEMBLING FURNACES:

The base ring of the furnace shall be cemented to the foundation, making an air tight joint. The furnace parts shall be assembled plumb and level, and in a workmanlike manner.

All sections shall be properly fitted. Joints requiring cement shall be well filled and all bolts shall be drawn up tightly.

Sec. E-610—CASINGS:

(a) Warm air furnaces shall be enclosed in metal casings or walls of brick, tile or concrete

(b) Portable sheet metal casings including casing tops shall be made of galvanized sheets, not lighter than 26 U. S. Standard Gauge. They shall fit the casings and casing rings closely, so as to be dust tight, and shall be securely fastened to the front. The casing shall be lined from the upper casing rings down to a line on a level with the grate.

(c) When side collars are used the casing top must be of sufficient height so that the largest warm air pipe can be taken from the side without ovaling. In no case shall a distance less than eight

(8) inches be maintained between the top of any furnace and the top of the casing or bonnet.

(d) Openings for side casing collars shall be cut into the casing top, so that the tops of all openings are on a level. Casing collars shall be fitted into place with a proper flange, or bead on the outside and drawn up on the inside, making a dust tight joint. All collars shall be of the same size as the warm air pipes to which they are to be connected.

(e) Brick set, cement or hollow tile casings shall be constructed as follows: Walls shall be not less than eight (8) inches in thickness, and shall be constructed air tight. The least inside dimensions of rectangular casings shall be the same as that of the portable casing of a corresponding size of furnace. Walls of masonry set furnaces shall be carried to the same height as the walls of a portable furnace allowing not less than eight (8) inches between the top of the furnace and the bottom of the top cover. After placing the collars for the warm air pipes the masonry shall be continued up even with the top of the collars, spacing rods of bar iron on edge or angle irons shall be laid across the furnace top. These shall be covered with sheet iron. The sheet iron shall be covered with masonry and the side walls shall be run four (4) inches above the masonry bed. A galvanized iron casing bonnet may be used on masonry set furnaces.

Provision shall be made in the walls for a manhole to give ingress to the heater.

Sec. E-611—WARM AIR PIPES IN THE BASEMENT OR CELLAR:

Warm air pipes in basement or cellars shall be installed as follows:

(a) All warm air pipes shall be made of bright tin not lighter than IC, or galvanized iron. Side seams shall be locked seams. All joints shall be either double seamed or lapped not less than one and one-quarter (1¼) inches and such joints shall be beaded and soldered or riveted. All pipes shall be properly secured to ceiling or joists. No solder or riveted joint is required where round pipe slips over the casing collar. Any pipe twelve (12) inches or greater in diameter shall not be made of material lighter than IX tin or No. 26 U. S. Standard Gauge galvanized iron.

Note: It is recommended that all warm air pipes in the basement shall have an upward pitch of not less than one (1) inch per running foot.

(b) No warm air pipe shall run within one (1) inch of any woodwork, unless such woodwork is covered with asbestos paper and the paper covered with tin or iron.

(c) All warm air pipes in the basement shall be provided with dampers not more than two (2) feet from the casing.

(d) Where warm air pipes pass through a masonry wall, a metal thimble shall be provided, having a diameter at least one (1) inch greater than the pipe, and the pipe supported in such a manner that the air space is uniform on all sides.

(e) No basement warm air pipes shall be over fifteen (15) feet in length first floor.

(g) All basement warm air pipes over five (5) feet in length and all basement warm air pipes for second and third floor rooms shall be covered with three layers of approved cellular asbestos and

wrapped with one layer of ten (10) pound asbestos paper the full length of the pipe within the basement.

Note: One layer of asbestos paper pasted tightly over a bright tin leader pipe increases the heat loss as compared with the bright tin by about 60%.

Sec. E-612—WALL STACKS:

(a) Double stacks.

All double wall stacks or wall pipes, heads, boots, ells, tees, angles and other connections shall be made of bright tin, not lighter than IC or galvanized iron and shall be made double, from and including the boot or foot piece in the basement to the top of each and every stack and register head on all floors. There shall be a continuous uniform air space of not less than five-sixteenths (5/16) of an inch, which must be maintained between the outer and inner walls of all such pipes and fittings of all kinds, styles and descriptions. Such pipes, heads, boots and other fittings shall be of an approved design. All pipes and fittings must be secured firmly in place by lugs or straps attached to the outer walls of stacks and fittings, and no nails shall be driven through these stacks or fittings at any point. No wall pipes or fittings shall be used which depend wholly on soldered joints. The various members shall be made so that all joints are locked soldered and the several members shall be attached to each other with slip joints, which are, for the purpose intended, air tight.

Sec. E-613—REGISTERS:

(a) When baseboard or wall registers are used, they shall be properly and permanently attached to the stack head in such a manner that any leakage of air between the head and the register will be prevented.

(b) Floor registers shall be provided either with register borders, or double register boxes of tin or galvanized iron with an air space of not less than five-sixteenths ($\frac{5}{16}$) of an inch between the inner and outer boxes.

(c) Registers for warm air pipes shall not be located in outside walls. The warm air registers in the various rooms shall be located in or near the inside walls in all cases.

Sec. E-614—THE AIR SUPPLY TO THE FURNACE:

(a) The air supply to the furnace for warm air heating plants may be taken from outside or from within the building or may be taken partially from outside and partially from within. In no case, however, shall air for circulation be supplied to any furnace from any furnace room.

(b) The cold air intake or return where cold air is taken from within the building shall have a net area throughout its entire length of not less than the combined net area of all warm air pipes leading from the furnace. This may be maintained in one or more ducts.

(c) When the cold air supply is taken wholly from the outside of the building the supply duct at its most contracted area must equal or exceed eighty (80) per cent of the combined area of all warm air pipes leading from the furnace.

(d) Cold air ducts shall be constructed of metal, tile or other incombustible material having smooth inner surfaces and shall maintain a constant net area throughout their entire length and shall be

made air tight. Where a boot or shoe is connected to the casing at the base, the opening shall not extend higher than a line on the level of the grate of the furnace. The width of the shoe shall be of such measurement as to make the area at least equal to that of the round or square pipe to which it is connected. All cold air ducts shall have an air tight cleanout placed near the basement floor.

(e) Wherever the space between joists is used to convey cold air over head, the joists and all wooden surfaces between such joists shall be lined with metal and a sheet metal pan constructed to extend no less than six (6) inches below said joists. The connection from this pan to the boot or shoe shall be made of galvanized iron not lighter than No. 26 U. S. Standard Gauge, and shall have a transition collar, the top area of which shall be at least ten (10) per cent greater than the area of the connecting pipe.

(f) The cold air face or faces shall be made of wood, or metal. When set in floors the top of the same shall be flush with the floor. Where the cold air face is placed in a seat or side wall (whether furnished by owner, general contractor or furnace contractor) the open work or face must extend to within at least one (1) inch of the floor line.

The free area of cold air faces shall be at least ten (10) per cent in excess of the free area of the duct or ducts to which they are connected.

Note: The effective area of a vertical cold air face lies within twelve (12) inches of the floor line, hence, the capactity of any vertical cold air face shall be determined by multiplying the base line in inches by not to exceed twelve (12) inches in height and deducting for the grills or cross bars.

Sec. E-615—SMOKE PIPES:

(a) The smoke pipe shall be as short and direct as consistent with the location of the furnace and shall never exceed ten (10) feet in length. It shall be made of either black or galvanized iron not lighter than No. 24 U. S. Standard Gauge and shall be the full size of the collar on the furnace throughout its entire length. It must have no other openings for attaching any fireplace, stove, range, water heater, gas or ventilating connection. It shall be lock seamed or riveted; all joints shall lap not less than one and one-half (1½) inches and it shall be rigidly secured. Cast iron smoke pipe may be used. Smoke pipes shall be provided with butterfly dampers.

(b) Where the smoke pipe enters the flue, a thimble shall be cemented into the flue and the connections thereto made air tight. Should any smoke pipe come within eighteen (18) inches of any combustible material, such combustible material must be covered with asbestos paper and a metal shield so fastened that a two (2) inch air space exists between this shield and the combustible material. This shield shall be not less in size than twice the diameter of the smoke pipe and of sufficient length to cover the wood at all points. No smoke pipe shall be nearer than eight (8) inches to any combustible material.

(c) No smoke pipe shall project through any external wall or window or any wooden or combustible partition.

(d) No warm air heating plant shall be at a greater distance than ten (10) feet from the flue used to conduct the products of combustion therefrom.

(e) No furnace as described in this part shall be connected to a flue of less dimensions than twelve (12) inches by twelve (12) inches square or twelve (12) inches round.

(f) No chimney shall be less than twenty-eight (28) feet in height above basement floor.

Sec. E-616—SINGLE PIPE FURNACES:

(a) When but one (1) duplex grating is used for both warm air and cold air in a so-called pipeless furnace, the area of the cold air intake shall be at least equal to the area of the warm air outlet of the grating. The inner and outer casing of this type of furnace may be made of either black or galvanized iron not lighter than No. 26 U. S. Standard Gauge. A uniform air space shall be maintained at all points between the inner and outer casing. In no case shall the top of the furnace be closer than twelve (12) inches to any ceiling or joists above the furnace.

(b) Where joists are cut to accommodate this furnace, headers shall be put in, and braced so as not to weaken the structure of the floor above the furnace.

Sec. E-617—FIRE BLOCKING AND FIRE PROTECTION:

All furnace pipes shall be thoroughly and effectually fire blocked at every floor level and midway between each floor and ceiling. The furnace piping shall have metal wings of sufficient size so that the wing can be nailed to the studding and lathing in such a manner as to completely fire block the air space between the furnace piping and its surroundings. At least one (1) inch of plastering shall be placed over all fire blocking to make the same air tight.

The top of the warm air chamber of every portable furnace not set in brick shall be kept at least one (1) foot below any combustible ceiling, floor joists, beams or girders. Such furnace shall be provided with at least two (2) inches of sand placed over the top of the warm air chamber of the furnace.

Exception: Single pipe furnaces.

Where single pipe furnaces are installed a double warm air pipe of standard bright tin or galvanized iron shall be used and provided with at least one (1) inch air space between the two (2) thicknesses. Such air space shall extend all around the warm air pipe and shall be used from a point twelve (12) inches below the bottom of any combustible ceiling or floor joists, beams or girders to the register face. Where such double warm air pipe passes within one (1) inch of any combustible material it shall be further insulated with a covering of an approved asbestos paper or other equally good incombustible insulation.

Sec. E-618—RECIRCULATING DUCTS:

(a) No toilet, bathroom or bedroom shall be provided with recirculating ducts. Toilets, bathrooms and kitchens shall be provided with approved ventilators.

(b) The combined area of recirculating ducts shall not be less than the combined area of the warm air leader pipes.

(c) Where single recirculating ducts are installed they shall be provided with a clean out door at least twelve (12) by twelve (12) inches so placed as to be easily accessible and make it possible to remove dust and other materials from such a duct.

Note: One of the most important factors of heating for comfort and health is that of proper humidification or maintaining the

proper relation between temperature and moisture content of air. Low humidity such as ordinarily exists in most buildings during the heating season are detrimental to health as membranes of the throat and nose become dry and irritated, are detrimental to bodily comfort and cause furniture to dry out and the varnish to check and crack with some unnecessary loss of heat.

The chart Figure 20 showing the proper relation between the temperature and humidity was constructed by Dr. E. V. Hill from a series of tests made by Professor J. W. Shepherd. The chart also shows the temperature differences between wet and dry bulb thermometers for various percentages of relative humidities. From the center line of the "Comfort Zone" shown in the chart it will be noted that equally comfortable conditions can exist with a temperature of sixty-five (65) degrees and a humidity of fifty-six (56) per cent as with a temperature of seventy (70) degrees and a humidity of thirty-six (36) per cent. It is recommended for comfort and health that the relative humidity be not less than forty-five (45) per cent. Many devices, as small water pans on warm air furnaces, intended for the purpose of humidification are entirely inadequate to supply the moisture required by even a moderate-sized room. There is also a mistaken idea that steam or hot water radiators furnish a "moist heat." Few realize that in order to maintain a proper humidity in even a small house there must be evaporated hourly a quantity of water of the order of six (6) to ten (10) pounds. It can be seen that in order to be satisfactory, the water evaporating pan must be kept filled automatically from the water supply system.

SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—STEAM AND HOT WATER BOILERS.

Sec. E-701—STEAM RATING OF CAST IRON HEATING BOILERS:

(a) The steam rating of cast iron heating boilers shall be determined by the following formulae according to the grate area.

For boilers having twelve (12) or less than twelve (12) square feet of grate area.

$R=A\times E\times 20$

For boilers having more than twelve (12) and less than twenty (20) square feet of grate area

$R=A\times E\times 25$

For boilers having twenty (20) or more square feet of grate area

$R=A\times E\times 30$

R=Rating of boiler in square feet of equivalent column radiation the boiler will handle.

A=Area of grate in square feet.

E=Evaporative power of boiler in pounds of water evaporated per pound of coal burned as hereinafter provided.

Equivalent column radiation shall include all risers, piping, mains and radiators.

(b) Grate area shall be construed to mean the area of the opening within which the grates are placed.

(c) The evaporative power of a boiler shall be determined by actual test and shall be the number of pounds of water equivalent to the number of pounds of water evaporated, from and at two hundred and twelve (212) degrees Fahr., to dry steam at the same

temperature, by one (1) pound of coal when the boiler is operated at such a rate as to burn not less than seven (7) nor more than eight (8) pounds of coal per square foot of grate per hour.

The above test to be made with a stove size anthracite coal having a heat value of 12500 B. T. U.s per pound of coal.

Sec. E-702—WATER RATING OF CAST IRON HEATING BOILERS:

(a) The water rating of cast iron heating boilers shall be determined by multiplying the steam ratings, as determined in Section E-701, by the factor one and six-tenths (1.6).

Sec. E-703—STEAM RATING OF STEEL HEATING BOILERS:

(a) Heating boilers of steel construction shall have not less than one (1) square foot of heating surface for each ten (10) square feet of equivalent column radiation installed up to and including five thousand (5,000) square feet of equivalent column radiation; and shall have not less than one (1) square foot of heating surface for each twelve (12) square feet of equivalent column radiation installed for loads greater than five thousand (5,000) square feet of equivalent column radiation.

(b) Steam heating boilers of steel construction shall have not less than the following heating surface grate area ratios according to the equivalent column radiation installed.

Square feet of equivalent column radiation	Square feet of heating surface per sq. foot of grate
1,500- 3,000	25-30
3,000-10,000	35-40
6,000-10,000	35-40
10,000-20,000	40-45
over 20,000	45-50

Sec. E-704—WATER RATING OF STEEL HEATING BOILERS:

The water rating of steel boilers shall be determined by multiplying the steam rating by the factor of one and six-tenths (1.6).

Sec. E-705—SMOKELESS TYPE BOILERS:

(a) All heating boilers of a rated capacity (rated in accordance with the foregoing sections) of fifteen hundred (1500) sq. feet or over of steam, and twenty four hundred (2400) square feet or over of water, shall be of an approved smokeless type.

(b) Any approved smokeless type boiler shall be provided with a downdraft furnace or shall employ the downdraft principle of carrying the gases down and through or over an incandescent bed of fuel with a satisfactory auxiliary air supply over the fire or shall be of the underfeed type.

(c) Water heaters or combination water heaters and incenerators shall use only smokeless fuel.

Sec. E-706—DIRECT STEAM RADIATION:

The number of square feet of direct cast iron radiation or its equivalent installed in any room or building shall not be less than that as determined as follows:

Divide square feet of glass (note 1) by (12).

Divide square feet of net wall (note 2) by factor "F."

Divide cubic contents (note 6) by eight hundred (800); add together the above and multiply by four (4) (note 5).

Glass (sq. ft.) (note 1)÷12
Net Wall (sq. ft.) (note 2)÷"F"
Cold Ceilings and Floors,
Roofs (sq. ft.) (note 4)÷"F"
Cubic Contents (note 6)÷800
} ×4 (Note 5) = { area cast iron radiation sq. ft.

