REGULAR SESSION

Council Chamber,
Ann Arbor, Michigan
August 19, 1929

Meeting called to order by President Meyers.

Present: Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers. 10.

Absent: Ald. Wuerth, Kurth, Townley, Fisher, 4.

Printed pamphlets of August 5, 1929, were approved.

Communications

(From Board of Public Works)

City Engineer presented tabulation of bids received on South Fourth Avenue Storm Sewer as follows:

C. M. Knowles, Inc.	$1,982.25
Ianni Construction Co.	2,004.25
Engineer's estimate	1,995.75

Moved by Mr. Heinzmann that Board recommends to Council that the bid of C. M. Knowles, the lowest bidder(be accepted for the construction of the South Fourth Ave. Storm Sewer and that contract be awarded to him.
(Council Action)

Moved by Ald. Lutz that Council concur in recommendation of Board.

Adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

From Board of Police Commissioners requesting permission to trade in Ford Tudor for a new Chevrolet Tudor at a cost not to exceed $300.00 and the old car and requesting that City Clerk be authorized to sign bill of sale and transfer of title, was received.

Moved by Ald. Harris that Council concur in recommendation of Commissioners.

Adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

From E. A. Gallup recommending payment of $500.00 to Mrs. Rosella Crawford in payment of balance due on parcel of land purchased from her on Fuller Street, was received and referred to Budget Committee.

From Mrs. C. Selke, requesting "No Parking" on Myron Place, received and referred to Traffic Committee.

Petition from Mr. and Mrs. F. A. Tinker et al. for pavement on Prospect Street between Wells St. and E. University Avenue, was received and referred to Street Committee.

Committee Reports

Fnance Report

Fire Fund

Charles Andrews, salary	$ 114.50
Henry McLaren, salary	91.50
Ralph Edwards, salary	91.50
Jacob Gwinner, salary	83.00
Herman Kruse, salary	83.00
Frank Markey, salary	78.50
Emil Damman, salary	78.50
Earl Arnold, salary	78.50
Benj. Zahn, salary	78.50
Henry Nevroth, salary	78.50
Arthur Clark, salary	78.50
Clyde Carpenter, salary	78.50
John Comiskie, salary	78.50
Walter Feldkamp, salary	78.50
Percy Whitlock, salary	78.50
Edw. Zeeb, salary	78.50
George Schmidt, salary	78.50
Henry Kolander, salary	78.50
Albert Hoffman, salary	78.50
Elmer Rentz, salary	78.50
Oscar Rentz, salary	78.50
Earnst Heller, salary	78.50
Ira Nevarre, salary	78.50
Frank Ryan, salary	78.50
Laurence Chatterton, sal	78.50
John Waterman, salary	78.50
William Keihl, salary	78.50
Carl Nevins, salary	78.50
Fred Wadhams, salary	78.50
Harold Gauss, salary	78.50

Charles Carroll, salary	45.00
Fire Fund Total Salaries, half monthfi August	$2,471.00

Police Fund

Thomas O'Brien, salary	$ 125.00
Louis Fohey, salary	90.00
Norman Cook, salary	90.00
Sherman Mortenson, sal.	90.00
M. G. Howard, salary	80.00
Charles Kapp, salary	80.00
Irwin Keebler, salary	80.00
Harold Gee, salary	80.00
Benj. Ball, salary	80.00
Roland Wooster, salary	80.00
Herman Suma, salary	80.00
Oscar Wier, salary	80.00
Julius Ehnis, salary	80.00
Walter Schmid, salary	80.00
Albert Heusel, salary	80.00
John Osborn, salary	80.00
William Marz, salary	80.00
Harry Smith, salary	80.00
Clofford West, salary	80.00
Casper Michaelson, salary	80.00
Wm. Hitchingham, salary	80.00
Clark Earl, salary	80.00
Roy Richter, salary	80.00
Irwin Davisson, salary	80.00
Eugene Gehringer, salary	80.00
Harold King, salary	72.50
Clifford Stang, salary	72.50
Herbert Kapp, salary	72.50
Floyd Gentner, salary	72.50
Police Fund Total Salaries, ½ mo. August	$2,365.00

Water Works Fund

Harry Willsher, salary	$ 72.50
Waldo Eisemann, salary	75.00
Fred Linde, salary	87.50
Robert Rowe, salary	70.00
Fred Rowe, salary (July 29 to Aug. 15)	60.00
William Zachman, salary	62.50
A. E. Hawkes, salary	70.00
C. W. Shetterly, salary	100.00
Donna Woodward, salary	62.50
William Groves, salary	70.00
J. C. Ledwidge, salary	70.00
John Ardner, salary	62.50
Water Works Fund Total Semi-monthly Salaries	$ 862.50

Contingent Fund

Frank Marz, salary, half month	$ 78.50
Fred J. Staeb, salary, half month	62.50
Contingent Fund Total Salaries	$ 141.00

Following warrants issued since last report:

Contingent Fund

4012 D. O. Douglas, settlement of claim	$ 35.00
4278 Opportunity Land Co., Refund on Taxes	80.32
4386 Farmers & Mechanics Bank, to apply on Note	50,000.00
4387 Farmers & Mechanics Bank, Interest on Note	400.00
Total Contingent	$50,515.32

Water Works Fund
Water Rights

4006 Thomas H. & Myrta J. Corbett, 4c	$ 55.00
4014 Farmers & Mechanics Bank, 8c	110.00
4390 Ann Arbor Savings Bank, 4c	55.00
Total Water Rights	$ 220.00

Water Works Meter

3993 Farmers & Mechanics Bank, 35b, 40c	$36,000.00
4268 Farmers & Mechanics Bank, 40b, 40c	41,000.00
Total Water Works Me-Meter	$77,000.00

Water Works First Issue

3985 Degree of Honor Protective Assn., 21c	$ 210.00
3990 First National Bank, 58c	580.00
3993 Farmers & Mechanics Bank, 1c	10.00

3994 State Savings Bank, 4c	40.00
3999 Ann Arbor Savings Bank, 17c	170.00
4003 First National Bank, 17c	170.00
4007 First National Bank, 12c	120.00
4009 State Savings Bank, 24c	240.00
4010 Ann Arbor Savings Bank, c	60.00
4011 State Savings Bank, 3c	30.00
4013 First National Bank, 19c	190.00
4014 Farmers & Mechanics Bank, 1c	10.00
4264 First National Bank, 1c	10.00
4266 Ann Arbor Savings Bank, 8c	80.00
4269 Ann Arbor Savings Bank, 1c	10.00
4271 Ann Arbor Savings Bank, 19c	190.00
4281 First National Bank, 24c	240.00
4283 Ann Arbor Savings Bank, 1c	10.00
4285 First National Bank, 2c	20.00
4286 Ann Arbor Savings Bank, 3c	30.00
4291 Ann Arbor Savings Bank, 8c	80.00
4294 State Savings Bank, 1c	10.00
4298 State Savings Bank, 2c	20.00
4380 First National Bank, 1c	10.00
4389 State Savings Bank, 1c	10.00
4390 Ann Arbor Savings Bank, 2c	20.00
4391 State Savings Bank, 6c	60.00
Total Water Works First Issue	$2,630.00

Water Works Completion

3993 Farmers & Mechanics Bank, 5b	$ 5,000.00
4268 Farmers & Mechanics Bank, 40b, 40c	41,000.00
Total Water Works Completion	$46,000.00

Fire Department Series 3

3994 State Savings Bank, 5b, 10c	$5,475.00

Fuller Street Bridge

3990 First National Bank, 4c	$ 180.00
3993 Farmers & Mechanics Bank, 1c	45.00
3994 State Savings Bank, 4c	180.00
4003 First National Bank, 2c	90.00
4007 First National Bank, 4b, 8c	4,360.00
4266 Ann Arbor Savings Bank, 1c	45.00
Total Fuller St. Bridge	$4,900.00

Curb and Gutter Labor Accounts

District No. 164

4273 L. W. Dailey, first estimate	$ 777.60

District No. 165

4274 George Walterhouse, first estimate	966.60

District No. 168

4273 L. W. Dailey, first estimate	2,470.50

District No. 158

4373 George Walterhouse, first estimate	579.15

Distirct No. 161

4374 L. W. Dailey, 1st estimate	$ 687.60

District No. 164

4374 L. W. Dailey, 2nd estimate	1,021.95
Total Curb and Gutter Labor Accounts	$6,503.40

Sewer Labor Accounts

District No. 179

4277 C. M. Knowles, first estimate ..... $ 228.38

District No. 180

4377 C. M. Knowles, first estimate 1,856.25

District No. 184

4272 Ianni Construction Co., second estimate 4,722.97

District No. 180

3377 C. M. Knowles, second estimate 1,984.82

District No. 184

4378 Ianni Construction Co., third estimate 3,959.60

Total Sewer Labor Accounts $12,752.02

Paving Labor Accounts

District No. 105

4375 Ann Arbor Construction Co., third estimate $10,030.50

District No. 107

4376 Lewis & Frisinger, third estimate 2,736.00

District No. 110

4375 Ann Arbor Construction Co., first estimate. 1,080.00

Total Paving Labor Accounts $13,846.50

Bridge Cul. & C. W. Fund

4275 Central Michigan Construction Co., second estimate, Brooklyn Ave., Westminster, and Gardner Ave. Storm Sewer.. $ 328.95

4275 Central Michigan Construction Co., second estimate, Davis Ave., Wilder Place, and Hoover Ave. and Fifth Street Storm Sewer 3,166.65

4275 Central Michigan Construction Co., first estimate, Vinewood Blvd. Storm Sewer, Wayne St. easterly 415.80

4275 Central Michigan Construction Co., third estimate, Washington Heights Storm Sewer . 256.78

4276 R. T. Liddicoat, second estimate, Madison St. Storm Sewer 1,613.88

Total Bridge Cul. & C. W. Fund $5,782.06

Curb and Gutter Tax Accounts

District No. 62

3987 Rosa Smith, 3b3c.... $1,567.50

District No. 63

4010 Ann Arbor Sav. Bank 2b2c 715.82

District No. 64

4010 Ann Arbor Sav. Bank 1b1c 397.10

District No. 65

4010 Ann Arbor Sav. Bank, 1b1c 161.97

District No. 67

3989 Albert McCorkle, 1b1c 522.50

4010 Ann Arbor Sav. Bank, 2b2c 1,045.00

$1,567.50

District No. 68

4010 Ann Arbor Sav. Bank 1b1c 585.20

District No. 69

4010 Ann Arbor Sav. Bank, 1b1c 198.55

District No. 70

4010 Ann Arbor Sav. Bank, 2b2c 971.85

District No. 71

3994 State Savings Bank, 1b1c 245.57

District No. 72

4006 Thomas H & Myrta J. Corbett, 1b2c 534.10

District No. 75

4000 Rose Dietz, 2c 90.00

4006 Thomas H. & Myrta J. Corbett, 1b2c 372.78

$ 462.78

District No. 80

4006 Thomas H. & Myrta J. Corbett, 1b2c 288.84

District No. 87

4000 Rose Dietz, 1b4c ... 590.00

4006 Thomas H. & Myrta J. Corbett, 1b2c 490.50

$1,080.50

District No. 91

4001 Emma Weinman, 1b1c 202.73

4006 Thomas H. & Myrta J. Corbett, 1c 8.73

$ 211.46

District No. 92

4006 Thomas H. & Myrta J. Corbett, 1c 18.67

District No. 93

3986 Marguerite Hannan, 1b1c 522.50

4006 Thomas H. & Myrta J. Corbett, 1b3c 207.80

$ 730.30

District No. 94

4006 Thomas H. & Myrta J. Corbett, 1b2c 188.56

District No. 97

4006 Thomas H. & Myrta J. Corbett, 2b4c 914.50

District No. 98

4006 Thomas H. & Myrta J. Corbett, 1b1c 161.97

District No. 99

4006 Thomas H. & Myrta J. Corbett, 2b2c 828.68

District No. 100

4006 Thomas H. & Myrta J. Corbett, 1b3c 332.06

4292 Christine M. Breed, 1b1c 522.50

$ 854.56

District No. 102

4010 Ann Arbor Sav. Bank, 2c 45.00

District No. 103

3995 James W. Bonner, 2c 36.00

4006 Thomas H. & Myrta J. Corbett, 1b1c 418.00

$ 454.00

District No. 104

4006 Thomas H. & Myrta J. Corbett, 1b3c 227.00

District No. 105

3995 James W. Bonner, 2c 67.50

4287 Edna Spiegelberg, 1b1c 783.75

$ 851.25

District No. 106

3991 First National Bank, 2c 45.00

District No. 107

4006 Thomas H. & Myrta J. Corbett, 1b3c 397.25

District No. 108

3991 First National Bank, 2c 45.00

District No. 110

3995 James W. Bonner, 2c 54.00

4006 Thomas H. & Myrta J. Corbett, 2b2c 1,672.00

4010 Ann Arbor Sav. Bank, 1c 45.00

$1,771.00

District No. 111

4006 Thomas H. & Myrta J. Corbett, 1b3c 147.55

District No. 112

4006 Thomas H. & Myrta J. Corbett, 1b3c 283.75

District No. 113

4006 Thomas H. & Myrta J. Corbett, 1b3c 510.75

District No. 114

4006 Thomas H. & Myrta J. Corbett, 1b3c 794.50

District No. 115

4006 Thomas H. & Myrta J. Corbett, 1b3c 510.75

District No. 116

4006 Thomas H. & Myrta J. Corbett, 1b3c 283.75

District No. 117

4010 Ann Arbor Savings Bank, 1b3c 567.50

District No. 118

4006 Thomas H. & Myrta J. Corbett, 1b3c 227.00

District No. 119

4010 Ann Arbor Savings Bank, 2c 45.00

District No. 121

4006 Thomas H. & Myrta J. Corbett, 1b3c 340.50

District No. 122

4006 Thomas H. & Myrta J. Corbett, 1b3c 681.00

District No. 123

4006 Thomas H. & Myrta J. Corbett, 1b3c 397.25

District No. 124

4006 Thomas H. & Myrta J. Corbett, 1b3c 261.05

District No. 126

4266 Ann Arbor Savings Bank, 1c 45.00
4281 First National Bank, 2c 67.50
4283 Ann Arbor Savings Bank, 1c 22.50

$ 135.00

District No. 127

4010 Ann Arbor Savings Bank, 1c 20.25
4297 Ann Arbor Savings Bank, 1b8c 2,670.50

$2,690.75

District No. 128

4006 Thomas H. & Myrta J. Corbett, 1b2c 272.50

District No. 129

4006 Thomas H. & Myrta J. Corbett, 1b3c 794.50

District No. 130

4266 Ann Arbor Savings Bank, 1b3c 283.75

District No. 131

4283 Ann Arbor Savings Bank, 2c 45.00

District No. 132

4297 Ann Arbor Savings Bank, 2b6c $1,078.25

District No. 133

4006 Thomas H. & Myrta J. Corbett, 1b3c 340.50

District No. 134

4006 Thomas H. & Myrta J. Corbett, 1b3c 454.00

District No. 136

4006 Thomas H. & Myrta J. Corbett, 2b8c 1,333.84

District No. 137

4006 Thomas H. & Myrta J. Corbett, 1b4c 480.16

District No. 142

4006 Thomas H. & Myrta J. Corbett, 1b4c 373.48

District No. 143

4014 Farmers & Mechanics Bank, 1b4c 160.04

District No. 144

4014 Farmers & Mechanics Bank, 1b4c 320.12

District No. 145

4006 Thomas H. & Myrta J. Corbett, 1b4c 640.24

District No. 146

4006 Thomas H. & Myrta J. Corbett, 1b4c 693.60

District No. 147

4006 Thomas H. & Myrta J. Corbett, 1b4c 426.84

District No. 148

4006 Thomas H. & Myrta J. Corbett, 4c 20.12

District No. 149

4014 Farmers & Mechanics Bank, 1b4c 320.12

District No. 150

4005 State Savings Bank, 1b1c	574.75
4006 Thomas H. & Myrta J. Corbett, 1b4c	266.76
	$ 841.51

District No. 151

4010 Ann Arbor Savings Bank, 1c	13.41

District No. 152

4010 Ann Arbor Savings Bank, 1c	11.74

District No. 153

4006 Thomas H. & Myrta J. Corbett, 1b4c	533.52

District No. 154

4004 Farmers & Mechanics Bank, 1b4c	320.12

District No. 155

4006 Thomas H. & Myrta J. Corbett, 1b4c	266.76

District No. 156

4004 Farmers & Mechanics Bank, 1b4c	320.12

District No. 175

4005 State Savings Bank 2c	33.54
Total Curb & Gutter Tax Accounts	$34,775.36

Sewer Tax Accounts

District No. 148

3992 Marcia Minnis, 2b2c	836.00

District No. 149

3994 State Savings Bank, 1b1c	198.55

District No. 151

3995 James W. Bonner, 1b1c	332.31

District No. 152

3995 James W. Bonner, 1b1c	87.78

District No. 153

4266 Ann Arbor Savings Bank 3b5c	3,605.25

District No. 154

4010 Ann Arbor Savings Bank, 1b1c	135.85

District No. 156

3999 Ann Arbor Savings Bank, 1b	400.00
4010 Ann Arbor Savings Bank, 1c	18.00
	$ 418.00

District No. 157

3991 First National Bank, 1b1c	222.50
4010 Ann Arbor Savings Bank, 1b2c	531.50
	$ 754.00

District No. 158

3999 Ann Arbor Savings Bank, 1b1c	117.04

District No. 159

3993 Farmers & Mechanics Bank, 1b1c	521.45
4010 Ann Arbor Savings Bank, 2b2c	2,090.00
	$2,611.45

District No. 160

4006 Thomas H. & Myrta J. Corbett, 1b1c	679.25
4010 Ann Arbor Savings Bank, 1b1c	522.50
4266 Ann Arbor Savings Bank, 1b1c	496.37
	$1,,698.12

District No. 162

3988 Eva Frank, 1b1c	1,045.00
4010 Ann Arbor Savings Bank, 1b1c	521.45
4265 Ed Blumhart, 1b1c	1,045.00
	$2,611.45

District No. 163

4010 Ann Arbor Savings Bank, 1b1c	352.16

District No. 164

4292 Christine M. Breed, 1b1c	276.92

District No. 165

4006 Thomas H. & Myrta J. Corbett, 1b1c 627.00

District No. 166

4284 Emma Bersuder, 1b1c 352.16

District No. 167

4001 Emma Weinman, 1b1c 188.10

District No. 168

3999 Ann Arbor Savings Bank, 1b1c 522.50

District No. 169

4266 Ann Arbor Savings Bank, 1b2c 406.56

District No. 170

3994 State Savings Bank, 1b2c 545.00
4010 Ann Arbor Savings Bank, 1b2c 244.53
4266 Ann Arbor Savings Bank, 1c 10.53

$ 800.06

District No. 171

3994 State Savings Bank, 1b3c 385.90

District No. 172

3994 State Savings Bank 2b2c 1,139.05
4001 Emma Weinman, 2c 49.05
4010 Ann Arbor Savings Bank, 1c 26.55

$1,214.65

District No. 173

3994 State Savings Bank, 1b3c 454.00

District No. 174

3994 State Savings Bank, 1b3c 198.61

District No. 176

4293 Carl Rehberg, 1b4c.. 533.52

District No. 177

4004 Farmers & Mechanics Bank, 1c 8.38
4379 Ann Arbor Savings Bank, 1c 8.38
4385 State Savings Bank, 1c 8.38

$ 25.14

Total Sewer Tax Accts.$19,743.08

Paving Tax Accounts

District No. 38

4266 Ann Arbor Savings Bank, 1b1c 367.50
4268 Farmers & Mechanics Bank, 1b1c 1,050.00

$1,417.50

District No. 39

4268 Farmers & Mechanics Bank, 4b4c 3,402.00

District No. 40

4268 Farmers & Mechanics Bank, 3b3c 2,625.00
4268 Farmers & Mechanics Bank, 1b1c 115.50

$2,740.50

District No. 41

4266 Ann Arbor Savings Bank, 1b1c 315.00
4268 Farmers & Mechanics Bank, 1b1c 1,050.00

$1,365.00

District No. 42

4268 Farmers & Mechanics Bank, 2b2c 798.00

District No. 43

4266 Ann Arbor Savings Bank, 1b1c 525.00
4268 Farmers & Mechanics Bank, 3b3c 2,404.50

$2,929.50

District No. 44

4268 Farmers & Mechanics Bank, 5b5c 4,725.00

District No. 46

3994 State Savings Bank, 1b3c 111.16

District No. 47

3994 State Savings Bank, 1b3c 203.53

District No. 48

3994 State Savings Bank, 3b3c	1,575.00
4007 First National Bank, 3c	1,500.00
4010 Ann Arbor Savings Bank, 7c	175.00
4013 First National Bank, 3c	75.00
4271 Ann Arbor Savings Bank, 1c	25.00
4281 First National Bank, 5c	125.00
4295 First National Bank, 4c	100.00
4298 State Savings Bank, 1c	25.00
	$3,600.00

District No. 49

3994 State Savings Bank, 2b14c	365.00
4005 State Savings Bank, 7c	175.00
4007 First National Bank, 6c	3,000.00
4010 Ann Arbor Savings Bank, 1c	7.50
4266 Ann Arbor Savings Bank, 2b2c	682.50
4281 First National Bank, 6c	150.00
	$4,380.00

District No. 50

4007 First National Bank, 1b	1,000.00
4010 Ann Arbor Savings Bank, 1b1c	1,050.00
4281 First National Bank, 3c	150.00
4295 First National Bank, 4c	200.00
4384 Ann Arbor Savings Bank, 2c	50.00
	$2,450.00

District No. 52

4014 Farmers & Mechanics Bank, 2b 11c	2,050.00

District No. 53

3993 Farmers & Mechancs Bank, 1c	50.00
3994 State Savings Bank, 3c	150.00
3999 Ann Arbor Savings Bank, 1b4c	1,200.00
4005 State Savings Bank, 1c	50.00
4010 Ann Arbor Savings Bank, 1c	50.00
4266 Ann Arbor Savings Bank, 5c	250.00
4271 Ann Arbor Savings Bank, 1b	1,000.00
4271 Ann Arbor Savings Bank, 1c	50.00
4381 Pauline Baumgardner, 2b2c	2,100.00
	$4,900.00

District No. 54

3987 Rosa Smith, 1c	25.00
3994 State Savings Bank, 3c	75.00
3995 James W. Bonner, 2c	40.00
3999 Ann Arbor Savings Bank, 3b	1,500.00
4002 Emma Rayer, 1b1c	420.00
4010 Ann Arbor Savings Bank, 2b10c	1,250.00
4266 Ann Arbor Savings Bank, 2c	40.00
4269 Ann Arbor Savings Bank, 3c	75.00
4283 Ann Arbo rSavings Bank, 1c	25.00
4289 State Savings Bank, 2c	50.00
4391 State Savings Bank, 2c	50.00
	$3,550.00

District No. 55

3993 Farmers & Mechancs Bank, 2b2c	1,050.00
3994 State Savings Bank, 2c	50.00
4009 State Savings Bank, 2c	50.00
4010 Ann Arbor Savings Bank, 4c	150.00
4266 Ann rbor Savings Bank, 1b1c	1,050.00
	$2,350.00

District No. 56

3986 Marguerite Hannan, 2b2c	1,575.00
3993 Farmers & Mechancs Bank, 1b2c	550.00
3997 Farmers & Mechanics Bank, 5c	250.00
3998 George A. Bohnet, 3c	125.00
4004 Farmers & Mechanics Bank, 1b1c	75.00
4005 State Savings Bank, 1c	50.00
4009 State Savings Bank, 3b9c	3,450.00
4010 Ann Arbor Savings Bank, 2b10c	1,900.00
4266 Ann Arbor Savings Bank, 1b1c	1,050.00
4269 Ann Arbor Savings Bank, 1b1c	1,050.00
	$10,075.00

District No. 57

4288 First National Bank, 1b6c	214.50

District No. 58

4007 First National Bank, 3c	135.00
4269 Ann Arbor Savings Bank, 5c	225.00
4279 First National Bank, 1c	45.00
	$ 405.00

District No. 59

3990 First National Bank, 1c	27.00
3993 Farmers & Mechancs Bank, 1b	600.00
	$ 627.00

District No. 60

3990 First National Bank, 1c	9.90
3993 Farmers & Mechancs Bank, 1b	220.00
	$ 229.90

District No. 61

3990 First National Bank, 1c	29.25
3993 Farmers & Mechanics Bank, 1b	650.00
	$ 679.25

District No. 62

3990 First National Bank, 1c	6.30
3993 Farmers & Mechanics Bank, 1b	140.00
	$ 146.30

District No. 63

3990 First National Bank, 2c	76.50
3993 Farmers & Mechanics Bank, 1b	700.00
3994 State Savings Bank, 1c	45.00
4007 First National Bank, 1c	45.00
4010 Ann Arbor Savings Bank, 1c	45.00
	$ 911.50

District No. 64

3990 First National Bank, 3b18c	3,810.00
3999 Ann Arbor Savings Bank, 1c	45.00
4003 First National Bank, 2c	90.00
4006 Thomas H. & Myrta J. Corbett, 1b1c	157.80
	$4,102.80

District No. 65

3990 First National Bank, 1b5c	1,225.00
3994 State Savings Bank, 1b7c	236.70
3999 Ann Arbor Savings Bank, 2c	90.00
	$1,551.70

District No. 66

3990 First National Bank, 7b 48c	9,160.00
3999 Ann Arbor Savings Bank, 1c	45.00
4266 Ann Arbor Savings Bank, 1b7c	499.70
	$9,704.70

District No. 67

3994 State Savings Bank, 2b14c	999.40

District No. 70

3990 First National Bank, 12c	204.84
4266 Ann Arbor Savings Bank, 2b2c	792.84
	$ 997.68

District No. 71

4010 Ann Arbor Savings Bank, 4c	91.08
4266 Ann Arbor Savings Bank, 1b1c	528.74
4283 Ann Arbor Savings Bank, 2c	45.54
	$ 665.36

District No. 72

3990 First National Bank, 1c	22.50
3999 Ann Arbor Savings Bank, 11c	450.00
4003 First National Bank, 2c	45.00
4003 First National Bank, 3c	135.00
4007 First National Bank, 4b 7c	3,792.50
4269 Ann Arbor Savings Bank, 2c	90.00
4271 Ann Arbor Savings Bank, 4c	180.00
4282 State Savings Bank, 1c	22.50
4285 First National Bank, 1c	22.50
4295 First National Bank, 1c	22.50
4296 Ann Arbor Savings Bank, 1c	45.00
	$4,827.50

District No. 73

3994 State Savings Bank, 1b9c	379.35

District No. 74

3990 First National Bank, 2c	90.00
3999 Ann Arbor Savings Bank, 7c	315.00
4003 First National Bank, 1c	45.00
4007 First National Bank, 2b2c	2,090.00
4266 Ann Arbor Savings Bank, 1c	45.00
4271 Ann Arbor Savings Bank, 1c	45.00
4295 First National Bank, 2c	90.00
	$2,720.00

District No. 75

3994 State Savings Bank, 2b10c	859.70
3995 James W. Bonner, 2c	45.00
4000 Rose Dietz, 4c	45.00
4270 Farmers & Mechanics Bank, 4c	90.00
	$1,039.70

District No. 76

3999 Ann Arbor Savings Bank, 9c	405.00
4007 First National Bank, 4b4c	4,180.00
4226 Ann Arbor Savings Bank, 2c	90.00
4271 Ann Arbor Savings Bank, 8c	360.00
4290 First National Bank, 4c	180.00
	$5,215.00

District No. 77

4009 State Savings Bank, 1b9c	983.50

District No. 78

3994 State Savings Bank, 1b9c	572.00

District No. 79

3990 First National Bank, 1c	45.00
3999 Ann Arbor Savings Bank, 4c	135.00
4003 First National Bank, 1c	45.00
4004 Farmers & Mechanics Bank, 1b	45.00
4007 First National Bank, 2b2c	1,567.50
4269 Ann Arbor Savings Bank, 1c	22.50
4271 Ann Arbor Savings Bank, 2c	90.00

4282 State Savings Bank, 2c	45.00
4285 First National Bank, 1c	22.50
4295 First National Bank, 3c	90.00
	$2,107.50

District No. 80

3990 First National Bank, 1c	22.50
3999 Ann Arbor Savings Bank, 5c	180.00
4003 First National Bank, 2c	45.00
4004 Farmers & Mechanics Bank, 1b	45.00
4007 First National Bank, 2m2c	1,567.50
4269 Ann Arbor Savings Bank 1c	22.50
4271 Ann Arbor Savings Bank, 1c	45.00
4285 First National Bank, 1c	22.50
4295 First National Bank, 1c	22.50
	$1,972.50