Such heat losses as are not included in the above shall be figured by methods provided in the following explanatory notes and provisions made for additional radiation.

Explanatory Note:—

(1) In obtaining glass surface use full casement openings. An outside door shall be figured as glass.

(2) To obtain net outside wall area multiply height by width and deduct the area of all windows and outside doors.

(3) For rooms having north, northeast and northwest exposures add fifteen (15) per cent to the computed radiation. When walls are next to unheated rooms or spaces use the factor "F" divided by two (2).

(4) Cold ceilings are those next to unheated attics. Roof shall be figured when rooms are open to roof. Cold floors are those over unheated basements or floor over unexcavated parts.

(5) The above formula is for seventy (70) degrees inside temperature with zero (0) temperature outside. For a temperature of ten (10) degrees below zero add ten per cent to the computed radiation. For an inside temperature of sixty (60) degrees with zero (0) temperature outside deduct ten (10) per cent.

(6) The value of eight hundred (800) (used in cubic contents) is for an estimated air change of one room volume per hour. If in the opinion of the Combustion Engineer it is necessary to provide for an air change of more than one room volume per hour, the following figures shall be used.

1½ room volumes per hour..... 600
2 room volumes per hour..... 400

(7) The above formula is computed on a basis of two (2) pounds pressure at the boiler; for lower pressures or vacuums the amount of radiation shall be increased accordingly.

(8) The radiation as determined by this formula is standard column radiation which will condense one-fourth (¼) pound of steam per square foot per hour when standing in air at seventy (70) degrees temperature when the pressure at the boiler is two (2) pounds gauge. Other types of radiation shall be equivalent.

(9) To determine the total load on the boiler multiply the number of square feet of standard column radiation, as determined by this formula, by one of the following factors according to the amount of radiation.

Standard Column Radiation	Factor
Up to 300 square feet	1.75
300 to 500 square feet	1.70
500 to 700 square feet	1.65

700 to 1000 square feet..... 1.60
1000 to 5000 square feet..... 1.55
5000 to 10,000 square feet..... 1.50

(10) For buildings heated intermittently twenty (20) percent shall be added to the radiation computed.

(11) Heat losses not provided for in the foregoing formula shall be computed from the following factors.

FACTOR "F"
BRICK WALLS

Wall thickness inches	Plain	Plastered one side	Air Space Plastered	Furred and plastered
8	38	40	57	62
12	49	51	68	71
16	57	59	75	79
20	65	68	89	89

4" brick, 4" hollow tile and plaster ⅝..... 50
4" brick, paper, sheathing, stud, lath and plaster..... 68
8" hollow tile stucco and plaster..... 45
12" hollow tile stucco and plaster..... 65
8" hollow tile stucco, plaster and furring..... 48
12" hollow tile stucco, furring and plaster..... 71
Weatherboarding, sheathing, lath and plaster..... 51
Weatherboarding paper, sheathing, lath and plaster..... 62
Cement block, plain..... 23
Cement block, furring and plaster..... 36

Partitions (one side unheated)

Stud lath and plaster one side..... 24
Stud lath and plaster both sides..... 42
4" hollow tile v..... 42

Ceilings (35 degrees temperature difference)

Joist, lath and plaster (no flooring above)..... 48
Joist, lath and plaster (floor above)..... 110
Joist, steel ceiling (no floor above)..... 35
Joist, steel ceiling (floor above)..... 80

Roofs (over heated space)

4" concrete, cinder fill, tar and gravel..... 24
Tile on wood tight sheathing..... 22
Tile on open sheathing..... 13
Sheet Iron open sheathing..... 10
Slate on tight sheathing..... 28
Composition roof paper on tight sheathing..... 32
Composition roof shingles on tight sheathing..... 35

Floors

4" cement on dirt, b..... 160
Flooring on joist exposed underneath..... 32

Glass

Outside doors, windows and skylights, b..... 12

Sec. E-707—DIRECT WATER RADIATION:

The number of square feet of direct water radiation installed shall be equal to the number of square feet of direct steam radiation (as computed by the foregoing formula) multiplied by the factor one and six-tenths (1.6).

Sec. E-708—INDIRECT RADIATION:

Where indirect radiation is installed the amount of such radiation shall be at least fifty (50) per cent greater than the amount of direct radiation as computed by the formula in Section E-705. Where indirect radiators are suspended in a box or chamber such box or chamber shall be entirely of fire proof material and shall be separated from joists or other woodwork by at least two (2) inches. Such boxes shall be provided with a cleanout not less than eight (8) by eight (8) inches from which all portions of the box may be cleaned. There shall be at least ten (10) inches clearance between the radiator and the bottom and top of the casing; the sides of the casing shall fit the radiator as closely as possible. Indirect radiators shall be placed at least two (2) feet above the water line of the boiler if they are to be operated on a gravity steam system and shall be so arranged that the condensation will drain from them by gravity.

The following table gives the size of flues required for indirect radiators of various sizes.

Heating surface sq. ft	Area of cold air supply sq. inches	Area of warm air supply sq.inches	Size of conductor pipe or brick flue for hot air, inches
20	30	40	8x 8
30	45	60	8x12
40	60	80	8x12
50	75	100	12x12
60	90	120	12x12
80	120	160	12x16
100	150	200	12x20
120	180	240	14x20
140	210	280	16x20

The free area of registers shall not be less than the area of the connected warm air flue.

Indirect radiators may be arranged to recirculate but the air from bathrooms and bedrooms shall not be recirculated.

Sec. E-709—SEMI-DIRECT RADIATION:

When semi-direct radiation is installed the area of such radiation shall be at least twenty-five (25) per cent greater than the area of the direct radiation as computed by the formula in Sec. E-705.

Sec. E-710—SAFETY VALVE—BLOW OFF:

(a) All hot water boilers shall be equipped with a dead weight safety valve.

(b) No blow off valve shall be connected directly to a sewer. Such blow off valve shall be connected to a visible sump.

Sec. E-711—WATER SUPPLY:

The water supply shall pass through an approved self closing valve.

DIVISION E—PART EIGHT

SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—BREECHING AND CHIMNEYS FOR HEATING EQUIPMENT

Sec. E-801—BREECHINGS:

(a) Breechings shall be round. The cross-sectional area shall not be less than one-fifth (1/5) of the grate area.

Exception: By special permission other type breechings may be used.

(b) Breechings shall be short and direct. If a turn is necessary it shall be a long sweep bend the radius of which on center line of breeching is not less than the diameter of the breeching.

(c) Breechings shall slope upward to the chimney opening and shall in no case dip below the horizontal.

(d) Breechings shall be provided with a cleanout door or doors from which the entire breeching may be cleaned and shall have no other opening except to the boiler or warm air furnace.

Exception: Boilers or warm air furnaces set in a battery and provided with dampers in an approved manner.

(e) Breechings or smoke pipes for any heating equipment shall be not more than ten (10) feet in length except when in the opinion of the Combustion Engineer the chimney flue height is sufficient for additional length.

(f) No breeching or smoke pipe shall extend through any external wall, unless connected with a flue, chimney or stack which is built as required by this Code.

(g) No breeching or smoke pipe shall pass through any windows, door, floor, roof or partition constructed of combustible materials.

(h) All breechings and smoke pipes shall be securely supported every five (5) feet by tightly drawn wires.

Sec. E-802—CHIMNEY FLUE SIZES:

(a) Chimneys for warm air furnaces shall have not less than twelve by twelve (12x12) inches internal cross sectional dimensions and shall be not less than twenty-eight (28) feet in height above the level of the floor upon which the furnace is placed.

(b) Chimney flues for cast iron boilers shall have not less than the dimensions given in the following table according to the boiler rating as provided in Sections E-701 and E-703.

Rated Boiler Capacity		One Boiler		Two Boilers	
Steam	Water	Dim.	Height	Dim.	Height
Sq. Ft.	Sq. Ft.	In.	Ft.	In.	Ft.
1000	1500	12x12	40	16x16	50
1500	2400	12x12	45	16x16	55
2000	3200	14x14	50	18x18	60
3000	4800	16x16	55	20x20	65
4000	6400	18x18	60	22x22	70
5000	8000	20x20	65	24x24	75
6000	9600	22x22	65	28x28	75
7000	11200	24x24	70	30x30	80
8000	12800	26x26	70	32x32	80
9000	14400	28x28	75	34x34	85
10000	16000	30x30	75	38x38	85

Dim.—inside dimensions.

Height—height above grates.

For intermediate sizes the next larger dimension shall be used.

Boilers shall be cross-connected forming a battery and attached to one breeching or smoke pipe. For each bend in the breeching other than the one at the boiler five (5) feet shall be added to the height given in the above table. In no case shall the chimney flue heights be less than that required by the manufacturer of the boiler equipment or deemed necessary by the Combustion Engineer.

(c) Chimney flues for smokeless type steel fire box boilers shall be not less than the size given in the following table according to the boiler rating as provided in Sections E-703 and E-704.

Rated Boiler Capacity Sq. Feet	One Boiler Dim. In.	One Boiler Height Ft.	Two Boilers Dim. In.	Two Boilers Height Ft.
2000 and less	20x20	50	28x28	60
3000	20x20	55	28x28	65
4000	22x22	55	32x32	65
5000	24x24	60	32x32	70
6000	26x26	60	36x36	70
7000	28x28	65	36x36	75
8000	30x30	65	40x40	75
9000	30x30	70	40x40	80
10000	32x32	70	44x44	80
11000	32x32	75	44x44	85
12000	34x34	75	48x48	85
13000	34x34	80	48x48	90
14000	36x36	80	50x50	90
15000	36x36	85	50x50	95

Dim.—inside dimensions.

Height—height above grates.

For intermediate sizes the next larger dimension shall be used.

Boilers shall be cross-connected forming a battery and attached to one breeching or smoke pipe. For each bend in the breeching other then the one at the boiler ten (10) feet shall be added to the height of the above table. In no case shall the chimney flue height be less than required by the manufacturer of the boiler equipment or that deemed necessary by the Combustion Engineer.

Sec. E-803—CONSTRUCTION OF CHIMNEYS AND STACKS:

(a) Chimneys and stacks shall be built of brick, solid concrete block, stone or other fireproof material. In no case shall a flue or stack rest upon combustible material, wood flooring, wood brackets or any timber construction whatsoever.

(b) Every chimney or stack not forming a part of the wall shall rest upon the ground with a sufficient foundation thereunder to support the weight of the flue or stack.

(c) All chimneys or stacks whether they are to be used for hot or cold gases must have their construction materials laid up with solid joints completely filled with mortar. Such flues or stacks built without lining or fire clay must be completely plastered on the outside where they pass through combustible floors or partitions or through the floor joists or roof rafters and for the entire height of the interior of the building.

(d) Wooden floor beams, studding and other wood work must be framed around the flue at each and every story and shall not be less than two (2) inches away from the flue at any point except as otherwise provided in Section A-941-D.

Sec. E-804—FOUNDATION OF CHIMNEYS AND STACKS:

(a) The foundation of chimneys inside of buildings or stacks outside of buildings whether connected to the building or isolated shall be designed and built with foundations sufficient to carry the complete static load of the flue or stack.

(b) In figuring the foundation of isolated stacks a wind pressure of twenty-five (25) pounds per square foot of the projected

area of the stack must be used with the total weight of the stack to determine the resultant downward force. The resultant of the weight and wind pressure loads must fall within the middle third of the foundation of the stack. The maximum pressure upon the soil for good natural solid clay shall be three (3) tons to the superficial foot and for firm course sand, or stiff gravel four (4) tons per superficial foot. (See Section B-108.)

(c) When the breast of the flue or fireplace projects more than one (1) brick the same must be started on this line from foundation.

(d) Foundations for chimneys and stacks not within the walls of any building shall have foundations below the frost line and in no case less than the following:

One Story Buildings..... 30 in. Deep.
Two Story Buildings.....48 in. Deep.

All unprotected or isolated chimneys and stacks shall have the foundations of the same at least forty-eight (48) inches below the established grade.

(e) Foundations for chimneys and stacks within the walls and protection of any building shall have the foundations built below the established grade as follows:

	Minimum Depths
One Story Buildings	18 in. Deep
Two Story Buildings	24 in. Deep
All Others	36 in. Deep

In no case shall the bottom of the foundation of any chimney or stack within the protection and walls of any building be built at a less depth than the lowest footing for any walls thereof unless there is no basement or cellar or provisions for one.

Exception: Special permission.

Sec. E-805—SMOKE TEST OF FLUES:

The Combustion Engineer shall require a smoke test to be made of all flues that appear to be leaking; by closing the mouth of the stack above the flue when a smudge fire is placed at the bottom.

Sec. E-806—CORBLING OUT OF CHIMNEYS:

(a) Brick chimneys projecting one brick or less and not starting from the foundation wall shall be securely built into the brick work of the walls to which they are hung and shall be supported by courses of brick corbelled out from the main wall; provided, that no corbelled flue or breast shall project more than four (4) inches on an eight (8) inch wall or more than eight (8) inches on all walls over eight (8) inches in thickness.

(b) No flue shall be corbelled where it passes between floors, rafters or partitions.

Sec. E-807—WALLING OF CHIMNEYS AND STACKS:

(a) Stacks and chimneys less than two hundred and fifty-six (256) sq. inches in area in all buildings or structures shall have their walls made of brick at least eight (8) inches thick unless terra cotta or fire clay flue linings are used for the full height of the flue or stack in which case brick chimneys may be reduced four (4) inches in thickness.

(b) If such chimneys are built of solid concrete blocks they shall be lined with approved fire clay lining from top to bottom and shall be at least eight (8) inches in thickness. Hollow concrete blocks cannot be used in flues. All flues or stacks having a sectional area greater than two hundred and fifty-six (256) sq. inches but

less than five hundred (500) sq. inches shall be constructed of solid brick walls not less than eight (8) inches in thickness.

(c) Where a flue comes up adjacent to a fireplace there must be four (4) inches of solid brick work completely around the flue lining in addition to the fire brick lining of the fire place.

In the back of all fire places there shall be eight (8) inches of solid brick work, four (4) inches of which may be made of fire brick.

(d) All smoke flues or stacks having a sectional area greater than five hundred (500) sq. inches shall be made with hollow walls in which the combined thickness of the solid part of the wall shall be at least twelve (12) inches with a two (2) inch air space between the inner and outer walls. In such flues or stacks for a distance of two (2) feet below the smoke inlet and at least ten (10) feet above it, a lining of fire brick shall be provided which shall be laid up in fire clay mortar or in lieu thereof the flue or stack may be lined with other refractory material approved by the Commissioner of Buildings for the purpose.

Exception: Other approved construction.

(e) The walls back of flues where the flue is in a party wall shall in no case be less than eight (8) inches in thickness and shall be lined from top to the bottom. In case a multiple flue is built there shall be at least four (4) inches of brick work between each flue and the flue shall be lined from the top to the bottom. (See Section A-941.)

(f) In no case shall the brick work in any flue or stack be subjected to strains in excess of one-tenth (1/10) of the ultimate crushing strength of the material of which the flue or stack is constructed.

(g) The lining of all flues designed to remove products of combustion from furnaces, heating plants, incinerators or other apparatus or devices throwing off solid particles shall be designed so that the flue lining is vertical except in cases by special permission by the Commissioner of Buildings or the Combustion Engineer such flues may be built with a slight incline to the lining; providing, however, the lining forms a straight flue from top to bottom. Flues designed to remove products of combustion from gas stoves, gas heaters or open fireplaces may have the lining thereof built in a crooked manner, providing, however, the walls of the flue and the lining are properly cemented together with mortar.

(h) All stacks and chimneys shall be erected in a vertical position.

(i) No flue shall be used or constructed which shall have more than one connection to the same.

Exception: Incinerator flues.

(j) All flues shall be provided with cleanouts and the lining of the flue shall extend down to the cleanout.