District No. 81

3990 First National Bank, 1c	22.50
3993 Farmers & Mechanics, Bank, 1c	45.00
3999 Ann Arbor Savings Bank, 6c	225.00
4003 First National Bank, 2c	45.00
4007 First National Bank, 2b2c	1,567.50
4267 Mary N. Miller, 1b2c	824.62
4269 Ann Arbor Savings Bank, 1c	22.50
4271 Ann Arbor Savings Bank, 1c	45.00
4285 First National Bank, 1c	22.50
4290 First National Bank, 1c	45.00
4295 First National Bank, 1c	22.50
	$2,887.12

District No. 82

4383 State Savings Bank, 1b9c	674.40

District No. 83

3994 State Savings Bank, 1b2c	409.15
4010 Ann Arbor Savings Bank, 6c	522.50
4281 First National Bank, 6c	99.90
4281 First National Bank, 5c	112.50
4283 Ann Arbor Savings Bank, 1c	16.65
4382 State Savings Bank, 1c	22.50
	$1,183.20

District No. 84

3994 State Savings Bank, 1c	34.63
3996 Charles M. Belding, 3c	103.95
4005 State Savings Bank, 3c	103.95
4284 Emma Bersuder, 1c	34.65
	$ 277.20

District No. 85

4383 State Savings Bank, 1b9c	618.20

District No. 86

3993 Farmers & Mechanics Bank, 1b2c	545.00
4002 Emma Rayer, 1c	22.50
4008 Michael Sullivan, 1c	22.50
4010 Ann Arbor Savings Bank, 3c	67.50
4379 Ann Arbor Savings Bank, 2c	45.00
	$ 702.50

District No. 87

4266 Ann Arbor Savings Bank, 1b1c	520.00
4266 Ann Arbor Savings Bank, 9c	210.60
	$ 730.60

District No. 88

4009 State Savings Bank, 1b9c	491.75

District No. 89

3990 First National Bank, 1c	22.50

3994 State Savings Bank, 1c	45.00
3999 Ann Arbor Savings Bank, 5c	180.00
4003 First National Bank, 3c	90.00
4007 First National Bank, 2b2c	1,567.50
4269 Ann Arbor Savings Bank, 1c	22.50
4271 Ann Arbor Savings Bank, 2c	90.00
4282 State Savings Bank, 1c	22.50
4295 First National Bank, 2c	67.50
	$2,107.50

District No. 90

3990 First National Bank, 2b12c	2,184.32
3999 Ann Arbor Savings, 6c	270.00
4003 First National Bank, 1b	45.00
4007 First National Bank, 2b3c	2,135.00
4226 Ann Arbor Savings Bank, 2c	90.00
4269 Ann Arbor Savings Bank, 1c	45.00
4271 Ann Arbor Savings Bank, 1c	45.00
	$4,814.32

District No. 91

3993 Farmers & Mechanics Bank, 1b9c	632.25

District No. 92

3993 Farmers & Mechanics Bank, 1b1c	812.00
3994 State Savings Bank, 6c	73.68
4271 Ann Arbor Savings Bank, 1c	12.28
4281 First National Bank, 4c	55.28
4285 First National Bank, 2c	30.72
4388 First National Bank & Trust Co., 2c	30.72
	$1,014.68

District No. 93

3990 First National Bank, 1b6c	1,092.16
3993 Farmers & Mechanics Bank, 1b1c	304.61
3994 State Savings Bank, 6c	27.66
4271 Ann Arbor Savings Bank, 1c	4.61
4281 First National Bank, 3c	24.58
4285 First National Bank, 1c	15.36
4388 First National Bank & Trust Co.,	30.72
	$1,499.70

District No. 94

3990 First National Bank, 5c	76.80
3993 Farmers & Mechanics Bank, 1b1c	406.14
3994 State Savings Bank, 4c	24.56
4013 First National Bank, 1b1c	1,015.36
4271 Ann Arbor Savings Bank, 1c	6.14
4280 State Savings Bank, 2c	12.28
4281 First National Bank, 3c	27.64
4285 First National Bank, 1c	15.36
4388 First National Bank & Trust Co., 2c	30.72
	$1,615.00

District No. 95

3990 First National Bank, 5c	76.80
3993 Farmers & Mechanics Bank, 1b1c	913.82
3994 State Savings Bank, 6c	82.92
4013 First National Bank, 1b1c	1,015.36
4271 Ann Arbor Savings Bank, 1c	13.82
4281 First National Bank, 3c	43.00
4285 First National Bank, 1c	15.36

4388 First National Bank & Trust Co., 2c	30.72
	$2,191.80

District No. 96

3990 First National Bank, 5c	76.80
4013 First National Bank, 1b1c	1,015.36
4266 Ann Arbor Savings Bank, 1c	15.36
4281 First National Bank, 1c	15.36
4388 First National Bank & Trust Co., 2c	30.72
	$1,153.60

District No. 98

3995 James W. Bonner, 1b10c	560.50

District No. 99

4383 State Savings Bank, 1b10c	502.10

District No. 101

4297 Ann Arbor Savings Bank, 1b10c	700.60

District No. 102

4005 State Savings Bank, 1b10c	350.30

District No. 103

4009 State Savings Bank, 1b10c	408.70

District No. 104

4269 Ann Arbor Savings Bank, 1b10c	291.90

District No. 110

4005 State Savings Bank, 1c	45.00
Total Paving Accounts	$117,552.25

Contingent Fund

Municipal Garage

The Detroit Edison Co., N-P services	$ 1.76
The Abbott Gasoline Co., materials	653.28
Ann Arbor Auto Laundry, materials	1.50
Ann Arbor Implement Co., materials	3.90
Auto Parts Co., Inc., mat.	1546
Auto Storage Co., materials	3.75
Consumers Oil & Storage Co., materials	29.15
Elgin Sweeper Co., mater.	15.50
Jno. C. Fischer Co., mater.	2.59
Harper Battery & Auto Specialty Co., materials	61.63
Huron Valley Chevrolet Co., materials	1.00
Muehlig & Schmid, mater.	.70
Staebler & Sons, Inc., mat.	1.90
Wolf & Colvin, repairs	3.00
Municipal Garage Total	$ 795.12

Engineer Dept.

Wm. Austin, services	$ 52.80
Geo. Bleekman, services	100.00
A. K. Darbaker, services	75.00
K. W. Donnell, services	87.50
Alex Jarowski, services	50.05
K. Lundquist, services	44.25
Wm. Maulbetsch, services	100.00
V. W. McAdam	100.00
John O'Brien, services	44.25
Willard Ponto, services	48.40
J. Rogers, services	75.00
Walter Sauer, services	75.00
F. Schmid, services	75.00
L. G. Scovill, services	46.25
Engineer Dept., Total Services	$ 973.50
Steve Arnold, services	25.00
Marian Wurster, services	47.40
The Detroit Edison Co., N-P services	29.58
Banner Laundering Co., office expense	10.50
The Frederick Post Co., office expense	1.04
Holland, Ackerman & Holland, office expense	1.76
Clyde C. Kerr & Sons, office expense	5.50
The Mayer-Schairer Co., office expense	70.75
O. D. Morrill, office expense	1.25
George Wahr, office expense	6.00
White Swan Laundry Co., materials	.51
Ann Arbor Construction Co., materials	49.87

Ann Arbor Foundry Co., materials	381.00
Detroit, Jackson & Chicago Rwy., materials	.50
Eberbach & Son Co., mat.	1.35
Jno C. Fischer Co., mat.	10.30
Hutzel & Co., materials	4.84
Killins Gravel Co., materials	11.05
P. T. Lamkin & Sons, mat.	50.00
Lindenschmitt-Apfel & Co., materials	2.40
Luick Bros. & Co., materials	1.26
Railway Express Agency, materials	.64
Wm. H. L. Rohde, materials	29.54
The C. A. Sauer Co., mat.	1.08
Schumacher Hardware Co., materials	32.00
Public Health Nursing Assn., T-B work	19.00
Washtenaw Tribune, print'g	30.31
Fred C. Perry, conting.	1.89
The Nik-O-Lok Co., contingencies	20.89
U. S. Merchants & Shippers Insurance Co. of N. Y., insurance	20.00
City of A. A. Municipal Garage, M. Garage (Health Dept.)	23.76
Wolf & Colvin, repairs	42.30
Total	$ 933.27
Contingent Fund Total, including salaries	$2,842.89

Fire Dept.

Chas. Andrews, materials	$ .75
Eberbach & Son Co., mat.	.15
H. D. Edwards & Co., materials	5.06
Harper Battery & Tire Co., materials	1.25
The Elsifor Cartage Co., materials	.50
Standard Oil Company, materials	1.00
Swisher Grocer Co., office expense	8.00
Total	$ 16.71
Fire Dept. Total, including salaries	$2,487.71

Police Fund

Ann Arbor Rifle & Rev. Club, office expense	$ 60.00
The Detective Publishing Co., office expense	2.00
Clyde C. Kerr & Sons, office expense	11.50
Fred C. Perry, office exp.	10.80
George Wahr, office expense	4.80
The Athens Press, materials	6.75
Eberbach & Son Co., mat.	1.35
Sinclair Refining Co., mat.	1.41
A. A. Taxicab & Transfer Co., contingencies	6.00
A. A. Municipal Garage, M. Garage (Police Dept.)	79.14
Henry S. Platt, Repairs	19.80
Washtenaw Motor Co., Inc., repairs	5.50
Total	$ 209.05
Police Fund Total, including salaries	$2,574.05

Poor Fund

The Mich Ctnral R. R. Co., contingencies	1.26

Building Sidewalk Fund

Wm. B. McMillen, ,services	$ 75.00
A. F. Thompson, conting.	36.00
Henry Schneider, conting.	368.85
Total Bldg. Sidewalk Fund, including salaries	$ 479.85

Water Works Fund

L. Gerrick, labor	$ 62.40
H. Maier, labor	80.00
L. Furthmueller, labor	80.00
A. Jedele, labor	80.00
E. Mukensturn, labor	80.00
A. Gerstler, labor	62.40
H. Gerstler, labor	43.20
J. Duboloski, labor	48.00
M. Soldato, labor	57.60
C. Sauer, labor	52.00
A. Pokroski, labor	63.00
A. Sturon, labor	53.40
O. D. Conger, labor	57.60
P. Kallas, labor	52.80
A. C. Hetsler, labor	5.45
Louis Osborn, labor	60.00
Total labor	$ 937.85
Burroughs Adding Machine Co., office expense	.75

George Wahr,, office expense	1.75
The Mayer-Schairer Co., materials	3.45
Staebler Oil Co., mater.	71.93
A. A. Construction Co., materials	11.27
Huron Valley Chevrolet, materials	.12
E. F. Stabler, materials	28.25
Killins Gravel Co., mater.	3.00
Muehlig & Lanphear, mat.	1.65
William Hochrein & Sons, materials	3.30
Davis & Ohlinger, mater.	3.75
John M. Feiner, materials	4.86
The Home Supply Store, materials	2.10
Ford Meter Box Co., mat.	1.50
Jno. C. Fischer Co., mat.	2.73
James B. Clow & Sons, mat.	123.48
The Buckeye Traction Ditcher Co., materials	13.80
Crosby Truck Co., mater.	.75
Mich. Central R. R. Co.,, materials	7.68
Henry S. Platt, equipment	461.50
The Detroit Edison Co., N-P services	2,338.74
City of A. A. Municipal Garage, M. Garage (Water Works Dept.)	106.67
City of A. A. Street Dept., contingencies	152.20
Water Works Dept., materials and expense	38.52
Water Works Dept., materials and expense	10.86
W. H. Krapf, materials and expense	25.96
Total	$3,420.57
Water Works Total, including salaries	$5,220.92

Park Fund

Luther Boes, labor	$ 51.75
Donald Campbell, labor	54.00
John Coggan, labor	70.00
Perry Coppernoll, labor	75.60
Geo. Davis, labor	70.40
Geo. Donahue, labor	59.40
Ben Foster, labor	64.80
Chas. Foster, labor	59.40
Andrew Keiman, labor	59.40
Henry Mager, labor	62.40
Geo. Mason, labor	54.45
Ezra Moore, labor	54.00
Glenn Murray, labor	54.00
Carl Parker, labor	53.00
Richard Wallaker, labor	63.00
Harold Wetherbee, labor	7.18
Clayde Wymann, labor	59.40
Tim McCarthy, team	99.00
Total labor	$1,071.18
Davis & Ohlinger, office expense	16.00
Conlin & Wetherbee, materials	12.00
The C. A. Sauer Co., mat.	4.25
A. F. Thompson, materials	35.10
City of A. A. Municipal Garage, M. Garage (Park Dept.)	76.87
C. J. Snyder & Sons, contingencies	361.94
The Welding Shop, repairs	2.50
Total	$ 508.66
Park Fund Total, including salaries	$1,579.84

Street Fund

Philip Adam, labor	$ 38.40
August Behringer, labor	48.00
L. G. Bird, labor	92.40
Otto Blaess, labor	60.60
P. Campbell, labor	39.00
Camdem Dempsey, labor	60.00
Adolph Finkbeiner, labor	40.00
Fred Hanselman, labor	59.80
Em. Holzapfel, labor	72.00
Sam Kalmbach, labor	16.00
Wm. Keppler, labor	65.65
Samuel Lutz, labor	48.00
Fred Mahlke, labor	41.20
Fred Mack, labor	48.00
James Mason, labor	65.65
Geo. Menice, labor	63.00
Michael Morhardt, labor	47.50
Christ Paul, labor	57.00
Robert Paul, labor	31.05
Christ Pfaus, labor	20.00
Arthur Raus, labor	60.60
Otto Schantz, labor	60.00
John Shanahan, labor	72.00
Herman Stoll, labor	57.00
Theo. Stollsteimer, labor	50.50
Fred Ulrich, labor	72.25
Ike Warner, labor	47.50
Wm. Wayman, labor	43.50
Sam Burke, team	95.00
Carl Rehberg, team	99.00

Jake Young, team	91.00
Total Labor	$1,761.60
The Detroit Edison Co., N-P services	$ 1.42
The Mayer-Schairer Co., office expense	1.00
A. A. Construction Co., materials	40.83
Ann Arbor Foundry Co., materials	14.25
Ann Arbor Implement Co., materials	7.35
The Austin-Western Road Machinery Co., materials	2.55
The Dow Chemical Co., materials	1,226.13
H. J. Hagen, materials	4.50
Hertler Bros., materials	7.50
Killins Gravel Co., mater.	1,217.60
The Mich. Central R. R. Co., materials	6.00
Muehlig & Schmid, mater.	15.05
Henry Schneider, conting.	24.75
A. F. Thompson, conting.	24.30
The Earle Equipment Co., equipment	588.00
Total	$3,181.23
Street Fund Total, including salaries	$4,942.83

Recapitulation

Contingent	$53,358.21
Fire	7,962.71
Police	2,574.05
Poor	1.26
Building Sidewalk Fund	479.85
Bridge Cul. & C. W.	5,782.06
Water Works	131,070.92
Park	1,579.84
Street	4,942.83
Total City Funds	$207,751.73
Fuller Street Bridge	$ 4,900.00
Labor Curb and Gutter	6,503.40
Labor Sewer	12,752.02
Labor Pavement	13,846.50
Tax Curb and Gutter	34,775.36
Tax Sewer	19,743.08
Tax Pavement	117,552.25
Total Special Funds	$210,072.61
Grand Total	$417,824.34

Ann Arbor, Mich.
August 19, 1929

To the Finance Committee
of the Common Council,

Gentlemen:

I have examined the foregoing accounts against the City of Ann Arbor and I hereby certify that they are correct to the best of my knowledge.

FRED C. PERRY,
City Clerk.

To the Honorable,
the Common Council,

Gentlemen:

Your Finance Committee has reviewed the foregoing report. Warrants for salaries were drawn August 16, 1929. We recommend that same be approved and that warrants be ordered drawn for foregoing accounts.

LEONARD C. SAUER
EMIL H. SCHLENKER
Finance Committee.

Ald Sauer moved the adoption of the report, which was adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

Ordinance Committee Report

Ald. Severance presented the following Ordinance, which was given its third reading by title in accordance with the resolution adopted by the Common Council on July 15, 1929, and moved that the Ordinance pass.

ARTICLE I

BUILDING CODE

BUILDING CODE AND HOUSING LAWS

An ordinance providing for fire limits and regulations covering the construction, alteration, equipment, occupancy, repair and removal of buildings and other structures.

THE COMMON COUNCIL OF THE CITY OF ANN ARBOR ORDAIN:

The following provisions shall constitute and be known as the building code and may be cited as such and presumptively provides for all matters concerning, affecting or relating to the construction, equipment, occupancy, alteration, repair and removal of buildings, or other structures whatsoever erected or to be erected in the City of Ann Arbor.

ARTICLE I.

Section 1.—There shall be a Department of Buildings consisting of a Chief Inspector and such assistants as may be necessary for properly enforcing this ordinance. The City Engineer shall administer the Building Code until such time as a separate Building Department is formed.

Section 2.—**Chief Inspector.**—The Chief Inspector shall be appointed by the Common Council and shall be removed from office by the Common Council when necessary for the good of the service. His compensation shall be as established from time to time by the Common Council.

It shall be his duty to enforce all the provisions of this ordinance and supervise the work of his assistants.

He and his assistants shall have the power and authority to enter any premises for the purpose of inspection at any reasonable hour when properly identified.

He shall devote his entire time to the work of the Department and shall not during his term of office be engaged in any private work pertaining to the erection of buildings.

Section 3.—**Employees.**—The employees of the Department shall be appointed by the Chief Inspector and shall be paid such compensatin as established by the Common Council. They may be removed from office at any time by the Chief Inspector for the good of the service.

They shall preform such duties as shall be prescribed by the Chief Inspector and shall devote their entire time to work of the Department and shall not during their terms of office be engaged in any private work pertaining to the erection of buildings.

Section 4.—**Appeal and Board of Appeals.**—In case of dissatisfaction with any decision of the Chief Inspector, except as to dangerous structures and the management of the Department, including the dismissal of employees, an appeal may be made to the Board of Appeals as herein provided, but if no such appeal is made the decision of the Chief Inspector shall be final and conclusive.

The Board of Appeals shall consist of seven (7) persons, two of whom

ARTICLE I

shall be architects or engineers, two contractors or builders, and three persons not connected with the building trades. They shall be appointed by the Common Council for a period of three years, and thereafter their successors shall be appointed for three years each.

All appeals shall be filed in writing with the City Clerk. The Board shall hold regular meetings on the second Monday of each month and for special meetings at the call of the Chairman of the Board.

Section 5.—**Powers and Duties.**—The powers and duties of the Department shall be to supervise and control the construction, alteration, and repair of all buildings and other structures governed by this ordinance and other ordinances, and to make and enforce the necessary orders to insure safe and secure structures, adequate and safe exits and reasonable resistance to damage by fire or conflagration.

It shall be the duty of the Department to inspect and when necessary, to condemn all dangerous structures, to inspect all buildings and other structures during the course of erection, alteration, repair or removal; to inspect all places of public assembly at least once a year, and to make such other inspections of buildings as may be deemed necessary by the Chief Inspector for public safety, to receive and examine all plans, specifications for permits, to approve or disapprove of same, to issue all building permits and revoke same when necessary, to collect all fees and pay the same over daily to the City Treasurer, and to keep proper records of the Department's work.

Section 6.—**Scope of Code.**—All new buildings erected in the City of Ann Arbor shall conform to the requirements of this code, and all statements in this code, unless otherwise specified, shall apply to new buildings. Additions to buildings shall comply with the requirements given herein for new buildings even though the building to which the addition is made does not so comply and no addition may be made to a building which will result in a building not conforming to the requirements of this code, or which will extend or increase any existing nonconformity.

Existing buildings damaged by collapse, or fire to the extent of less than 75% of their value may be rebuilt in their original form, but buildings so damaged to an extent of more than 75% of their value must be rebuilt in conformity to this code, but frame buildings in the fire limits when damaged to the extent of 50% of their value shall be rebuilt in conformity with this code.

Existing buildings may be maintained in their present condition and occupancy except that such changes as are specifically required shall be made when ordered by the Chief Building Inspector. Existing buildings complying with the requirements of this code for existing buildings may be altered and repaired at a cost of not exceeding fifty (50) per cent of their value without being made to comply with the requirements for new buildings provided the occupancy is not changed and the hazard to occupants and surrounding property is not increased in the opinion of the Chief Inspector.

Existing buildings may be changed in occupancy subject to the provisions specifically given herein.

Section 7.—**Dangerous Buildings.**— If the whole or any part of any building or other structure shall be found dangerous or unsafe, the Department shall notify the owner, if the owner can not be found, his agent

ARTICLE I

or the tenant, of the unsafe condition and shall specify the time when such defects must be remedied. If none of these parties can be found within the City of Ann Arbor the notice may be posted upon a conspicuous part of the building or published in a newspaper as directed by the Common Council. When necessary, the Chief Inspector, or his assistants may order the vacation of the premises in unsafe condition as well as adjacent premises, and may divert traffic from the streets and sidewalks.

The Department of Police shall, upon written request of the Department of Buildings, summarily enforce such orders of vacation and shall divert traffic where necessary.

Should the owner, his agent, tenent, or other interested party fail to remedy the unsafe conditions, the Chief Inspector, or his assistants with the sanction of the Common Council shall proceed to tear down or otherwise make safe the unsafe condition, and shall report the facts and the costs of doing this work to the Common Council who shall order the cost paid to the one performing the work, and shall assess the sum against the property in question.

Section 8.—**Permits.**—Before proceeding with the erection, alteration, repair, moving or change of occupancy of any building or other structure regulated by this code, a permit shall be obtained from the Department of Buildings. To obtain such a permit the applicant shall file two complete sets of plans drawn to a scale of not less than one-eighth (1/8) inch per foot, showing all detailed structural features, and two sets of specifications as well as an application giving the location, proposed occupancy, estimated cost, volume in cubic feet except in the case of alterations, and such other reasonable information as may be requird by the Department, and all duly signed and acknowledged before a Notary Public. All such plans shall be signed by a registered architect or engineer, except in the case of plans for a single and two family dwellings, sheds and garages for not more than four (4) automobiles. The Department shall approve such plans if found to comply with this and other ordinances and with the State Laws within two (2) working days after same are filed, and shall issue permit desired upon payment of proper fee. If not approved, plans shall be returned at the end of two (2) working days with written objections thereto. In the case of large or complex buildings, the Department may require more than two (2) days but not more than one week.

Upon issuing a permit the Department shall furnish a waterproof card to the applicant which card shall be notice of permit and shall show the location and general character of the work to be done and the number of the permit. Such cards shall be posted in a conspicuous place not more than twelve (12) feet above the grade and maintained there until the work has been completed.

No permit shall be issued for any building or other structure upon any land which has been condemned for any public improvement, and no land ordered condemned by the Common Council for any public improvement until a notice of such proposed condemnation has been affixed to the plans, application and permit.

Section 9.—**Permits Revoked and Expired.**—Whenever it shall be found that a permit has been issued in violation of this ordinance or any other ordinance or state law, or inconsequence of a false statement of facts, or misrepresentation of conditions, the Chief Inspector shall notify the person holding such permit to appear before him at a stated time and

ARTICLE I

show cause why such a permit shall not be revoked. If after such a hearing it still appears that such a permit was improperly issued the Chief Inspector shall issue a written order revoking same and shall then proceed as if no permit had been issued.

Permits for structures upon which work is not started within six months of date of issue, and permits for structures upon work which has been abandoned for six months shall lapse and cease to be in effect. The Chief Inspector may within six (6) months of the date of such permits' lapse reinstate them, but such a reinstatement shall not be obligatory but only at his discretion.

Section 10.—**Power to Stop Work.**—Whenever building operations requiring a permit are being preformed without a permit, or in the absence of a notice of permit being properly posted, or contrary to the plans, specifications, application or permit, if permit has been obtained the Chief of the Department of Buildings shall order the work stopped at once without the necessity of further notice, and shall post a written statement to that affect upon he premises. At the written request of the Chief of the Department of Buildings the Police Department shall enforce such orders and any person or persons found working upon such buildings or other structures shall be deemed to be disorderly persons.

Section 11.—The fees for permits to be collected as aforesaid, shall be as follows:

For an expenditure up to $1,000	$1.00
For an expenditure of $1,000 to $5,000	2.00
For each $1,000 or fraction thereof above $5,000	.50

The moneys thus collected shall be paid into the City Treasury and credited to the contigent fund.

The fee shall be based upon the estimated cost by the applicant which cost shall be checked by the Department by multiplying the cubic contents of the building by a unit value per volume as established by the Department. Such unit values shall be computed from time to time by the department and submitted to the Common Council for approval. When approved, such values shall be dated and posted in a conspicuous place in the office of the Department. No permit may be issued upon a lesser value than determined from this table, but the unit values in such tables shall be re-determined from time to time as necessity may require.

Section 12.—**Double Fees.**—Whenever the construction of a building shall have been started before the permit therefor has been issued it shall be the duty of the Department to charge a fee double the amount herein established. The construction of any portion of the foundation or the erection of any post or any other portion of the building shall be construed as constituting the starting of the construction.

Section 13.—**Refunding of Fees.**—Holders of permits upon which work has not been started may make a written application for a refund of fees paid for such permits provided such application is made and attested before a Notary Public by the same person or corporation who originally applied for such permit or by the estate of such person or receiver of such corporation within one (1) year of date of issue. Upon verifying the facts in such cases, the Department shall refund seventy-five (75%) per cent of all the fees in excess of five ($5.00) dollars, in such a manner as may be directed by the Common Council. No such re-

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funds shall be made in the case of permits for which a double fee has been collected.

Section 14.—**Called Inspections.**—It shall be the duty of the holder of every permit to notify the Department verbally or in writing of the time when such building will be ready for inspection. Three such inspections must be called for on all buildings except sheds and garages of less than eight hundred (800) sq. ft. area, and one inspection shall be called for on such buildings.

The first of these inspections shall be called for as soon as the foundations are complete, but before backfilling the earth around foundations or proceeding with the superstructure. The second inspection shall be called when the main structural members are in place, but before covering same with lath or plaster, or other covering. The third inspection shall be called upon completion of the building. The inspection on small sheds and garages shall be called for as soon as the wall studs are in place.

Cards suitable for notifying the Department of the time for such inspections shall be furnished by the Department to all persons receiving permits.

Failure to notify the Department of the time for such inspections shall automatically cancel the permit. Before re-issuing such permit, the Department may require the payment of a second fee and require that the earth around foundations and lath and plaster on structural members be removed for proper inspection.

A notice calling the attention of the holders of permits to the requirements of this section shall be printed on all permits issued.

Section 15.—**Power to Order Changes.**—When the Department shall find any building or other structure to be in violation of this code in any part, the Chief Inspector shall cause to be sent the owner, or if such owner can not be found, to his agent or tenant, a written notice of such facts bearing the signature of the Chief Inspector. Such notice shall state the nature of the violation and date when such defects shall be remedied. At the expiration of this time a second notice shall be served personally upon the owner or his agent as herein set forth. Should the necessary changes not be made within thirty (30) days after service of such second notice, the Common Council may order the Chief Inspector to proceed with the work of making such changes. A statement of the cost of such work shall be transmitted to the Common Council who shall cause the sum to be paid and be levied as a special assessment against the property. Should the owner or his agents refuse peaceable entry to the Chief Inspector or his agents, the Chief Inspector shall apply to any court of competent jurisdiction who upon finding his statement of facts to be true and in accordance with this ordinance shall issue the necessary writs of entry to the premises.

Proper service as required herein shall be personal service upon the owner of record if he shall be within the City of Ann Arbor. If he shall not be within the City of Ann Arbor such service may be had upon any person accustomed to collect rents upon the property in question who may be in Ann Arbor, and in the absence of such a one upon the tenant of the premises. Should such premises be vacant and the owner be not in Ann Arbor, service will be complete when such a notice is sent by registered mail to the best address obtainable from the records of Washtenaw County. Whenever the owner, agent or tenant is a corporation,

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service may be made upon the president, vice-president, secretary, or treasurer, or in the absence of all these on the local representatives of such corporation.

Section 16.—**Power to Remove Unlawful Structures.**— In case where it is not practical to alter an unlawful structure to make the same comply with the requirements of this ordinance the Chief Inspector may apply to the Circuit Court in Chancery to declare such a building or other structure a nuisance and order same removed.

Section 17.—**Records.**—All plans, specifications and applications with the Department for permits shall be retained as a permanent record.

A copy of each permit consecutively numbered shall be retained by the Department and a suitable index of such permits shall be made.

The original reports of inspections made by the Department inspectors and a copy of all orders issued by the Department shall be retained as a permanent record and shall be suitably filed.

Copies of all letters and other correspondence of the Department shall be suitably filed and retained for five years.

All records of the Department except plans and specifications shall be public records. Plans and specifications shall not be subject to inspection by persons other than persons filing them, and the owner of the premises affected except by order of the Chief Inspector or of a court of law or chancery.