Note: Smoke travels in circles, therefore, a good chimney is either round, or as nearly square as possible. Under no circumstances should the chimney be lower than the highest part of a building, or any building nearby, because the air current going over the high building blows down the flue. When smoke curls down the sides of a chimney it is a sure indication there is a down current, and the chimney should be built higher.

To secure a good draft the chimney must be tight, that is, no air space between the bricks, and no other openings for grates, gas burners, etc., except possibly a cleanout door below where the smoke pipe from the boilers enters. No mortar should be allowed to cling to the inside surface of the wall, but should be cleaned off smooth. The effective area of a flue is only as great as its smallest area. Sharp bends and offsets in the flue will choke the draft; it must be free of any feature which prevents a full area for the passage of the products of combustion.

Great care should be taken in placing the smokepipe into the chimney not to shove it through to the other side. This is sometimes done and will check the draft entirely.

Sec. E-808—TOPPING OUT:

(a) All flues or stacks shall be topped out with brick, stone, terra cotta or other approved materials or cast iron thoroughly anchored. In all cases where a flue or stack is likely to emit sparks from the combustion of shavings, sawdust, paper, garbage or similar materials the same shall be provided with a wire netting spark arrester.

(b) The tops of all smoke flues, incinerators, flues or stacks shall extend at least two (2) feet above the highest point of a pitched roof and six (6) feet from any other roof or woodwork and at least four (4) feet above flat roofs, but in all cases at least two (2) feet above the highest point of any part of the building or structure, except as hereinafter provided for cupolas.

(c) All flues or stacks carrying off products of combustion from high pressure boiler plants, heating plants or other fuel burning equipment of flats with four (4) or more apartments. laundries, bakeries, manufacturing plants of any sort or of any building or structure except Grade D buildings shall be sixty (60) feet or more in height above the level of the average grade of the lot on which the flue or stack is situated and any such flue or stack shall be raised to this height if the Combustion Engineer shall deem it necessary.

(d) No flue and stack used to carry products of combustion from a gas stove, gas grate or fire place shall be less than four (4) by eight (8) inches or eight (8) inches in diameter for circular flues. Smoke flues designed to carry off the products of combustion from small furnaces or small heating plants in buildings or structures shall be at least twelve (12) by twelve (12) inches.

Sec. E-809—LIMITING HEIGHT OF EXPOSED BRICK CHIMNEYS AND STACKS:

The unsupported height of any exposed brick chimney or stack shall be limited to the height shown in the following table according to the cross sectional dimensions and the wall thickness, as follows, to wit:

Internal Cross Sectional Dimensions	4" Wall	8" Wall	12" Wall	16"Wall
12x12	14' 0"	22' 0"		
14x14	15' 0"	24' 0"		
16x16	16' 0"	25' 0"	35' 0"	
18x18		27' 0"	37' 0"	
20x20		29' 0"	39' 0"	50' 0"
22x22		31' 0"	41' 0"	53' 0"
24x24		42' 0"	57'-0"	71' 0"

26x26	44' 0"	59' 0"	74' 0"
28x28	46' 0"	61' 0"	77' 0"
30x30	48' 0"	63' 0"	80' 0"
32x32	49' 0"	65' 0"	82' 0"
34x34	51' 0"	68' 0"	85' 0"
36x36	53' 0"	70' 0"	88' 0"

Any chimneys having four (4) inch walls shall have fire clay linings for the entire height.

Any chimney larger than twenty-two (22) by twenty-two (22) inches shall have a four (4) inch fire brick lining with a two (2) inch air space between such lining and the outer wall.

Sec. E-810—METALLIC FLUES OR STACKS:

(a) Where metallic flues are used within buildings they shall be completely surrounded with eight (8) inches of brick work or eight (8) inches of other incombustible material from the top to the bottom except as provided in Section E-502-D.

(b) Metallic smoke pipes conducting the products of combustition from gas or coal stoves used for cooking or heating shall not pass through any wooden partition, wooden roofs or wooden floors but shall run directly into a flue.

Sec. E-811—RESTRICTIONS OF AREA OF FLUES AND STACKS:

Chimneys or flues shall not be restricted in area at any point in the flue nor by any cap or ornamental chimney topping.

Sec. E-812—INCINERATOR FLUES:

(a) No apparatus of combustion shall be connected in any manner to an incinerator flue except the incinerator.

(b) Openings with self closing doors may be placed in the incinerator flue at any story in any building.

(c) Incinerator flues shall be topped out the same heights as required for any smoke flue.

(d) All incinerator flues shall have an approved wire mesh spark arrestor permanently fastened at the top of the flue, composed of wire netting.

DIVISION E—PART NINE

SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—INSTALLATION OF OIL BURNING EQUIPMENT

Sec. E-901—TANKS:

(a) All fuel oil burning equipment installed for heating, cooking or power purposes may have the oil tanks of the same installed either under or above the surface of the ground. If installed above the surface of the ground said tanks shall have a solid incombustible wall constructed around the tank as required by the Commissioner of Buildings in such a manner that the contents within the wall or enclosure for the tank shall contain one and one-half (1½) times the volumetric contents of the said tank. (See Section B-711.)

(b) All fuel oil tanks installed in the basement of any building shall be limited to three hundred (300) gallons capacity without a retaining wall surrounding the tank and in no case shall they exceed twelve thousand (12000) gallons capacity with a retaining wall and eight (8) inches of fire protection approved by the Commissioner of Buildings.

Exception: First Class Buildings need no fire protection.

(c) Whether such tanks for oil burning equipment are installed in the basement, in the ground or above the ground they shall be equipped with a vent pipe of at least three-quarters (¾) inch pipe vented to the atmosphere and approved by the Commissioner of Buildings. All such tanks shall also be equipped with an extra shut off valve so placed as to be readily accessible so that the supply line from the oil tank to the burner equipment may be shut off. This valve shall be marked fire key and painted with bright red paint. (See Section B-711.)

(d) Fuel oil tanks shall be constructed of basic open hearth steel or wrought iron thoroughly welded so as to prevent leakage. (See Section B-704.)

(e) Auxiliary tanks of ten (10) gallons or less capacity may be constructed of eighteen (18) gauge metal. (U. S. Standard.)

(f) All gravity feed tanks shall be tested for fifty (50) pounds per square inch pressure.

(g) Pressure system tanks shall be tested for six (6) times the maximum working pressure provided such pressure systems do not exceed fifty (50) pounds. All pressure systems shall be equipped with a Safety Relief Valve, with a discharge arranged outside of the building or structure.

(h) No gravity tanks shall be installed within five (5) feet of the burner equipment or furnace, and no pressure tank shall be installed within ten (10) feet of the burner equipment or furnace.

(i) Glass gauge will not be permitted on tanks within buildings.

(j) All pressure systems shall be arranged with an auxiliary tank. No auxiliary tank shall be filled by pumping from the main storage tank. Such auxiliary tank shall be installed in pressure systems in such a manner that in case the tank should overflow the oil will drain back into the main tank and will not drain or drip into the building.

Sec. E-902—PUMPS, PIPING, BURNERS AND FITTINGS:

(a) All pumps, piping, burners and the fittings thereof shall be approved by the Commissioner of Buildings. All joints shall be coated with litharge or other approved cement. All piping shall be standard, wrought iron or steel galvanized pipe. No pipe shall be used less than one-quarter (¼) inch standard iron pipe size. Proper precautions must be taken and allowance made for expansion and contraction. All valves and burners shall be approved by the Commissioner of Buildings. Pilot lights shall be installed in such a manner that they cannot be extinguished.

(b) Fill plugs and overflow pipes shall terminate outside of the buildings. The fill pipe and overflow pipe shall be arranged with inter-connected valves so both lines are open or closed at the same time.

(c) The oil pumps used in filling the auxiliary tank from the main storage shall be designed to prevent leakage and shall be installed with the check valves as close to the pump as possible. All pumps shall have manual valves placed so the pump may be removed for repairs without oil leakage.

(d) Oil burners shall be installed with unions and manual valves so the burners may be removed for repairs without oil leakage.

(e) All control valves shall be approved by the Commissioner of Buildings, and shall be provided with a large stuffing box with a removable cupped gland compression nut. Such valves shall be designed to close against the supply of oil and prevent withdrawal of the stem by continued operation of the handwheel. All packing used shall not be affected by the oil or heat.

The orifice of the burner shall be limited in size so as to get maximum results with the valve wide open. Valve needles shall not enlarge the orifice. Burners shall be designed so gases or carbon cannot accumulate.

(f) Dampers shall not be allowed in the flue pipes and a sufficient opening for draft must be provided below the burner.

DIVISION E—PART TEN

SMOKE ABATEMENT AND FUEL BURNING EQUIPMENT—MISCELLANEOUS

Sec. E-1001—INSTALLATION OF GAS EQUIPMENT:

(a) Gas equipment used for heating, cooking or manufacturing purposes shall be installed in such a manner that no wood parts adjacent to the equipment shall at any time rise to a temperature above two hundred (200) degrees Fahrenheit, shall be installed so that the gas pipe shall be of rigid metal pipe up to the mixing chamber of the device. This Section shall not apply to equipment used in laboratories or in experimental work.

(b) No stove, heater, logs, water heater or other device using gas as fuel shall be used or installed in any bedroom unless the same is connected to a flue of a chimney at least four (4) by eight (8) inches inside dimensions.

(c) No stove or heater, logs, or water heater using gas as a fuel shall be installed in any bathrooms.

(d) All stoves, heaters, logs or other devices using gas as a fuel shall be permanently connected with approved metal gas pipe.

Exception: Laboratory or approved installations.

(e) All water heaters shall be connected to a flue of a chimney.

(f) Stoves using gas as a fuel may be installed in kitchens or cooking closets without a flue connection. (See Section A-923.)

(g) All water heaters shall be equipped with proper water shut off valves so the heater may be removed without shutting off the water from the building and shall be equipped with an approved safety valve.

(h) All heaters, stoves, logs, water heaters or other appliances using gas as a fuel shall have a good and sufficient shut off valve in the gas feed line to the same.

(i) No gas hose shall be used for any heating device.

Exception: Gas irons or other approved appliance.

(j) In any gas consuming device no damper shall be installed in the pipe leading to the flue except upon the approval of the Commissioner of Buildings.

(k) All piping for gas in any building or structure shall be installed in a workmanlike manner with tight fitting joints with the threads thereof properly coated with some approved leakproof compound.

(l) Where fumes of combustion are carried to a flue by a metal pipe as required, such pipe shall be of equal area to the fume exit opening of the gas burning device.

(m) Metal pipes for fumes of combustion shall be tight fitting heavy metal pipes thoroughly anchored into position so as not to move or become dislodged in case of an explosion.

Note: Care shall be exercised in placing flue pipes into the thimbles of chimneys to prevent the pipe from entering the flue too far.

(n) Where water heaters are installed within two (2) feet of any wooden partition or other combustible material the same shall be protected from the heater by an approved incombustible shield. No water heater shall be installed within twelve (12) inches of any combustible material of any character.

(o) No gas consuming device shall be installed in a false fireplace.

(p) Gas garage heaters shall be connected to a flue of a chimney.

(q) All gas lighting units shall be installed in such a manner as not to come in contact with any combustible materials of any sort.

Sec. E-1002—DISTANCE FROM WOODWORK:

(a) All heating furnaces, boilers, laundry stoves, or other similar devices in which hot fires may be maintained shall rest upon masonry foundations, and no woodwork shall be permitted within twelve (12) inches and all such woodwork within twelve (12) feet shall be covered with loose fitting sheet metal or equivalent fire-protective material.

(b) When it is necessary that coal ranges without legs or any of the above mentioned heating devices be supported by wooden floors, the floors shall be protected by a hearth, consisting of a sheet of metal or a one-eighth (⅛) inch layer of asbestos board and either covered with not less than four (4) inches of masonry set in cement mortar. The masonry shall consist of one course of four (4) inch hollow tile, or of two (2) courses of brick, concrete, or tile, at least one of which should be hollow and be laid to preserve free circulation of air through the whole course; or such heating appliance may rest upon a six (6) inch foundation built of incombustible materials supported within the thickness of the floor framing. Such hearths shall extend at least twelve (12) inches on the sides, back and front of the furnace, range or similar heating appliance, if solid fuel is used. The front extension shall be at least twenty-four (24) inches in all cases.

(c) The cold air boxes of all hot air furnaces shall be made of metal, brick or other incombustible material.

(d) No furnace shall be surrounded or inclosed by any combustible material for the purpose of forming chambers.

Sec. E-1003—BAKE OVENS:

(a) Bake ovens shall rest on solid incombustible foundations or on either metal or concrete beams and columns.

(b) The sides and ends shall be at least two (2) feet from any woodwork and the crown of the arch at least four (4) feet from ceilings that have wood joists.

(c) The hearth in front of bake ovens shall extend at least three and one-half (3½) feet beyond the face of said oven.

Sec. E-1004—PORTABLE SMELTING FURNACES:

Portable smelting furnaces or core ovens shall be set on incombustible hearths with an air space of at least five (5) inches between the hearth and the bottom of such oven or furnace.

Sec. E-1005—PROTECTION OF COMBUSTIBLE CONSTRUCTION NEAR STOVES OR RANGES:

If coal or wood burning stoves or ranges are set nearer than twelve (12) inches to stud walls, the walls shall be protected by incombustible shields extending at least six (6) inches each side of the stove or range, and extending from the floor to at least two (2) feet above the stove or range.

Sec. E-1006—DRYING ROOMS:

All walls, ceilings and partitions inclosing drying rooms shall be made of fireproof materials.

Sec. E-1007—HEARTHS AND FIREPLACES:

(a) All hearths or fireplaces shall rest on brick or concrete trimmer arches not less than four (4) inches thick, the header shall be kept at least two (2) feet from the face of the flue breast.

(b) The back of the fireplace shall not be less than eight (8) inches thick.

(c) All centers shall be taken out under trimmer arches before the floor is laid and no person shall lay any hearth on any other than a brick or cement arch.

(d) The jambs on each side of the fireplace shall not be less than thirteen (13) inches wide and not less than twelve (12) inches thick.

(e) No woodwork shall be used to carry out any part of the flue breast, but the same must be furred out with brick or other incombustible material and all corner flues containing fireplaces shall be built on each of the three (3) sides with solid masonry the full size of the base and to the full height of the story.

(f) All fireplaces shall be provided with a damper.

Sec. E-1008—GAS GRATES:

(a) Gas grates shall have hearths constructed of brick or concrete trimmer arches, not less than four (4) inches thick, the header shall be kept at least one (1) foot and six (6) inches from the grate front.

(b) Gas grates must be surrounded by at least eight (8) inches of brick work and shall rest on a solid foundation. No woodwork shall be placed within two (2) inches of any brick work surrounding the grate.

(c) If a chimney or stack is used for a vent duct the same must be constructed with a flue lining of fire clay. (See Section A-923.)

Sec. E-1009—CUPOLAS:

(a) The flues of cupolas in foundries shall extend at least ten (10) feet above the highest point of any roof within a radius of thirty (30) feet of such cupolas, and shall be covered on top with a heavy wire netting or shall be equipped with a suitable spark arrester.

(b) No woodwork shall be placed within two (2) feet of any cupola.

Sec. E-1010—DANGEROUS FLUES AND STACKS:

(a) It shall be unlawful to maintain any flue, stack, fireplace

or heating apparatus on any premises when, in the opinion of the Commissioner of Buildings, they shall be dangerous or unsafe by reason of endangering the buildings of said adjoining premises by fire or otherwise, or emit gases dangerous to human life.

(b) In all such cases the Commissioner of Buildings shall at once notify the owner, agent or other party having an interest in said premises to immediately make the same safe and upon the neglect of said person, so notified, to comply with the provisions of said notice, he may be found guilty of a misdemeanor.

Sec. E-1011—STEAM JETS:

No steam jet or other device to dilute products of combustion shall be used in flues, stacks and chimneys to abate smoke. Combined steam and air turbulence jets will be permitted in the draft line of fires.