Section 18.—**Penalty for Violation.**—Whenever any person shall willfully violate any of the provisions of this ordinance either personally or by conspiring with or causing others to commit acts in violation of this ordinance whether such person be the owner, contractor, architect, or workman, he shall be deemed guilty of a misdemeanor, and shall be fined not to exceed $100.00 or confined in a penal institution for not to exceed ninety (90) days or both at the discretion of the court.

The imposing of sentence under this section shall not be construed as excusing or permitting the continuance of any violation, but the Department shall, when necessary to compel correction of unlawful conditions, also proceed as required under Sections 15 and 16 of this article, and when the violation constitutes a nuisance, any owner of the premises, whether the owner at the time of the violation was committed or his assignee, shall be deemed guilty of a violation of this ordinance for each day he shall permit such a nuisance to continue unabated after due notice from the Department of Buildings of the existence of such nuisance. The penalty for maintaining such a nuisance for each day shall be a fine not to exceed One Hundred ($100.00) Dollars or confinement in any penal insitution for not to exceed ninety (90) days, or both at the discretion of the court.

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Definitions

Section 1.—The following words when used in this ordinance shall be defined as given below; all other words shall be interpreted as having the meaning customarily ascribed to such words by the building trades in the United States.

Section 2.—(a) **Basement.**—A story of building partly below the adjoining grade, but so located that the verticle distance from the grade to the floor is not greater than the verticle distance from the grade to

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the ceiling. If the verticle distance from the grade to the ceiling is over five (5) feet such basement shall be rated as a first story.

(b) **Cellar.**—A story of a building partly below the adjoining grade and so located that the vertical distance from the grade to the floor is greater than the vertical distance from grade to the ceiling. If the vertical distance from the grade to the ceiling is over five (5) feet such cellar shall be rated as a first story.

(c) **Dead Load.**—The actual weight of walls, floors, roof, partitions and all other permanent elements of construction.

(d) **First Story.**—The lowest level or a story of a building, the ceiling of which is more than five (5) feet above the grade.

(e) **Grade.**—The level of the earth at the front of the building which shall be assumed to be the mean established level of the sidewalk against which it abuts, plus a rise of not over one (1) inch per foot of distance from the street line to the nearest part of the building. Where a building abuts on two or more streets the grade shall be taken as a mean of the grades calculated from the different streets.

(f) **Heights of Buildings.**—The vertical distance from the grade as defined herein at the center of the front of the building to the highest point of the roof surface if a flat roof, to the deck line for mansard roofs and to the mean height level between eaves and ridges for gable, hip and gambrel roofs.

(g) **Inflammable Liquid.**—Any liquid having a flash point of less than two hundred (200) degrees Fahrenheit when tested in an open cup tester.

(h) **Lintel.**—The beam or girdle placed over a doorway, window or other opening in a wall supporting the wall construction above and other loads.

(i) **Live Loads.**—All imposed, fixed or transient loads other than the dead loads and wind pressure.

(j) **Masonry.**—A mass of bricks, stones or concrete or terra cotta blocks, firmly cemented together with lime or cement mortar, not less than eight (8) inches in its least dimension.

(k) **Partition.**—An interior wall dividing one room from another but not including fire walls or party walls. Partitions may be non-bearing or may carry loads.

(l) **Repairs.**—The reconstruction or renewal of any part of an existing building for the purpose of its maintenance in its original class of occupancy and type of consruction.

(m) **Shed.**—A light one or two story structure for temporary use during the erection of a permanent building or a light one-story structure attached to, or auxiliary to, another building for storage or shelter only.

(n) **Side or Adjacent Property Line.**—Any bounding line separating two pieces of private property owned by separate owners whether the line is at the side, back or front of such property. Railroad right-of-ways shall not be considered as privately owned property under this definition.

(o) **Stand Pipe.**—A vertical iron or steel pipe with hose connections at various points to supply water for fighting fire.

(p) **Story Height.**—The vertical distance from the top of one floor to the top of the floor immediately above. Any story whose height exceeds the limits given herein shall be rated as two stories for the purpose of

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this code. Maximum height allowed for first story, nineteen (19) feet; for second, fifteen (15) feet; for third and above, except top, fourteen (14) feet; and for top story, sixteen (16) feet, not including attic space.

(q) **Street.**—For the purpose of this ordinance any public way such as a public street, avenue, boulevard, park or square, shall be regarded as a street, but public or private alleys shall not be regarded as streets. Railroad right-of-ways over thirty (30) feet wide and navigable waterways may be regarded as streets but no projections onto railway property shall be permited without the consent of the owner thereof.

(r) **Street Line.**—The line of demarcation between streets as defined above and property abutting thereon.

(s) **Veneer.**—The outer facing of brick, stone, concrete or tile of an enclosing wall used for ornamental appearance; protection or insulation but not counted as adding strength to the wall.

Section 3.—(a) **Walls: Apron Wall.**—That portion of an enclosing wall between the floor and window sills above and that portion of the wall between the floor and the window heads or lintels below when such wall is non-bearing.

(b) **Bearing Walls.**—A wall either interior or exterior on which joists, beams, girders, trusses, floors or roof rest, or which carries any load other than the weight of the wall above.

(c) **Cross Wall.**—A masonry wall connecting two other masonry walls which can be considered as stiffening, or supporting either of such walls. No wall can be considered as a cross wall if less than one-fourth (¼) of its height in length or if either end is free standing.

(d) **Curtain Wall.**—A non-bearing exterior enclosing wall supported at each floor level on a steel or concrete beam attached to a steel or concrete frame.

(e) **Fire Wall.**—A masonry division wall or partition extending from the ground, to and through the roof, and at least eighteen (18) inches above the roof, all openings in which are provided with self-closing or automatic fire dors of Type A. There shall be no horizontal offsets in fire walls, other than those permitted under specifications for fire separation, and no wooden porches or cornices shall be consructed across the ends of fire walls. When roofs are of Type 1 or 2 construction the projection of fire walls above them may be omitted.

(f) **Foundation Wall.**—That portion of enclosing wall below the first tier of floor joists or beams nearest to and next above the grade, and that portion of any interior wall below the basement or cellar floor.

(g) **Length of Wall.**—The horizontal distance between two cross walls or returns which can be assumed to give the wall lateral stiffness.

(h) **Party Walls.**—A wall separating two buildings under different ownership, but used in common by both owners for enclosure and which may or may not be used for supporting joists.

(i) **Retaining Wall.**—Any wall used to resist a lateral load from a mass of earth, coal, sand or other material, including liquids.

(j) **Thickness of Wall.**—The minimum thicknes of that portion of the wall bonded together with masonry headers as required under construction of masonry.

Section 4 (a)—**Existing Building.**—Any building actually constucted, or started under properly issued building permit previous to the adop-

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tion of this code, and also all buildings erected on land annexed to the City after the adoption of this ordinance, except that a frame or Type 8 building in the Fire Limits shall not be considered as an existing building when damaged to the extent of fifty (50%) or more per cent of its value by fire, collapse, or decay, nor shall any other building similarly damaged to the extent of seventy-five (75%) per cent of its value be considered as an existing building.

(b) **New Building.**—Any building not started before the adoption of this code and any building rebuilt or repaired after being damaged in excess of the amounts stated under definitions of "Existing Buildings," also any existing building altered, repaired, or rebuilt at a cost of more than fifty (50%) per cent of its previous value.

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Fire Limits.

Section 1.—The area to be known as the Fire Limits shall be all that portion of the City of Ann Arbor, Washtenaw County, Michigan, described as follows:

Beginning at the intersection of the west line of North Main Street and the west boundary of the Ann Arbor Railroad right-of-way; thence Sly along the Wly boundary of the Ann Arbor Railroad right-of-way to the southeast line of Hiscock Street; thence SWly along the southeast line of Hiscock Street to the south line of C. J. Snyder & Sons property; thence SEly along the south line of said Snyder property to the west line of the Ann Arbor Railroad right-of-way; thence Sly along the west line of the Ann Arbor Railroad right-of-way to Miller Avenue; thence west on Miller Avenue to Chapin Street; thence south along the east line of Chapin Street to West Huron Street; thence along the east line of Third Street to the south line of West Washington Street, thence Ely along the south line of West Washington Street 124 feet; thence Sly parallel to Third Street to N. line of Liberty Street; thence NEly along the northwest line of Liberty Street to the east line of Second Street extended; thence south along the east line of Second Street to William Street; thence east along the north line of William Street to First Street; thence south along the east line of First Street to Mosley Street; thence along the north line of Mosley Street to east line of South Main Street; thence along the east line of South Main Street to Adams Avenue; thence along the north and east line of Adams Avenue to Hill Street; thence east along the north line of Hill Street to the west line of Green Street extended; thence south on the west line of Green Street extended to the south line of Hill Street; thence west on the south line of Hill Street 66 feet; thence south parallel to west line of Green Street 114 feet; thence west parallel to Hill Street 61 feet; thence south parallel to Green Street to the south line of Davis Avenue; thence west along the south line of Davis Avenue 33 feet; thence south parallel to Green Street to the south line of Hoover Avenue; thence west on the south line of Hoover Avenue to a point 132 feet east of the east line of South Main Street; thence south parallel to the east line of South Main to south line of Keech Avenue; thence west on the south line of Keech Avenue to the east line of South Main Street; thence south on the east line of South Main Street to east and west quarter line of Section 32; thence east along the east and west quarter line of Section 32 to the east line

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of the Ann Arbor Railroad right-of-way; thence NWly along the east line of the Ann Arbor Railroad right-of-way to the north line of Hoover Avenue; thence east along the north line of Hoover Avenue to the west line of South Division Street; thence Nly along the west line of South Division Street to the north line of Hill Street; thence west along the north line of Hill Street to a point 100 feet east of the east line of South Fifth Avenue; thence Nly parallel to the east line of South Fifth Avenue to 100 feet north of the north line of John Street; thence west parallel to the north line of John Street to the east line of South Fifth Avenue; thence along the east line of South Fifth Avenue to the north line of Madison Street; thence west along the north line of East Madison Street to a point 132 feet west of the west line of South Fifth Avenue; thence Nly parallel to the west line of South Fifth Avenue to a line parallel to and 132 feet southwest to the southwest line of Packard Street; thence along the last mentioned line to a line parallel to and 132 feet east of the east line of South Main Street; thence Nly parallel to South Main Street to a line parallel to and 132 feet south of the south line of William Street; thence Ely parallel to and 132 feet south of the south line of William Street to the east line of Maynard Street; thence Sly along the east line of Maynard Street to the north line of Jefferson Street to the east line of South State Street; thence north along the east line of South State Street to the south line of North University Avenue; thence along the south line of North University Avenue to west line of S. Thayer Street extended; thence along the west line of S. Thayer Street to the south line of East Huron Street; thence west along the south line of East Huron Street to the west line of North State Street; thence north along the west line of North State Street 132 feet; thence Wly parallel to the north line of Huron Street to a line parallel to and 132 feet east of the east line of North Fifth Avenue; thence Nly parallel to the east line of North Fifth Avenue to a line parallel to and 132 feet SE of the SE line of Detroit Street; thence NEly parallel to and 132 feet SE of the SE line of Detroit Street to the north line of Fuller Street; thence along the north line of Fuller Street and Glen Drive to the Ely City Limits; thence Nly and Wly along the East City Limits to Fuller Street; thence Wly along Fuller Street and Wall Street to the Huron River; thence Wly along the Huron River to the east line of an Alley extended, said alley being just east of Broadway; thence Nly along the east line of said alley to the south line of Wall Street; thence NEly parallel to and 132 feet east of the SE line of Broadway to Traver Creek; thence Nly and NWly along Traver Creek to a line parallel to and 132 feet NW of the NW line of Broadway; thence SWly parallel to and 132 feet N.W. of the N.W. line of Broadway to the Huron River; thence Wly and Nly along the Huron River to the north City Limits; thence Wly along the north City Limits to the east line of North Main Street; thence Sly along the east line of North Main Street to a point 132 feet south of the south line of Summit Street; thence Ely and parallel to and 132 feet south of the south line of Summit Street to a line parallel to and 132 feet N.W. of the N.W. line of Detroit Street; thence S.W. parallel to and 132 feet N.W. of the N.W. line of Detroit Street to Kingsley Street; thence Nly along the north line of Kingsley Street to the west line of Main Street; thence along Wly line of North Main Street to the place of beginning.

A parcel of land 198 feet deep abutting on the south line of William Street and extending from Third Street to Fourth Street. A parcel of

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land described as follows: Beginning at a point on the east line of Fifth Street 119 feet south of the south line of W. Liberty Street; thence south 396 feet; thence east parallel to Jefferson Street to Fourth Street; thence Nly along west line of Fourth Street 396 feet; thence Wly to place of beginning.

An area of land bounded as follows: Beginning at the intersection of the W. line of South State Street and the N. line of Hoover Avenue; thence Wly along the north line of Hoover Avenue 132 feet; thence Nly and NWly along the west line of the alley to Mary Street; thence parallel to and 132 feet S.W. of the S.W. line of Packard Street to a line parallel to and 132 feet N. of the N. line of Hill Street; thence Ely along a line parallel to and 132 feet N. of the N. line of Hill Street to the west line of South State Street; thence south along the west line of South State Street to the south line of Hill Street; thence east along the south line of Hill Street to a line parallel to and 132 feet east of the east line of South State Street; thence south parallel to State Street to a line parallel to and 132 feet N.E. of the N.E. line of Packard Street; thence S.E. along the said line parallel to and 132 feet N.E. of the N.E. line of Packard Street to the N.W. line of Arch Street; thence S.W. along the N.W. line of Arch Street to the east line of South State Street; thence Nly along the east line of South State Street to the north line of Hoover Avenue extended. A parcel of land 132 feet deep abutting on the S.W. line of Packard Street and extending from the south line of Dewey Avenue to the north line of Woodlawn Avenue. Blocks bounded by Willard Street, Forest Avenue, South University Avenue and East University Avenue. A parcel of land 132 feet deep abutting on the north line of South University Avenue and extending from the east line of East University Avenue to the S.W. line of Washtenaw Avenue. A parcel of land 330 feet deep abutting on the west line of Glen Avenue extending from Catherine Street to Ann Street. A parcel of land described as follows: Beginning at the intersection of the west line of Forest Avenue and the north line of East Huron Street; thence north along the west line of Forest Avenue 132 feet; thence west along a line parallel to and 132 feet north of the north line of East Huron Street to a line parallel to and 132 feet east of the east line of Glen Avenue; thence north parallel to and 132 feet east of the east line of Glen Avenue to a point 132 feet north of the north line of Catherine Street; thence west along a line parallel to and 132 feet north of the north line of Catherine Street to a point 132 feet west of the west line of Glen Avenue; thence south parallel to Glen Avenue to the north line of Catherine Street; thence east along the north line of Catherine Street to the east line of Glen Avenue; thence south along the east line of Glen Avenue to the north line of East Huron Street; thence east along the north line of East Huron Street to the place of beginning.

Section 2.—**Buildings in Fire Limits.**—It shall be unlawful to erect any building in the fire limits unless the exterior walls thereof shall be of masonry at least eight (8) inches thick, and the roof thereof covered with an approved incombustible roofing (See Specification No. 31), except as specifically excepted herein.

The buildings which may be erected in the fire limits when not complying with the above requirements are as follows:

Frame sheds covered with sheet metal, not over one hundred (100) square feet in area, and not over twelve (12) feet high, when not less

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than five (5) feet from any adjacent property line and not less than ten (10) feet from any other building. All parts of such buildings must be at least twenty (20) feet and in no case less than one-half of the depth or width of the lot upon which they are built from any street. They may be used only for the storage of tools, goods, or machinery, or as a shelter for a watchman.

All metal or Type 7 buildings not over four hundred (400) square feet in area and not over twelve (12) feet high when not less than five (5) feet from any adjacent property line and not less than ten (10) feet from any other building. All parts of such buildings must be at least twenty (20) feet and in no case less than one-half of the depth or width of the lot from any street. They may be used for the storage of goods, tools, machinery, or not more than two (2) automobiles or as a workshop or shelter, but not as a retail store.

Frame sheds used as tool sheds, storage sheds, or construction offices by builders in the erection of permanent buildings may be built of such size as may be deemed necessary by the Chief Inspector. Such sheds must be removed at the completion of the permanent building or at any time when work on the permanent building shall have been abandoned for sixty (60) days. Such buildings shall not be used for any purpose not directly connected with the erection of a permanent building.

Section 3.—**Miscellaneous Wooden Structures.**—No wooden structures, other than those mentioned in Section 2 and the following may be erected within the fire limits.

Fences not over six (6) feet high on streets or alley line. Side line fences shall be of wood posts and stringers and wire netting, except that they may be of wood not over six (6) feet high by mutual consent of both property owners.

Open shelter sheds not over one thousand (1000) square feet in area when not less than five (5) feet from adjacent property lines and ten (10) feet from any building. No enclosures shall be placed at the sides of such sheds unless of masonry at least eight (8) inches thick.

Open wooden grandstands not exceeding five hundred (500) square feet in area when at least ten (10) feet from any property line or other similar grandstand and twenty (20) feet from any building.

Wooden signs or poster boards not exceeding one hundred (100) square feet in area when at least five (5) feet away from adjacent property lines and five (5) feet away from any similar sign. The top of such signs shall not be over fourteen (14) feet above the ground. Such signs shall not be erected in such a manner as to obstruct the Fire Department in approaching any building erected on the same lot.

Wooden scaffolding, barricades, sidewalk covers and similar structures used by builders in the course of erection of permanent buildings but such structures must be removed when the permanent structure is complete or at the order of the Chief Inspector or at any time when work on the permanent structure shall have been abandoned for sixty (60) days.

Section 4.—**Repairing and Rebuilding Frame Buildings in Fire Limits.**—Frame buildings in the fire limits erected before the adoption of this ordinance may be repaired or rebuilt when damaged by ordinary wear, decay, fire or collapse unless the building has been damaged by decay to structural members, collapse or fire to an extent of more than

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fifty (50) per cent of its value, in which case no repairs shall be made upon such buildings.

No frame additions shall be made to existing frame buildings except that one frame addition not exceeding forty (40) square feet in area may be made on an existing frame residence when necessary to provide sanitary conveniences.

No existing frame building within the fire limits shall be increased in height, nor shall the roof thereof be changed so as to increase the cubic volume of such building.

No shingle roof within the fire limits shall be replaced to the extent of more than ten (10) per cent of its area. Such roofs when defective in more than ten (10) per cent of their area shall be replaced with an approved incombustible roofing.

Section 5.—**Prohibited Occupancies in the Fire Limits.**—The following occupancies shall not be permitted within the fire limits:

The storage or sorting of rags or waste cloth.

The storage, sorting or baling of waste paper, except such as is accumulated on the premises incidental to some approved occupancy.

The handling or refining of inflammable liquids having a flash point of less than one hundred (100) degrees Fahrenheit, or the storage thereof above ground in quantities larger than five (5) gallons except when being placed or stored in tanks of vehicles.

The handling or storage of nitrocellulose picture films, except in entirely fireproof buildings, in excess of the requirements for a single theatrical performance.

The handling or storage of explosives, fireworks or other similar highly combustible materials except that special permission may be granted by the Department for the use of explosives in the fire limits with the approval of the Chief of the Fire Department.

The cleaning of clothes or other materials with gasoline or similar inflammable liquid, commonly known as dry cleaning.

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Types of Construction and Limits of Height.

Section 1.—For the purpose of this Code, buildings shall be divided into the following types of construction, based upon their resistance to fire, and the maximum height as defined in Article II, Section 2 (f) as given opposite each type of construction, unless further restricted under the class of building.

Type 1. Fireproof construction, limited to one hundred and twenty-five (125) feet, or ten stories.

Type 2. Incombustible construction, limited to five (5) stories or sixty-five (65) feet.

Type 3. Protected construction, limited to four (4) stories or fifty-five (55) feet.

Type 4. Mill construction, limited to three (3) stories or forty-five (45) feet.

Type 5. Skeleton construction, limited to one (1) story and mezzanine, or eighty (80) feet.

Type 6. Ordinary construction, limited to four (4) stories, or fifty-

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five (55) feet.

Type 7. All metal construction, limited to one (1) story, or thirty-five (35) feet.

Type 8. Frame construction, limited to two (2) stories, or thirty-five (35) feet, excepting ice houses as noted.

Pent houses, domes, spires, cupolas, sky-lights, or other roof construction for the proper light, ventilation or mechanical operation of buildings or ornamental features, specifically permitted in other sections of this code, may be allowed to project above the heights as given above, but no such portions of the building shall be used for storage, workshop, living rooms or for any similar purpose.

When two types of construction occur in the same building and are not separated by a complete fire separation the entire building shall be subject to the restrictions of both types, and shall be classified as the lower of the two types.

Section 2(a)—**Type 1, or Fireproof Construction.**—Limited to one hundred and twenty-five (125) feet or ten stories in height, and limited in area as given under class of buildings.

(b) **Walls.**—In this type of construction all enclosing walls and bearing walls and bearing partitions shall be of masonry. Curtain walls may be eight (8) inches thick. Interior non-bearing partitions may be of brick, concrete, terra cotta, concrete block, tile, gypsum, or metal lath and plaster on metal studs, or gypsum, or concrete blocks on metal studs meeting the requirements of Article XV, Section 11, or sheet metal on metal studs.

(c) No wood furring or wood lath shall be used.

(d) **Enclosures** for stairwells, elevator shafts and other vertical openings, also for electric or gas meter closets shall be not less than four (4) inches of brick, terra cotta, concrete, concrete block or tile, or gypsum, of two (2) inches concrete applied to metal lath on metal studs, supported upon the fireproof floor construction or upon an independent fireproofed steel frame, and all openings shall be closed with self-closing fire doors of Type B (Specification No. 29).

(e) **Metallic Structural Members** shall not be less than one-quarter (¼) of an inch thick in any part except that standard rolled structural steel I beams and channels may be used even though less than one-quarter (¼) of an inch thick, and all fireprofing applied to such members shall be securely tied in place with metal anchors or bonds.

(f) **Vertical Members** shall be masonry or concrete walls or piers, reinforced concrete columns or fireproof steel, iron, or cast iron columns. All metal columns shall be fireproofed with not less than two (2) inches of concrete, terra cotta, tile or gypsum or four (4) inches of brick. Where there is less than four (4) inches of fireproofing, the space behind the fireproofing shall be filled solid with similar material.

(g) **Horizontal Members** shall be reinforced masonry arches, concrete beams or lintels, or steel beams, trusses or lintels. All steel beams and girders shall have at least one and one-half (1½) inches of concrete or gypsum fireproofing on the sides and bottom, or two (2) inches of terra cotta. Lintels which are attached to the steel frame of the building and other lintels over six (6) feet long, shall be fireprofed the same as steel beams, but lintels over six (6) feet long, which are independent of the frame may be left bare. When the fire-

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proofing on beams and lintels is less than three (3) inches thick, the space behind shall be filled solid with fireproofing material.

(h) **Trusses and Purlins** shall be fireproofed the same as beams except that in the case of Class D or E buildings the following special rules shall apply:

In Class D buildings, trusses and purlins supporting balconies and roof may be left unprotected or may be protected by a ceiling of metal lath and plaster on metal channels and hangers. Fan rooms shall be protected as required in the next paragraph if not fireproof.

In Class E Buildings, the balcony and roof trusses and purlins if not fireproof as required for beams shall be fireproofed with a ceiling of metal lath and plaster at least one (1) inch thick on metal channels and hangers. In this case all vents, ducts and other similar openings into or through the attic space above this ceiling shall be lined with 14 U. S. gauge sheet metal, or shall be provided with trap doors as required in Specification No. 19. Openings for skylights or similar purposes shall be lined with one (1) inch of metal lath and plaster on metal studs. Where fan rooms are placed in attic spaces of Class E or D buildings they shall be housed in a room with a fireproof floor and ceiling and enclosed in a partition of brick, concrete, terra cotta, or gypsum, at least four (4) inches thick or concrete, metal lath and metal studs at least two (2) inches thick. Where this enclosure is not provided the trusses and purlins must be fully protected.

(i) **Floors** shall be of brick, tile, concrete or gypsum and may be of any of the following:

Brick or terra cotta arches at least four (4) inches thick but not less than one-twelfth (1/12) the span with steel tie rods to take the arch thrust.

Reinforced concrete slabs not less than three (3) inches including suspended ceiling where such is used.

Reinforced gypsum slabs or blocks not less than four (4) inches thick.

Any other construction accepted and approved by the Department as equivalent in strength, durability, fire resistance and heat insulating properties to those mentioned above.

(j) **Floor Finish** may be of any incombustible material or it may be of one (1) inch of wood on wood sleepers with the space between the sleepers filled with cinder or other concrete.

(k) **Roofs** shall be any material allowed for floors or may be of reinforced concrete not less than one and one-half (1½) inches thick or reinforced gypsum not less than two (2) inches thick, supported on steel purlins, beams and trusses. All steel work supporting roof slab shall be fully fireproofed as required under horizontal members except in the specific cases mentioned.

Sloping roofs pitched towards public ways not over ten (10) feet away shall be provided with snow guards. (See specification No. 39.)

(l) **Stairs and Stair Platforms** shall be constructed of reinforced concrete or steel with treads of iron or steel or of concrete, slate, marble, stone or any suitable hard incombutible composition supported on a steel plate.

(m) **Windows** may be of plain glass in wood frames except where required to be fire windows under class of building.

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(n) **Bays, Oriols** and similar projections shall be constructed entirely of incombustible materials and all structural steel members shall be fireproofed.

(o) **Porches and Balconies** shall be of entirely incombustible material, but steel members need not be fireproofed.

(p) **Cornices, Eaves and Gutters** shall be constructed entirely of incombustible materials.

(q) **Towers, Domes, Spires and Cupolas** shall be constructed entirely of incombustible material, and when such a structure is over two hundred (200) square feet in area, or is less than twenty (20) feet from an adjacent property line, or when such a structure is used for any purpose other than as an ornament, a belfry, or a vent outlet, all the structural members shall be fireproofed.

(r) **Pent Houses, Skylights, Lanterns, Monitors, Cooling Towers, Photographic Studios, and Dormers** shall be constructed entirely of incombustible material with all solid enclosures of masonry and all windows shall be of metal sash and wired glass, except that dormers and photographic studios may have plain glass in wood sash.

(s) **Water Tanks** for sprinklers shall be supported on steel supports which need not be fireproofed above the roof line. Tanks and platforms under tanks, if not over three (3) feet wide, may be of wood with iron rails.

(t) **Wood** and unprotected steel will be allowed in fireproof buildings in the following places in addition to those already mentioned:

(u) **Mezzanine Floors** of unprotected steel beams covered by not less than one and five-eighths (1⅝) inch of wood may be constructed, but there shall not be more than two (2) such mezzanines in any building and same shall not be located in same story height or shall either cover more than twenty (20) per cent of the area of building, except running tracks in gymnasium, which may cover not over fifty (50) per cent of the gymnasium. Such mezzanines shall not be used for spectators' galleries in Class D and E buildings.

(v) **Show Window** frames and aprons below, also show cases and other appurtenances on the first floor of stores and similar buildings may be of wood with or without unprotected steel. Where the first floor is cut away to light basement the bulkhead and platform of show windows shall be of fireproof construction.

(w) **Partitions** around cashiers' cages, wash stands, lockers, closets, etc., and partitions subdividing offices may be of wood, with or without glass panels, but no such partitions shall be used for corridor walls or for separation of separate offices.

(x) **Wood Trim** may be used around doors and windows other than those required to be fireproof and wood picture molds, chair rails and wainscoating or baseboards may be used. Wood doors may be used except on stairs, elevators or other shaft enclosures, and in division walls required to be firewalls and closets for electric or gas meters.

Section 3 (a)—**Type 2, or Incombustible Construction.**—Limited in height to five (5) stories or sixty-five (65) feet or less for certain classes of buildings and limited in area as given under class of building.

(b) The type of construction shall be the same as Type 1, or fireproof construction, except that floors and roofs may be constructed of

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pressed or formed steel joists, steel bar joists, or other steel members, which will not be limited in thickness. Such joists shall be protected immediately below by a ceiling of metal lath and Portland cement plaster at least seven-eighths (⅞) of an inch thick and shall be covered on top with at least two (2) inches of concrete. Where wood floor finish is used the wood sleepers may be imbedded in two (2) inch top coat. Where roof or balcony purlins are allowed to be left unprotected or to be protected by a suspended ceiling below in fireproof construction, the same rule may be followed in this type of construction.

Section 4.—(a) **Type 3, or Protected Construction.**—Limited to four (4) stories or fifty-five (55) feet, and limited in area as given under class of building.

(b) **Walls** in this type of construction, all enclosing walls and bearing walls, and partitions shall be masonry. All enclosing walls, including curtain walls in buildings over one (1) story high, shall be at least twelve (12) inches thick.

(c) **Partitions.**—Interior non-bearing partitions may be of any of the materials allowed for fireproof construction or wood studs with metal lath and plaster on both sides. No wood furring or wood lath shall be used.

(d) **Enclosures** for stairways, elevator shafts and other openings shall be constructed as follows: Those exceeding nine (9) square feet area shall be masonry bearing walls or a partition of brick, tile, concrete or gypsum at least four (4) inches thick, supported on an independent fireproofed steel frame. Enclosures for shafts less than nine (9) square feet may be of metal lath and Portland cement plaster on metal studs at least two (2) inches thick, supported on a steel frame. All such enclosures shall be continuous from floor to floor and no wood floor members shall project into or through such enclosing partitions. All stairs, elevator and shaft doors shall be self-closing fire doors of Type B (Specification No. 29).

(e) **Vertical Members** shall be as given under fireproof construction.

(f) **Horizontal Members** other than floor joists shall be as given under fireproof construction or may be of steel protected on the sides and bottom by one (1) inch of fireproofing as required for ceilings. Wood floor construction may rest directly on steel beams or shelf angles. Lintels shall be protected like other steel beams.

(g) **Floors** may be as given under Types 1 and 2 construction or may be constructed of wood joists covered on top with one and five-eighths (1⅝) inch of matched flooring, one (1) layer of asbestos paper weighing one and one-half (1½) pounds per yard and one (1) layer of seven-eighths (⅞) inch wood flooring. On the bottom of such joists there shall be one (1) inch of metal lath and cement plaster or one (1) inch of gypsum board containing not over six (6) per cent of fibre. Such ceilings shall incase the side and bottom of all steel beams, girders or trusses.

(h) **Roofs** may be constructed similar to floors except that on top of the one and five-eighths (1⅝) inch matched roofing, there shall be an incombustible roofing (see Specification No. 31). One and two-story buildings only may have seven-eighth (⅞) inch roof boards. In buildings having an attic space or cockloft and buildings with roofs supported on trusses with ceilings below, the one (1) inch of ceiling protection may be placed below such trusses instead of under roof joists, but all

such attic spaces shall be completely sealed from the room below, and all openings through such space shall be lined with one (1) inch protection similar to that used on ceiling. When there are any unceiled openings in this space, or where the attic is used for any purpose, the one (1) inch fireproof protection shall be applied to the underside of the roof joists and sides of the trusses. Fan rooms in attic spaces shall be treated as under fireproof construction.

Sloping roofs pitched toward public ways not over ten (10) feet away shall be provided with snow guards. (See Specification No. 39.)

(i) **Stairs** may be of any material allowed in fireproof construction or they may be of one and five-eighth (1⅝) inch wood floorings, stringers and joists, protected on the soffits with one (1) inch protection as required for ceilings. No wooden portion of stairs or landings shall be in contact with wood of floor and all doorways shall be provided with iron, steel or masonry thresholds.

(j) **Windows** may be of plain glass in wood frames except where required to be fire windows under class of buildings.

(k) **Bays, Oriols** and similar projections shall be of masonry at least eight (8) inches thick, supported on fireproof steel or reinforced concrete.

(l) **Porches and Balconies** shall be entirely of incombustible material and may be of masonry or unprotected steel with steel balconies, stairs and rails.

(m) **Cornices, Eaves and Gutters** not extending over lot line on buildings not over four (4) stories or sixty-five (65) feet may be of wood protected with metal. All other cornices, eaves and gutters shall be entirely of incombustible material.

(n) All projections over lot lines shall be as given under Article XX.

(o) **Roof Structures.**—Towers, domes, spires and cupolas not over two hundred (200) square feet area and not nearer than twenty (20) feet to any property line other than streets or alley lines, may be of wood covered with metal at least 26 U. S. gauge, slate, stucco or other incombustible material if not over forty (40) feet high measured from the supporting masonry of roof (when supported from the roof) of the building and not over one hundred (100) feet high measured from the grade. All other such structures shall be made of incombustible material, but steel members need not be fireproofed. All such structures which are not constructed of metal or masonry shall be entirely sealed at the bottom by means of firedoors or metal-covered trap doors and shall not be used for any other purposes than as an ornament or belfry.

(p) **Pent Houses, Skylights, Lanterns, Monitors, Cooling Towers, Photographic Studios and Dormers,** less than two hundred (200) square feet in area, and not exceeding one (1) story or sixteen (16) feet in height measured from roof on buildings not over four (4) stories of sixty-five (65) feet in height, may have walls of wood covered with metal of at least 26 U. S. gauge and roof as required on remainder of structure, but all walls which are continuations of the main walls below and all walls within twenty (20) feet of an adjacent property line shall be of masonry and be provided with windows of wired glass in metal frames. All glass other than that set in a vertical plane and more than twenty (20) feet from an adjacent line shall be wired glass. All such structures more than two hundred (200) square feet in area, or if located on a building more than four (4) stories high, shall have walls con-

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structed of masonry or concrete on steel studs two (2) inches thick and all doors shall be firedoors and windows wired glass in metal frames; roofs shall be constructed as required for remainder of building. All walls which are continuations of the main walls below and all walls within twenty (20) feet of an adjacent property line shall be of masonry and shall be provided with windows of wired glass in metal frames.

(q) **Water Tanks** for sprinklers shall be supported on steel supports which need not be fireproofed above the roof line. Tanks, and platform under tanks, if not over three (3) feet wide, may be of wood with iron rails.

Section 5.—(a) **Type 4, or Mill Construction.**—Limited to three (3) stories or forty-five (45) feet and limited as to area as given under class of building.

(b) This type of construction shall be the same as Type 3 or protected construction in all respects except as to interior vertical and horizontal members, floors and roofs, which shall be as follows:

(c) **Interior Vertical Members** shall be as given under fireproof construction or may be solid wood posts of not less than sixty (60) square inches cross section area. Such posts shall be provided with steel or cast iron self-releasing caps.

(d) **Horizontal Members, Beams, Girders or Joists** shall be of concrete, steel or wood beams of at least fifty-six (56) square inches cross section area. Steel beams shall be protected on the bottom and sides and that portion of the top not in direct contact with wood joists with at least one (1) inch of Portland cement plaster on metal lath. Wood beams less than eighty (80) square inches in area shall be solid pieces and those over eighty (80) square inches area may be built up of pieces of at least forty (40) square inches area, securely bolted together at intervals of not less than three (3) feet. All wood beams supported on brick walls shall be fire cut.

(e) **Floors** shall be constructed as in Type 1 construction or of solid wood sub-floor, not less than one and five-eighth (1⅝) inch thick, covered with a layer of asbestos paper weighing one and one-half (1½) pounds per square yard, and one (1) layer seven-eighths (⅞) inch flooring over. If the sub-floor is less than three and one-half (3½) inches thick, it shall be of matched flooring. The under side of floor joists shall not be sealed except when sealed as required under Type 3 constructon.

(f) **Roofs** shall be constructed of joists and girders as used for floors, above which there shall be matched roof boards not less than one and five-eighths (1⅝) inch thick, covered with an incombustible roofing (see Specification No. 31). The underside of roof joists shall not be sealed unless sealed as required for protected construction directly under roof joists. Suspended ceilings under roofs, if used, shall be of metal lath and Portland cement plaster on metal channels and metal hangers. Attic floors shall comply with the requirements of other floors and all attic spaces or cocklofts shall be completely sealed off from room below with one (1) inch of fireproofing or one and five-eighths (1⅝) inches of matched flooring around all vertical openings. Steel roof trusses shall be protected with one (1) inch of metal lath and Portland cement plaster around all members except the top of trusses in contact with wood purlins or with a complete ceiling of one (1) inch of metal lath and cement plaster on metal channels and metal hangers, but the fireproofing of

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roof trusses may be omitted in completely sprinklered buildings.

(g) **Wood Roof Trusses** may be used when built as follows:

Top and bottom chord and strutts to be either solid or built-up sections of net area not less than fifty-six (56) square inches, with tension members of similar construction or with one and three-quarters (1¾) inches of wood.

Sloping roofs pitched toward public ways not over ten (10) feet away shall be provided with snow guards. (See Specification No. 39.)

Section 6—(a) **Type 5 or Skeleton Construction.**—Limited to one (1) story and one (1) mezzanine or eighty (80) feet, except when roof purlins and roof boards are of wood, in which case such buildings shall not exceed fifty (50) feet. Buildings of this type are permitted in fire limits only when exterior walls are of masonry and are limited in area and located on lot as given under class of building.

(b) **Walls.**—In this construction the enclosing walls shall be of masonry at least eight (8) inches thick. Interior bearing partitions shall be masonry. Interor non-bearing partitions may be of any material allowed for Type 3 construction.

(c) **Enclosures.**—No enclosure will be required around stairs and shafts except that where there is a basement the basement stairwell and other openings through the first floor shall be enclosed in at least an eight (8) inch masonry wall in the basement and shall be provided with a self-closing firedoor of Type B. (See Specification No. 29.) There shall be no wood lath and no wood furring used.

(d) **Vertical Bearing Members** shall be masonry, cast iron, or steel. Metal members may be unprotected.

(e) **Horizontal Members** shall be reinforced concrete or unprotected steel for principal members and wooden joists or purlins of mill size for secondary members, but no wooden member shall carry more than one hundred fifty (150) square feet of floor or roof. Lintels need not be protected.

(f) **Floors.**—Where a basement is provided the first floor shall be as required for fireproof construction.

(g) **Mezzanine Floors.**—A mezzanine floor may be constructed if not covering more than one-half (½) the area of the building. This floor shall be of any material allowed for Type 1 or 2 construction or it may be made of at least one and five-eighths (1⅝) inches matched flooring supported on horizontal members as given above. Two (2) inch nailing plates may be bolted to the tops of steel beams.

(h) **Roof.**—The roof shall be carried on steel trusses or beams and wood purlins as given above with one and five-eighths (1⅝) inches matched roofing covered with an incombustible roofing (see Specification No. 31), in which case the buildng shall be limited to fifty (50) feet in height, or the roof may be constructed of unprotected steel trusses, beams and purlins with a roofing of reinforced concrete or gypsum slabs of any thickness required for structural reasons, in which case the building may be eighty (80) feet high. There shall be no cocklofts or attic spaces.

Sloping roofs pitched toward public ways not over ten (10) feet away shall be provided with snow guards. (See Specification No. 39.)

(i) **Windows** may be plain glass in wood frames except where

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required to be fire windows under class of building.

(j) **Bays, Oriols** and similar projections shall be of masonry at least eight (8) inches thick or two (2) inches of cement plaster on metal lath supported on fireproof steel.

(k) **Porches, Balconies, Cornices, Eaves and Gutters** shall be entirely of incombustible materials.

(l) All projections over lot lines shall be as given under Article XX.

(m) **Roof Structures** shall be as given under Type 3 construction.

Section 7.—(a) **Type 6 or Ordinary Construction.**—Limited to four (4) stories or fifty-five (55) feet. Buildings of this type are limited in areas as given under class of building.

(b) In this type of construction all enclosing walls shall be of masonry and all bearing walls and partitions below the first floor shall be of masonry.

(c) **Partitions.**—Interior bearing or non-bearing partitions other than fire or division walls, stairs, elevator or shaft enclosures and bearing walls or partitions below the first floor may be of wood studs with wood lath and plaster or wood ceiling. (See Article XI, Section 9-A, for exception as to partition construction in Type 6 buildings used as dwellings if over two (2) stories high.

(d) **Enclosures** for stairs, elevators and other vertical openings shall be of brick, tile, gypsum or concrete at least four (4) inches thick or Portland cement plaster or metal lath at least two (2) inches thick, continuous from floor to floor. Self-closing firedoors of Type B (see Specification No. 29) shall be provided on all openings in such enclosures.

(e) **Vertical Members** below the first floor line shall be of metal or masonry, but all other vertical and all horizontal members may be of any material structurally suitable for the purpose if not more combustible than wood. Metallic members need not be fireproofed.

(f) **Floors and Roofs** may be of any material structurally suitable, if not more combustible than wood, but roof coverings shall be of incombustible material. (See Specification No. 31.) Exceptions and Deviations.—Class F buildings when not of Type 1 or 2 construction if over two (2) stories high shall have all wooden partitions, walls and ceilings, includng basement ceiling, covered with metal lath and plaster.

Sloping roofs pitched toward public ways not over ten (10) feet away shall be provided with snow guards. (See Specification No. 39.)

(g) **Stairs** may be wood of any thickness sufficient for structural requirements.

(h) **Windows** may be of plain glass in wood frames except where required to be fireproofed under class of building.

(i) **Bays, Oriols** and similar projections on street or alley faces of buildings not extending over lot lines may be of wood covered with 26 U. S. gauge metal or other material having an equal resistance to fire, but such projections shall not be more than two (2) stories high nor more than fifteen (15) feet wide and there shall be at least ten (10) feet of masonry between any two such projections. Similar projections may be placed on sides of buildings unless the requirements under class of buildng would demand fire windows, in which case the entire projections shall be made of at least eight (8) inch masonry walls, supported on fireproofed steel and provided throughout with fire windows. Such pro-

jections, when larger than given above or when projecting over lot lines, may be built on street and alley lines, but shall be of incombustible material, but may have wood sash and plain glass. No encroachment on a street or alley shall exceed that allowed in Article XX.

(j) **Porches and Balconies.**—Open porches and balconies not extending beyond lot line and not more than two (2) stories high may be of wood construction, but must be at least five (5) feet from side property line or be protected with masonry walls parallel to the property line.

(k) Porches more than two (2) stories high shall be of incombustible material and all enclosed porches shall conform in construction to the requirements of the main building.

(l) **Cornices, Eaves and Gutters** may be of metal or other incombustible material or wood covered with metal when not extending beyond lot line. Projections beyond lot lines shall be constructed as required in Article XX.

(m) **Roof Structures.**—Shall be constructed as under Type 3 construction buildings, not more than four (4) stories high.

Section 8.—(a) **Type 7 or All-Metal Construction.**—Limited to one (1) story or thirty-five (35) feet. Buildings of this type are not permitted in the fire limits except when four hundred (400) square feet or less in area. In other parts of the city they shall be restricted as to distance from the side property lines, uses and areas as given under class of building.

(b) In this type of construction all enclosing walls, roof, vertical and horizontal members, bay, porches, orials, cornices, eaves and all roof structures shall be entirely of metal, which may be unprotected and will not be limited in thickness. The inner side of walls and under side of roofs shall not be sealed with wood or wood lath and plaster, but may be sealed with incombustible material.

(c) **Interior Partitions** shall be incombustible and may be of sheet metal on metal studs or any material allowed under Types 1 or 3 construction.

(d) **Floors.**—Where a basement is provided, the first floor shall be of fireproof construction, and masonry partitions with self-closing fire doors shall be provided in the basement around all shafts or stairwells opening through first floor. Where no basement is provided, the first floor may be of any material, including wood.

(e) **Stairs** from basement to first floor shall be of iron or concrete.

(f) **Windows** shall have metal sash but may have common glass.

(g) **All Projections** over lot lines shall be of metal and shall be as given under Article XX.

(h) **Roof Structures** shall be entirely of metal and shall not extend more than twelve (12) feet above the main roof of the building.

(i) Buildings of this type, if more than four hundred (400) square feet in area, shall have masonry foundations at least three feet six inches (3 ft. 6 in.) deep. If not more than four hundred (400) square feet in area, they may rest upon a slab of concrete at least five (5) inches thick or upon timbers or posts.

Section 9.—(a) **Type 8 or Frame Construction.**—Limited to buildings not more than two (2) stories and attic or thirty-five (35) feet,

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except as noted under ice houses.

(b) This type of building is not permitted in the Fire Limits, and is limited in regard to distance from side property lines and area, as given under class of building.

(c) In this type of construction all the enclosing walls, interior walls and partitions, floors, roofs and ceilings may be of wood, and wood lath may be used. The exterior walls shall be constructed of wood studs not less than one and five-eighths by three and five-eighths (1⅝x3⅝) inches actual dimensions, not more than sixteen (16) inches on centers, covered with not less than three-quarter (¾) inch actual thickness wood sheathing securely nailed to one side, or other material meeting requirements of Specification No. 40.

(d) No protection will be required on floors, ceilings or walls but exterior walls may be veneered with four (4) inches of brick or covered with stucco or similar material. Such veneer shall not be construed as altering the type of construction. Exceptions and Deviations.—Class F buildings when not of Type 1 or 2 construction if over two (2) stories high shall have all wooden partitions, walls and ceilings, including basement ceiling, covered with metal lath and plaster.

(e) Where basements are provided under Type 8 buildings, the frame partitions and exterior walls shall be firestopped at or near the first floor line with masonry or two (2) inches of wood snugly fitted to prevent air draughts.

(f) **Sheds and Garages** of this type of construction not over eight hundred (800) square feet may rest upon a five (5) inch slab of concrete or on timbers or posts but all other frame buildings shall have foundations of masonry eight (8) inches thick or concrete posts eight (8) by eight (8) inches and those veneered with four (4) inches of brick shall have masonry foundations twelve (12) inches thick.

(g) No enclosures will be required around stairwells or other openings, but wood enclosures may be used.

(h) **Cornices, Eaves, Towers, Domes, Spires, Cupolas, Pent Houses, Skylights, Lanterns, Monitors, Dormers, etc.**, may be of wood but no such structure, unless a private residence, shall be used for sleeping quarters or as a work shop, store room or any other purpose except as an ornament or for the mechanical operation of the building, and no such construction shall be more than forty-five (45) feet high at any point above the grade. (For attics in private residences see Class F buildings.) Cornices, eaves, etc., shall not extend more than eighteen (18) inches into the minimum lot line clearances required under Class of Buildings, and no projection over the lot lines shall exceed those allowed in Article XX.

(i) **Frame Ice Houses** for the storage of ice only, may be built to a height of not more than forty-five (45) feet when covered on the outside with two (2) inches of concrete, reinforced with wire mech or eight (8) inches of masonry veneering securely tied to wood frames.

Section 10.—**Advertising.**—It shall be a violation of this code to advertise or represent a building to be a different and better type of construction than that established by the provisions of this article.

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Classification of Buildings and General Requirements

Section 1.—**Classification of Buildings.**—For the purpose of this code all buildings or parts of buildings shall be divided into the following classes based upon their use or occupancy. Any occupancy not mentioned in the following shall be placed by the Department in the class it most nearly resembles.

Class A shall include all manufacturing buildings, wholesale stores, warehouses, sheds (other than those attached or pertaining to residences), power houses, crane sheds, bridges, ice storage houses, chemical works, and all similar buildings except as particularly mentioned under Class "B" and all open shelter sheds, except those used for amusement and those attached to dwellings.

The requirements for Class A buildings are given in Article VI.

Class B shall be divided into the following sub-classes, and shall include the following:

Sub-Class B-1.—All garages, gasoline motor boat houses, hangars, paint shops, enameling shops, rag shops, or rag storage rooms and buildings for the manufacture, storage, use or sale of inflammable liquids and other highly inflammable substances, including calcium carbide and all other buildings subject to an unusual fire risk as specifically mentioned under Sub-Classes B-2 and B-3.

Sub-Class B-2.—All dry cleaning establishments, and all buildings used for the storage or manufacture of celluloid, including nitro-cellulose motion picture films and buildings for the storage or manufacture of explosives and buildings used for generating acetylene.

Sub-Class B-3.—All stables for horses, cows or other domestic or wild animals.

Requirements for Class B buildings are given in Article VII.

Class C shall include all semi-public buildings such as retail stores, department stores, office buildings, business colleges, telephone exchanges, recreation buildings for bowling, pool, billiards and similar games, baths, restaurants, markets, public convenience stations or toilets and similar buildings, also places of assembly for not over one hundred (100) persons, including such occupancies as dance halls, auditoriums, meeting rooms and private schools.

The requirements for Class C buildings are given in Article VIII.

Class D shall include all public buildings such as a City or County administrative building, court houses, libraries, art museums, railway passenger stations, postoffices, schools, boarding schools, seminaries, churches, church houses, club houses, lodge halls, drill halls, dance halls, skating rinks, gymnasiums, auditoriums, amusement devices, providing shelter and similar buildings but shall not include major or minor theaters, as given under Class E.

The requirements for Class D buildings are given in Article IX.

Class E shall include all major and minor theaters, that is, all buildings provided with auditoriums for the concourse of persons to view theatrical performances upon a stage provided with a loft for moving scenery or any building customarily used for the exhibit of moving pictures.

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The requirements for Class E buildings are given in Article X.

Class F shall be divided into the following sub-classes and shall include the following:

Sub-Class F-1.—All multiple dwellings, for three (3) or more families and all hotels, lodging or rooming houses, dormitories, monasteries, convents, boarding schools, club houses (providing sleeping rooms), and similar buildings containing more than ten (10) sleeping rooms. For the purpose of this classification, sleeping rooms of more than one hundred sixty (160) square feet will be regarded as two or more rooms, each eighty (80) square feet or fraction thereof being considered one room.

Sub-Class F-2.—All hospitals, sanitariums, and medical institutions providing more than ten (10) sleeping rooms as defined above.

Sub-Class F-3.—All prisons, reformatories, jails, asylums, and other places of detention for human beings.

The requirements for Class F buildings are given in Article XI.

Class G shall include all single or two family dwellings and all lodging or rooming houses, dormitories, monasteries, convents and other similar buildings providing not more than ten (10) sleeping rooms as defined under Class F, also all sheds and outhouses other than garages attached to or pertaining to the above buildings.

The requirements for Class G buildings are given in Article XII.

All buildings shall be constructed of one or more of the types of construction particularly mentioned and specified under Section 1 of the article governing this class of occupancy.

Miscellaneous structures such as open shelter sheds, radio towers, grandstands, roller coasters, tents and other amusement devices shall be constructed as required in Article XIII.

Section 2.—**Mixed Occupancies.**—Wherever two or more classes of occupancy are present in one building, the building shall be constructed as specified in Section 2 of the article relating to the first of the two classes. Whenever two classes of occupancy are allowed to be mixed without fire separation, the more restrictive requirements of either class shall be required throughout the buildings in the absence of any stipulation to the contrary, but where two occupancies are required to be separated by a fire separation, the restrictions of each class of occupancy shall apply to that section only.

All fire separation shall be as specified in Specification No. 37.

Section 3.—**Stair and Exit Requirements** for each class of occupancy shall be as given in Section 3 of the article governing that class of occupancy. The following general rules shall govern in all cases:

All stairways shall be three (3) feet six (6) inches wide between centers of hand rails except where otherwise noted. Hand rails shall be provided on both sides of all stairs except those in Class G buildings.

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The width of auxiliary stairs not required as exits shall not be limited.

The risers and treads shall be as given in Section 3 of the article governing class of building.

Where two stairways are required under class of building, there shall be two separate and distinct stairways, located in separate wells or enclosures. Where more than two stairways are required, stairways wider than required, three (3) feet six (6) inches, may be used and such stairs will be given credit as follows: A stairway five (5) feet three (3) inches wide will be credited as one and one-half (1½) stairways, and one (1) seven (7) feet wide will be credited as two (2) stairways, but in every seven (7) foot stairs there shall be a hand rail down the center in addition to the two (2) side hand rails.

In all cases the landings and returns shall be at least as wide as the stairs and the swing of stair doors shall not decrease the required width by more than eighteen (18) inches.

In any building divided into areas by firewalls, provided with self-closing or automatic fire doors, there shall be at least one (1) stairway in each area equal to the required area within fire walls as given in this code, but credit shall be given for horizontal exits through these firewalls or by substantially horizontal exits over bridges as if such horizontal exits were stairs. The credit for horizontal exits shall follow the same rule respecting both width and location as stairs, but the total credit for horizontal exits through any fire wall or over any bridge shall not exceed the credit for all the stairs to which communication is provided plus an allowance of one stairway for each seventy (70) square feet of passenger elevator platform on the further side of the fire wall or bridge. All horizontal exits shall be closed by swinging doors only and such doors shall not be provided with locks.

In every building over four (4) stories high, one (1) stair shall continue to the roof and in every building not over four (4) stories, with a flat roof, there shall be a fixed ladder extending through a scuttle to the roof at the top of at least one (1) stairway.

Exit doors at the base of stairs shall be at least two feet, ten inches (2 ft. 10 in.) for three (3) foot stairs; three (3) foot, four (4) inches for three (3) feet, six (6) inch stairs; and for five (5) feet, three (3) inches and seven (7) foot stairs, the aggregate width of doors shall be five (5) feet, and six (6) feet eight (8) inches respectively. All such doors shall open out except in Class F and G buildings.

Exit doors from first floor when not otherwise specified shall be at least three (3) feet four (4) inches wide and shall open out.

Revolving doors may be used as required exits when so constructed as to collapse in direction of travel when pressure is exerted on both sides.

For the purpose of determining the necessary number and width of stairs and exits for all buildings other than theaters or auditoriums with fixed seats, the number of persons in any building shall be determined by assuming one person for each area in square feet as given

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in the table below:

Kind or Use of Building.	Number of Square Feet of Floor Space Allowed Per Person.
Assembly Halls Dance Halls Lodge Rooms Armories Convention Halls	15 Square Feet Per Person.
Public Buildings Commercial Stores Department Stores Markets Restaurants Churches Exhibition Rooms	30 Square Feet Per Person
Work Rooms Manufacturing Buildings (Except as Noted Below)	50 Square Feet Per Person
Office Buildings Loft Buildings Depots	100 Square Feet Per Person.
Apartments Hotels Hospitals Asylums Sanitariums Studios Club Houses Reading Rooms	150 Square Feet Per Person
Warehouses Storage Rooms Freight Houses Garages	300 Square Feet Per Person.

in buildings of occupancy other than those listed in the foregoing table, the nearest similar occupancy given may be used with the approval of the Department.

The number of occupants in theaters and auditoriums with fixed seats shall be determined from the seating diagram or by actual count of seats.

The number of occupants in manufacturing buildings erected for some specific occupancy may be determined by the actual experience of the owner in other buildings in which case the application for a permit shall show the number of square feet of area assumed per person. In such cases if the occupancy is later changed to employ more persons, the Department may demand such additional stairs as would be required in a new building erected for the same number of persons under

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this ordinance.

In determining the number of stairs required in buildings over seven (7) stories high the number of stairs shall be those required for the six most densely populated floors above the first.

Where sprinkler systems are provided to reduce the stair requirements such systems shall meet the requirements of Specification No. 26.

Section 4.—**Enclosure of Verticle Openings.**—When enclosures of verticle openings are required in Section 4 of the article governing any class of occupancy such enclosures shall be placed around all stairways, elevators, ramps, wells, ducts, chutes, and other openings of all kinds, and open wells and rotundas shall be prohibited. The consruction of such enclosures shall be as given under the type of construction of which the building is required to be built. Such enclosures shall include the return of all stairs and all the working parts of elevators but shall not include the return or ramps. Such enclosures shall extend from the basement floor to the under side of the roof, slab, or boards, unless terminated by a slab of Type 1 construction.

Where the roof is of wood the underside shall be protected with at least one (1) inch of metal lath and cement plaster or the equivalent within the enclosure. No such enclosure shall open to any basement or attic space, and not more than two (2) doors shall be provided at any floor level including basements. These doors shall be Type B self-enclosing fire doors and shall not be provided with any hardware or device for keeping them open.

Where two or more occupancies in the same building are required to be separated by fire separation and have separate exits, the enclosures around exit stairs from one occupancy shall not have any openings into the portion of the building having the other occupancy and on the first floor an unpierced fireproof corridor shall be provided from the base of the stairways to the outside walls of the building when the occupancy of the first floor is required to have fire separation and separate exits from the occupancy served by the stairs.

Section 5.—**Location and Exposures.**—All provisions restricting the location of buildings with regard to other buildings or with regard to property lines and restrictions as to construction of walls adjacent to other buildings or other parts of the same building or property lines are given in Section 5 of the article governing the type of construction. These provisions apply out side of Fire Limits as well as within.

Wherever fire windows are required wood sash and plain glass windows may be used if fire shutters are provided as required in Specification No. 30.

Section 6.—**Fire Areas.**—Certain classes of buildings shall be divided into areas with fire walls to insure against an undue spread of fire. The maximum area of such divisions shall depend upon the location, type of consruction, height and fire equipment as given under Section 6 of the Article governing the class of occupancy.

Section 7.—**Fire Appliances.**—High buildings and buildings involving unusual risks to persons or property shall be provided with standpipes, sprinkler systems, or other fire extinguishing equipment as shall be required by Section 7 of the article governing the class of occupancy.

Section 8.—**Protection of Special Hazards.**—In Section 8 of each

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article governing a class of occupancy is listed the various special fire hazards liable to be found in such rules as shall apply in each case are given together with the numbers of the specifications to be found in Article XXII according to which such apparatus be constructed. Whenever any such apparatus is present in any occupancy from which it is not specifically excluded it may be used even if not mentioned in Section 8 of the article governing that class of occupancy but such apparatus shall be installed and constructed as specified in Article XXII.

All electrical wiring in all classes of buildngs shall comply with the requirements of the National Electrical Code and such special rules as may be adopted by the City of Ann Arbor.