This shall not be construed to apply to any approved method to create draft.

DIVISION F—PART ONE

PLUMBING AND OTHER PIPING—ADMINISTRATIVE

Sec. F-101—PERMITS:

(a) Before any plumbing work shall be commenced for any building or structure or on any lot or premises; or the excavation commenced in any public highway or on any lot or premises for any waste, sewage or drainage systems a permit and license shall be obtained from the City Controller, so to do, after application to the Commissioner of Buildings and his approval thereof.

(b) No application for a permit shall be issued by the Commissioner of Buildings unless the person or persons, firm or corporation agree to do all the work for which a permit is granted according to the provisions of this Code and approval issued thereunder either on said application or according to plans and specifications approved by the Commissioner of Buildings and kept on file with him. The Commissioner of Buildings may require affidavits to this effect in any case.

Sec. F-102—PLANS AND SPECIFICATIONS:

(a) Blue prints in duplicate shall be provided the Bureau of Buildings before application for building license and permit; for all plumbing work in building or structures and on all premises both new or old and public or private.

(b) Such blue prints shall show:

(1) All construction and details.

(2) Exact location of all apparatus, the size and capacity thereof.

(3) The size of all pipes, location of all openings and traps and the capacity of all conductors.

Exception: Blue prints may be omitted by special permission or for any repairs not in excess of fifty (50) dollars, which repairs are done by a licensed plumber.

Sec. F-103—CORRECTIONS TO BLUE PRINTS:

After such blue prints are read by the Bureau of Buildings any corrections to the same shall be made in acid by the applicant before a permit or building license is issued.

Sec. F-104—NUMBERING OF BLUE PRINTS:

All blue prints in sets shall be numbered and an index furnished

on the first blue print setting forth each sheet and the character thereof.

Sec. F-105—ERRORS IN BLUE PRINTS AFTER PERMIT IS ISSUED NOT LEGAL:

After the blue prints are stamped as follows: "APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES," such approval shall not be considered as evidence to allow any person or persons to violate any law or ordinance of this Code. Such above approval shall not guarantee any person or persons that the approved plans are in exact accordance with all building and zoning laws or ordinances, and any error found later shall be immediately rectified and the construction or location of the plumbing work changed to conform to the law, ordinances and this Code.

Sec. F-106—SCALE OF PLANS:

All plans shall be drawn to a scale of one-quarter (¼) of an inch to one (1) foot of actual structure or building measurement; except by special permission in writing from the Commissioner of Buildings one-eighth (⅛) inch to one (1) foot scale may be used in large buildings.

Exception: Special permission.

Sec. F-107—CHANGES NOT TO BE MADE IN PLANS AFTER PERMIT IS ISSUED:

No changes are to be made in any plan or specifications of construction after a building license has been issued except by special permission, in writing, from the Commissioner of Buildings.

Sec. F-108—APPROVAL OF PART OF BUILDING:

Nothing in this Division shall be construed to prevent the Commissioner of Buildings from granting his approval for the performing of any part of the work, where approved plans of the same are on file at the Bureau of Buildings.

Sec. F-109—REVOCATION OF BUILDING LICENSE:

(a) Should the Commissioner of Buildings become convinced that the work under the building license is not proceeding according to the plans and specifications upon which such building license was issued, but is proceeding in violation of the law or ordinance or this Code, it shall be his duty to notify, by parole or otherwise, the owner or owners, or his agent, that the work is being done in violation of the approval, permit and Ordinance and that such work shall immediately be stopped and changed to conform to the Building Code.

(b) Such building license may be revoked by parole or otherwise by the Commissioner of Buildings or his authorized assistants when it is believed any part of this Code is being violated. Such revocation of a building license shall be by letter to the applicant at the address shown on the building license application or in lieu thereof the Commissioner of Buildings or his authorized assistants may cause a tag, stickers or notice of such revocation of the license to be written on or attached to the building license, which is required by the law to be posted in a conspicuous place on the construction job.

Sec. F-110—BUILDING LICENSE TO BE POSTED ON THE JOB:

It shall hereafter be unlawful for any person, persons, firm or corporation to do any plumbing work on any new or old structure, including repairs in Indianapolis unless said person or persons, firm

or corporation including the contractor, foreman or workman doing such work shall maintain in full view and in a conspicuous place during the construction or repair work called for by a permit and until the said work shall be finished and finally inspected a building license for such work on such building or structure.

Sec. F-111—REMOVAL OF LICENSE—FINAL INSPECTION:

Such license shall not be removed until the permission so to do is granted by the Commissioner of Buildings or his authorized assistants, either by letter or parole. Such parole notice when final inspection is made shall be in the form of a sticker which shall be attached to the license by the inspector and signed by him.

Sec. F-112—PLANS AND SPECIFICATIONS OF JOB:

It shall further be unlawful for any person or persons, firm or member of a corporation to do any plumbing work on any new or old building or structure or premises in Indianapolis unless there is maintained on such construction or repair job at all times during working hours a complete set of plans and specifications stamped—

"APPROVED SUBJECT TO ALL BUILDING AND ZONING ORDINANCES."

Sec. F-113—LEGAL EXPIRATION OF ANY BUILDING LICENSE:

Every permit and license shall expire by limitation if active work has not been commenced within two (2) months of the date of issue.

Sec. F-114—REJECTION OF PLANS:

It shall be the duty of the Commissioner of Buildings to accept or reject any plan or set of plans within a reasonable time from date of filing same in his office, pursuant to the provisions of this Building Code and all Zoning Laws and Ordinances or other laws and ordinances in effect in the City of Indianapolis.

Sec. F-115—REPAIRS:

(a) Repairs shall be taken to mean repairing or replacing of an old fixture by a new one, to be used for the same purpose; forcing out waste and repairing leaks in waste pipes; but such repairs or alterations shall not be construed to include cases where new vertical or horizontal lines of soil waste, vent or leader pipes are proposed to be used: Provided, That in a building condemned by the Board of Health because of insanitary conditions, no plumbing shall be considered as coming under the head of repairs, but all such plumbing shall be done as in the case of new buildings.

(b) Ordinary repairs to the plumbing work of buildings or structures or any of the appurtenances thereto, the value of which shall not exceed fifty (50) dollars in any one (1) month may be made without notice to the Commissioner of Buildings.

Sec. F-116—DETAILS OF PLUMBING:

Every dwelling house, hotel, apartment house, tenement or business house, factory, store or any other building in which plumbing arrangements are to be placed, shall be connected with the city sewer when such sewer is accessible. The plumbing and ventilation of every building shall be separate and independent from the roof, to the outside of the foundation walls.

Sec. F-117—MASTER PLUMBERS—BOARD OF PLUMBING EXAMINERS:

(a) That there be and is hereby created a Board for the examination and licensing of master plumbers, to be known as "BOARD OF PLUMBING EXAMINERS," which board shall consist of five members to be constituted and appointed as follows: The Commissioner of Buildings of the City of Indianapolis, and the Secretary of the Board of Public Health and Charities shall each be a member of said Board ex-officio. The Commissioner of Buildings of Indianapolis shall appoint as the third member of said Board some master plumber of good moral character of the City of Indianapolis, and these three members shall appoint two additional master plumbers one of whom shall be a registered engineer under the laws of Indiana, all of the City of Indianapolis.

(b) The term "Master Plumber" as used in this Ordinance is defined to mean and include any person, firm or corporation engaged in the business of, or holding themselves out to the public as engaged in the business of installing or repairing or contracting to install or repair plumbing equipment used within buildings, or in any street, alley, lot or premises covered by the Building Code of the City of Indianapolis, together with the fittings for the same.

(c) The salary of the members of said Board, other than the Commissioner of Buildings and the Secretary of the Board of Health and Charities of the City of Indianapolis, shall be sixty (60) dollars per year, or at the rate of five (5) dollars per month, and said Board shall have a right to employ some competent person not a member of the Board as Secretary at the compensation not in excess of Twenty (20) dollars per month.

(d) Said Board of Plumbing Examiners shall meet at the office of the Commissioner of Buildings of the City of Indianapolis, or at such other place in the City Hall as may be assigned to them. Said Board shall meet at least once a month at such time as may be fixed by said Board, and when necessary for the efficient discharge of its duties said Board may adjourn from time to time, and may hold special meetings upon call of the chairman or of two members of said board. The majority of said Board shall constitute a quorum, and it shall require the affirmative vote of a majority of said members to take any action at any regular or special meeting of said Board.

(e) No person shall be entitled to receive a license as a master plumber, as provided in this ordinance unless he passes the following qualifications: (1) Must be over twenty-one years of age and a person of good moral character; (2) Must be a graduate engineer from a recognized university or college, with at least two (2) years' practical experience as a master plumber or as a journeyman plumber repairing or installing plumbing conductors and equipment used inside of buildings, covered by the Building Code of the City of Indianapolis; or have had at least three years' practical experience as a practical plumber or as a journeyman plumber repairing or installing plumbing and equipment used inside of buildings, covered by the Building Code of the City of Indianapolis; (3) Must possess a fair knowledge of the laws of the State of Indiana and of the ordinances of the City of Indianapolis controlling the repair and installation of plumbing and equipment used within buildings, covered by the Building Code of the City of Indianapolis.

(f) No firm or corporation shall be entitled to receive a license as a master plumber as provided in this Ordinance unless, if a firm, some member thereof, or if a corporation some officer or duly authorized representative thereof, shall possess the qualifications required in this Ordinance for master plumbers and apply for and secure a license as master plumber under this ordinance in the name of such firm or corporation.

(g) Said Board of Plumbing Examiners shall have power to adopt all necessary rules and regulations for the conduct of its own business and the examination of applicants for license as Master Plumbers. Said Board shall keep, or cause to be kept, proper records showing the names and addresses of all persons making application for a license as master plumber and to whom said Board authorizes licenses to be issued.

(h) Said Board of Plumbing Examiners shall issue its certificate signed by each member of said Board or a majority thereof, to each applicant for license as a master plumber complying with the requirements of this ordinance. Said certificate shall be directed to the Controller of the City of Indianapolis and said Controller upon receipt of such certificate, shall issue a license to such person, firm or corporation, as the case may be, for a period of one year, or the remainder of the calendar year, after the date of the issuing of such license. All licenses and renewals of the same shall expire on the 31st day of December of each year. No license shall be issued by the Controller to any person, firm or corporation as a master plumber except as provided in this ordinance, and such license so issued shall be evidence in court of the business for which it is issued.

(i) Each applicant before taking examination shall pay to the Controller of said City the sum of fifteen (15) dollars as the preliminary fee for the examination as Master Plumber and file the receipt of the Controller with the Secretary of said Board for such payment. If the applicant is found to be qualified and is given a certificate as provided then he shall be entitled, upon the further payment to said Controller of Ten (10) dollars and the execution of a bond as provided for in this part, to receive a License from the Controller, as a master plumber as provided in this part.

Sec. F-118—MASTER PLUMBER BOND:

(a) Each person, firm or corporation applying for the license required by this Ordinance shall, before being granted a license by the Controller, make, execute and deliver to the Controller a bond in the sum of three thousand ($3,000.00) dollars payable to the City of Indianapolis, such bond to be made for the use and benefit of the owner or any party in interest in the property where said master plumber furnishes any material, or performs any service, against loss or damage which may arise by reason of the work done or material furnished being in violation of the requirements of any law of the State of Indiana or any ordinance of the City of Indianapolis controlling such work. Such bond shall be executed by each applicant with any recognized and responsible surety company authorized to do business in Marion County, Indiana, as surety thereon.

(b) Each person, firm or corporation applying for the license as master plumber, as provided in this ordinance, shall have the right without further examination to obtain a license each year thereafter from said Controller upon the payment to the Controller of a license

fee of five ($5.00) dollars, and the execution of a bond with security as herein required.

Sec. F-119—AUTHORITY OF BOARD:

Any person shall have the right to appear before the Board of Plumbing Examiners for permission to do plumbing for himself or for any other person, firm or corporation to the extent of the permission granted him in writing by said Board as herein provided.

Sec. F-120—SECOND GRADE LICENSE:

The above and foregoing provisions shall not apply or govern plumbing work done by any person, firm or corporation through a regular employee employed in whole or in part for maintenance work, provided, however, that the owner of any such plant or building desiring to do such plumbing work through his, their or its regular employees shall join with such employee, or employees, in an application to the Board of Plumbing Examiners for a permit and second grade license therefor. Such employee shall appear in person before said Board and shall pass an examination the same as provided for master plumbers and after said Board is satisfied that such employee joining such person, firm or corporation, in such application is qualified to do plumbing work as provided and described herein said Board shall issue such permit to such person, firm or corporation for said employee, so joining in said application and upon presentation of such permit to the Controller of said City, such person, firm or corporation shall be entitled to receive a license for said employee, to do plumbing work on the premises of said person, firm or corporation upon the payment of the fee of five (5) dollars per year without the execution of any bond. The work done under such license shall be limited to the employee named in such license and to the building or buildings owned by said person, firm or corporation, but not for any building under construction; and said Board shall keep a proper record showing the name and address of each person, firm or corporation to whom such permit and license is granted. If an employee named in any license issued to any person, firm or corporation under this rule shall for any reason cease to be an employee of such person, firm or corporation, then all rights under such license shall cease, and said person, firm or corporation shall be required to make a new application to said Board of Plumbing Examiners the same as if he, they or it had never been granted any permit or license by such Board.

Sec. F-121—DISPLAY OF LICENSE:

Any person, firm or corporation granted a license as master plumber, or a renewal thereof, in accordance with the provisions of this Ordinance, shall display the same in a conspicuous place in the place of business of such person, firm or corporation.

Sec. F-122—LICENSE NON-TRANSFERABLE:

No permit or license, or renewal thereof, granted under the provisions of this part shall be assignable or transferable and every person, firm or corporation to whom it is issued, and if issued to a such license, or renewal of the same, shall specify the name of the firm the name of the member of such firm qualifying as such master plumber, and if issued to a corporation the name of the officer or representative of such corporation qualifying as such master plumber. If a member of the firm or an officer or representative of a corporation named in the permit or license, or renewal thereof,

qualifying as such master plumber shall cease to be a member of such firm or shall cease to be the officer or representative of such corporation, then and in that event all rights of such firm or such corporation under such permit or license, or renewal thereof, shall cease and said firm or corporation shall be required to make a new application to said Board of Plumbing Examiners as provided in this part the same as if it had never been granted any permit or license by such Board.

Sec. F-123—SUSPENSION OR REVOKING OF LICENSES:

The Board of Plumbing Examiners shall have power with the approval of the Board of Public Safety, to suspend or revoke any license, or renewal thereof, granted by said Board; for cause or any violation by any master plumber, to whom a license has been granted, of any of the provisions of this Code. Any violation shall be sufficient cause for the suspension or revocation of such license.

Sec. F-124—EXPENSES OF BOARD:

Said Board shall not have the power to create any expense unless the money therefor has been duly appropriated by the Common Council of said City. Any expense incurred by said Board including the salary of members and the compensation of the Secretary, shall be paid on voucher approved by said Board or a majority thereof.

Sec. F-125—LICENSE WITHOUT EXAMINATION:

At any time within sixty (60) days after this Ordinance goes into effect, upon due application therefor and the payment of a fee of Twenty-five ($25.00) dollars, the Board of Plumbing Examiners shall issue a license as provided herein to any Master Plumber who shall submit evidence under oath, satisfactory to the Board of Plumbing Examiners, that he is of good moral character and has been practicing as a Master Plumber for three years prior to the passage of the Ordinance.

Sec. F-126—INSPECTION OF PLUMBING:

(a) The Commissioner of Buildings and his authorized assistants are hereby empowered to examine and inspect all plumbing, gas fitting or steam fitting or other piping installed in the City of Indianapolis.