Section 9.—**Exceptions and Deviations.**—In case of certain occupancies where the general rules are given in Sections 1 to 8 inclusive work an unreasonable hardship or are either too exacting or not sufficiently restrictive, an exception is made in Section 9 of the article governing such occupancy. When it appears to the Chief Inspector that an exception should be made for any particular occupancy and no such exception is given he shall recommend to the Board of Appeals that such an exception be made as an amendment to Section 9.

All occupancies affected by an exception in Section 9 shall be marked with an asterisk in Section 1, but failure to so mark an occupancy shall not be deemed as excusing any person from complying with such requirement.

Section 10.—**Existing Buildings,** in order that they may lawfully be continued in their occupancy at the time this code is adopted must be made to comply with the requirements of Section 10 of the article governing such occupancy within two (2) years after the adoption of this Code or at any time thereafter that the Chief Inspector may order such compliance.

Section 11.—**Existing Building Changed in Occupancy.**—Existing buildings shall not be changed in occupancy from that occupancy present at the adoption of this Code unless complying with the requirements of Section II of the article governing the new occupancy. A change in occupancy shall consist in such a change as shall place the building in a different class of occupancy as specified in this Code or in the different sub-class, but shall not consist in such change in use of any building as shall result in the building being placed in the same class and sub-clas.

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Class "A" Buildings

Section1.—Class A shall include all manufacturing buildings, wholesale stores, warehouses, sheds (other than those attached to or pertaining to residences), power houses, bridges, ice storage houses, chemical works, and all similar buildings except as particularly mentioned under Class B, and all open shelter sheds except those used for amusement and those attached to dwellings.

Class A buildings shall be built of one of the following types of construction:

If not over one (1) story or twenty (20) feet of any type.

If not over one (1) story or thirty-five (35) feet, of Types 1, 2, 3. 4, 5, 6 or 7.

If not over three (3) stories or forty-five (45) feet, of Types 1, 2, 3, 4, 5 or 6.

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If not over four (4) stories or fifty-five (55) feet, of Types 1, 2, 3, or 5.

If not over five (5) stories or sixty-five (65) feet, of Types 1 or 2.

If over five (5) stories or sixty-five (65) feet, of Type 1.

Section 2.—**Mixed Occupancy.**—When any minor part of any building is used for the storage of merchandise, goods or materials of any sort incidental to any other class of occupancy, the building shall be classed according to the use of the minor portion of the building, and no separation between the portion so used and the remainder of the building shall be required.

When Class A and Sub-Class B-1 and B-3 occupancies occur in the same building there shall be a complete fire separation (See Specification No. 37) between the two occupancies, and the fire exits from the two portions shall be separate. No Class A building shall have any part used for Sub-Class B-2 occupancy.

Where Class A and C occupancies occur in the same building, there shall be a complete fire separation between the two occupancies and the exits from the two portions shall be separate or the entire building shall be constructed as provided for Class C. Offices of factories, warehouses and similar buildings when situated in such buildings may be classed as Class A.

Where Class A and D or E occupancies occur in the same building they shall be separated by an unpierced fire separation (See Specification No. 37) and no part of the building used for Class A purposes shall be above or below any part used for Class D or E uses.

Where Class A and F occupancies occur in the same building, there shall be a complete and unpierced fire separation (See Specification No. 37) between the two occupancies, and the exits from the two portions shall be separate.

Where Class A and G occupancies occur in the same building the construction shall comply with the requirements for Class A, and there shall be two separate and distinct exits from Class G portion.

Section 3.—**Stairs and Exits.**— Class A buildings not over two (2) stories high, and not over three thousand (3000) square feet in area on second or mezzanine floor must have one (1) stairs. If more than two stories, or if more than three thousand (3000) square feet in area on any floor above the first there shall be at least two (2) separate and distinct stairs or more if necessary to fulfill the following conditions:

(a) There shall be one (1) stair for each one thousand (1000) persons or fraction thereof above the first floor in buildings of Type 1 or 2, or buildings completely sprinklered. There shall be one (1) stair for each four hundred (400) persons or fraction thereof above the first floor in all other buildings.

(b) The greatest distance from any part of a building to the entrance of a stairway or horizontal exit when measured along corridors shall not exceed one hundred seventy-five (175) feet for buildings of Types 1 or 2, or buildings completely sprinklered, and this distance shall not exceed one hundred twenty-five (125) feet for all other buildings, but in buildings of Types 1 or 2 or buildings completely sprinklered in which only incombustible materials are used or manufactured this distance may be two hundred fifty (250) feet.

(c) The least distance between the two most widely separated stair-

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ways shall not be less than fifty (50) per cent of the longest side of the building.

Stairs for basements shall be provided according to the same rules as for upper floors, but from all heating rooms which are provided with two (2) separate and distinct stairs there shall be at least one stair and an iron ladder leading to the grade. Access to every basement over five hundred (500) square feet in area shall be provided from the outside of the building by means of a stair or window opening onto an area. Gratings may be placed over such areas when not used as required exits. Such access openings shall be at least twelve (12) square feet in area.

No stair riser shall be more than seven and one-half (7½) inches and no treads shall be less than ten (10) inches, and there shall not be more than eighteen (18) risers between any two platforms.

Exits.—At the foot of each stair there shall be a separate and distinct exit leading directly to a street, alley or court open to a street or alley. The distance from the foot of the stairs to the exits shall not exceed seventy-five (75) feet, and there shall be a clear and unobstructed passageway at least as wide as the stairs leading to the exit.

All buildings over six thousand (6000) square feet in area, when one (1) or more stories high, shall have at least two (2) exits separated by at least fifty (50%) per cent of the longest dimension of the building, and more if necessary to provide the same number and width of exits as would be required for stairs in buildings having the same number of occupants if two (2) or more stories high.

All exit doors shall swing out and all stair shaft doors shall swing in the direction of travel when used as an exit.

All required exits shall be kept unlocked from the inside while the building is occupied, and all exits and stairways shall be plainly labeled with letters at least six (6) inches high.

Section 4.—**Enclosure of Vertical Openings.**—All stairways, ramps, elevator and dumbwaiter hoistways and other verticle openings extending through more than two (2) stories, including basement, or thirty (30) feet shall be enclosed as required under type of construction except that in two (2) story and basement buildings such enclosures may be omitted from the first and second floors if provided in the basement. Where the mechanical operation of a factory requires verticle openings through floors peculiar to the process carried on in such a building the Department may accept other types of enclosures than those herein given and may omit such enclosures in case they unduly hamper the operation of machinery. In all such cases, the Department may require such types of construction and such special safeguards as may appear necessary for substantial safety.

Section 5.—**Location and Exposures.**—Class A buildings shall not be limited in their location upon property except that no such building shall be built nearer than ten (10) feet to any adjacent property line or any other building upon the same property unless the walls of the new buildings are of masonry. Buildings with masonry walls may be erected on adjacent property lines but all walls within three (3) feet of adjacent property lines or other buildings on the same property shall be solid and without openings of any sort. All windows or doors in walls less than ten (10) feet from adjacent property lines or other buildings on the same property shall be fire windows or doors.

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All windows in walls facing on streets, alleys or courts less than twenty (20) feet wide shall be fire windows. Also, all windows or doors opening over roofs less than ten (10) feet away shall be fire windows or fire doors unless such roofs are of Type 1 or 2 construction.

Above all walls which are less than ten (10) feet from adjacent property lines or which face upon streets, alleys or courts less than twenty (20) feet wide there shall be a parapet at least eighteen (18) inches high for buildings two (2) stories or less in height, or thirty-six (36) inches high for buildings more than two (2) stories high. Such parapets may be omitted when the roof is of Type 1 or 2 construction.

Section 6. (a) **Fire Areas.**—All Class A buildings shall be divided into areas not exceeding those given in the following table by fire walls, and all openings therein shall be provided with self-closing or automatic fire doors of Type A.

MAXIMUM ALLOWABLE AREA IN SQUARE FEET

	Fronting on		
Type	1 Street	2 Streets	3 Streets
1	15,000	20,000	25,000
2	12,000	15,000	20,000
3	9,000	12,000	15,000
4	9,000	12,000	15,000
5	9,000	12,000	15,000
6	7,500	9,000	11,250
7	9,000	12,000	15,000
8	4,000	5,000	6,000

(b) The allowable area of each portion of the building shall be determined by the number of streets, alleys or courts upon which that portion fronts. Courts or alleys not less than twenty (20) feet wide may be counted as streets in this section. No. area shall be so arranged that it does not border on at least one court or alley .

(c) Buildings only one (1) story high or one (1) story with mezzanine or second story not exceeding one-tenth (1-10) of the area of the first story may be increased by one-half (½) over the values here given. Buildings fully equipped with a sprinkler system (See Specification No. 26) shall be allowed a further increase of two-thirds (⅔) of the area here given.

(d) Buildings of Types 1, 2 or 5, when used for the storage or manufacture of incombustible materials and in which no combustible material is used, may be unlimited in area.

Section 7.—**Fire Appliances.**—Every building over seventy-five (75) feet high shall be provided with at least one (1) standpipe for each fifteen thousand (15,000) square feet of floor area or fraction thereof, but there shall not be more than one hundred (100) feet from any part of the building to a standpipe. (See Section No. 24).

Section 8.—**Protection of Special Hazards.**—The following apparatus shall be installed and constructed in accordance with the specifications

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referred to by number after each such piece of apparatus:

Chimneys and Stacks	1
Boilers	7
Steam or Hot Water Heating Plants	5 & 6
Warm Air Furnaces	4
Steam and Hot Water Heating Pipes	20 & 21
Drying Rooms	9
Kilns	10
Incinerators	11
Stoves	12 & 14
Ovens, Coffee Roasters, Etc.	8
Warm Air Ducts	17
Vent Flues	18
Heating and Ventilating Ducts	19
Gas Supply Lines	22
Oil Burners	15
Other Sources of Heat and Flame	16

Inflamable liquids shall not be used in quantities greater than one (1) gallon except for oil for fuel when used and stored as required in Specification No. 15. Paints and varnishes, other than those used for decorating a building, shall not be used in quantities greater than five gallons except as noted in Section 9 (f) of this article. Celluloid and nitro-cellulose products, and calcium carbide shall not be used or stored in Class A buildings, and acetylene shall not be generated in such buildings. Acetylene may be used but for not more than two (2) tanks shall be retained upon the premises for each five thousand (5,000) square feet of floor area unless in a fireproof vault. (See Specification No. 34). Inflamable motion picture films shall not be used in Class A buildings.

Section 9.—**Exceptions and Deviation.**—Exceptions and deviations from the general rules will be allowed in the following cases:

(a) **Ice Houses.**—Outside of the fire limits, ice houses not exceeding forty-five (45) feet to the mean point of the roof may be built of frame construction, but must have at least two (2) inches reinforced concrete or eight (8) inches of masonry, securely fastened to the outside. The frame must be of sufficient strength to withstand all ordinary loads as well as wind stresses and such buildings shall be used for no other purpose than the storage of ice.

(b) **Power Houses.**—Power Houses of fireproof construction may have fireproofing omitted from crane supports, coal pockets and other mechanical devices necessary to the proper operation of the plant and may have unprotected steel roof trusses and purlins, steel balconies and unprotected and unenclosed steel or iron stairs to provide acess to working parts of machinery. The general requirements for risers, treads, and width will not be demanded of such stairs. No. combustible material other than fuel, lubricants and cooling oils shall be used in such buildings.

(c) **Chemical Plants.**—Chemical plants, grain elevators, coal pockets and similar special constructions, may be constructed in accordance with the best practices and necessities of the trade. The Department may permit such variations from this Code as are necessary to permit useful

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and economical construction but may insist upon such provisions as are deemed necessary to minimize the risk from fire or deterioration. Due regard will be given in making such rulings to the isolation of the structure in question and the risk of the surrounding property owners.

(d) **Storage Building and Warehouses** of Types 1 or 2 not exceeding five (5) stories high may have only one (1) stairway if provided with at least one (1) fire escape (Specification No. 38), but not more than five (5) persons shall be employed above the first floor of any such building.

(e) **Bridges** constructed only to serve as passage ways between two or more class A buildings shall be of the same type of construction as required for a building of the height of the roof of such bridge, but the walls of such bridges may be of cement plaster on metal lath not less than two (2) inches thick and the soffit of such bridges shall be of Type 1 construction.

(f) In buildings used for assembling machinery, the painting of parts during the assembly shall not cause such building to be classed as a Class B building. The quantity of paint stored and the manner in which it is stored and used shall be determined by the Chief Inspector.

Section 10.—**Existing Buildings.**—Buildings of Class A existing at the time this ordinance was adopted, may be continued in the use if structurally safe and provided with adequate exits. The Department shall have the power to order such changes as are necessary to provide substantial structural safety and to provide exits to meet the requirements of Section 3 of this article with the following exceptions:

Any existing interior stair which extends to the ground floor shall be given credit as one (1) stair, even though it does not meet the requirements of Section 3, and one (1) standard fire escape (See Specification No. 38) may be provided for each stair required in Section 3. No existing interior stair shall be removed unless replaced by a new interior stair, and any new interior stair which may be built shall meet the requirements of Section 3, whether it is built to replace an old stair or not.

Existing building shall not be increased in size or height unless complying with all the requirements for new buildings, but additions complying with all new requirements may be erected. If such additions exceeds fifty (50%) per cent of the volume of the existing building they shall be provided with fire separation from the existing building.

Section 11.—**Buildings Altered to Class A Occupancy.**— Existing buildings of other classes of occupancy may be altered to Class A occupancy if structurally safe and complying with the requirements of Sections 1, 2, 6, 7, 8, 9 and 10 of this article.

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Class "B" Buildings

Section 1. Class B buildings shall be divided into the following subclasses and shall include the following, and shall be constructed of one of the following types of construction:

Sub-Class B-1.—All garages, gasoline motor boat houses, hangars, paint shops, enameling shops, rag shops, or rag storage rooms and buildings for the manufacture, storage, use or sale of inflammable liquids and other highly inflammable substances including calcium car-

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bide and all other buildings subject to an unusual fire risk except as specifically mentioned under Sub-Classes B-2 and B-3.

If not over one (1) story or twenty (20) feet high and not over eight hundred (800) square feet in area, of Types 1, 2, 3, 4, 5, 6 or 7.

If not over one (1) story or twenty (20) feet high, but over eight hundred (800 square feet in area, of Types 1, 2, 3, 4 or 5.

If not over four (4) stories or fifty-five (55) feet, of Types 1 or 2.

If over four (4) stories or fifty-five (55) feet, of Type 1.

Sub-Class B-2.—All dry cleaning establishments, and all buildings used for the storage or manufacture of celluloid, including nitro-cellulose motion picture films and buildings for the storage or manufacture of explosives, and buildings for the storage or manufacture of explosives, and buildings for generating acetylene.

If not over one (1) story high, of Types 1 or 2.

If over one (1) story high, of Type 1.

Sub-Class B-3.—All stables for horses, cows or other domestic or wild animals.

If not over one (1) story and storage loft, or twenty (20) feet in height, and not over eight hundred (800) square feet in area, of Types 1, 2, 3, 4, 5, 6 or 7.

If not over one (1) story and storage loft, or twenty (20) feet in height, but over eight hundred (800) square feet in area, of Types 1, 2, 3, 5 or 6.

If not over four (4) stories or fifty-five (55) feet, of Types 1 or 2.

If over four (4) stories or fifty-five (55) feet, of Type 1.

Section 2.—**Mixed Occupancies.**—For Class B occupancy mixed with Class A occupancy see Section 2 of Article VI.

Where Sub-Class B-1 occupancy occurs in the same building with Sub-Class B-2 or B-3 or where Sub-Class B-2 occupancy occurs in the same building with Sub-Class B-3 there shall be a complete and unpierced fire separation (See Specification No. 37) and separate exits.

Where Class B and C occupancies occur in the same building, there shall be an unpierced fire separation between the two occupancies and the exits from the two portions shall be separate.

No building having a Class B occupancy in any part shall have a Class D, E or F occupancy in any other part.

Where Sub-Class B-1 and Class G occupancies occur in the same building, there shall be an unpierced fire separation (See Specification No. 37) between the two occupancies and the exits shall be separate. No Sub-Class B-2 occupancy shall be placed in any building used for Class G occupancy. Sub-Class B-3 and Class G occupancies may be placed in the same building if building complies with Sub-Class B-3 requirements.

Section 3.—**Stairs and Exits: Stairs.**—Class B buildings not over two (2) stories high and not over three thousand (3,000) square feet in area on the second or mezzanine floor must have one (1) stair. If more than two (2) stories high or if more than three thousand (3,000) square feet in area on any floor above the first there shall be two (2) or more stairs to fulfill the following conditions:

(a) There shall be one (1) stair for each five hundred (500) per-

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sons above the first floor if the building is completely sprinklered, and one stair for each two hundred (200) persons if the building is not sprinklered.

(b) The greatest distance from any part of the building to the entrance of a stairway or horizontal exit when measured along corridors shall not exceed one hundred seventy-five (175) feet for completely sprinklered buildings or one hundred twenty-five (125) feet for other buildings.

(c) The least distance between the two most widely separated stairways shall not be less than fifty (50) per cent of the longest side of the building.

Stairways from basements shall be provided according to the same rules as for upper floors, but from all heating rooms which are not provided with two (2) separate and distinct stairs there shall be one (1) stair and an iron ladder leading to the grade.

No stair riser shall be more than seven and one-half (7½) inches and no stair tread shall be less than ten (10) inches, and there shall not be more than eighteen (18) risers between any two platforms.

Exits.—At the foot of each stair, there shall be an open and unobstructed corridor enclosed as required for stair enclosure and leading directly to a street, alley or court open to a street or alley and such corridor shall not be more than (50) feet long.

From the first floor of every building exceeding three thousand (3,000) square feet area, there shall be at least two (2) exits, or more if necessary to provide twenty (20) inches of exits for each two hundred fifty (250) persons in completely sprinklered buildings and twenty (20) inches for each one hundred (100) persons in all other buildings, and no part of the building shall be over one hundred seventy-five (175) feet for sprinklered buildings or one hundred twenty-five (125) feet for other buildings from an exit. Where two exits are required, the least distance between them shall not be less than fifty (50) per cent of the longest dimension of the building.

All exit doors shall swing out and all stair shaft doors shall swing in the direction of travel when used as an exit. All required exits must be kept unlocked while the building is occupied, and all stairways and exits shall be plainly labeled with letters at least six (6) inches high.

Section 44.—**Enclosures of Vertical Openings.**—All vertical openings and all stairways, ramps, elevator dumbwaiters, hoistways, and other vertical openings in Class B buildings shall be enclosed as required under type of construction except openings in buildings of Sub-Class B-3 not over twenty (20) feet high extending from first floor to storage lofts.

The enclosure for ramps shall consist of a solid wall as required for enclosure of vertical openings extending from floor to floor separating the ramp from the remainder of the building. No openings except the necessary door openings shall penetrate this wall and all such openings shall be provided with Type B automatic fire doors or automatic roller steel curtains.

Section 5.—(a) **Location and Exposures.**—No Class B occupancy shall be located in any cellar, but basements may be used for Class B purposes when fifteen (15) per cent of the basement wall area above grade is window openings.

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(b) **Sub-Class B-1 and Sub-Class B-3** buildings shall not be limited in their location upon property except that no such building shall be built nearer than ten (10) feet to any adjacent property line or any other building upon the same property unless the walls thereof are of masonry. Buildings with masonry walls may be erected on adjacent property lines but all walls within (5) feet of adjacent property lines or other buildings on the same property shall be solid and without openings of any sort. All windows or doors in walls less than ten (10) feet from adjacent property lines or other buildings on the same property shall be fire windows or doors. See section 9 below for exceptions on domestic garages and motor boat houses.

(c) **Sub-Class B-2** buildings shall not be built nearer than ten (10) feet to any adjacent property line or other building upon the same property, nor nearer than fifty (50) feet to any school, hospital, place of assembly for over one hundred persons or place of detention. All exterior doors shall be Type B fire doors and all windows shall have metal frames and sash. Windows less than twenty (20) feet from any property line or other building upon same property shall be fire windows.

(d) In all Class B buildings all windows in walls facing on streets, alleys or courts less than twenty (20) feet wide shall be fire windows. Also, all windows or doors opening over roofs less than ten (10) feet away shall be fire windows or fire doors unless such roofs are of Type 1 or 2 construction. Above all walls which are less than ten (10) feet from adjacent property lines or which face upon streets, alleys, or courts less than twenty (20) feet wide there shall be a parapet at least eighteen (18) inches high. Such parapets may be omitted when the roof is of type 1 or 2 construction.

Section 6.—**Fire Areas.—Sub-Class B-1 and B-3** buildings shall be divided into areas not exceeding those given for Class A buildings in Article VI, Section 6, Paragraphs a, b, and c, by fire walls and all openings therein shall be provided with self-closing or automatic fire doors of Type A (See Specification No. 28).

Sub-Class B-2. buildings shall be similarly divided by fire walls but the areas in this case shall be only twenty (20) per cent of those allowed for Class A buildings in Article VI, Section 6, Paragraphs A, b and c.

Section 7.—**Fire Appliances.—Every Class B** building over fifty (50) feet high shall be provided with at least one standpipe for each seven thousand five hundred (7,500) square feet of floor area or fraction thereof but there shall not be more than seventy-five (75) feet from any part of the building to a standpipe. (See Specification No. 24).

Also, there shall be one hand fire extinguisher for each one thousand (1,000) square feet of floor area uniformly distributed throughout the building (See Specification No. 27). The type of the hand extinguisher shall be that most suited for the occupancy of the premises in the judgment of the Chief of the Fire Department.

Section 8.—The following apparatus shall be installed and constructed in accordance with the specifications referred to by number after each such piece of apparatus:

Ovens, Etc.	8
Warm Air Ducts	17
Vent Flues	18

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Heating and Ventilating Ducts	19
Gas Supply Lines	22
Oil Burners	15
Other Sources of Heat and Flame	16
Chimneys and Stacks	1
Steam or Hot Water Heating Plants	5 & 6
Warm Air Furnaces	4
Steam and Hot Water Pipes	20 & 21
Kilns	10
Incinerators	12 & 14

In all buildings used as garages or in which inflammable liquids are used or stored there shall be adequate natural ventilation to prevent accumulation of explosive vapors.

In Sub-Class B-1 buildings no heating apparatus shall be used except when included in separate heating rooms and all heating rooms containing boilers, stoves, and similar apparatus shall be separated from the remainder of the building with an unpierced fire separation. When in basements the entrance to such heating rooms must be from the outside of the building or through a vestibule ventilated to the outside air when such buildings are used as garages or other purposes involving the use of inflammable liquids. Sub-Class B-2 shall not contain any heating apparatus but may be heated from separate buildings at least ten (10) feet away. In Sub-Class B-3 buildings heating rooms need not be separated.

Open gas flames and other bare flames shall not be used in Class B buildings.

Nitrocellulose picture films shall not be used in Class B buildings except in that part of Class B building used exclusively for the manufacture, storage, handling, repair or sale of such films.

Torches, forges, welding apparatus, battery charging apparatus, grindstones and similar apparatus producing flame, heat or sparks shall not be used in Class B buildings unless essential to the trade or occupation pursued therein, in which case such apparatus may be used when installed in a separate room isolated from the remainder of the building with an incombustible partition provided with self-closing fire door of Type B.

Section 9.—Exceptions and Deviations; Domestic Garages and Motor Boat Houses.—Garages of frame or other construction and motor boat houses of not over eight hundred (800) square feet area, when accessory to a dwelling and upon the rear one-half (½) of the lot upon which such dwelling is located may be built within two (2) feet of any side or rear property line and shall be exempt from the requirements of Section 5 above, except that they shall be not less than ten (10) feet away from any building or other dwelling on the same property. When nearer than two (2) feet to the side property lines there shall be a solid masonry wall adjacent to the property line.

Airplane Hangers when forty (40) feet from any property line or other building and twenty (20) feet from any other hangar may be of Type 8 construction if not over five thousand (5,000) square feet in area. The height may be more than twenty (20) feet if necessary but not more than thirty-five (35) feet.

Fire Engine Houses may contain garages for fire apparatus and dormitories for firemen without fire separation as required in Section

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2 above.

Temporary Storage Explosives.—Explosives used in construction work may be stored during progress of work in a building of any type or construction of not over four hundred (400) square feet in area. Such building shall not be nearer than fifty (50) feet to any other building and shall be painted red and plainly marked "Explosives—Dangerous" in letters at least twelve (12) inches high on all sides.

Section 10.—**Existing Buildings.**—Buildings of Class B existing at the time this ordinance was adopted, if structurally safe and provided with adequate exits, may be continued in use with the exception that they shall be made to comply with the additional requirements below within two (2) years after the adoption of this ordinance, or as soon thereafter as ordered by the Chief Inspector. The Department shall have the power to order such changes as are necessary to insure substantial structural safety and to provide exits to meet the requirements of Section 3 of this article with the following exceptions.

Any existing interior stair which extends to the ground floor shall be given credit as one (1) stair, even though it does not meet the requirements of Section three (3), and one (1) standard fire escape (See Specification No. 38) may be provided for each stair required in Section 3. No existing interior stair shall be removed unless replaced by a new interior stair, and any new interior stair which may be built shall meet the requirements of Section 3 whether it is built to replace an old stair or not.

In addition, the following changes shall be made:

Sub-Class B-1 buildings shall be made to comply with the requirements of Sections 2, 4, 7 and 8 of this article.

Sub-Class B-2 buildings shall be made to comply with the requirements of Sections 2, 4, 5, 6, 7 and 8 of this article.

Sub-Class B-3 buildings shall be made to comply with the requirements of Sections 7 and 8 of this article.

Existing Class B buildings shall not be increased in size or height unless complying with all the requirements of new buildings, but additions complying with all new requirements may be erected if provided with fire separation from existing building.

Section 11.—**Buildings Altered to Class B Occupancy.**—Existing buildings of other classes of occupancy may be altered to Class B occupancy if structurally safe and complying with the requirements of the sections of this article given each Sub-Class below:

Sub-Class B-1 ..... Sections 1, 2, 4, 5, 6, 7, 8, 9, 10
Sub-Class B-2 ..... Sections 1, 2, 3, 4, 5, 6, 7, 8, 9
Sub-Class ..... Sections 2, 4, 6, 7, 8, 9, 10

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Class "C" Buildings

Section 1.—Class C shall include all semi-public buildings such as retail stores, department stores, office buildings, business colleges, telephone exchanges, recreation buildings for bowling, pool, billiards and similar games, baths, restaurants, markets, public convenience stations or toilets and similar buildings, also places of assembly for not over one hundred (100) persons, including such occupancies as dance halls,

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auditoriums, meeting rooms and private schools.

Class C buildings shall be built of one of the following types of construction:

If not over one (1) story or twenty (20) feet, of type 1, 2, 3, 4 or 6.

If not over four (4) storys or fifty-five (55) feet, of types 1, 2, 3 or 6.

If not over five (5) stories or sixty-five (65) feet, of types 1 or 2.

If over five (5) stories or sixty-five (65) feet, of type 1.

Section 2.—**Mixed Occupancy.**—For Class C occupancy mixed with Class A see Article VI, Section 2. For Class C occupancy mixed with Class B, see Article VII, Section 2.

Class C occupancy may be mixed with Class D occupancy, provided the Class D occupancy does not provide accommodations for a total of more than four hundred persons and the exits for the Class C and D portions are separate. Such buildings shall comply with all the requirements for Class D buildings. Class C occupancies shall be separated from Class D occupancies providing accommodations for more than four hundred (400 persons by an unpierced fire separation (See Specification No. 37) and shall have separate exits, but this shall not exclude stands for the sale of merchandise or restaurants being located in railway stations, court houses, club houses, dance halls, or similar buildings where the Class C occupancy does not exceed twenty (20) per cent of the total floor area of the building, nor from the holding of bazaars in churches, and similar buildings. In Class D buildings recreation rooms for bowling, pool, billiards and similar games, baths and restaurants when accessory to the general occupancy may be classed as of Class D.

All Class C occupancies shall be separate from any Class E occupancy by an unpierced fire separation (See Specification No. 37) and the exits shall be separate.

Class C occupancies may be mixed with Class F or G occupancies but the type of construction of such buildings shall meet the more restrictive requirements of both occupancies and each portion of the building shall meet the requirements for that class of occupancy.

Section 3.—**Stairs and Exits.**—The stair and exit requirements shall be the same as for Class A buildings in Article VI, Section 3.

Section 4.—**Enclosure of Vertical Openings.**—The requirements for enclosures of vertical openings shall be the same as those for Class A buildings in Artice VI, Section 4, except that monumental stairs in buildings of Type 1 or 2 construction or buildings completely sprinklered may be unenclosed from the first to the second floor if the shaft enclosure above the second floor is closed with a Type B fire door. In all cases there shall be at least one (1) stair completely enclosed to the ground floor.

Section 5.—**Location and Exposures.**—The requirements for location and exposures shall be the same as those for Class A occupancies in Article VI, Section 5, except that fire windows may be placed in the walls of buildings of type 1 contruction when such walls are upon lot lines or less than three feet therefrom, provided that all rooms lighted by such windows shall also be adequately lighted from other windows placed in light courts or upon streets or alleys.

Section 6.—**Fire Areas.**—The requirements for fire areas shall be the same as those for Class A buildings in Article VI, Section 6.

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Section 7.—**Fire Appliances.**—The requirements for fire appliances shall be the same as those for Class A buildings in Article VI, Section 7.

Section 8.—**Protection of Special Hazards.**—The following apparatus shall be installed and constructed in accordance with the specifications referred to by number after each such piece of apparatus:

Chimneys and Stacks	1
Boilers	7
Steam or Hot Water Heating Plants	5 & 6
Warm Air Furnaces	4
Steam and Hot Water Heating Pipes	20 & 21
Kilns	10
Incinerators	11
Stoves	12 & 14
Ovens, Coffee Roasters, Etc.	8
Warm Air Ducts	17
Vent Flues	18
Heating and Ventilating Ducts	19
Gas Supply Lines	22
Oil Burners	15
Other Sources of Heat and Flame	16

Inflammable liquids shall not be used in buildings of this class and shall not be stored except in sealed containers of not more than one (1) gallon capacity. The total quantity so stored shall not exceed ten (10) gallons unless stored in fireproof vaults constructed according to Specification No. 34. Paints and varnishes shall not be used except in decoration of building, but may be kept for sale in sealed containers.

Celluloid and nitro-cellulose products shall not be stored in quantities exceeding fifty (50) pounds except in fireproof vaults constructed according to Specification No. 34.

Acetylene shall not be generated or used in buildings of this class, but may be stored in tanks. Not more than ten (10) such tanks shall be kept except in a fire-proof vault. (See Specification No. 34.)

Calcium carbide shall not be used in buildings of this class of occupancy but may be kept for sale in sealed metal containers of not exceeding ten (10) pounds net weight. Not more than one hundred (100) pounds may be stored in any such building.

Inflammable motion picture films may be used in Class C buildings when shown from booths complying with Specification No. 33, but the auditorium or room in which such pictures are shown shall not accommodate over one hundred (100) persons. Not more than three thousand (3,000) feet of film shall be kept on hand at any time.

Section 9.—**Exceptions and Deviations.**—Drug stores may store and dispense the inflammable liquids customarily handled by druggists, provided such inflammable liquids shall be stored on the ground floor and the building shall be of Type 1 or 2 construction if over two (2) stories high.

Paint and varnish stores may store and dispense the inflammable liquids ordinarly sold by that trade if such liquids are stored on the ground floor and the building is of Type 1 or 2 construction if over two (2) stories high. Such buildings shall not contain any Class D, F or G occupancies. The inflammable liquids stored shall not exceed one hundred fifty (150) gallons in approved metal containers.

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Section 10.—**Existing Buildings.**—Requirements for existing buildings shall be the same as those for Class A buildings in Article VI, Section 10.

Section 11.—**Buildings Altered to Class C Occupancy.**—Existing buildings of other classes of occupancy may be altered to Class C occupancy if structurally safe and complying with the requirements of Sections 1, 2, 4, 6, 7, 8, 9 and 10.

ARTICLE IX

Class "D" Buildings

Section 1.—Class D shall include all public buildings such as City or County administrative buildings, court houses, libraries, or museums, railway passenger stations, postoffices, schools, boarding schools, seminaries, church houses, club houses, lodge halls, drill halls, dance halls, skating rinks, gymnasiums, auditoriums, amusement devices providing shelter and similar building, but shall not include major or minor theaters as defined under Class E.

Class D buildings shall be built of one of the following types of construction:

If not over one (1) story or twenty (20) feet, and not over two thousand five hundred (2,500) square feet in area, of any type.

If not over two (2) stories and one (1) balcony or forty-five (45) feet in height and not over five thousand (5,000) square feet in area, of Types 1, 2, 3, 4, 5 or 6.

If not over two (2) stories and one (1) balcony or forty-five (45) feet in height and not over ten thousand (10,000) square feet in area, of types 1, 2, 3, 4 or 5.

If not over five (5) stories or sixty-five (65) feet, of Types 1 or 2.

If over five (5) stories or sixty-five (65) feet, of Type 1.

Section 2.—**Mixed Occupancy.**—For Class D occupancy mixed with Class A, see Article VI, Section 2. For Class D occupancy mixed with Class B, see Article VII, Section 2. For Class D occupancy mixed with Class C, see Article VIII, Section 2.

Class D and Class E occupancies may be mixed provided the building meets all the requirements for Class E occupancy and the exits from the occupancies are separate and distinct. If the portion used for Class D occupancy does not meet the Class E requirements, the two occupancies shall be separated by an unpierced fire separation (See Specification No. 37) and the exits shall be separate.

Where Class D and Class F occupancies occur in the same building they shall be separated by an unpierced fire separation (See Specification No. 37) and the exits shall be kept separate (See Article IX, Section 9, for exceptions on club houses, boarding schools and similar buildings).

Class D and Class G occupancies may be mixed provided the building complies with all the requirements for Class D buildings.

Section 3.—**Stairs and Exits.**—Every Class D building shall have at least one (1) stairway if more than one (1) story high, or if provided with a basement, and there shall be two (2) stairs from every

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floor above the first or from any basement used for assembly purpose, or from any floor above the first or any basement, whether or not used as an assembly hall if over two thousand (2,000) square feet in area or from any balcony seating more than fifty (50) persons. These two (2) stairs shall be separated by at least seventy-five (75) per cent of the longest dimension of the floor served. More stairs shall be provided if necessary to provide one (1) stair for each four hundred (400) persons having access to such stairs in buildings of Type 1 or 2 construction and one (1) stair for each two hundred (200) persons in buildings of other types, and there shall not be more than one hundred twenty-five (125) feet from any part of the building measured along corridors to a stair or horizontal exit in buildings of type 1 or 2 construction or seventy-five (75) feet for buildings of other types of construction. On the ground floor there shall be a corridor or unobstructed passageway, not over thirty (30) feet long, at least as wide as the stairs leading to a street, alley or court leading to street or alley. The doors on all exits shall swing out and the doors on all stair wells shall swing in the direction of travel when used as an exit.

The risers of stairs shall not exceed seven (7) inches and the treads shall not be less than ten and one-half (10½) inches.

Exits.—Every building whether one (1) story or more in height shall have at least two (2) exits leading to streets, alleys or courts leading to streets or alleys and these exits shall be separated by at least seventy-five (75) per cent of the longest dimension of the building. More exits shall be provided if necessary to furnish twenty (20) inches of exit width to each two hundred (200) persons in buildings of Types 1 or 2 or one hundred (100) persons in all other buildings on the first floor in addition to the exits at the base of stairs. In no case shall there be more than one hundred twenty-five (125) feet from any part of the building to any exit measured along the corridors in buildings of Type 1 or 2, or seventy-five (75) feet for buildings of other types of construction.

Rooms either on the first or other floors of a building, when accommodating more than one hundred (100) persons, shall be provided with two (2) or more exit doors meeting the requirements as to width, number and location required for exit from one (1) story buildings. No such opening shall be less than three (3) feet four (4) inches wide.

All entrances to exit stairs and all exits from rooms accommodating over one hundred (100) persons and all exits from buildings shall be marked with electrically illuminated red signs having letters at least six (6) inches high. All such illuminated signs shall be wired on a circuit separate from the service lights.

Hardware on stairwell doors and exit doors shall be of such a type as to open readily in the direction of travel without the use of a key. Top and bottom bolts used to fix one leaf of a double door shall operate from a single handle about three (3) feet from the floor.

All stairways and exits shall be kept adequately lighted by either natural or artificial lights at all times when the building is in use.

Section 4.—**Enclosure of Vertical Openings.**—All stairways, elevator or dumb-waiter hoistways, or other vertical openings extending through more than two (2) floors or thirty (30) feet shall be enclosed as required under type of construction except that in two (2) story buildings such enclosures may be omitted from the first and second stories

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if provided in the basement. Stair enclosures shall include the corridor to the exit on the ground floor.

In buildings of Type 1 or 2 construction the enclosure may be omitted from the first floor around monumental stairs but the stair shaft above shall be closed at the second floor by a Type B fire door. In all buildings in which such stairs are constructed there shall be at least one (1) stair completely enclosed to the ground floor.

Section 5.—**Location and Exposures.**—All Class D buildings shall be so located that one side abuts upon or is open to a public street. No class D building shall be built nearer than five (5) feet to any adjacent property line or any other buildings upon the same property unless the walls thereof are of masonry. Buildings with masonry walls may be erected upon adjacent property lines but all walls within three (3) feet of adjacent property lines, or other buildings on the same property shall be solid and without openings of any sort. All windows in walls less than five (5) feet from adjacent property lines or other buildings on the same property shall be fire windows.

All windows in walls facing on streets, alleys, or courts less than ten (10) feet wide shall be fire windows. Also all windows or doors opening over roofs less than five (5) feet away shall be fire windows or doors unless such roofs are of Type 1 or 2 construction.

Eaves or cornices of combustible construction shall not be projected nearer than three (3) feet to an adjacent property line and eaves of combustible construction nearer than five (5) feet to an adjacent property line shall be protected with sheet metal or other incombustible material on the underside.

Section 6.—**Fire Areas.**—Class D buildings shall not be required to be divided by fire walls but where additions to Class D buildings would create a building exceeding the area allowed for the type of construction fire walls may be used to separate the buildings into areas not exceeding those allowed in Section 1 of this article for the type of construction. All openings in such walls shall be provided with Type A automatic fire doors but combustible service doors may be used in addition to the fire doors. No opening in such a wall shall exceed five (5) by eight (8) feet.

Section 7.—**Fire Appliances.**—Every building over seventy-five (75) feet high shall be provided with at least one (1) standpipe for each fifteen thousand (15,000) square feet of floor area or fraction thereof, but there shall not be more than one hundred (100) feet from any part of the building to a standpipe (See Specification No. 24).

Hand fire extinguishers shall be provided in kitchens and on stages when requested by the Chief of the Fire Department.

Section 8.—**Protection of Special Hazards.**—The following apparatus shall be installed and constructed in accordance with the specifications referred to by number after each piece of apparatus:

Chimneys and Stacks	1
Steam or Hot Water Heating Plants	5
Fire Places	3
Warm Air Furnaces	4
Steam and Hot Water Heating Pipes	20 & 21
Incinerators	11
Stoves	12, 13 & 14

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Ovens, Etc.	8
Warm Air Ducts	17
Vent Flues	18
Heating and Ventilating Ducts	19
Gas Supply Lines	22
Gas Outlets	23
Oil Burners	15
Other Sources of Heat and Flame	16

Inflamable liquids, paints (other than for decorating building) celluloid or nitro-cellulose products (other than moving picture films), calcium carbide, acetylene, and similar materials shall not be stored or used in Class D buildings.

Inflamable moving picture films shall be used only in a booth complying with Specification No. 33. No films shall be stored except in booth and total amount stored shall not exceed requirements of one performance.

Open gas or other bare flames shall not be used for lighting purposes in Class D buildings.

High pressure heating plants shall not be used in Class D buildings. All heating plants in buildings exceeding twenty-five hundred (2,500) square feet area shall be placed in rooms surrounding by masonry walls and having all openings provided with self closing fire doors of Type A and a Type 1 floor above.

When Class D buildings are provided with stages the ceiling of such stage shall not be more than ten (10) feet higher than the top of the proscenium openings. No scenery shall be used on such stages except drop curtains or set pieces made of cloth treated with chemicals so as to render them non-inflamable. There shall not be more than six (6) such drop curtains and one (1) fixed set of scenery. No rigging loft shall be constructed and no holes cut through stage floor.

Section 9. (a) **Exceptions and Deviations.**—Class D buildings used as drill halls, dance halls, skating rinks, gymnasiums or auditoriums if not over one (1) story and balcony in height or thirty-five (35) feet and not over twenty-five thousand (25,000) square feet in area and having no basement except a heating room may have a roof of Type 3, 4 or 5 and one (1) balcony not exceeding twenty (20%) per cent of the floor area of the same type. All such buildings shall have masonry walls.

(b) Gymnasiums required to be of Type 1 or 2 construction may have running tracks of Type 4 or 5 construction or a three and five-eighths (3⅝) inch laminated floor or unprotected steel purlins.

(c) Class D buildings used as club houses, boarding schools, seminaries, and for similar purposes may contain sleeping rooms incident to the general occupancy of the building. Such buildings shall comply with all the requirements for Class D buildings except that the portion used as sleeping quarters shall comply with the requirements of Sections 3, 4, 5 and 6 of Article XI governing Class F buildings in place of the corresponding sections of Article IX.

Section 10.—**Existing Buildings.**—Buildings of Class D existing at the time this ordinance was adopted may be continued in use if structurally safe, if provided with adequate exits and if not in the same building with any garage, dry cleaning establishment, or other place

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where inflamable liquids or other highly inflamable substances are used or stored.

The Department shall have the power to order such changes as are necessary to provide substantial structural safety and adequate exits. No Class D building containing a hazardous occupancy as mentioned above shall be continued in use.

Adequate exits shall be exits complying with the provisions of Section 3 of this article except that any existing stair not less than three (3) feet wide and extending to the ground floor shall be given credit as a standard stair and that fire escapes (See Section No. 38) may be substituted for not more than one-half (½) of the required stairs. Such fire escapes shall be located as directed by the Chief Building Inspector.

Existing buildings shall not be increased in size or height unless complying with all the requirements for new buildings, but additions complying with all new requirements may be erected if provided with fire separation from the existing buildings.

Section 11.—**Buildings Altered to Class D Occupancy.**—Existing buildings of other classes of occupancy may be altered to Class D occupancy only if structurally safe and complying with all the requirements of Sections 1, 2, 3, 4, 5, 6, 7, 8 and 9.

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Class "E" Buildings

Section 1.—Class E shall include all theatres, all buildings provided with an auditorium and stage provided with fly galleries for movable scenery and all other buildings containing an auditorium used frequently for viewing moving pictures, dramatic or theatrical performance to which admission is customarily charged either in money or other consideration.

Class E buildings shall be built of one of the following types of construction:

If providing seating capacity for not over six hundred (600) persons of Types 1, 2 or 3.

If providing seating capacity for over six hundred (600) persons, of Types 1 or 2.

But in all theatres the stage shall be of Type 1 except as provided in Section 9.

Section 2.—**Mixed Occupancies:**

For Class E occupancies mixed with Class B occupancies See Art. VII, Sec. 2.

For Class E occupancies mixed with Class B occupancies See Art .VII, Sec. 2.

For Class E occupancies mixed with Class C occupancies See Art. VIII, Sec. 2.

For Class E occupancies mixed with Class D occupancies See Art. IX, Sec. 2.

Where a Class E occupancy is placed in the same building with a Class F or G occupancy the two occupancies shall be separated by an unpierced fire separation (See Specification No. 37) and shall have separate and distinct exits.

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Section 3.—(a) **Stairs and exits: Main Exits of Auditorium.** At the rear of the main auditorium there shall be a foyer having an area of one (1) square foot for each seat using such foyer for an exit. The foyer shall be on the same level as the back of the auditorium and there shall be no steps between the foyer and the public street to which the foyer communicates. All changes of elevation shall be of ramps of not more than one (1) in twenty (20). The The foyer shall abut upon a public street or communicate thereto by a straight and unobstructed corridor which shall be used for no purpose except as an exit or entrance, but may contain a ticket booth. The least width of the exits from the auditorium to the foyer shall be twenty (20) inches per one hundred (100) seats for which exit is provided. The least width of the exits from the foyer to the street shall be twenty (20) inches per one hundred (100) seats for all seats communicating with the foyer.

(b) **Seats, Aisles and Cross Aisles in Auditoriums:** Seats shall be so spaced as to be not less than twenty-eight (28) inches back to back and shall not be less than nineteen (19) inches wide. There shall not be more than fourteen (14) seats between any two (2) aisles and not more than seven (7) seats between any aisle and a wall. All seats shall be securely fastened to the floor.

All aisles shall be at least two feet, six inches (2' 6") wide if having seats on only one side and three (3) feet wide if having seats on both sides, at the end furthest from the foyer and shall increase in width by two (2) inches for each ten (10) feet toward the foyer for aisles having seats on one side only, and four (4) inches for each ten (10) feet for aisles having seats on both sides. There shall be no steps in aisles but aisles may be inclined by not more than one (1) foot in ten (10) feet.

(c) **Emergency Exits From Auditorium:** At the sides of the auditorium there shall be one (1) or more exit doors leading directly to an open court leading to a street or alley or into a fireproof passage leading to a street or alley. Such exits shall be located not less than one-half (½) of the length of the auditorium from the foyer. The width of the emergency exits on each side of the auditorium shall be the same and the combined width shall not be less than ten (10) inches per one hundred (100) seats in the auditorium. No exit shall be less than three (3) feet six (6) inches wide. The unobstructed width of the court or corridor shall not be less than that of the exits. When corridors are used for emergency exits there shall be no openings into such corridor of any sort except the entrance and exit doors. The entrance doors shall be Type B (See Specification No. 29) fire doors hung to swing in the direction of travel when used as exits and shall not block the required exit space. There shall be no steps in such courts or corridors and all changes of level shall be made by ramps of not over one (1) in twenty (20). There shall be a cross aisle entirely across the auditorium, at least thirty (30) inches wide from the edge of seat when down to back of chair in next row, leading to each emergency exit.

(d) **Main Exits From Balcony and Gallery:** There shall be at least one (1) stair for every balcony or gallery and if such balcony or gallery seats fifty (50) or more persons there shall be two (2) stairs or more if necessary to provide twenty (20) inches in total width for each one hundred (100) seats or fraction thereof. Such stairs may lead directly to a public street or into the auditorium foyer. When two (2) or more stairs are required one (1) shall lead from each side of such balcony or gallery and may be located at either the rear of such balcony or gallery.

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No such stair shall be less than three (3) feet six (6) inches wide. The risers shall not be over seven (7) inches and the treads not less than ten and one-half (10½) inches. There shall be no winders.

(e) **Aisles, Seats and Cross Aisles in Balcony and Gallery:** Seats shall be so spaced as not to be less than twenty-eight (28) inches back to back and there shall not be more than fourteen (14) seats between any two aisles or seven (7) seats between aisle and a wall. Risers in aisles shall be the full width of the aisle and no risers shall be over eight (8) inches and no tread less than ten (10) inches. When the rise from row to row is three (3) inches or less the aisle shall be ramped. All aisle shall be three (3) feet six (6) inches wide and cross aisles of the same width shall lead to all main exits and tunnel openings.

There shall not be more than nine (9) rows of seats in any balcony or gallery between exits by means of a tunnel or cross aisle at least three (3) feet six (6) inches wide leading to the main exit stairs.

(f) **Emergency Exits From Balcony and Gallery:** Every balcony and gallery shall have one (1) emergency exit and if seating fifty (50) or more persons shall have two (2) emergency exits or more if necessary to provide ten (10) inches in width of combined emergency exits for each one hundred (100) seats. No emergency exit shall be less than two (2) feet six (6) inches wide. Emergency exits shall be as remote as possible from the main exits and shall lead to a street, alley or open court, but not to the main auditorium foyer, by means of an outside iron balcony fire escape (Specification No. 38) or by a stair enclosed in a fireproof shaft. These emergency exits must be kept entirely separate from the main exits but may terminate in the courts or corridor serving as emergency exits from the auditorium provided the width of such courts or corridors is increased to provide ten (10) inches of width for each one hundred (100) seats served. Fire escape stairs shall not obstruct any of the required emergency exit width in the court below. Requirements as to risers, treads and winders shall be the same as for main exit stairs.

(g) **Boxes Holding Twenty-five (25) Persons or Less** shall have one (1) exit at least two (2) feet six (6) inches wide. Except for width of stair, requirements shall be as for main exit stairs. Boxes holding more than twenty-five (25) persons shall be treated as balconies.

(h) **Exit Lights:** All exits shall be marked with signs illuminated with red lights carried on a circuit separate from all other wiring. Such signs shall be marked "EXIT" in letters at least six (6) inches high.

(i) **Hardware:** No exit door shall be provided with flush bolts. All doors shall swing in the direction of travel and if provided with latches such latches shall be self-releasing by means of panic bolts or similar device which will permit door to open when pressed against. In theatres of over six hundred (600) seats where a house fireman is employed to inspect exits panic proof latches may be omitted from the main exits but not from emergency exits. Such main exits shall have no latches of any kind but may be locked by means of a key.

(j) **All Aisles and Exits Including Foyer** shall be kept clear and free of all obstructions, either permanent or movable, at all times building is in use. This shall be construed as to prohibiting radiators, chairs, stools, stands, slot machines, signs, easels and similar objects from being placed in any exit, aisle, or foyer and as prohibiting a ticket booth from obstructing any part of the required exits.

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(k) **Stage Exits:** There shall be at least two (2) exits from every stage, one at each side, and two stairs, each three (3) feet six (6) inches wide, from the sub-stage or basement of stage leading directly to outer wall of building into a street, alley or court. Risers shall not exceed seven and one-half (7½) inches and treads shall not be less than ten (10) inches.

(l) *There shall be at least one (1) exit two (2) feet six (6) inches* wide from every dressing room. Exit stairs shall have risers not more than seven and one-half (7½) inches and treads not less than ten (10) inches.

Section 4.—**Shaft Enclosures:** All elevators shall be enclosed as required under type of construction.

Main exit stairs shall not be required to be enclosed.

Emergency exit stairs shall be fully enclosed as required under type of construction, and there shall be no openings into shafts or corridors except necessary entrance and exit doors. All entrance doors to shaft shall be kept closed during performances. All emergency stair shafts or the corridors at the base of them shall lead directly to a public street, alley or court open to a street or alley and at least as wide as the corridor.

Ventilating shafts entering attic space shall meet requirements of Section 2 (h) of Article IV.

Opening through stage floor shall be closed with well-fitted trap doors, which may be of lumber if at least two (2) inches thick.

Section 5.—**Location and Exposures:** All Class E buildings shall be so located that all of the main exits open directly onto a public street without passing through or under any other building. All walls of Class E buildings less than three (3) feet from adjacent property lines or other buildings on the same property shall be solid and without openings. All windows in walls less than ten (10) feet from adjacent property lines or other buildings on the same property or facing on streets, alleys or courts less than twenty (20) feet wide shall be provided with fire windows. All walls less than ten (10) feet from adjacent property lines or other buildings on the same property shall have parapets above at least eighteen (18) inches high except in the case of Type 1 or 2 buildings.

Section 6.—**Fire Areas:** Class E buildings shall not be required to be divided into areas by fire walls, but when a stage equipped for moving scenery is used the stage shall be separated from the auditorium by a fire wall or proscenium wall having not more than five (5) openings.

There may be two (2) openings not more than three (3) feet wide and seven (7) feet six (6) inches high at or near the level of the stage floor, and two (2) similar openings below the level of the stage floor, all provided with Type A self-closing fire doors. (See Specification No. 29.)

There may be one large opening for viewing performances provided with a self-closing asbestos curtain meeting requirements of Specification No. 35.

There shall be no vent openings, access doors or dressing room doors of any sort through this fire wall and all pipes passing through this wall shall be snugly grouted in place.

Stages constructed as allowed for Class D buildings (Article IX, Section 8) may be used without such fire walls.

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Section 7.—**Fire Appliances:** All Class E buildings shall be equipped with a fire alarm box connected directly to the City Fire Signalling System. This shall be constructed and maintained as directed by the Chief of the Fire Department.

All Class E buildings having stages for movable scenery shall have such stages sprinklered as required by Specification No. 26, and shall have two (2) standpipe outlets at or near the stage exit doors constructed as required in Specification No. 25. Also, all sub-stages and basements in all Class E buildings shall be sprinklered. (See Specification No. 26.)

Section 8.—**Protection of Special Hazards:** The following apparatus shall be installed and constructed in accordance with the specifications referred to by number after each such piece of apparatus:

Chimneys	1
Steam or Hot Water Heating Plants	5
Warm Air Furnaces	4
Stoves	12 and 14
Steam and Hot Water Heating Pipes	20
Warm Air Ducts	17
Vent Flues	18
Heating and Ventilating Ducts	19
Gas Supply Lines	22
Oil Burners	15
Other Sources of Heat and Flame	16

Light inflammable decorations shall not be used in any part of any Class E building, including foyers and exits.

Metal stacks shall not be used as furnace flues, kilns, torches, and other sources of heat or flame shall not be used in Class E buildings except for repairing building or equipment. Gas shall not be piped into such buildings except into carpenter shop.

No inflammable liquids shall be stored or used and no paint, varnish or similar material shall be stored or used except for decorating building and painting scenery and stage properties. All such paint shall be stored in the carpenter shop.

Celluloid and nitro-cellulose shall not be used or stored except moving picture films, which may be used and stored in booths meeting requirements of Specification No. 33. No films shall be used, kept or stored outside of booth, and no more film shall be stored in the booth than is required for one performance. All scenery, drapes and sets used upon the stage shall be painted or sprayed with a solution which will make them not readily inflammable.

All heating shall be done with low pressure steam or hot water, but may be done by indirect radiation if the plenum chamber is cut off from the remainder of the sub-stage, including heating room, by a fire wall. All heating rooms shall be placed outside of the Class E building or in a room under the stage having an unpierced concrete floor above and surrounded by a fire wall. All doors shall be self-closing Type A fire doors. (See Specification No. 28.)

Carpentry rooms shall be placed outside of the main building or under the stage if covered with an unpierced concrete floor above and surrounded by a fire wall. All doors shall be self-closing Type A fire doors (see Specification No. 28), and there shall be no direct entrance from the carpentry shop to the heating room.

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No smoking shall be permitted on or under stage except that one room may be used as a smoking room if not used for any other purpose. No costumes, properties or other materials shall be stored in this room and no drapes, curtains or upholstered furniture may be used therein.

Section 9.—(a) **Deviations and Exceptions:** The fireproofing may be omitted from steel work of fly galleries and gridirons in stage portion of Class E buildings. No wood shall be used in construction of fly galleries and gridirons, but pin rails may be of wood.

The fireproofing of trusses and girders supporting balconies and roofs in the auditorium portion may be supplied by a metal lath and plaster ceiling complying with requirements in Article IV, Section 2 (h).

(b) **Stage Floors:** That part of the stage floor from a point twelve (12) inches back of the proscenium wall and five (5) feet each side of the proscenium opening may be of two (2) inch wood planks supported on steel beams and posts. All other portions of the stage floor shall be of Type 1 construction. No part of the heating room or carpentry room shall be under the wooden portion of the floor.

Section 10.—**Existing Building:** Existing buildings used for Class E occupancy at the time this ordinance is adopted may be continued in use if structurally safe and complying with the requirements given herein. If not structurally safe such alterations and repairs as are necessary to render such building structurally safe shall be made when ordered by the Chief Inspector.

Existing buildings must be made to provide at least eighty (80) per cent of the main and emergency exits required for new buildings, but existing stairs will be given full credit according to their width, even though they do not meet the requirements for new buildings as required in Section 3 above. Existing buildings, if not of fireproof construction and containing over six hundred (600) seats, shall be provided with such additional emergency exits as may be required by the Chief Inspector, but the total of such main and emergency exits shall not exceed those required for new buildings.

Existing buildings shall be made to meet requirements of Section 3, paragraphs (h), (i) and (j), Section 7 and Section 8 of this Article and Section 2 of Article VII. If seating more than six hundred (600) persons and provided with a stage for movable scenery they shall also be made to comply with Section 6 of this Article.

No existing theatre shall be altered so as to reduce the exits existing at the time this code was adopted or increase the hazards therein unless when altered it will comply fully with the requirements herein for new buildings.

Section 11.—**Buildings Altered to Class E Occupancy:** No existing building of other class of occupancy shall be altered to Class E occupancy unless complying with all the requirements for new Class E buildings as given in this code.

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Class "F" Buildings.

Section 1.—Class F buildings shall be divided into the following subclasses and shall include the following and shall be constructed of one of the following types of construction:

Sub-Class F-1: All multiple dwellings for three or more families

and all hotels, lodging or rooming houses, dormitories, monasteries, convents, boarding schools, club houses and similar buildings containing more than ten (10) sleeping rooms. For the purpose of this classification rooms of more than one hundred sixty (160) square feet will be regarded as two or more rooms, each eighty (80) square feet or fraction thereof being considered one (1) room.

If not over two (2) stories or thirty-five (35) feet high and not over two thousand (2,000) square feet area, of Types 1, 2, 3, 6 or 8.

If not over four (4) stories or fifty-five (55) feet high, of Types 1, 2, 3 or 6. (See Section 9 for special requirements where Type 6 is used.)

If not over five (5) stories or sixty-five (65) feet high, of Types 1 or 2.

If over five (5) stories or sixty-five (65) feet high, of Type 1.

Sub-Class F-2: All hospitals, sanitariums and medical institutions providing more than ten (10) sleeping rooms as defined above.