(b) The Bureau of Buildings shall be notified when any plumbing work or other pipe fitting is ready for inspection and test and the Commissioner of Buildings, or his authorized assistants shall examine the same and approve or reject all such work or parts thereof not less than sixteen working hours from the time of such notification. All work shall be left uncovered for examination until the final test is made and the final inspection notice otherwise described in this Code is attached to the work and signed by the inspector.

Sec. F-127—FUTURE REGULATIONS:

The City Board of Health and Charities may make sanitary regulations for plumbing installations. Such regulations shall be recommended to the Board of Public Safety by the Commissioner of Buildings. After the approval of such regulations by the Board of Public Safety such regulations shall be published once each week for two consecutive weeks in the official paper of the City of Indianapolis after which such regulations shall become a part of this Code as hereintofore provided.

Sec. F-128—CONDEMNATION AND REINSPECTION OF PLUMBING:

(a) The Commissioner of Buildings may order reinspection of repaired, under the same procedure as for the condemnation of any premises and if such plumbing is found in a defective condition he shall have the power to condemn the same and order the same to be repaired, under the same procedure as for the condemnation of any building.

(b) If the owner of such plumbing shall fail to repair the same or make the same in a sanitary condition within any time as stated in the condemnation notice by the Commissioner of Buildngs the Commissioner of Buildings shall have a right to order the place vacated or he may notify the Board of Public Health and Charities and they shall act according to their rules and regulations and according to any laws or ordinances in effect in the City of Indianapolis.

Sec. F-129—EXCAVATION FOR PLUMBING:

(a) It shall hereafter be unlawful for any person, firm or corporation to excavate for any sewer or waste pipe in any street or alley or on any lot or premises in the City of Indianapolis without first obtaining a permit from the City Controller so to do, after application to the Commissioner of Buildings and his approval thereof.

(b) No such excavation shall be covered until an inspection thereof and approval thereof is made by the Commissioner of Buildings.

(c) Any excavation made in any street or alley after inspection and approval by the Commissioner of Buildings shall be replaced and the dirt tamped in wet in a solid and approved manner.

(d) The Commissioner of Buildings shall have jurisdiction of all plumbing and sewage and drainage ducts or pipes up to and entering into the main sewer in the public highway. All connections to the main sewer shall be made in an approved manner.

Sec. F-130—BOND FOR SEWER EXCAVATORS:

It shall hereafter be unlawful for any person, firm or corporation to excavate for any water, gas or sewer piping in any public highway or on any lot or premises or in any building in the city unless the said person, firm or corporation has first obtained a permit, so to do and has furnished the City Controller with a good and sufficient surety bond in the sum of five thousand ($5,000.00) dollars payable to the City of Indianapolis for a period of two (2) years for the benefit of the said city or any party in interest in case any such person, firm or corporation does any work in any public highway or on any lot or premises or in any building which work fails after a period of one (1) year to meet the requirements of the Commissioner of Buildings or the City Engineer or this code.

Such surety bond shall be renewed as often as is necessary to insure work done on any permit to be satisfactory to the City one year from the date of final inspection of said work.

DIVISION F—PART TWO
GENERAL REQUIREMENTS FOR PLUMBING AND DRAINAGE

Sec. F-201—BASEMENT AND CELLAR DRAINS:

All buildings which contain a finished basement or cellar, shall have approved floor drains to conduct water therefrom. Such floor

drains shall be connected to a public sewer except in cases where no public sewer is available.

Sec. F-202—PIPE CHASES FOR SOIL AND WASTE AND OTHER PIPING:

All waste and supply piping for any toilet, bathroom, sink, wash stand or other water consuming fixture shall be enclosed in an accessible vertical chase whose inside dimensions are not less than fourteen (14) inches by five and one-half (5½) inches, which chase shall run the full height of the enclosing walls or partitions.

If the chase is in a stud wall the studs shall be not less than two (2) inches by six (6) inches lumber.

Sec. F-203—FALSE CEILING BELOW SOIL AND WASTE AND OTHER PIPING:

In every case in any frame constructed floor, a false ceiling or other approved method shall be arranged below the floor joists in such a manner that all the soil and waste piping and all water or other piping can be placed in position without sawing, cutting or notching of any floor joists except as provided in Section A-359, F-204.

Sec. F-204—STRUCTURAL PARTS OF WOOD SHALL NOT BE CUT INTO FOR PIPING:

(a) No wooden joist and wooden beam or girder shall be notched or sawed into for any purpose whatsoever, however holes may be bored midway between the top and bottom of any such structural member when the said hole is not over one and one-half (1½) inches in diameter and is not over two (2) feet from the end of the joist or beam. No holes of over three-quarters (¾) of an inch may be bored in any joist or beam in any location nearer the middle of the span of the joist or beam for any purpose whatsoever.

Exception: Special permission.

(b) The strength of structural members depends upon the depth of the joist and any cutting or notching that cuts away material near the edges or near the middle of the span of the timber will generally so weaken the timber that they have to be replaced. If it becomes necessary to notch timbers the timbers shall be increased in depth sufficient to take care of the decreased strength or the timber shall be doubled. Such procedure shall not be practiced without the complete sanction of the Commissioner of Buildings.

Sec. F-205—EXPOSURE OF FAUCETS AND WATER VALVES:

No faucet, water valve, gas valve or other shutoff in any water or gas piping shall be located in any building in such a manner that the same is concealed and is not in a readily accessible location. In cases where water faucets or valves are located in a plastered or tile wall or partition there shall be a readily accessible chase within the wall or partition so such valves may be removed for repairs without disturbing any plastering or any structural or built in parts of the building except the cover for the pipe chase.

Sec. F-206—VENTILATION OF WATER CLOSETS:

(a) No water closet shall be installed in any location in any building or structure unless there is an outside window in the same room or closet with the said water closet or in lieu thereof the Commissioner of Buildings may approve an air vent to the outside air.

(b) Where air vents are used only one room or closet shall be

connected to any one air vent and each air vent shall lead directly to the outside air. No other connections or opening shall be made to said air vent except for forced ventilation.

(c) Where such air vents are placed in wooden partition walls or come in contact with any wood whatsoever they shall be double wall conductors with at least one-quarter (¼) inch air space between the two pipes.

Sec. F-207—GRADES OF HORIZONTAL PIPING:

All horizontal piping shall be run in practical alignment and at a uniform grade of not less than one-eighth (⅛) of an inch per foot, and shall be supported or anchored at intervals not to exceed ten (10) feet. When cast iron soil pipe is used, intervals shall not be more than five (5) feet. All stacks shall be supported at their bases, and all pipe shall be rigidly secured.

Sec. F-208—CHANGE IN DIRECTION:

All changes in direction shall be made by the appropriate use of forty-five (45) degree "Y's", half "Y's", long sweep quarter bends, sixth, eighth, or sixteenth bends, except that single and double sanitary "T's" may be used on vertical stacks, and short quarter bends may be used in soil and waste lines where the change in direction of flow is from the horizontal to the vertical. "T's" and crosses may be used in vent pipes.

Sec. F-209—PROHIBITED FITTINGS:

No double hub, double "T", or double sanitary "T" branch shall be used on soil or waste lines, except that single or double sanitary "T's" may be used in vertical lines. The drilling and tapping of building drain, soil, waste, or vent pipes, and the use of saddle hubs and bands are prohibited.

Sec. F-210—DEAD ENDS:

In the installation of any drainage system, dead ends shall be avoided unless installed for cleanout openings.

Sec. F-211—PROTECTION OF MATERIAL:

All pipes passing under or through walls shall be protected from breakage. All pipes passing through or under cinder, concrete or other corrosive material shall be protected against external corrosion. Pipe wrapped with tarred paper and coated with asphalt will be accepted as complying with the last paragraph of this section.

Sec. F-212—WORKMANSHIP:

Workmanship shall be of such character as to fully secure the results sought to be obtained in all of the sections of these Rules and Regulations.

DIVISION F—PART THREE
QUALITY AND WEIGHTS OF MATERIALS

Sec. F-301—QUALITY OF MATERIALS:

All materials used in any drainage, or plumbing system, or part thereof, shall be free from defects.

Sec. F-302—LABEL, CAST OR STAMPED:

Each length of soil or drainage pipe, fittings, fixtures and device, or traps used in the plumbing or drainage system shall be stamped or indelibly marked with the weight or quality thereof, and the maker's mark or name.

Sec. F-303—VITRIFIED CLAY PIPE:

All vitrified clay pipe shall conform to specifications approved by the Commissioner of Buildings.

Sec. F-304—CAST IRON PIPE:

(a) Quality: All cast iron pipe and fittings shall conform to specifications approved by the Commissioner of Buildings and known to the trade as extra heavy cast iron soil pipe.

(b) Coating: All cast iron pipe and fitting for under-ground use shall be coated with asphaltum or coal tar pitch.

Sec. F-305—WROUGHT ION PIPE:

All wrought iron pipe shall conform to specifications approved by the Commissioner of Buildings and shall be galvanized, except that waste or soil pipe over two (2) inches in diameter shall be galvanized or coated inside and out with asphalt.

Sec. F-306—MILD STEEL PIPE:

All steel pipe shall conform to specifications approved by the Commissioner of Buildings and shall be galvanized, except that waste and soil pipe over two inches in diameter shall be galvanized or coated inside and out with asphalt.

Sec. F-307—BRASS OR COPPER PIPE:

Brass and copper pipe shall conform respectively to specifications approved by the Commissioner of Buildings.

Sec. F-308—BRASS TUBING:

All brass tubing used for fixtures, traps, and overflows between wall or floor and fixtures, shall be made of a good quality of brass and of a thickness at least equal to number eighteen (18) Brown and Sharp Gauge.

Sec. F-309—LEAD PIPE—DIAMETER—WEIGHTS:

All lead pipe shall be of best quality of drawn pipe of not less weight per linear foot than shown in the following tables:

Note: American Society of Testing Materials.

(a) Lead soil, waste, vent or flush pipes, including bends and traps (Extra Light)

Internal Diameter	Wts. Per Foot
1 Inch	2 Lbs.
1¼ "	2 " 8 Oz.
1½ "	3 " 8 "
2 "	4 " 0 "
3 "	4 " 12 "
4 "	6 "

(b) Lead water suppply pipe shall be extra strong.

Internal Diameter	Wts. Per Foot
½ Inch	2 Lbs. 8 Oz.
⅝ "	3 "
¾ "	3 " 8 "
1 "	4 " 12 "
1¼ "	6 "
1½ "	7 " 8 "
1¾ "	8 "
2 "	9 "

Sec F-310—SHEET LEAD:

Sheet lead shall weigh not less than four (4) pounds per square foot.

Sec. F-311—SHEET COPPER OR BRASS:

Sheet copper or brass shall be not lighter than No. 18 B. and S. Gauge, except that for local and interior ventilating pipe, it shall be not lighter than No. 26 B. and S. Gauge.

Sec. F-312—GALVANIZED SHEET IRON:

Galvanized sheet iron shall be not lighter than the following B. and S. Gauge:

No. 26 for 2" to 12" pipe.
No. 24 for 13" to 20" pipe.
No. 22 for 21" to 26" pipe.

Sec. F-313—THREADED FITTINGS:

(a) Plain screwed fittings shall be cast iron, malleable iron, or brass, of standard weight and dimensions.

(b) Drainage fittings shall be cast iron, malleable iron or brass, with smooth interior waterway, with threads tapped out of solid metal.

(c) All cast iron fittings used for water supply distribution shall be galvanized.

(d) All malleable iron fittings shall be galvanized.

Sec. F-314—CAULKING FERRULES:

Brass caulking ferrules shall be of the best quality red cast brass with weights and dimensions in accordance with the following table:

Pipe Size	Actual Inside Diameter	Length	Weight
2 Inches	2¼ Inches	4½ Inches	1 lb.
3 Inches	3¼ inches	4½ Inches	1 lb. 12 oz.
4 Inches	4¼ Inches	4½ Inches	2 lb. 8 oz.

Sec. F-315—SOLDERING NIPPLES AND BUSHINGS:

(a) Soldering nipples shall be of brass pipe, iron pipe size, or of heavy cast red brass not less than the following weights:

Diameters	Weights
1¼ Inches	6 oz.
1½ Inches	8 oz.
2 Inches	14 oz.
2½ Inches	1 lb. 6 oz.
3 Inches	2 lb. 0 oz.
4 Inches	3 lb. 8 oz.

(b) Soldering bushings shall be of brass pipe, iron pipe size, or heavy cast red brass.

Sec. F-316—FLOOR FLANGES FOR WATER CLOSETS:

Floor flanges for water closets shall be not less than three-sixteenths ($\frac{3}{16}$) of an inch thick, and of brass or cast iron.

DIVISION F—PART FOUR

JOINTS AND CONNECTIONS

Sec. F-401—WATER AND AIR TIGHT JOINTS:

All joints and connections mentioned under this Part shall be made permanently gas and water tight.

Sec. F-402—VITRIFIED PIPE:

Bell and Spigot shall be placed so as to form a concentric space uniform in width around the pipe, which space shall be completely filled with Portland Cement mortar, or other suitable joint material, and the joint and pipe thoroughly swabbed inside.

Connections between iron pipe and vitrified pipe shall be made by extending the iron pipe into the vitrified pipe a distance of not less than one (1) ft. and packing with oakum to a depth of six (6) inches, then properly cementing as for vitrified pipe joints.

Sec. F-403—CAULKED JOINTS:

All caulked joints shall be firmly packed with oakum or hemp, and shall be secured only with pure lead, not less than one (1) inch deep, well caulked, and no paint, varnish or putty will be permitted until after the joint is tested.

Sec. F-404—SCREW JOINTS:

All screw joints shall be American Standard Screw joints, and all burrs or cutting shall be removed.

Sec. F-405—CAST IRON:

Cast iron joints may be either caulked or screw joints made in the approved manner.

Sec. F-406—WROUGHT IRON, STEEL OR BRASS TO CAST IRON:

The joints may be either screwed or caulked joints made in the approved manner.

Sec. F-407—LEAD PIPE:

Joints in lead pipe, or between lead pipe and brass or copper pipes, ferrules, soldering nipples, bushings, or taps, in all cases on the sewer side of the trap and in concealed joints on the inlet side of the trap, shall be full wiped joints with an exposed surface of the solder to each side of the joints of not less than three-quarters (¾) of an inch and a minimum thickness at the thickest part of the joints of not less than three-eighths (⅜) of an inch, except connections to brass bushings may be made with wiped joints three-eighths (⅜) of an inch long.

Sec. F-408—LEAD TO CAST IRON, STEEL OR WROUGHT IRON:

The joints shall be made by means of a caulking ferrule, soldering nipple, or bushing.

Sec. F-409—SLIP JOINTS AND UNIONS:

Slip joints will be permitted only in trap seals or on the inlet side of the trap. Unions on the sewer side of the trap shall be ground faced and shall not be concealed or enclosed.

Sec. F-410—ROOF JOINTS:

The joint at the roof shall be made water tight by use of copper or lead flashings or iron plates.

Sec. F-411—CLOSET, PEDESTAL URINAL, AND TRAP STANDARD SLOP SINK, FLOOR CONNECTIONS:

A brass floor connection shall be wiped or soldered to lead pipe. An iron or brass floor connection shall be caulked to cast iron pipe, or an iron or brass floor connection caulked or screwed to wrought iron pipe, and the floor connection bolted to an earthenware trap flange. A metal to earthenware, a metal to metal union, a lead or asbestos gasket or washer, or a compressible waterproof material equally as good shall be used to make a tight joint.

Sec. F-412—INCREASERS AND REDUCERS:

Where different sizes of pipes, or pipes and fittings, are to be connected, proper size increasers or reducers, pitched at an angle of forty-five (45) degrees between the two sizes, shall be used.

Sec. F-413—PROHIBITED JOINTS AND CONNECTIONS:

Any fitting or connection which has an enlargement, chamber or recess, with a ledge shoulder or reduction of the pipe area in the direction of the flow on the outlet or drain side of any trap is prohibited. This section shall not be construed to eliminate the so called sisson or similar insertable joint.

Sec. F-414—EXPANSION BOLTS:

Connections of wall hangers, pipe supports, or fixture settings with the masonry, stone or concrete backing shall be made with expansion bolts without the use of wooden plugs.

Sec. F-415—NEW MATERIALS:

Any other material than that specified in these rules and regulations, which the proper administrative authority approves as being equally efficient, may be permitted.

DIVISION F—PART FIVE

TRAPS AND CLEANOUTS

Sec. F-501—TRAPS, KIND:

Every trap shall be self cleaning. Traps for bath tubs, lavatories, sinks, and other similar fixtures shall be of lead, brass, cast iron or malleable iron or other noncorrodible metal equally as good. Malleable iron shall be galvanized or porcelain enameled inside. Galvanized or porcelain enameled traps (with threads tapped out of solid metal), shall be extra heavy, and shall have a full bore smooth interior water way. The use of plain traps is permissible.

Sec. F-502—TRAPS, PROHIBITED:

No form of trap which depends for its seal upon the action of movable parts, or concealed interior partition, shall be used for fixtures.

Sec. F-503—TRAPS, WHERE REQUIRED:

Each fixture shall be separately trapped by a water seal trap placed as near to the fixture as possible, except that a set of not more than three (3) laundry trays or lavatories, or a set of two (2) laundry trays and one (1) sink, may connect with a single trap, provided the trap is placed centrally and the branches connect into the trap seal at an angle of not more than sixty (60) degrees to the vertical arm, provided, however, no such branch arm shall be more than 30" long. In no case shall the waste from a bath tub or other fixture, discharge into a water closet trap. No traps are to be larger than pipes to which they connect. No fixture shall be doubly trapped.

Sec. 504—MAIN BUILDING TRAP:

When a main building trap is used, there shall be a fresh air inlet of not less than four-inch diameter, not less than two feet or more than four feet from the inlet side of trap. The fresh air inlet shall be carried separately through roof and located as prescribed for vent outlets. The traps shall have a cleanout plug on the inlet and outlet of trap. The trap shall be placed in an accessible position.

Sec. F-505—WATER SEAL:

Each fixture trap or floor drain trap shall have a water seal of not less than two inches and not more than four inches.

Sec. F-506—TRAP CLEANOUTS:

Each trap, except those in combination with fixtures in which the trap seal is plainly visible and accessible, shall be provided with

an accessible brass trap screw of ample size, protected by the water seal. Traps placed below the floor shall have a brass trap screw for cleaning, flush with the floor, or readily accessible from or under the floor.

Sec. F-507—TRAP LEVELS AND PROTECTION:

All traps shall be set true with respect to their water seals and protected from frost and evaporation.

Sec. F-508—PIPE CLEANOUTS:

The bodies of cleanout ferrules shall be made of standard pipe sizes, conform in thickness to that required for pipe and fittings of the same metal, and extend not less than one-quarter (¼) inch above the hub. The cleanout plug shall be of heavy red brass not less than one-eighth (⅛) inch thick and be provided with solid raised nut or recessed socket for removal. Cleanout plugs shall have standard size pipe threads.

Sec. F-509—PIPE CLEANOUTS—WHERE REQUIRED:

A cleanout easily accessible shall be provided at the foot of each vertical waste or soil stack. There shall be at least two (2) cleanouts in the building drain, one at or near the base of the stack and the other, with "Y" branch, inside the wall near the connection between the building drain and building sewer. Cleanouts shall be of the same nominal size as the pipes up to four (4) inches, and not less than four (4) inches for larger pipe. The distance between cleanouts in horizontal soil or waste lines shall not exceed twenty (20) feet, if less than three (3) inches in diameter, and fifty (50) feet, if three inches or more in diameter.

Sec. F-510—MANHOLES:

All underground traps and cleanouts of a building, except where cleanouts are flush with the floor, and all exterior underground traps shall be made accessible by manholes with proper covers.

Sec. F-511—CLEANOUTS—EQUIVALENTS:

Any floor or wall connection of fixture traps, when bolted or screwed to the floor or wall, shall be regarded as a cleanout.

Sec. F-512—GREASE TRAPS:

When a grease trap is installed, it shall be placed as near as possible to the fixture from which it received the discharge and should have twice the capacity of the discharge.

Sec. F-513—SAND TRAPS:

Sand traps when installed should be so designed and placed as to be readily accessible for cleaning.

Sec. F-514—BASEMENT FLOOR DRAINS:

Cellar or basement floor drains shall connect into a trap so constructed that it can be readily cleaned and of a size to serve efficiently the purpose for which it is intended. The drain inlet and cleanout opening shall be so located that they are at all times in full view. When any fixture is subject to back flow or back pressure, such fixture shall be equipped with an adequate back water valve.

Sec. F-515—BACK WATER VALVES:

Back water valves shall have all wearing parts or balls of noncorrodible material and shall be so constructed as to insure a positive mechanical seal and remain closed when there is back pressure on the valve.

DIVISION F—PART SIX
WATER SUPPLY AND DISTRIBUTION

Sec. F-601—QUALITY OF WATER:

The quality of the water supply shall meet accepted standards of purity.

Sec. F-602—DISTRIBUTION:

A water supply, that meets accepted standards of purity for human consumption, shall be distributed through a piping system entirely independent of any piping system conveying another water supply.

Sec. F-603—WATER SERVICE:

The water service pipe of any building shall be of sufficient size to permit a continuous ample flow of water on all floors at a given time.

Sec. F-604—WATER SUPPLY TO FIXTURES:

All plumbing fixtures shall be provided with a sufficient supply of water for flushing to keep them in a sanitary condition. Every water closet or pedestal urinal shall be flushed by means of an approved tank or flush valve of at least four (4) gallons flushing capacity for water closets and at least two (2) gallons for urinals, and shall be adjusted to prevent the waste of water. The flush pipe for water closet flush tanks shall be not less than one and one-quarter (1¼) inches in diameter, and the water flush tanks shall be used for no other purpose except to reseal drain traps.

No water closet or urinal bowl shall be supplied directly from a water supply system through a flushometer or other valve, unless such valve is set above the water closet or urinal in such a manner as to prevent any possibility of polluting the water supply. Exception: A frost proof water closet may have valve below fixture if the drain from valve does not connect directly to drainage system.

Sec. F-605—SIZE OF WATER SUPPLY PIPES:

The minimum size of water service pipes from the curb to the dwelling shall be three-quarters (¾) inch, if galvanized iron is used, or five-eighths (⅝), if lead pipe is used. The minimum sizes to fixtures shall be not less than as follows, to-wit:

Sill Cocks	½ inch
Hot Water Boilers	½ inch
Laundry Trays	½ inch
Sinks	½ inch
Lavatories	⅜ inch
Bath Tubs	½ inch
Water Closet Tanks	⅜ inch

Sec. F-606—WATER SUPPLY CONTROL:

A main shut-off on the water supply line shall be provided near the curb. Accessible compression stop and waste cock shall be provided on the main supply line just inside the foundation wall; controlling valves for each flat or apartment of a building; for each lawn sprinkler; for supply to each hot water tank; and for each water closet.

Sec. F-607—WATER SUPPLY PIPES AND FITTINGS—MATERIAL:

All water supply pipes for a plumbing system shall be of lead, galvanized wrought iron, or galvanized steel, brass, or cast iron,

with brass or galvanized cast iron or galvanized malleable iron fittings. No pipe or fittings that have been used for other purposes shall be used for distributing water.

Sec. F-608—WATER SUPPLY—PROTECTION:

All concealed water pipe, storage tanks, flushing cisterns, and all exposed pipes or tanks subject to freezing temperatures, shall be efficiently protected against freezing.

Sec. F-609—RELIEF VALVES:

Wherever a check valve is installed on the cold water supply pipe between the street main and the hot water tank there shall be installed on the hot water distributing system a suitable relief valve with noncorrodible seat and there shall be no stop or valve between hot water tank and relief valve.

Sec. F-610—PUMPS AND HYDRANTS:

All pumps and hydrants shall be protected from surface water and contamination.

DIVISION F—PART SEVEN
PLUMBING FIXTURES

Sec. F-701—MATERIALS:

All receptacles used as water closets, urinals, or otherwise for the disposal of human excreta, shall be vitrified earthenware, hard natural stone, or cast iron white enameled on the inside.

Sec. F-702—HOW INSTALLED:

All plumbing fixtures shall be installed free and open in a manner to afford access for cleaning.

Where practical all pipes from fixtures shall be run to the wall and no lead trap or pipe should extend nearer to the floor than twelve (12) inches unless protected by casing.

Sec. F-703—WATER CLOSET BOWLS:

Water closet bowls and traps shall be made in one piece and of such form as to hold a sufficient quantity of water when filled to the trap overflow, to prevent fouling of surfaces, and shall be provided with integral flushing rims constructed so as to flush the entire interior of the bowl.

Sec. F-704—FROST PROOF CLOSETS—WHERE PERMITTED:

Frost proof closets may be installed only in compartments which have no direct connection with a building used for human habitation or occupancy. The soil pipe between the hopper and the trap shall be not less than three (3) inches in diameter and shall be of lead, or cast iron enameled on the inside.

Sec. F-705—FIXTURES PROHIBITED:

Fixed wooden wash trays or sinks shall not be installed in any building designed or used for human habitation. No new copper lined wooden bath tubs shall be installed, and an old fixture of this class taken out shall not be reconnected. Pan, valve and plunger, offset washout, and other water closets having invisible seals or unventilated space, or walls not thoroughly washed at each flush, shall not be used. Long hopper closets or similar appliances shall not hereafter be installed. No bell-trap floor drain shall be installed. No dry closet or chemical closet shall be installed in a building used for human occupancy.

Sec. F-706—FLOOR DRAINS AND SHOWER DRAINS.

A floor drain or a shower drain shall be considered a fixture and be provided with a strainer.

Sec. F-707—FIXTURE STRAINERS:

All fixtures other than water closets and pedestal urinals, where service will allow, shall be provided with fixed strong metallic strainers with outlet areas not less than that of the interior of the trap.

Sec. F-708—FIXTURE OVERFLOW:

The overflow pipe from a fixture shall be connected on the building or inlet side of the trap and be so arranged that it may be readily and effectively cleaned.

DIVISION F—PART EIGHT
VENTILATION OF ROOMS AND FIXTURES

Sec. F-801—LOCATION OF FIXTURES:

No trapped plumbing fixture shall be located in any room or apartment which does not contain a window placed in an external wall or is not otherwise provided with proper ventilation by which air in the room shall be changed at least six (6) times per hour.

Exception: Special permission.

Sec. F-802—VENTILATING PIPE—HOW CONNECTED:

Ventilation pipes from fixtures and toilet rooms shall be separate and distinct and have no connection whatever with the other ventilating ducts or pipes in the building.

Sec. F-803—VENT FROM WATER HEATERS:

No gas, or similar water heater shall be used without a vent pipe, connected to a flue that has a positive up draft, that will remove dangerous products of combustion.

DIVISION F—PART NINE
SOIL, WASTE AND VENT PIPES

Sec. F-901—MATERIAL:

All main or branch soil, waste and vent pipes within the building, shall be extra heavy cast iron, galvanized steel, galvanized wrought iron, lead, brass or copper.

Exceptions: Steel or wrought iron pipe over two inches in diameter, if used for soil or waste pipe, shall be galvanized or coated inside and out with asphalt. No steel or wrought iron pipe shall be used for under ground soil or waste pipe.

Sec. F-902—FIXTURE UNIT AND TRAP SIZES:

The following table, based on the rate of discharge (approximately one cubic foot per minute) from a lavatory as the unit, shall be employed to determine fixture equivalents and trap sizes.

	Fixture Unit	Minimum trap size
One lavatory or wash basin	1	1¼ inch
One kitchen sink	1½	1½ "
One bath tub	2	1½ "
One laundry tray	3	1½ "
One combination fixture	3	1½ "
Three feet of urinal trough	1	1½ "
One wall type urinal	1	1¼ "
One shower bath	3	2 "

Other types of urinals	3	3	"
One floor drain	3	2	"
One slop sink	4	2	"
One water closet	6	3	"

Sec. F-903—SOIL AND WASTE STACKS:

Every building in which plumbing fixtures are installed shall have a soil or waste stack, or stacks, extending full size through the roof. Soil and waste stacks shall be as direct as possible and free from sharp angles and turns. The required size of a soil or waste stack shall be independently determined by the total fixture units of all fixtures connected to the stack in accordance with the following table:

WASTE STACKS

No. Fixture units stack		Branch	Diameter of Stack, inches	Permitted Length, feet
	1	1	1¼	45
2	8	4	1½	60
9	18	8	2	75
19	36	13	2½	105

SOIL AND WASTE STACKS

No. Fixture Units		No. W. C.'s or equivalent		Diameter of Stack	Maximum permitted length
Stack	Branch	Stack	Branch	inches	feet
37-72	18	1-12	1	3	150
73-300	54	13-50	9	4	225
301-720	102	51-120	17	5	300
721-1080	168	121-180	28	6	400
1081-1920	349	181-320	58	8	600

Restrictions: No water closet shall discharge into a stack less than three (3) inches in diameter. Not more than one (1) water closet, or the equivalent in fixture units of three (3) water closets shall discharge into a three (3) inch stack from one (1) three (3) inch branch, and not more than two (2) such branches may connect to a three (3) inch stack at the same point or level. Base fittings shall be at least one pipe size larger than the stack. Base fittings shall be the same size as the building drain or lateral from the building drain.

Sec. F-904—SOIL AND WASTE STACKS—FIXTURE CONNECTIONS:

All soil and waste stacks and branches shall be provided with correctly faced inlets for fixture connections.

Sec. F-905—CHANGING SOIL AND VENT PIPES:

In existing buildings where the soil or waste vent pipe is not extended undiminished through or above the roof, or where there is a sheet metal soil or waste vent pipe, and the fixture is changed in style or location or is replaced, a soil, waste or vent pipe of the size and material prescribed for new work shall be installed.

Sec. F-906—PROHIBITED CONNECTIONS:

No fixture connection shall be made to a lead bend or branch of a water closet or similar fixture. No soil or waste vent, circuit or loop vent, above the highest installed fixture on the branch or main, shall hereafter be used as a soil or waste pipe except as provided in

Section P-917. No rainwater leader, over two (2) inches in diameter, shall connect to building drain. Acids or corrosives, if of sufficient strength to be injurious to the piping system, shall not enter the building drainage system inside of the building but shall be discharged to the sewer outside of the building in such a manner as to protect the building drainage system from damage and shall be installed, trapped, and vented as required for other plumbing fixtures.

Sec. F-907—SOIL AND WASTE PIPE PROTECTED:

No soil or waste stack shall be installed or permitted outside a building unless adequate provision is made to protect it from frost.

Sec. F-908—ROOF EXTENSIONS:

All roof extensions of soil and waste stacks shall be run full size at least six (6) inches above the roof, and when the roof is used for other purposes than weather protection, such extension shall not be less than five (5) feet above the roof.

When there is danger of frost closure, no roof extension shall be less than four (4) inches in diameter. Change in diameter shall be made by use of a long increaser at least one (1) foot below the roof, and where access to the roof is difficult a test opening shall be provided at this point.

Sec. F-909—TERMINALS:

The roof terminal of any stack or vent, if within twelve feet of any door, window, scuttle or air shaft, shall extend at least three (3) feet above the same.

Sec. F-910—TERMINALS ADJOINING HIGH BUILDINGS:

No soil, waste, or vent pipe extension of any new or existing building shall be run or placed on the outside of a wall but shall be carried up inside of the highest building through the roof.

In the event that a new building is built higher than an existing building, the owner of the new building shall not locate windows within twelve (12) feet of any existing vent stack on the lower building, unless the owner of such new building shall defray the expenses or shall himself make such alteration to conform with Section F-909 of this Part.

It shall be the duty of the owner of the lower or existing building to make such alteration therein upon the receipt in advance of any money or security therefor, sufficient for the purpose, from the owner of the new or higher building, or the making of such alteration by the owner of said new or higher building.