If not over two (2) stories or thirty-five (35) feet high, of Types 1,

If not over five (5) stories or sixty-five (65) feet high, of Types 1 or 2.

If over five (5) stories or sixty-five (65) feet high, of Type 1.

Sub-Class F-3: All prisons, reformatories, jails, asylums and other places of detention for human beings:

Type 1 in all cases, but mezzanine floors and cell blocks may be unprotected steel.

Section 2.—**Mixed Occupancy:**

For Class F occupancy mixed with Class A occupancy, see Article VII, Section 2.

For Class F occupancy mixed with Class B occupancy, see Article VIII, Section 2.

For Class F occupancy mixed with Class C occupancy, see Article IX, Section 2.

For Class F occupancy mixed with Class D occupancy, see Article X, Section 2.

For Class F occupancy mixed with Class E occupancy, see Article XI, Section 2.

No portion of a Class F building shall be considered separately as a Class G building.

Section 3.—**Stairs and Exits:**

(a) **Sub-Classes F-1 and F-2:** There shall be two (2) separate and distinct exits from every floor, regardless of height of building, and more if necessary to meet the following requirements:

(a-1) There shall be at least one (1) stairway for each sixty (60) rooms above the first floor in all buildings except buildings of Types 1 and 2 and one (1) stairway for each one hundred fifty (150) rooms above the first floor in buildings of Types 1 and 2, but in buildings over seven (7) stories high only one (1) stairway for each one hundred fifty (150) rooms on the six (6) most densely populated floors will be required. In computing the number of stairs required all sleeping rooms, living rooms and dining rooms shall be included and dormitories shall be cal-

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culated as one (1) room for each eighty (80) square feet.

(a-2) There shall not be more than seventy-five (75) feet from any room to a stairway measured along corridors in all buildings except buildings of Type 1 or 2 construction and not more than one hundred fifty (150) feet from any room to a stairway measured along corridors in buildings of Types 1 and 2.

(a-3) The least distance between the two (2) most widely separated stairs shall not be less than fifty (50) per cent of the longest dimension of the building.

(a-4) In buildings required to be divided into areas by firewalls in Section 6 of this article there shall be at least one (1) stairway in each such section.

(a-5) All stairs shall be inside stairs except that in buildings three (3) stories or less in height one-half (½) of the stairway may be outside stairs, provided every part of the building has access to at least one (1) inside stair.

(b) **Sub-Class F-3:** The number and location of exits shall be determined solely by the authorities having charge of such institutions.

(c) The width of stairs in buildings not over two (2) stories high and not over two thousand (2,000) square feet in area shall be at least three (3) feet and in all other Class F buildings the stairs shall be standard widths of three (3) feet six (6) inches and over, as given in Article V, Section 3.

(d) No stair shall have a riser of more than seven and one-half (7½) inches or a tread of less than ten (10) inches.

(e) No closet shall be constructed under any stair.

(f) Every basement over two thousand (2,000) square feet in area shall have at least two (2) exits, and if used for habitation the number and location of exits shall meet the requirements for stairs from upper floors except in Class F-3 buildings.

(g) Every one (1) story building shall have at least two (2) exits and more if necessary to meet the requirements as for stairs from upper floors except in Sub-Class F-3 buildings.

(h) Hardware shall be of such a character that all exit doors can be opened from the inside without the use of a key except in Class F-3 buildings.

Section 4.—(a) **Enclosure of Vertical Openings:** All vertical openings for elevators, stairs and other purposes shall be completely enclosed as required under type of construction except as noted below. All shaft openings shall be provided with Type B self-closing fire doors (see Specification No. 29), and no hardware shall be permitted for holding such doors open. All stair enclosures except in buildings of Type 1 or 2 shall have an exit directly into a street, alley or court open to a street or alley, and in Type 1 or 2 buildings at least one-half (½) of the stairs shall meet this requirement, but this shall not prohibit an exit leading through a fireproof corridor to a street, alley or court open to a street or alley.

(b) In buildings not over two (2) stories high, stair enclosures may be omitted in the first and second floor, but shall be provided in basements in all cases.

(c) In buildings not over three (3) stories high and having not

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more than two (2) families or ten (10) sleeping rooms on any floor above the first the shaft enclosure around one of the stairs may be omitted above the basement.

(d) In buildings of Type 1 or 2 there may be one (1) monumental stair unenclosed from the first to the second floor, but the stair shaft above the second floor shall be closed at the second floor by a Type B fire door so as to prevent smoke rising from the first floor up this shaft.

(e) Outside stairs permitted in Section 3 above need not be enclosed.

(f) Clothes chutes in buildings not over four (4) stories high may be of wood, lined with at least 26 United States gauge sheet iron or tinned plate.

(g) Open wells or rotundas more than two (2) stories high shall not be permitted, but this shall not prohibit the construction of cell blocks in Class F-3 buildings.

(h) In buildings of Types 3 or 6 not over three (3) stories high the walls of light wells starting at the second floor line or above may be of wood covered on the outside with one (1) inch of metal lath and cement plaster, provided such walls are not continuous with or form any part of the outside walls of the building or any required fire wall in the building. Other light wells shall have walls constructed as required for exterior walls.

Section 5.—(a) **Location and Exposures:** All Class F buildings shall be located as required by the Michigan State Housing Code and the Zoning Ordinance of the City of Ann Arbor and all windows nearer to adjacent property lines than is allowed by this law for legal light shall be fire windows.

(b) No wall of any building shall be less than five (5) feet from the line of any adjacent property or any other building upon the same property unless it is of masonry without openings of any sort.

(c) All windows opening into light courts smaller than those allowed by the State Housing Code and those opening into light courts which are used in common by two or more sections of a building which are required by Section 6 below to be divided by fire walls shall be fire windows.

(d) On buildings not over two (2) stories high there may be combustible eaves or cornices projecting not more than eighteen (18) inches into required side yards, but all buildings over two (2) stories high, except buildings of Types 1 and 2, shall have parapet walls at least eighteen (18) inches high above all walls less than ten (10) feet from adjacent property lines.

(e) No porch or balcony of combustible material shall be constructed nearer than three (3) feet from any adjacent property line or the end of any required fire wall within the building, and in buildings over two (2) stories high this distance shall be increased one (1) foot for each story above the second.

(f) Class F buildings shall not be located less than ten (10) feet from any Class B building on the same property unless the Class B buildings is of Type 1, 2 or 3 construction.

Section 6.—(a) **Fire Areas:** Buildings of Type 3 shall be divided into areas not exceeding twelve thousand (12,000) square feet by fire walls.

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(b) Buildings of Type 6 construction shall be divided into areas of not exceeding four thousand (4,000) square feet by fire walls.

(c) There shall be no openings in such fire walls except corridor openings, which shall be provided with automatically closing swinging fire doors of Type A. (See Specification No. 28.)

Section 7.—**Fire Appliances:** Every building over seventy-five (75) feet high shall be provided with at least one (1) standpipe for each ten thousand (10,000) square feet area or fraction thereof, but there shall not be more than one hundred (100) feet from any part of the building to a standpipe. (See Specification No. 24.)

Section 8.—(a) **Protection of Special Hazards:** The following apparatus shall be installed and constructed in accordance with the specifications referred to by number after each such piece of apparatus:

Chimneys and Stacks	1
Fireplaces	3
Warm Air Furnaces	4
Steam and Hot Water Heating Plants	5
Steam and Hot Water Heating Pipes	20
Ovens, etc.	8
Drying Rooms	9
Incinerators	11
Stoves and Gas Ranges	12, 13 and 14
Warm Air Ducts	17
Vent Flues	18
Heating and Ventilating Ducts	19
Gas Supply Lines	22
Gas Outlets	23
Oil Burners	15
Other Sources of Heat and Flame	16

(b) Inflammable liquids shall not be used or stored in quantities greater than one (1) pint in Class F buildings except that in Sub-Class F-2 buildings necessary medical supplies may be stored in vaults complying with the requirements of Specification No. 34. Paints and varnishes other than those used for decorating building shall not be stored or used except in fireproof rooms provided with automatic sprinklers.

(c) Celluloid and nitro-cellulose products, calcium carbide and acetylene shall not be used or stored in Class F buildings except that in Sub-Class F-2 building films for X-ray or other photographs may be used if all storage in excess of twenty-five (25) pounds is in accordance with Specification No. 34.

(d) High pressure steam boilers shall not be used in Class F buildings, but may be installed in separate building with reducing valves on all steam lines entering the Class F building.

(e) Inflammable motion picture films shall not be used in Class F buildings.

(f) Warm air furnaces may be used in buildings not over two (2) stories high.

(g) Heating plants in Class F-3 buildings shall be separate from

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remainder of building by a fire separation.

Section 9.—(a) **Exceptions and Deviations:** Class F buildings when not of Type 1 or 2 construction if over two (2) stories high shall have all wooden partitions, walls and ceilings including basement ceiling covered with metal lath and plaster.

(b) Buildings used as club houses, boarding schools, seminaries and similar purposes shall comply with the requirements of this article unless some portion of the building is used for Class D purposes, in which case it will be constructed as required in Article IX, Section 9 (c).

Section 10.—**Existing Buildings:** Buildings of Class F existing at the time this ordinance was adopted may be continued in use of structurally safe, provided with adequate exits and complying with the requirements of Section 8 above. The Department shall have the power to order such changes as are necessary to provide substantial structural safety and to provide exits to meet the following requirements:

Every part of every building over two (2) stories high shall have access to at least two (2) means of exit, one (1) of which may be standard fire escape (See Specification No. 38). All other stairs shall be interior stairs except where outside stairs are permitted in new buildings. All new interior stairs shall comply with the requirements for stairs in new buildings both as to construction and enclosure. Also, all existing interior stairs in Sub-Class F-1 buildings over three (3) stories high if not of fireproof construction and similar stairs in Subclass F-2 buildings over two (2) stories high if not of fireproof construction shall be inclosed in a partition of wood studs covered on both sides with metal lath and plaster or kalomine or hollow metal partitions with or without panels of wired glass or of some other material equally fire-resisting. All such enclosures shall be provided with Type B self-closing fire doors. (See Specification No. 29).

Section 11.—**Buildings Altered to Class F Occupancy:** Existing buildings of other classes of occupancy may be altered to Class F occupancy if structurally safe and complying with the requirements of Sections 1, 2, 3, 4, 5 (a) and (f), 6, 7, 8 and 9 of this article, but no new part of the building shall be constructed contrary to the provisions of Section 5 (b), (c), (d) or (e).

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Class "G" Buildings

Section 1.—Class G buildings shall include all single or two (2) family dwellings and all lodging or rooming houses, dormitories, monasteries, convents and other similar buildings providing not more than ten (10) sleeping rooms as defined under Class F, also all sheds and outhouses other than garages attached to or pertaining to the above buildings.

Class G buildings shall be built of one of the following types of construction:

If not more than two and one-half (2½) stories high or thirty-five (35) feet, of any type.

If not more than three (3) stories high, of Types 1, 2, 3 or 4.

If over four (4) stories high, of Type 1or 2.

Section 2.—**Mixed Occupancy:**

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For Class G occupancy mixed with Class A occupancy see Article Vi, Sec. 2.

For Class G occupancy mixed with Class B occupancy see Article VII, Sec. 2.

For Class G occupancy mixed with Class C occupancy, see Article VIII, Sec. 2.

For Class G occupancy mixed with Class D occupancy, see Article IX, Sec. 2.

For Class G occupancy mixed with Class E occupancy see Article X, Sec. 2.

For Class G occupancy mixed with Class F occupancy see Article XI, Sec. 2.

Section 3.—(a) **Stairs and Exits:** There shall be one (1) interior stair in every Class G building over one (1) story high, and if the building exceeds three (3) stories in height or if there are more than three (3) sleeping rooms above the second floor there shall be two (2) separate and distinct stairs.

(b) No stairway shall be less than three (3) feet wide. Risers shall not exceed seven and three-quarters (7¾) inches and treads shall not be less than nine and one-half (9½) inches.

Section 4.—**Enclosure of Vertical Openings** shall not be required in Class G buildings.

Section 5.—(a) **Location and Exposures:** All Class G buildings shall be located as required by the Michigan State Housing Code and the Ann Arbor Zoning Ordinance.

(b) No wall of any building except private garages shall be less than five (5) feet from the line of any adjacent property of any other building on the same property unless it is of masonry without openings of any sort.

(c) No porch or balcony of combustible material shall be constructed nearer than three (3) feet from any adjacent property line.

(d) Class G buildings shall not be located less than ten (10) feet from any Class B building on the same property unless the Class B building is of Type 1, 2 or 3 construction.

Section 6.—**Fire Areas:** Class G buildings shall not be required to be divided into fire areas.

Section 7.—**Fire Appliances** shall not be required in Class G buildings.

Section 8.—**Protection of Special Hazards:** The following apparatus shall be installed and constructed in accordance with the specifications referred to by number after each such piece of apparatus:

Chimneys and Stacks	1
Fireplaces	3
Warm Air Furnaces	4
Steam and Hot Water Heating Plants	5
Steam and Hot Water Heating Pipes	20
Ovens, etc.	8
Drying Rooms	9
Incinerators	11
Stoves and Gas Ranges	12, 13 and 14
Warm Air Ducts	17

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Vent Flues	18
Heating and Ventilating Ducts	19
Gas Supply Lines	22
Gas Outlets	23
Oil Burners	15
Other Sources of Heat and Flame	16

Inflammable liquids may be stored and used in quantities not exceeding one (1) gallon.

Section 9.—**Exceptions and Deviations:** None.

Section 10.—**Existing Buildings:** Buildings of Class G existing at the time this ordinance was adopted may be continued in use if structurally safe and complying with the requirements of Section 3 (a) of this article.

The department shall have the power to order such changes as are necessary to provide substantial structural safety and in the case of buildings more than two (2) stories high not complying with requirements of Section 3 (a) may order an additional means of exit from any third floor having more than three (3) sleeping rooms or from the third and upper floors of any building over three (3) stories high. Such additional means of exit may be a standard fire-escape (See Specification No. 38) or such other means of exit as the Chief Inspector may permit.

Section 11.—**Buildings Altered to Class G Occupancy:** Existing buildings of other classes of occupancy may be altered to Class G occupancy if structurally safe and complying with the requirements of Sections 1, 2, 3, 5 (a) and (d), and 8 of this Article, but no new part of the building shall be constructed in violation of Section 5 (b) or (c).

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Miscellaneous Structures

Section 1.—**Open Shelter Sheds** of wood construction not exceeding thirty (30) feet in height may be erected outside of fire limits if at least five (5) feet from adjacent property lines and ten (10) feet from any other building or open shelter shed on the same property except that such sheds may abut against unpierced masonry walls of buildings on the same property. The area of such sheds shall not exceed the areas allowed for Type 8 construction in Article VI, Section 6.

See Article III, Section 3 for limitations of open shelter sheds in fire limits.

Open shelter sheds of all metal construction may be erected outside of the fire limits subject to the same restrictions as those of wood construction except that the area may be that given in Article VI, Section 6 for Type 7 construction. If any side of such shed is enclosed the enclosure shall be of masonry or metal construction. In the fire limits such metal sheds shall be subject to the same limitations as for wood open shelter sheds in Article III, Section 3.

Section 2.—**Radio Towers:** All radio towers, the top of which is more than fifty (50) feet above the street level shall be of all metal construction. All radio towers shall be securely braced and of sufficient strength to resist a wind pressure of thirty (30) pounds per

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square foot in addition to the load resulting from aerials.

Guy wires to such towers shall not cross or encroach upon any public street or alley or cross over any electric power wire nor cross any privately owned property without the consent of the owner. All such towers shall be securely grounded with a metal conductor at least equal to a number 14 United States Standard Gauge copper wire.

Section 3.—**Grand Stands:** *Outside of fire limits grand stands of* wood construction either with or without canopies may be erected when not closer than five (5) feet to adjacent property lines or ten (10) feet to other buildings on the same property and when not exceeding five thousand (5,000 square feet in area. The highest level of seats shall not be more than twenty (20) feet above the ground level. There shall not be more than fifteen (15) seats between any aisle and an end of the grand stand nor more than thirty (30) seats between any two aisles. Aisles and exit stairs shall be at least thirty (30) inches wide and wider if necessary to provide twenty (20) inches of exit width per one hundred (100) seats using such aisle. Risers in aisle and exit stairs shall not exceed seven and one-half (7½) inches and treads shall not be less than ten (10) inches. Grand stands shall be designed to carry a live load of one hundred (100) pounds per square foot and shall be braced securely in both directions.

Inside of fire limits wooden grand stands shall be subject to further restrictions given in Article III, Section 3.

Grand stands of metal or concrete construction either inside or outside of fire limits shall be limited by the Zoning Ordinance as to height, area or location with regard to adjacent property lines or other buildings, but shall comply in other respects to requirements for wooden grand stands given above except that only twelve (12) inches of exit width will be required for each one hundred (100) persons.

Section 4.—**Roller Coasters:** Roller Coasters and similar amusement devices shall not be erected in the fire limits unless constructed of steel or reinforced concrete. Outside of fire limits such devices may be constructed of wood when not exceeding eighty (80) feet in height, but if more than thirty-five (35) feet high the timbers shall be of the same size required for mill construction. If of steel or concrete such devices shall not be limited as to location, but if of wood they shall be at least twenty (20) feet from adjacent property lines or buildings or other structures on the same property.

All such structures shall be designed to resist all live loads with an impact factor of two (2). At curves the speed of cars shall not exceed fifteen (15) miles per hour and the rails shall be banked to take the resultant of all stresses normally. On dips the component of the centrifugal force normal to and away from rails shall not exceed two-thirds (⅔) of the component of gravity normal to and toward the rails. In wooden roller coasters all important connections shall be bolted.

No part of such a ride shall be under the level of the ground and no part more than ten (10) feet above the level of the ground shall be enclosed. Where any portion is enclosed exits shall be provided and marked with red lights not over one hundred (100) feet apart. The car in its travel shall not normally remain in any enclosure for more than five minutes.

All roller coasters and similar devices shall be provided with a

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positive acting signal system in plain view of the operator which will warn the operator of the stoppage of any car and will enable the operator to ascertain that each section of the ride is clear before permitting any car to enter that section.

All such devices shall be inspected each spring before being placed in operation and shall be tested in the presence of an inspector of the Department of Buildings by sending one or more cars over the entire ride loaded with sand bags or similar material equal to twice the weight of the maximum number of passengers. The Department may demand similar tests at any time during the operating season.

Section 5.—**Tents** shall not be erected in the fire limits, but outside the fire limits tents may be erected for a period of not exceeding thirty (30) days for bazaars, entertainments, circuses or for the storage of goods. Tents shall not be erected nearer than twenty (20) feet to adjacent property lines or other buildings. They shall be constructed and erected to resist a wind pressure of ten (10) pounds per square foot. When used for an assembly of people they shall be provided with exits of not less than twenty (20) inches per one thousand (1,000) square feet or area.

Section 6.—**Other Amusement Devices:** Amusement devices other than those specifically mentioned herein may be constructed if approved by the Chief Building Inspector. When constructed of wood such structures shall not be nearer than twenty (20) feet to adjacent property lines and no such structure shall be erected in the fire limits. He shall require all such devices to be structurally safe making due allowance for impact wear and injury during operation. In case of doubt he may order any device tested with sand bags of twice the maximum weight of the proposed occupants. When such devices provide enclosures he shall have the power to determine the number and location of exits. When necessary for safety he may limit the speed of operation of such devices or order such alterations as he may deem necessary. He may order any device to be dismantled and removed when the operation thereof is found to be unduly dangerous.

The Chief of the Fire Department may order the installation of fire hydrants, stand pipes and other fire apparatus which he may deem necessary for proper fire protection and may order straight pathways not exceeding twenty (20) feet wide to be left open through groups of amusement devices when necessary for ingress of fire apparatus.

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Engineering

Section 1.—Every building or other structure hereafter erected, altered, or repaired shall be well and substantially constructed in a sound and workmanlike manner and shall be designed to carry at least the actual dead loads and the minimum live loads required in this section without stressing any of the structural elements beyond the allowable stresses as set forth in Article XV to XIX inclusive. In addition to vertical loads all buildings and other structures shall be adequately braced against all lateral or horizontal stresses due to wind pressure, operation of machinery, settlement of foundations and all other ordinary conditions. In designing members to support moving bodies the weight of such bodies shall be multiplied by an impact factor of from one and one-quarter (1¼) to two (2), the exact factor to be

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determined by the Chief Inspector.

Section 2.—The following minimum live loads shall be assumed in calculating all floor construction:

Apartments	40
Apartments (places of assembly in)	80
Assembly Halls (fixed seats)	80
Assembly Halls (movable seats)	100
Attics (not used for habitation or storage)	20
Churches (fixed seats)	80
Dance Halls	125
Churches (movable seats)	100
Drill Halls	125
Driveways over Coal Vaults	400
Dwellings	40
Garages (first floor)	150
Garages (upper floors)	100
Grand Stands, Bleacher Stands	100
Hospitals, Asylums, Convents, Detention Buildings (Bed and Living Room Floors	40
Hospitals, Asylums, Convents, Detention Buildings (other floors)	80
Hotels and Clubs (living room floors)	40
Hotels and Clubs (first floors, corridors and dining room)	80
Manufacturing and Mercantile Buildings, First Floor	125
Manufacturing and Mercantile Buildings, Other Floors	100
Municipal and County Buildings, including Court Houses, Libraries, Museums, Corridors and Public Rooms	100
Private Office Space	50
Office Buildings, First Floors	125
Office Buildings, Other Floors	50
Roofs	30
Restaurants	80
Schools (fixed seats)	50
Schools (movable seats)	60
Schools (entrances and corridors)	80
Side Walks	250
Stables	80
Stairways and Landings:	
In single and 2-family dwellings and apartments under 3 stories high	50
In all other buildings	100
Storage Buildings and Warehouses, First Floor	150
Storage Buildings and Warehouses, Other Floors	125
Theatres (fixed seats)	80
Theatres Fly Galleries	50
Theatres, Gridirons	90

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Theatres, Stage Floors 250

In addition to the requirements above garage floors shall be so designed that any element of the floor will safely carry a concentrated load at any point of twenty-five hundred (2,500) pounds on the first floor and fifteen hundred (1,500) pounds on any other floor.

In case of buildings not classified above, the unit live load shall be obtained from the Department of Buildings before the building is designed.

Section 3.—**Reduction of Live Load:** Walls, piers, columns and footings shall be designed to carry the entire dead load and the live load less the deductions herein allowed. No deductions will be made from live load of roof.

(a) The live floor load deductions for warehouses and storage buildings shall be none on top floor, five (5) per cent on the next and increase by five (5) per cent for each floor thereafter, until twenty (20) per cent is reached, below which the entire remaining eighty (80) per cent shall be considered as carried by the walls, piers, columns and footings.

(b) The live floor load deductions for manufacturing buildings, stores, and garages shall be fifteen (15) per cent on top floor, twenty (20) per cent on next, and shall increase by five (5) per cent for each floor thereafter until thirty-five per cent is reached, below which the entire remaining sixty-five (65) per cent shall be considered as carried by the walls, piers, columns and footings.

(c) The live floor load deductions for all other buildings shall be fifteen (15) per cent on the top floor, twenty (20) per cent on the next, and shall increase by five (5) per cent for each floor thereafter until fifty (50) per cent is reached, below which the entire remaining fifty (50) per cent shall be considered as carried by the walls, piers, columns and footings.

Section 4.—**Reduction of Live Load for Beams, Girders and Trusses:** All beams, girders and trusses supporting less than three hundred (300) square feet of the floor construction shall be designed for the full dead and live loads. Beams, girders and trusses carrying three hundred (300) square feet or more of floor construction may be figured to carry eighty-five (85) per cent of the live load of the floor and the full dead load; except in warehouses and storage buildings, in which beams, girders and trusses shall be figured to carry the full dead and live loads.

No reduction of live loads shall be made of live loads from roofs.

Section 5.—(a) **Floor Load Placards:** It shall be the duty of the owner or tenant leasing for one (1) year or more any warehouse, storage, manufacturing or mercantile building to post in conspicuous places throughout such buildings placards setting forth the safe live loads for which such buildings may be used with the following legend: **"The Maximum Safe Live Load on This Floor Is ..... Pounds Per Square Foot."** It shall be unlawful to fail to place such placards; to place such placards showing a higher safe load than that allowed by the Department of Buildings, to remove, cover up, alter or deface such placards.

(b) It shall be the duty of the Department of Buildings to check and approve or show cause for disapproving any calculations as to the safe carrying capacity of any floor construction and in order to so

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check such calculations it shall be allowed to examine any plans of such building in the possession of the owner or his agent, or may require any portions of the building to be uncovered for inspection, including footings, that it deems necessary.

(c) It shall be unlawful for any owner, agent or tenant to advertise or represent any building to have a greater safe load upon the floors than allowed by the Building Department and when any tenant or sub-tenant can be shown to have suffered damage or serious inconvenience by virtue of such misrepresentation, then the one so misrepresenting the facts shall be deemed to have violated this code.

Section 6.—**Wind Stresses:** Every building or other structure governed by this code shall be designed to resist a horizontal wind load of twenty (20) pounds per square foot on any exposed surface. The stresses arising from such wind pressure shall be determined by some method of calculation accepted by the Department and shall be resisted by the materials of construction without overstressing such materials by more than thirty-three (33) per cent of the allowable safe stress as given hereafter when considered as carrying the total dead and live loads and wind pressures.

Section 7.—**New Constructions and Structures Containing Indeterminate Members:** Any person seeking the approval of the Department for any new type of construction not specifically covered in this code or for any element of construction containing indeterminate members the strength of which cannot be determined by the methods of calculation herein specified for other structures or materials, shall prepare under the direction of the Department one or more units of the proposed construction and submit the same to tests to destruction under the supervision of the Department. The Chief Inspector shall then determine the safe carrying capacity of such construction by applying a factor of safety of not less than three (3) nor more than ten (10) depending on the character and nature of the material and the probability of poor workmanship in actual construction or of deterioration and damage after construction.

ARTICLE XV.

Excavations, Footings and Foundations

Section 1.—**Excavations:** Any person about to make an excavation for a basement or any other purpose to a depth of not over twelve (12) feet below the established grade of the street on or near a side property line, shall notify the owner of the adjacent premises in writing a reasonable time in advance as to the location and depth of such excavation. The person excavating shall take all necessary precautions to maintain in place on the adjacent premises all the earth, trees and other natural objects thereon and shall be liable for the damages resulting from his failure to do so. The owner of the adjacent premises, after having been duly notified, shall take all the necessary precautions to maintain and protect all of the buildings, fences and other artificial objects upon his land and shall be liable for all the damages resulting from his failure to do so. The owner of the adjacent premises or his agents shall have the right of entry to the premises being excavated and to the excavation insofar as is necessary to properly safeguard his buildings, fences, and other artificial objects.

Any person or persons making an excavation to a depth of more

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than twelve (12) feet below the established grade of the street shall proceed according to the requirements of the Michigan State Law (See Act 314, Public Acts of Michigan for 1921, approved May 18, 1921).

Any person or persons making an excavation shall place a secure and substantial railing or guard around the same to prevent persons falling therein.

No excavation shall be made within one (1) foot of the angle of repose or natural slope of the soil under any footing or foundation without underpinning such foundation.

Section 2.—(a) **Footings and Foundations:** Sheds or garages of Types 7 or 8 may rest on a slab of concrete five (5) inches thick or on posts or timbers laid on the ground.

(b) Frame residences not exceeding two stories and an attic or thirty-five (35) feet in height shall rest on basement walls of terra cotta, tile, or concrete blocks at least eight (8) inches thick, or concrete posts at least eight (8) inches square or upon brick or concrete block piers at least twelve (12) inches square or any other material allowed for any building mentioned in paragraph (d) of this section. Brick veneer buildings shall have foundation walls at least twelve (12) inches thick for two stories and ten (10) inches for one story.

(c) Concrete block or terra cotta tile residences not exceeding two (2) stories and an attic or thirty-five (35) feet in height, may rest on foundations of the same material used in the walls above or any other material allowed for any building mentioned in paragraph (d) of this section.

(d) All other buildings than those mentioned in paragraphs (a), (b) and (c) of this section shall rest on foundations of stone, brick, concrete or a combination of concrete and steel in which the steel shall be completely encased in concrete or upon piles.

(e) All footings and other projections of foundations of stone, brick or mass concrete shall be designed so that the projection shall not exceed one-half (½) of the vertical height. Such projections as well as all continuous footings and foundations constructed of reinforced concrete or steel in concrete shall be designed as steel or concrete beams in accordance with the principles of design given in Article XVIII and XIX.

(f) All foundations other than those mentioned in Paragraph (a) of this section shall extend at least three (3) feet six (6) inches below the adjoining grade and all foundations except piles shall rest upon good firm soil other than black top soil and filled soil.