Sec. F-911—TRAPS PROTECTED—VENTS:

Every fixture trap shall be protected against siphonage and back pressure, and air circulation assured by means of a soil or waste stack vent, a continuous waste or soil vent, or a loop or circuit vent. No crown vent shall be installed. Whenever practical a vent shall be a continuation of the vertical section of the waste.

Sec. F-912—DISTANCE OF VENT FROM TRAP SEAL:

No trap shall be placed more than five (5) feet, horizontal developed length, from its vent. The distance shall be measured along the central line of the waste or soil pipe from the vertical inlet of the trap to the vent opening. The vent opening from the soil or waste pipe, except for water closets and similar fixtures, shall not be below the dip of the trap.

Sec. F-913—MAIN VENTS—TO CONNECT AT BASE:
All main vents or vent stacks shall connect full size at their base to the main soil or waste pipe at or below the lowest fixture branch, and shall extend undiminished in size above the roof or shall be reconnected with the main soil or waste vent at least three (3) feet above the highest fixture branch.

Sec. F-914—VENTS—REQUIRED SIZES:
The required size of main vents or vent stacks shall be determined on the basis of the size of the soil or waste stack, the number of fixtures or fixture units connected to the soil or waste stack, and the developed length of the main vent or vent stack in accordance with the following tables:

Diameter of Stack inches	Fixture Units on stack	Diameter of Vent, inches	Maximum Length, feet
1¼	1	1¼	45
1½	2-8	1¼	35
1½	2-8	1½	50
2	9-18	1¼	30
2	9-18	1½	60
2	9-18	2	75
2½	19-36	1¼	25
2½	19-36	1½	45
2½	19-36	2	60
2½	19-36	2½	105

Soil or Waste Stack

Diameter of Stack inches	Fixture Units One stack	W. C's only	Diameter of Vent inches	Maximum length ft.
3	6-18	1-3	1½	20
3	6-18	1-3	2	60
3	19-42	4-7	2	45
3	19-42	4-7	2½	*150
3	43-72	8-12	2	30
3	43-72	8-12	2½	90
3	43-72	8-12	3	150
4	24-42	4-7	2	20
4	24-42	4-7	2½	45
4	24-42	4-7	3	100
4	43-72	8-12	2½	30
4	43-72	8-12	3	75
4	43-72	8-12	3½	150
4	43-72	8-12	4	300
4	73-150	13-25	3	60
4	73-150	13-25	3½	120
4	73-150	13-25	4	225
4	151-300	26-50	3	20
4	151-300	26-50	3½	50
4	151-300	26-50	4	100
4	151-300	26-50	5	*225
5	301-400	51-80	2½	20
5	301-480	51-80	3	50
5	301-480	51-80	3½	100
5	301-480	51-80	4	175
5	301-480	51-80	5	*300
5	481-720	81-120	3½	25

5	481-720	81-120	4	50
5	481-720	81-120	5	125
5	481-720	81-120	6	*300
6	721-840	121-140	3	20
6	721-840	121-140	3½	40
6	721-840	121-140	4	75
6	721-840	121-140	5	225
6	721-840	121-140	6	*400
6	841-1080	141-180	4	50
6	841-1080	141-180	5	125
6	841-1080	141-180	6	300
6	841-1080	141-180	8	*400
8	1081-1920	181-320	4	20
8	1081-1920	181-320	5	60
8	1081-1920	181-320	6	150
8	1081-1920	181-320	8	*600

*Limit in height of soil stack but not in length of vent if greater is required.

Sec. F-915—BRANCH AND INDIVIDUAL VENTS:

No vent shall be less than 1¼ inches in diameter. For 1¼ and 1½ inch wastes, the vent shall be of the same diameter as the waste pipe, and in no case shall a branch or main vent have a diameter less than one-half (½) that of the soil or waste pipe served, and in no case shall the length of a branch vent of given diameter exceed the maximum length permitted for the main vent serving the same size soil or vent stack.

Sec. F-916—VENT PIPE GRADES AND CONNECTIONS:

All vent and branch vent pipes shall be free from drops or sags and be so graded and connected as to drip back to the soil or waste pipe by gravity. Where vent pipes connect to a horizontal soil or waste pipe, the vent branch shall be taken off above the center line of the pipe, and the vent pipe must rise vertically, or at an angle of forty-five (45) degrees to the vertical to a point six (6) inches above the fixture it is venting before offsetting horizontally or connecting to the branch, main waste, or soil vent.

Sec. F-917—CIRCUIT AND LOOP VENTS:

A circuit or loop vent will be permitted as follows: A branch soil or waste pipe to which two (2) and not more than eight (8) water closets, pedestal urinals, trap standard slop sinks, or shower stalls are connected in series, may (if fixture connections enter side of branch) be vented by a circuit or loop vent of same size as the branch which shall be taken off in front of the last fixture connection. A fixture, other than water closet, should discharge into vent to keep it clean. Where the fixture discharge is above such branch, each branch shall be provided with a relief vent one-half (½) the diameter of the soil or waste branch, taken off in front of the first fixture connection. No relief vent is to be less than (2) two inches in diameter.

Sec. F-918—VENTS NOT REQUIRED:

No vents will be required on a downspout or rain leader trap, a back water trap, a sub-soil catch basin trap, a floor drain, when connected not more than four (4) feet below the floor on which floor drain is installed to a vented vertical waste or soil stack, or a cellar floor drain, provided the cellar floor drain branches into the

building drain on the sewer side at a distance of five (5) feet or more from the base of stack.

Where bath rooms or water closets or other fixtures are located on opposite sides of a wall or partition or directly adjacent to each other within the prescribed distance, such fixtures may have a common soil or waste pipe and common vent.

A bath tub and lavatory may have a common waste pipe and common vent when the lavatory is installed with a continuous vent and the bath tub trap is installed as set forth in Section F-912.

Fixtures on the top floor installed with individual branches to and the bath tub trap is installed as set forth in Section F-912. need not be revented if no waste branch enters the soil stack below the water closet branch.

DIVISION F—PART TEN
BUILDING DRAINS AND SEWERS

Sec. F-1001—INDEPENDENT SYSTEM:

The drainage and plumbing system of each new building, and of new work installed in an existing building, shall be separate from and independent of that of any other building except as provided below, and every building shall have independent connection with a public or private sewer when available.

Exception: Where one building stands in the rear of another building on an interior lot, and no private sewer is available or can be constructed to the rear building through adjoining alley, court yard, or driveway, the building drain from the front building may be extended to the rear building, and the whole will be considered as one building drain.

Sec. F-1002—OLD BUILDING SEWERS AND DRAINS:

Old building sewers and drains may be used in connection with new buildings, or new plumbing, only when they are found on examination and test, to conform in all respects to the requirements governing new sewers or drains, as prescribed in these rules and regulations. If the old work is found defective, the proper administrative authority shall notify the owner to make the necessary changes to conform to these rules and regulations.

Sec. F-1003—CONNECTIONS WITH SEPTIC SYSTEMS:

When a sewer is not available, drain pipes from the building shall be connected with an approved private sewage disposal works.

Sec. F-1004—EXCAVATIONS:

Each system of piping shall be laid in a separate trench, provided that drainage trenches may be benched not less than eighteen (18) inches for lighter piping, if not in violation of any city regulation prescribed for their installation. Where a double system of drainage is installed, the sanitary and surface building sewers or drains may be laid side by side in one trench.

Tunneling for distances not greater than six (6) feet is permissible in yards, courts or driveways of any building site, but not in any improved public highway.

Exception: Special permission.

All excavations required to be made for the installation of a building drainage system, or any part thereof, within the walls of a building shall be open trench work. All such trenches and tunnels shall be kept open until the piping has been inspected, tested and approved.

Sec. F-1005—BUILDING DRAINS UNDERGROUND:

Whenever possible all building drains shall be brought into the building below the basement or cellar floor.

Sec. F-1006—MATERIAL:

(a) The building sewer, beginning three (3) feet outside the building, shall be of extra heavy cast iron pipe approved by the Commissioner of Buildings or of vitrified clay pipe approved by the Commissioner of Buildngs.

(b) The building drains, when under ground shall be of lead, brass, or extra heavy cast iron.

(c) Building drains, when installed above the ground shall be of extra heavy cast iron, galvanized wrought iron, galvanized steel, or if over two (2) inches in diameter may be of black wrought iron or steel pipe when coated inside and out with asphalt, or approved brass or lead pipe may be used.

Sec. F-1007—DEPTH OF DRAINS AND SEWERS:

No building sewer or under ground building drain shall be laid parallel to any bearing wall which might be thereby weakened. The building sewer and drains shall be laid at sufficient depth to protect them from frost.

Sec. F-1008—SIZE OF BUILDING DRAINS AND SEWERS:

The required size of sanitary building drains and sanitary building sewers shall be determined on the basis of the total number of fixture units drained by them in accordance with the following tables:

Sanitary System Only

Fixture Units	Fall ⅛" to 1'	Fall ¼" to 1'	Fall ½" to 1'	No. W. C's or Equivalent
6-12	4	3		½
13-24	4	4	3	3-4
25-72	6	5	4	5-12
73-300	8	6	5	13-50
301-720	8	8	6	51-120
721-1080	10	10	8	121-180
1081-1920	12	12	10	181-320

Note: See restrictions Section F-903.

Exception: If other than cast iron soil pipe with caulked lead joints is used, the building sewer shall be at least one (1) pipe size larger than the building drain.

Size of building drain and sewer for storm water only. The required sizes of storm water building drains and building sewers and other lateral storm drains shall be determined on the basis of the total drained area in horizontal projection in accordance with the following table:

No. of Sq. Ft. Drain Area	Fall ⅛" to 1'	Fall ¼" to 1'	Fall ½" to 1'
Up to 90	1½	1½	1½
91-400	3	2	2
401-660	3	3	2
661-1200	4	3	3
1201-1800	4	4	3
1801-2500	5	4	4
2501-4100	5	5	4
4101-4600	6	5	5
4601-5300	6	6	5

5301-7500	8	6	6
7501-11100	8	8	6
11101-15700	10	8	8
15701-19500	10	10	8
19501-24800	12	10	8
24801-31000	12	12	10
31001-44000	14	12	10
44001-60000	14	14	12

Sec. F-1009—COMBINED STORM AND SANITARY SEWER SYSTEMS:

Whenever a combined sewer system is used, the area of the sewer shall be at least equal the combined area of sanitary building drain and storm building drain. When other than cast iron pipe with caulked lead joints is used for the sewer, the sewer shall be one pipe size larger.

Sec. F-1010—BUILDING SEWER—IN FILLED GROUND:

The building sewer, when laid in made or filled-in ground, shall be of vitrified clay pipe laid on a bed of approved grillage of concrete, or in lieu thereof of heavy cast iron pipe approved by the Commissioner of Buildings.

Sec. F-1011—DRAINAGE BELOW SEWER LEVEL:

In all buildings in which the whole or part of the building drainage and plumbing system thereof lies below the crown level of the main sewer, sewage or building wastes shall be lifted by approved artificial means and discharged into the building sewer.

Sec. F-1012—SUMPS AND RECEIVING TANKS:

All building drains below sewer level shall discharge into an air tight sump or receiving tank, so located as to receive the sewage by gravity from which sump or receiving tank the sewage shall be lifted and discharged into the building drain, building sewer, or street sewer, by pumps, ejectors, or any equally efficient method.

Such sumps shall be either automatically discharged or be of sufficient capacity to receive the building sewage and wastes for not less than twenty-four hours.

Sec. F-1013—EJECTORS—VENTED:

The soil pipe leading to an ejector or other appliance for raising sewage or other waste matter to the building drain, building sewer, or street sewer, shall, where a water closet or closets are installed, be provided with a vent pipe not less than three (3) inches in diameter, and where fixtures other than water closets are installed, the waste vent pipe shall be the same diameter as the waste pipe.

Sec. F-1014—MOTORS, COMPRESSORS, ETC.:

All motors, air compressors, and air tanks shall be located where they are open for inspection and repair at all times. The air tanks shall be proportioned in order to be of equal cubical capacity as the ejectors connected therewith, in which air tanks there shall be maintained an air pressure of not less than two (2) pounds for each foot of height the sewage is to be raised.

Sec. F-1015—EJECTORS FOR SUBSOIL DRAINAGE:

When sub-soil catch basins are installed below the sewer level, automatic water ejectors provided with a ball float attached to the main water supply may be used. Such ejectors, or any device raising subsoil water, shall discharge into a properly trapped fixture or into a storm water drain.

DIVISION F—PART ELEVEN

STORM WATER DRAINS

Sec. F-1101—DRAINAGE OF YARDS, AREAS AND ROOFS: All roofs and paved areas, yards, courts and courtyards when drained, shall be drained into the storm water sewerage system or the combined sewerage systems, but not into sewers intended for sewage only. When drains used for this purpose are connected with the combined sewerage systems, they shall be effectually trapped, except roof leaders and conductors, where the roof or gutter opening is located no less than twelve (12) feet from a door, window scuttle, or air shaft. One trap may serve for all such connections, but traps must be set below the frost line or on the inside of the building. No roof leader, conductor or storm building drain shall discharge into the sanitary building drain but shall discharge into the sewer outside of the building.

Exception: When not larger than two (2) inch pipe is used such drains may connect to sanitary building drains.

Where there is no sewer accessible, such connections shall be discharged into the public gutter, unless otherwise permitted by the proper authorities, and in such case need not be trapped.

Sec. F-1102—SIZE OF GUTTERS AND LEADERS: No gutter or inside leader shall be of less size than the following:

Roof Containing	Gutter	Leader
Up to 90 sq. ft.	3 inches	1½ inches
91 to 270 sq. ft.	4 "	2 "
271 to 810 sq. ft.	4 "	2½ "
811 to 1800 sq. ft.	5 "	3 "
1801 to 3600 sq. ft.	6 "	4 "
3601 to 5500 sq. ft.	8 "	5 "
5501 to 9600 sq. ft.	10 "	6 "

In explanation: The above table for leaders is based on the following; Tests have shown that a rate of rainfall of four (4) inches per hour discharges water to the leader at the rate of approximately one (1) gallon per minute for every twenty-four square feet of drained area.

Example: With a roof area of 1800 square feet and a rain fall at the rate of 4 inches per hour.

1800 divided by 24 equals 75 or 75 gallons of water per minute to be discharged to sewer through the leader.

Referring to the following table of capacities, we find that a three (3) inch pipe, laid with a fall of one (1) inch per foot, has a capacity of 113.8 gallons per minute, and as a vertical pipe will have a greater capacity, it is apparent that a factor of safety is provided by limiting a three inch leader to 75 gallons per minute.

The following table of capacities for pipes flowing full under their own head is based on Darcy's formula for old cast iron pipes lined with deposits in which a static head is undesirable or objectionable.

Capacities of cast iron drains, in gallons per minute and fixture units or cubic feet per minute.

CAPACITIES

Diameter in inches	Fall inch per foot	Gallons per minute	Fixture units	Velocity full or one-half full Feet per second
1¼	⅛	3.6	0.48	0.92
1¼	¼	5.1	.68	1.31
1¼	½	8.0	1.07	2.07
1¼	1	11.2	1.50	2.93
1½	⅛	5.8	.78	1.05
1½	¼	8.2	1.10	1.48
1½	½	13.0	1.70	2.34
1½	1	18.4	2.40	3.31
2	⅛	12.6	1.68	1.28
2	¼	17.6	2.25	1.80
2	½	27.8	2.70	2.85
2	1	40.0	5.20	4.00
3	⅛	36.2	4.85	1.65
3	¼	51.3	6.80	2.34
3	½	80.3	10.07	3.70
3	1	113.8	15.20	5.24
4	⅛	77.4	10.3	1.97
4	¼	109.6	14.6	2.79
4	½	173.6	23.1	4.42
4	1	245.4	32.7	6.25
5	⅛	138.6	18.5	2.25
5	¼	196.5	26.0	3.19
5	½	311.0	41.4	5.05
5	1	439.2	58.5	7.13
6	⅛	221.4	29.5	2.51
6	¼	313.1	41.7	3.55
6	½	494.8	65.9	5.61
6	1	699.4	93.2	7.93
7	⅛	328.5	42.8	2.73
7	¼	465.6	62.0	3.87
7	½	735.1	98.0	6.11
7	1	1040.7	137.7	8.65
8	⅛	463.0	61.8	2.94
8	¼	656.0	87.4	4.16
8	½	1037.0	138.3	6.58
8	1	1468.0	195.6	9.31
10	⅛	814.0	108.6	3.33
10	¼	1149.0	153.2	4.70
10	½	1819.0	242.5	7.44
10	1	2572.0	343.0	10.52

12	.....	⅛	1300.0	173.4	3.68
12	.....	¼	1838.0	245.0	5.20
12	.....	½	2905.0	387.3	8.22
12	.....	1	4034.0	537.8	11.62

When walls are so situated that rain striking the wall surface will drain on to the roof, due allowance shall be made for such wall surface in determining the size of the rain water leader or leaders.

Outside leaders to the frost line shall be one (1) size larger than the above table.

Gutters on new buildings, eight (8) inches or over in width, shall be hung with wrought iron hangers of approved type.

The above sizes of rain leaders are based on diameter or circular rain leaders, and gutters based on semi-circular sheet metal gutters with the top dimension given and other shapes shall have the same sectional area.

Sec. F-1103—INSIDE CONDUCTORS:

When placed within the walls of any building or run in an inner or interior court or ventilating pipe shaft all conductors or roof leaders shall be constructed of extra heavy cast iron or of galvanized wrought iron or galvanized steel pipe.

Exception: If wrought iron or steel pipe over two (2) inches in diameter is used, it shall be galvanized or coated inside and out with asphalt.

Sec. F-1104—OUTSIDE CONDUCTORS:

When outside conductors or down spouts of sheet metal are connected with the building sewer they shall be so connected by means of not less than one length of cast iron pipe extending vertically at least one (1) foot above the grade line.

Along public driveways without sidewalks, they shall be placed in niches in the walls, protected by wheel guards, or enter the building through the wall at a forty-five (45) degree slope at least twelve (12) feet above the grade.

Sec. F-1105—DEFECTIVE CONDUCTOR PIPES:

When an existing sheet metal conductor pipe within the walls of any building becomes defective such conductor shall be replaced by one which conforms to these rules and regulations.

Sec. F-1106—VENT CONNECTIONS WITH CONDUCTORS PROHIBITED:

Conductor pipes shall not be used as soil, waste, or vent pipes, nor shall any soil, waste or vent pipes be used as conductors.

Sec. F-1107—OVERFLOWS:

Overflow pipes from cisterns, supply tanks, expansion tanks, and drip pans, shall connect only indirectly with any building sewer, building drain, soil, waste or vent pipe.

Sec. F-1108—SUBSOIL, FOUNDATION, CLEAR WATER AND ABSORPTION TILE DRAINS:

Where subsoil drains are placed under the cellar floor or used to encircle the outer walls of a building, the same shall be made of open jointed drain tile not less than four (4) inches or earthenware pipe and shall be properly trapped and protected against back pressure, before entering the building sewer or drain, by an automatic back pressure valve accessibly located. They may discharge through a cellar drain.

Sec. F-1109—SUBSOIL DRAINS BELOW SEWER LEVEL:

Subsoil drains below the main sewer level shall discharge into a sump or receiving tank, the contents of which shall be automatically lifted and discharged into the drainage system above the cellar through some properly trapped fixture or drain.

DIVISION F—PART TWELVE
REFRIGERATOR, SAFE AND SPECIAL HAZARD WASTES

Sec. F-1201—FIXTURES PERMITTED TO SO CONNECT:

No waste pipe from a refrigerator, ice box, floor drain, or any other receptacle where food is stored, shall connect directly with any building drain, soil, or waste pipe. The waste pipe shall, in all cases, empty into an open sink (that is properly water supplied, connected, trapped, and vented the same as other fixtures) or cellar floor drain, but their ends must be left open. Such waste connections shall not be located in inaccessible or unventilated cellars.

Sec. F-1202—REFRIGERATOR WASTES:

Refrigerator waste pipes shall not be less than one and one-quarter (1¼) inches for one opening, one and one-half (1½) inches for three openings, and for four to twelve openings, they must not be less than two (2) inches, and shall have at each opening a trap, and there shall be a cleanout at each angle, so arranged as to properly flush and clean the pipe. Such waste pipes shall be continued not less than full size through the roof except where such fixtures are located in the basement or first floor.

Sec. F-1203—OVERFLOW PIPES AND MOTOR EXHAUST:

Pipes from a water supply tank or exhaust from a water lift shall not be directly connected with any building drain, soil, or waste pipe. Such pipes shall discharge upon the roof or be trapped into an open fixture or discharge as for refrigerator wastes.

Sec. F-1204—A PUBLIC GARAGE—DRY CLEANING ESTABLISHMENTS, ETC.:

In public garages, dry cleaning establishments, or other buildings where kerosene, gasoline, benzine, naptha or other inflammable oils or compounds are used, also in any existing building where such business is carried on, all drains including floor drains, sink, and lavatory wastes, or paved areas adjoining, coming in contact with the same must pass through a sump so trapped that inflammable liquids or sediment will not pass into the building drain or sewer. The diameter of the sump shall be not less than twenty-four (24) inches and shall be vented by a vent pipe at least three (3) inches in diameter installed in the same manner as provided for other vents. The inlet to the sump shall be water sealed.

Sec. F-1205—STEAM AND HOT WATER DRAINS:

The exhaust, blow off, sediment or drain pipe from a steam boiler shall not connect directly with a building drainage system.

No vapor or liquid at a temperature over one hundred sixty (160) degrees Fahrenheit, shall be allowed to enter the building drainage system.

DIVISION F—PART THIRTEEN
MAINTENANCE

Sec. F-1301—DEFECTIVE FIXTURES:

All installed fixtures found defective or in an unsanitary condition shall be repaired, renovated, replaced or removed within

thirty (30) days upon written notice from the proper administrative authorities.

Sec. F-1302—TEMPORARY TOILET FACILITIES:

Suitable toilet facilities shall be provided for the use of workmen during the construction of any building. These toilet facilities shall be maintained in a sanitary condition.

DIVISION F—PART FOURTEEN
INSPECTION AND TESTS

Sec. F-1401—INSPECTIONS:

All piping, traps, and fixtures of a plumbing system shall be inspected by the Commissioner of Buildings to insure compliance with all the requirements of these rules and regulations and the installation and construction of the system in accordance with the approved plans and the permit.

Sec. F-1402—NOTIFICATION FEE:

(a) It shall be the duty of the plumber to notify the Bureau of Buildings and also the owner, or his authorized agent, verbally, by telephone, or in writing, not less than eight (8) working hours between the hours of 8 A. M. and 4 P. M. before the work is to be inspected or tested.

(b) It shall be the duty of the plumber to make sure that the work will stand the test prescribed before giving the above notification.

(c) If the Commissioner of Buildings finds that the work will not stand the test, the plumber shall be required to renotify in writing and to pay the sum of one (1) dollar for each renotification or reinspection.

Sec. F-1403—MATERIAL AND LABOR FOR TESTS:

The equipment, material, power and labor necessary for the inspection and test shall be furnished by the plumber.

Sec. F-1404—SYSTEM TESTS:

All the piping of a plumbing system shall be tested with water and air. After the plumbing fixtures have been set and their traps filled with water, the entire drainage system shall be submitted to a final air pressure test. The Commissioner of Buildings may require the removal of any cleanouts to ascertain if the pressure has reached all parts of the system.

Sec. F-1405—METHODS OF TESTING:

(a) Water Tests.

The water test may be applied to the drainage system in its entirety or in sections. If applied to the entire system, all openings in the piping shall be tightly closed, except the highest opening above the roof, and the system filled with water to the point of overflow above the roof.

If the system is tested in sections, each opening shall be tightly plugged, except the highest opening of the section under test, and each section shall be filled with water; but no section shall be tested with less than a ten (10) foot head of water or a five (5) pound pressure of air. In testing successive sections, at least the upper ten feet of the preceding section shall be re-tested so that no joint or pipe in the building shall have been submitted to a test of less than a ten (10) foot head of water or a five (5) pound pressure of air.

Under any test the water or air pressure shall remain constant for not less than fifteen minutes without any further addition of water or air.

(b) Air Test.

The air test shall be made by attaching the air compressor or test apparatus to any suitable opening and closing all other inlets and outlets to the system, then forcing air into the system until there is a uniform pressure sufficient to balance a column of mercury ten (10) inches in height or five (5) pounds per square inch on the entire system. This pressure shall be maintained for fifteen (15) minutes.

(c) Final Air Test.

The air machine shall be connected to any suitable opening or outlet, and an air pressure equivalent to one (1) inch water column shall be applied and left standing at least fifteen (15) minutes. If there is no leakage or forcing of trap seals, indicated by the fluctuation of the drum, float, or water column, the system shall be deemed air tight.

Sec. F-1406—ORDER OF TESTS:

The tests may be made separately, as follows:

(a) The building drain and yard drains including all piping to the height of ten (10) feet above the highest point on the building drain, except the exposed connections to fixtures:

(b) The soil, waste, vent, inside conductor and drainage pipes which could be covered up before building is enclosed or ready for completion. The test required for (b) and (c) may be combined.

(c) The final test of the whole system.

(d) After each of the above tests have been made and proved acceptable, the Commissioner of Buildings shall issue a written approval.

Sec. F-1407—COVERING OF WORK:

No drainage or plumbing system or part thereof shall be covered until it has been inspected, tested, and approved as herein prescribed.

Sec. F-1408—UNCOVERING OF WORK:

If any building drainage or plumbing system or part thereof is covered before being regularly inspected, tested and approved, as herein prescribed, it shall be uncovered upon the direction of the Commissioner of Buildings.

Sec. F-1409—DEFECTIVE WORK:

If inspection or test shows defects, such defective work or material shall be replaced within three days and inspection and test repeated.

Sec. F-1410—BUILDING SEWER AND BUILDING DRAIN TESTS:

The building drain and sewer shall be tested with water or air. The water test shall have not less than a two (2) feet head of water. All alterations, repairs, or extensions which shall include more than ten (10) feet, shall be inspected and tested.

Sec. F-1411—CONDUCTOR PIPES:

Conductor pipes and their roof connections within the walls of buildings, or conductor branches on the outside system where such branches connect with the building drain or are less than three (3) feet from the wall of the building, shall be tested by the water or air test. Conductor branches on the outside system may be tested in connection with the building drain.

Sec. F-1412—STABLE AND STABLE YARD DRAIN TEST:
If a stable or any part of a stable be used for human habitation, the same inspections and test of plumbing and drainage systems thereof shall be made as in the case of any ordinary buildings. Otherwise, all stable and stable yard drains shall be inspected but need not be tested.

Sec. F-1413—GARAGE AND DRAINAGE SYSTEM:
For a garage or any part of a garage, the same tests and inspection of the plumbing and drainage system thereof shall be made as in the case of any ordinary building.

Sec. F-1414—TEST OF WATER DISTRIBUTION SYSTEM:
Upon the completion of the entire water distribution system, it shall be tested and proved tight under a water pressure not less than the maximum working pressure under which it is to be used.

Sec. F-1415—CERTIFICATE OF APPROVAL:
Upon the satisfactory completion and final test of the plumbing system a certificate of approval shall be issued by the Commissioner of Buildings to the plumber to be delivered to the owner.

Sec. F-1416—AIR TEST OF DEFECTIVE PLUMBING:
The air test shall be used in testing the sanitary condition of the drainage or plumbing system of all buildings where there is reason to believe that it has become defective. In buildings condemned by the proper administrative authority because of insanitary conditions of the plumbing system, the alterations in such system shall not be considered as repairs, but as new plumbing.

Sec. F-1417—INSPECTIONS AND TESTS NOT REQUIRED:
No tests or inspections shall be required where a plumbing system or parts thereof is set up for exhibition purposes, and is not used for toilet purposes and not directly connected to any sewerage system; nor after the repairing or replacing of an old fixture, faucet, or valve by a new one (to be used for the same purpose); or after forcing out stoppage and repairing leaks.

DIVISION G—PART ONE
MISCELLANEOUS PROVISIONS—REPEAL OF FORMER ORDINANCES

Sec. G. 101—REPEAL OF PART OF MUNICIPAL CODE:
(a) That sections from and including Section 256 to Section 652 of General Ordinance No. 12, 1917, be and the same are hereby repealed.
(b) That sections from and including Section 887 to Section 929 of General Ordinance No. 12, 1917, be and the same are hereby repealed.

Sec. G-102—REPEAL OF SUBSEQUENT ORDINANCES:
(a) That the following ordinances are hereby repealed.
General Ordinance No. 23, 1918
General Ordinance No. 24, 1918
General Ordinance No. 48, 1921
General Ordinance No. 70, 1921
General Ordinance No. 79, 1921
General Ordinance No. 121, 1919
General Ordinance No. 80, 1922
General Ordinance No. 92, 1922
General Ordinance No. 12, 1922

General Ordinance No. 43, 1922
General Ordinance No. 118, 1922
General Ordinance No. 11, 1923
General Ordinance No. 18, 1923
General Ordinance No. 29, 1923
General Ordinance No. 35, 1923
General Ordinance No. 79, 1923
General Ordinance No. 106, 1923
General Ordinance No. 27, 1924
General Ordinance No. 29, 1924
General Ordinance No. 45, 1924
General Ordinance No. 46, 1924

(b) That all ordinances or parts of ordinances in conflict herewith are hereby repealed.

Sec. G-103—THIS ORDINANCE:

This Ordinance shall be known as the Building Code of the City of Indianapolis.

Sec. G-104—EFFECT OF TITLES:

No title or caption of any Division, Part or Section shall be considered as a part of this Ordinance except as descriptive of the subject matter thereunder.

Sec. G-105—PENDING ACTIONS:

None of the provisions of this ordinance shall affect any pending cause of action or rights of action, either civil or penal.

Sec. G-106—PENALTY:

Any person, firm or corporation who shall violate any of the provisions of this ordinance except as provided in specific sections shall be deemed guilty of misdemeanor and upon conviction thereof shall be fined in any sum not less than two (2) dollars nor more than five hundred (500) dollars for each offense. Each day any violation shall continue shall be a separate offense.

Sec. G-107—IN EFFECT:

This Ordinance shall be in full force and effect ninety (90) days from and after its passage and due publication as required by law.

Which motion carried.

On motion of Mr. Buchanan, General Ordinance No. 46, 1925, as amended was laid upon the table until September 21, 1925.

Mr. Clauer called for General Ordinance No. 69, 1925, for second reading. It was read a second time.

Mr. Clauer moved that General Ordinance No. 69, 1925, be ordered engrossed, read a third time and placed upon its passage. Carried.

General Ordinance No. 69, 1925, was read a third time and passed by the following vote:

Ayes 8, viz.: Messrs. Bernd, Bramblett, Buchanan, Clauer, King, Ray, Wise and President Ben H. Thompson.

Mr. Clauer called for General Ordinance No. 70, 1925, for second reading. It was read a second time.

Mr. Clauer moved that General Ordinance No. 70, 1925, be ordered engrossed, read a third time and placed upon its passage. Carried.

General Ordinance No. 70, 1925, was read a third time and failed to pass by the following vote:

Ayes, 3, viz.: Messrs, Buchana, Clauer and King.

Noes, 5, viz.: Messrs. Bernd, Bramblett, Ray, Wise and President Ben H. Thompson.

On motion of Mr. Wise the Common Council at 8:30 o'clock p. m., adjourned.

Ben H. Thompson

President.

Attest:

John N. Rhodehamel

City Clerk.