Section 3.—**Bearing Capacity:** The calculated load per square foot upon the soil below foundations shall not exceed the following maximum values:

Ordinary clay and sand, wet and springy, two (2) tons per square foot.

Clay or fine sand, firm and dry, three (3) tons per square foot.

Very firm coarse sand, stiff gravel or hard clay, four (4) tons per square foot.

Section 4.—**Piles:** Piles may be of wood or of concrete and may be set by driving or be moulded into place, and they shall be spaced to safely carry the super-imposed load. They shall be driven in accordance with the customs of good engineering practice and the safe bearing capacity shall be calculated with due regard to conditions and

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in accordance with the best methods used by experienced engineers. The minimum requirements which shall be observed are as follows:

(a) Wooden piles of twenty (20) feet or less in length, shall not be at the smaller end of less dimension than six (6) inches, nor at the butt end less than eleven (11) inches. When more than twenty (20) feet in length the smaller end shall not be less than six (6) inches and the butt end not less than twelve (12) inches.

(b) The top of all wooden piles shall be cut off at least two (2) inches below the average low water line or the line of permanent wet earth when supporting a permanent building. Concrete shall be rammed down into the spaces between piles at least ten (10) inches and for at least twelve (12) inches outside of every pile, thoroughly sealing the heads of piles.

(c) If pile construction is used under water, and ranging and capping timbers are used for foundations, these timbers shall not be less than two (2) inches thick, properly joined together, and the tops laid at least six (6) inches below the average low water mark.

(d) No wooden pile shall be weighted with a load exceeding fifty thousand (50,000) pounds; nor to exceed three hundred and fifty (350) pounds per square inch of the top section of the pile.

(e) Concrete piles shall be made of a mixture of not less than one (1) part Portland cement, two (2) parts sand, and four (4) parts of broken stone or pebbles.

(f) Concrete piles cast in place shall be cast in forms sufficiently rigid to prevent collapse before the concrete has been set.

(g) Concrete piles driven in place after casting shall be sufficiently reinforced with steel to prevent damage in driving. Every pile broken in driving shall be withdrawn and replaced. No concrete pile shall be loaded to exceed four hundred (400) pounds per square inch of the top section.

(h) Driven piles shall be sent to as solid a bearing as practical and the maximum safe sustaining loading tons shall be computed as follows:

For a pile driven with a drop hammer. Twice the weight of the hammer in tons, multiplied by the fall of the hammer in feet, divided by the penetration of the pile in inches plus one (1) under the last blow.

For a pile driven with a steam hammer where steam pressure does not affect strength of blow:—Twice the weight of the hammer in tons, multiplied by the fall of the hammer in feet, divided by the penetration of the pile in inches, plus one-tenth (1/10). Other forms of steam hammers shall have value determined by the Department upon presentation of conditions.

The safe bearing capacity of piles free standing in water or very soft soil shall be reduced in accordance with some standard column formula for columns free at one end.

(i) The sustaining power of cast piles shall be determined by loading. The working load shall not exceed two-thirds (⅔) of the load which can be sustained for forty-eight (48) hours with a settlement of not exceeding one one-hundredth (1/100) inch per ton of load.

Section 5.—**Basement or Cellar Walls and Floors:** The exterior of all basement or cellar walls below grade shall be coated with Portland cement mortar at least one-half inch thick, hot tar, asphalt or

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other waterproofing compound approved by the Department to prevent seepage of water. At the base of every basement or cellar wall on the outside shall be placed a complete system of drain tiles, connected with the storm sewer in case the sewer is below the level of the tile line, otherwise such system of drain tiles shall drain into a pit provided with an automatic lift pump which shall be kept operating at all times. In case of residences constructed before sewers are operating, such drain tile shall be laid when building is built and connected to storm sewers when installed.

All drain tile shall be laid with an even pitch of not less than one-eighth (⅛) inch per foot and shall be connected to the storm sewer at intervals of not over seventy (70) feet. Tiles shall be laid with open joints and covered over with tar paper and coarse cinders or broken stone before back-filling.

The floor of every basement or cellar shall be of concrete at least four (4) inches thick, laid on a bed of coarse sand, cinders or broken stone. A wood floor or other type of finished floor may be laid above such concrete floors but no sleepers or nailing blocks shall be imbedded in the required four (4) inches of concrete.

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Masonry Walls and Masonry and Miscellaneous Partitions.

Section 1.—**Materials for Bearing Walls:** The materials which may be used in the construction of masonry bearing walls shall be stone, brick, terra cotta, clay, or shale tile, mass concrete, reinforced concrete and concrete blocks or tile, when meeting the following specifications:

(a) **Stone:** Any good stone with a crushing strength of over six thousand (6,000) pounds per square inch may be used. Coursed or uncoursed ashler walls and piers may be of the same thickness required for other masonry walls. Rubble stone walls shall be four (4) inches thicker than required for other masonry walls.

(b-1) **Brick (Clay):** Any good hard common or face brick in which there are not more than five (5) per cent bats. The average crushing strength when tested flat shall not be less than fifteen hundred (1,500) pounds per square inch.

(b-2) **Brick (Sand Lime):** Any good grade of sand lime brick having an average crushing strength when tested flat of not less than fifteen hundred (1,500) pounds per square inch, all tests to be made on dry brick; and an absorption of not to exceed twelve (12) per cent by weight of water.

(b-3) **Brick (Concrete):** Any good grade of concrete brick having an average crushing strength when tested flat of not less than two thousand (2,000) pounds, all tests to be made on dry brick twenty-eight (28) days old or when delivered to job, and an absorption of not to exceed ten (10) per cent by weight of water.

(c) **Terra Cotta, Clay or Shale Tile** shall be any products formed by burning clay or shale to make a block containing cells or voids. The crushing strength shall be not less than seven hundred (700) pounds per square inch of gross section when tested in any position in which it can be used and the effective mortar bed shall not be less than one-third (⅓) of the gross area. All tile shall be laid in Portland cement mortar with or without fifteen (15) per cent of lime. They may be

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used in interior and exterior bearing walls of buildings four (4) stories or less in height and in foundations as defined in Article XIV, Section 2.

(d) **Concrete:** Mass concrete shall be composed of one part of Portland cement with not over three (3) parts of sand and five (5) parts of gravel or broken stone and all the materials shall meet the specifications of Article XIX, Section 4. Reinforced concrete shall meet the requirements of Article XIX.

(e) **Concrete Blocks or Tile** shall have a crushing strength of not less than seven hundred (700) pounds per square inch of gross section at the age of twenty-eight (28) days or when delivered to job, when tested in the same direction in which they are to be laid and the effective mortar bed shall not be less than one-third (⅓) of the gross area. The absorption of water in twenty-four hours by a dry block shall not exceed ten (10) per cent by weight. All concrete blocks or tile shall be laid in Portland cement mortar with or without fifteen (15) per cent of lime. They may be used in exterior and bearing walls of buildings four (4) stories or less high, and in foundations as defined in Article XIV, Section 2.

Cinder concrete blocks shall meet the same requirements except as to absorption which will not be limited but such blocks shall not be used where exposed to weather unless protected by a coat of stucco or similar material.

(f) **Hollow Walls of Brick, Concrete or Terra Cotta** may be constructed when provided with such cross ties of brick, concrete or terra cotta either with or without metal reinforcement as are required to cause the wall to resist pressure as a whole. When cross ties are not reinforced with metal the area of such ties shall be equal to at least fifteen (15) per cent of the area of the wall. Metal cross ties not imbedded in concrete or other protecting material shall not be accepted. Such walls shall have a gross crushing strength of seven hundred (700) pounds per square inch of gross section and the merits of such construction shall be determined in case of dispute by actual test.

Section 2.—**Mortar:** All masonry shall be well laid in cement or cement and lime mortar or natural cement mortar of the following composition:

(a) Lime mortar shall not be used.

(b) Cement mortar shall be made from one (1) part of cement and not more than three (3) parts of sand, tempered with hydrated lime not to exceed fifteen (15) per cent by volume of the cement used.

(c) Cement and lime mortar shall be made with equal parts of cement and lime and not more than three (3) parts of sand to each part of cement and lime mixed. All measurements shall be made by volume.

(d) Natural cement mortar shall contain not less than one (1) part by volume of natural cement to each three (3) parts by volume of sand, but no natural cement mortar shall be used except when approved by the Chief Inspector who shall satisfy himself that such cement will produce a mortar equal in strength to that specified in paragraph (c) above. Masonry laid in natural cement mortar shall be allowed the same stresses given for masonry laid in lime and Portland cement mortar below.

Section 3.—**Safe Loads for Masonry:** The following stresses shall

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not be exceeded in masonry:

	Composition in Bulk of Masonry Lbs. Per Sq. In.	Bearing Pressure for Concentrated Loads Lbs. Per Sq. In.
Common Brickwork—Lime and Portland Cement Mortar	150	175
Common Brickwork—Portland Cement Mortar	175	250
Pressed, Vitrified and Shale Brick—Lime and Portland Cement Mortar	180	220
Pressed, Vitrified and Shale Brick—Portland Cement Mortar	220	310
Clay Tile, Portland Cement Mortar, Load on Gross Area	90	115
Concrete Blocks, in Portland Cement Mortar, Load on Gross Area	90	115
Rubble Stonework in Lime and Portland Cement Mortar	100	125
Rubble Stonework in Portland Cement Mortar	140	175
First Class Ashlar-Limestone or Sandstone Cement Mortar	300	400
First Class Ashlar—Granite Cement Mortar	400	500
Clay or Concrete Hollow Tile or Blocks Filled with Concrete	150	175

Section 4.—(a) **Construction and Workmanship:** All masonry walls shall be built straight, true and plumb and shall be properly bonded with headers or cross ties. Curved walls shall not be used for carrying heavy loads and all curved walls shall be securely tied to prevent outward deflection and shall contain no arched openings. In brick work a complete course of headers shall be used every seventh course, and in tile and concrete blocks more than one (1) block thick, every second block shall serve as a header or tie. Walls faced with brick shall have headers every seventh (7th) course and walls faced with stone shall be bonded by making fifteen (15) per cent of the area of the stone four (4) inches thicker than the remainder. In walls not over two (2) stories or thirty feet in height, four (4) inches of stone or brick facing may be attached by means of metal ties but such four (4) inches of facing shall not be considered as a part of the wall. In all other cases metal ties are prohibited except as auxiliary ties in addition to masonry bonds.

(b) Walls supporting wood joists shall be tied to such joists by steel straps at least one-eighth (⅛) by one and one-half (1½) inches, spaced not over six (6) feet on centers. Beams, girders and trusses shall be tied to walls or piers supporting them with similar steel straps.

(c) Hollow walls and walls built of hollow concrete or terra cotta blocks or tile shall be made solid for at least two (2) inches under all joists and built solid under all beam, girder or truss bearings for an adequate distance to safely distribute the load.

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(d) The exposed top of all parapet and other walls shall be finished with stone, concrete or terra cotta coping.

Section 5.—(a) **Thickness of Walls:** No masonry exterior or interior bearing wall, exterior non-bearing wall, firewall or parapet wall shall be less than twelve (12) inches thick unless specifically excepted herein and all such walls shall be increased in thickness when necessary according to the following rules:

(b) In Class F and G buildings the uppermost three (3) stories may be twelve (12) inches thick and shall be increased by four (4) inches for every three (3) stories or fraction below this, the basement being counted as a story.

(c) In Class A, B, C, D and E buildings the upper two (2) stories may be twelve (12) inches thick and shall be increased by four (4) inches for every two (2) stories or fraction below this, the basement being counted as a story.

(d) Every wall over one hundred five (105) feet long without a cross wall shall be increased four (4) inches in thickness or provided with pilasters four (4) inches thick and having a width of at least one-tenth (1/10) of their center to center spacing.

(e) No masonry wall shall have a height between horizontal lateral supports of more than twenty-two (22) times its thickness.

(f) Every wall having more than fifty (50) per cent of openings on any horizontal section shall be increased four (4) inches in thickness except for spandrills and aprons.

(g) Eight (8) inch masonry walls may be used in the following:

1. Basement walls for Class F and G buildings of frame but not of brick veneer construction, but such walls shall not extend below grade more than four (4) feet eight (8) inches. Brick veneer buildings shall have foundation walls at least twelve (12) inches thick.

2. Foundation walls of Class A, B, C and D buildings of frame construction without basements but such walls shall not extend more than three (3) feet above grade.

3. Interior bearing walls not over one (1) story or fourteen (14) feet high and not over sixty (60) feet long in any class of building.

Interior bearing walls in Class F and G buildings not over two (2) stories or twenty (20) feet high and not over thirty-five (35) feet long.

5. Interior bearing walls surrounding stair or other shafts in Class F and G buildings not over three (3) stories or thirty (30) feet high and not over twenty (20) feet long.

6. Exterior bearing walls of one (1) story buildings of any class if not over fourteen (14) feet high. Walls over thirty (30) feet long shall have pilasters four (4) inches deep and have a width of at least one-tenth (1/10) of the intervening spaces.

7. Exterior bearing and non-bearing walls in Class G buildings, if not over two (2) stories or twenty (20) feet high and not over forty (40) feet long. An additional five (5) feet of height may be added for gables.

8. Exterior non-bearing or curtain walls in buildings of any class, when of Types 1, 2 or 5 construction, supported from floor to floor on a skeleton frame of steel or concrete, if not over fourteen (14) feet high or thirty (30) feet long.

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9. Parapet walls not over four (4) feet high, when laid in cement mortar.

(h) Curved walls shall be made as much thicker than the above requirements as is judged necessary by the Department.

Section 6.—**Piers:** Masonry piers shall not have a free standing height of greater than twelve (12) times their least dimension. Any facing of stone, terra cotta, face brick or other materials not fully bonded with masonry headers shall not be considered as a part of the pier. All piers shall be loaded within the center third and piers carrying two or more loads shall be provided with a cap stone or steel bearing plate.

Section 7.—**Lining Existing Walls:** In case it is desired to increase the height of existing walls which are less in thickness than required under this code, the same shall be done by a lining of masonry to form a combined thickness with the old wall of not less than four (4) inches more than the thickness required for a new wall under this code. The new lining shall be supported on proper foundations.

(a) No lining shall be less than eight (8) inches in thickness, and shall be bonded to the old wall with iron or steel anchors at least one-quarter (¼) of a square inch in area, spaced not over eighteen (18) inches apart, vertically and horizontally, and properly fastened or driven into the old wall in staggered rows; the old wall being first cleaned of all plaster and other coating.

(b) There may also be used to increase the height of buildings, steel skeleton or reinforced concrete construction, with angle foundations and anchored to existing walls.

Section 8.—**Openings and Recesses in Walls:** All horizontal openings shall be bridge at top by steel or concrete lintels or masonry arches. Such lintels and arches shall be designed to take the entire load of floors, joists, girders and other members, immediately above opening, and all of the load from brick or other sources included within two lines starting from the supports of the lintel or arch and rising at an angle of sixty (60) degrees with the horizontal. In walls supported by a row of columns or piers and walls intersected with horizontal openings immediately above lintels or arches, such lintels and arches shall be designed to take the entire load vertically above the opening below. Arches shall only be used where there are adequate abutments or where tier rods are used, and shall not be used when intersected by wood joists or girders.

No chase or recess shall be built or cut in any exterior or bearing wall so as to reduce the thickness to less than eight (8) inches, and no chase or chases shall be built or cut in any wall so as to materially reduce its strength.

Section 9.—**Retaining Walls:** Every masonry wall supporting or retaining earth, coal, sand or other loose material, whether it extends above the grade or whether it is below grade and supports joists, floor slabs or other loads above, shall be considered a retaining wall and shall have a thickness at any point not less than one-seventh (1/7) of the distance from this point to the top of such bank of earth, coal, sand or other material when laterally supported at top by floor construction. Free standing walls shall be designed for stability without relying on tension in mortar.

Section 10.—**Manufacture of Concrete Blocks, Brick and Tile:** Concrete blocks, bricks or concrete tile, including cinder concrete block and

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tile, to be used in exterior or bearing walls in the city of Ann Arbor, must be made by a manufacturer licensed by the Department of Buildings. Such licenses shall be issued annually by the Department and shall remain in force for one (1) year. Such licenses shall be issued on the 1st of July and the fee for the same shall be $10.00. Applications for licenses shall be accompanied by drawings to a scale of one-quarter (¼) actual size, showing in detail all the types of blocks applicant proposes to manufacture.

When application is made for a license, the Department shall select one (1) or more blocks or tiles from a lot of blocks or tiles manufactured by the applicant and the applicant shall have the same tested at his own expense by some approved testing laboratory. If found to comply with the requirements of Article XVI, Section 1, the license shall be issued; otherwise the blocks shall be destroyed or removed from the city limits.

At any time the Department shall deem necessary, it may take samples of blocks or tiles of any licensed manufacturer and have same tested at its own expense. If such examples do not meet the requirements of Article XVI, Section 1, it may revoke the license of the maker and compel him to apply again for a license for the remainder of the year.

The Department shall have the power to demand that a test be made at the expense of the manufacturer of the concrete blocks on each and every job when such blocks do not carry a distinctive brand mark identifying the manufacturer, notwithstanding that a license may have been issued to such maker. To be considered as an identifying mark, such marks must be recorded with the Department at the time application is made for license.

Section 11.—(a) **Block Partitions:** Incombustible non-bearing interior partitions may be built of brick, terra cotta tile, gypsum blocks, concrete blocks, or tile or other similar material approved for this use by the Department. Such blocks shall be strong enough for the purpose for which they are to be used, but need not meet the requirements of Article XVI, Section 1. The height of such partitions shall not exceed forty (40) times the thickness.

(b) **Miscellaneous Partitions:** Incombustible non-bearing partitions may also be constructed of a combination of metal lath and plaster on metal studs not less than two (2) inches thick or a combination of sheets of gypsum board containing not more than six (6) per cent fibre, or similar material approved by the Department, supported by metal studs and having a thickness of not less than two (2) inches.

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Wood.

Section 1.—All wood used in structural members shall be good sound material free from large or loose joints, cross-graining or other important defects. The carrying capacity of all members shall be calculated by the accepted principles of mechanics and shall be based upon the actual dimensions of the timbers used and not upon nominal sizes.

Section 2.—**Unit Stresses:** The allowable unit stresses on various kinds of woods shall be as follows:

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Wood	Stress in Extreme Fibre in Bending.	Horizontal Shearing Stress.	Compression Parallel to Grain.	Compression Perpendicular to Grain.	Extreme Bearing for Bolts.
First grade yellow pine, Douglas fir, oak	1400	150	1200	400	2000
Norway pine, second grade yellow pine	1200	125	1000	350	1700
White pine, hemlock, tamarack, spruce	1000	100	800	300	1400

Section 3.—**Columns:** The safe bearing capacity of wood columns shall be calculated by the following formula:

$$\text{Safe load in pounds} = C \left(1 - \frac{L}{30d}\right) A$$

Where C = safe compression stress parallel to grain as given in Section 2 above, L is the unsupported length in inches, d is the least diameter of the column in inches and A is the least cross section area in square inches.

In no case shall the unsupported length exceed thirty (30) times the least diameter.

Section 4.—**Beams:** Simple wood beams shall be designed by the accepted formula for flexure. Beams of wood and steel or other material combined so as to divide the load shall be designed so that at maximum deflection neither the wood nor the steel or other material shall be over-stressed.

Wood beams of which the compression member is unstaid for a distance more than twenty (20) times the least width of the compression side shall be designed using a lesser fibre stress than given in Section 2. Such fibre stress shall be determined by the following formula:

$$f = F\ 2 - \frac{L}{20d}$$

Where f = allowable stress.

F = stress as given in Section 2 for fibre stress in extreme fibre in bending.

L = unstaid length of compression side in inches.

d = width of compression side in inches.

Section 5.—**Trusses and Other Special Constructions:** The compression members of trusses and other special consructions shall be considered as columns and the tension members shall be allowed the stress given under the column for extreme fibre stress in bending in Section 2 above on the net section after deducting for all cuts, bolts, holes and other damage. Connections shall be made with butt joints, steel straps, steel splices, plates or bolts where members are more than two (2) inches thick. For members two (2) inches thick or less spikes and lag screws may be used for fastening not more than four (4) pieces. The stress computed as transmitted by any bolt, spike or lag screw shall not exceed the safe shearing value of the metal nor cause it to exert more

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than the safe bearing value on the wood supporting it after making proper allowance for bending. No spikes or lag screws shall be used in tension.

Top chords shall be adequately braced laterally, and the distance between such braces shall be taken as the length of such strutts in computing their carrying capacity.

Section 6.—**Timber Framing:** Joists, headers, trimmers, studs and ties, when two (2) inches or less in thickness, may be supported and fastened by spikes, bolts or lag screws. Larger timbers shall be supported by tenents filled to mortices or by iron or steel straps or joist hangers. Bolts, straps and hangers may be figured as resisting tension, but lag screws and spikes shall only be assumed to resist shear. The maximum shear which may be assumed to be safely resisted by spikes shall be as follows for first grade yellow pine, Douglas fir and oak when well driven through both timbers connected:

	Size of Nail.							
	6d	8d	10d	12d	16d	20d	30d	40d
Strength in pounds	53	62	88	88	110	165	194	226

For Norway pine and second grade yellow pine 85% of these values may be used, and for white pine, hemlock, tamarack and spruce 70% of these values may be used.

ARTICLE XVIII.

Structural Steel, Iron and Cast Iron

Section 1.—All steel, iron and cast iron used for structural members shall meet the specifications of the American Society for Testing Materials as adopted August 25th, 1913, and revised in 1916. All such materials shall be fabricated and erected in accordance with the best practices.

Section 2.—**Allowable Stresses:** Allowable unit stresses shall be as follows in pounds per square inch:

Material	Extreme Fibre Stress in Bending	Shear	Compression	Rivet Bearing Double Shear	Rivet Bearing Single Shear
Steel	18,000	12,000	15,000	30,000	24,000
Wrought iron	12,000	8,000	10,000	20,000	16,000
Cast steel...	12,000	8,000	10,000	20,000	16,000
Cast iron ...	(3,000 Tension (10,000 Compression	3,000	10,000	.....	.....
Power-driven and turn bolts	18,000	13,500	.....	30,000	24,000
Hand-driven rivets and unfinished bolts	16,000	10,000	.....	20,000	16,000

Section 3.—**Design:** All steel-framed structures shall be designed as far as possible to have the lines of stresses coincide with the line of center of mass of the rolled or built-up sections, whether in tension or compression. When eccentric loading is unavoidable the stresses resulting from such eccentricity shall be added to the other stresses in computing the safe load which may be resisted.

(a) Rivets shall be used for all shop work, and for field work where practicable. Where bolts are used in the field, care shall be taken to

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have all the bolts in any joint in bearing at the same time. Unfinished bolts shall be used only for connecting purlins and secondary members.

(b) In the design of structural steel framing, for buildings or other structures in which the steel must be encased and fireproofed, ample clearances must be allowed for the full specified thickness of fireproof covering or fireproof masonry enclosure on all steel members and over all connections or other projections on same. Piping, conduits and similar objects shall not be installed so as to interfere with fireproofing.

Brackets for the support of mains, risers, elevator guides and similar appliances, and connections for stairway framing, metal window and door frames, or other attachments to be supported by the steel framing, shall be provided for and attached to the steel frame before the fireproofing is installed.

(c) Where the floor or roof construction consists of brick, hollow tile or concrete arches, or other systems not providing reinforcement to resist all thrust and tensile stress and rigidly tie together the beams supporting same, tie rods of the required area to resist these stresses shall be installed.

Section 4.—(a) **Columns and Strutts:** The safe load on rolled or built-up structural steel columns shall be determined by the following formulae:

For members having lengths of sixty (60) times the least radius of gyration or less: Safe load in pounds = 15,000 A.

For members having lengths more than sixty (60) times the least radius of gyration:

No column or strutt carrying dead or live load shall have a length of more than one hundred twenty (120) times its least radius of gyration. Strutts used only as sway bracing or to resist wind loads may have lengths not exceeding two hundred (200) times the least radius of gyration.

Built-up lattice columns shall be constructed in accordance with Section 16 of the Standard Specifications of the American Institute of Steel Construction dated June 1, 1923.

(b) Wrought iron columns and strutts shall be allowed two-thirds (2/3) the loads calculated for steel members.

(c) The safe load on cast iron columns shall be determined by the following formulae:

$$\text{Safe load in pounds} = \frac{18{,}000\ A}{1 + \dfrac{L^2}{18{,}000\ r^2}}$$

Where A = net cross section area in square inches.

L = total unstayed length in inches.

r = least radius of gyration in inches.

$$\text{Safe load in pounds} = \frac{10{,}000\ A}{1 + \dfrac{L^2}{800\ d^2}}$$

Where A and L shall have the same meaning as in paragraph (a) and d shall have the least diameter in inches.

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Section 5.—**Tension Members:** Tension members shall not be stressed to more than eighteen thousand (18,000) pounds for steel or twelve thousand (12,000) pounds for wrought iron per square inch of net area of section. The net area of threaded sections shall be taken at the root of threads.

No tension member shall be made of two or more pieces welded together, but welded loops made of single bars may be used.

Tension members eccentrically loaded shall not be stressed beyond the safe stress in extreme fibre produced by the combined tension and bending.

Section 6.—(a) **Trusses, Beams and Girders:** The safe bending moment of beams and girders shall be determined by multiplying the section modulus by the allowable extreme fibre stress. In the case of built-up girders the net section modulus shall be used after deducting all rivet and other holes.

(a-1) The maximum allowable shear on the webs of steel or iron beams and girders having webs not more than sixty (60) times as high measured between flanges as they are thick shall be determined by multiplying the area of the web by the allowable shearing value given in Section 2 above. When web is more than sixty (60) times as high as it is thick the unit shear shall not exceed

$$\frac{18{,}000}{1 + \dfrac{h^2}{7{,}200\ t^2}}$$

Where h is the height and t the thickness in inches.

(a-2) No plate girder web shall have a height exceeding one hundred sixty (160) times its thickness, and whenever the height in inches exceeds $85\ t\ \dfrac{\sqrt{18{,}000\ A}}{S} - 1$ stiffeners shall be provided not further apart than the distance determined by this formulae nor greater in any case than six (6) feet. In this formula A is the gross vertical cross section area of the web in square inches, S the total shear in pounds and t the thickness in inches. All girders with webs sixty (60) or more times as high as they are thick shall be provided with stiffeners at each end and under all large concentrated loads. Stiffeners shall be designed as columns of sufficient section to carry the shear at point where placed, but a section of web plate not wider than the stiffener and 3t on each side of the stiffener may be calculated as part of the column.

(b) All steel trusses shall be fabricated in a shop so far as possible. Only the necessary connections and splices shall be made in the field.

(b-1) All trusses shall be thoroughly and carefully braced vertically with a complete system of steel or concrete strutts and steel tie rods at the center and when necessary near supports to prevent overturn and similarly braced horizontally in the plane of the top chord to prevent lateral deflection. The unsupported length of the top chord considered as a strutt shall be measured between points of support by lateral bracing, but steel, concrete or wood purlins adequately fastened to top chord of trusses may be assumed as lateral supports if at least one (1) out of every five (5) bays is provided with sway bracing.

Section 7.—**Rivets-Bolts:** In all riveted work the holes shall be not

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more than one-sixteenth (1/16) inch larger than the diameter of the rivet to be used.

(a) Holes shall be accurately placed opposite each other and no drifting to distort the metal shall be allowed. When such holes do not match they shall be enlarged by reaming and larger rivets used.

(b) Rivets, where driven, shall completely fill the holes and have heads in full contact with the surface.

(c) Rivet heads shall be of true hemispherical shape and concentric with the axis of the rivet.

(d) No cold driven rivets shall be used in structural work.

(e) Turned bolts shall have full bearing against steel entirely on the unthreaded portion.

(f) Bolt holes for turned bolts shall be carefully reamed to take the bolts snugly when lightly driven into place.

(g) All turned bolts shall be provided with washers and nuts. All nuts to be sent to a solid bearing without using sufficient force to damage bolt.

(h) Unfinished bolts shall fit as snugly as practical and shall be long enough to penetrate the members to be connected at one standard nut.

Section 8.—**Painting:** All steel and iron work shall have at least one (1) coat of mineral paint before being put in the building and one (1) coat after erection, except such material as shall be completely covered and imbedded in concrete.

Section 9.—**Erection:** In the erection of steel work the various members shall be kept plumb and true and firmly held with temporary bracing until riveted and enclosed.

(a) **Planking:** In erecting steel frame buildings of four (4) stories and over in height, planking shall be provided by contractors over the entire floor area at points directly under where erection work is being carried on as required by Section 5 of Article XXI.

(b) **Enclosures Required:** Enclosures shall be erected around all steel frame buildings in process of erection sufficient for the protection of the public as required by Sections 3 and 4 of Article XXI.

(c) **Equipment Protection:** All engines, compressors and other apparatus used in the erection of buildings shall be protected from the public to the satisfaction of the Department.

(d) **Hoisting of Men Prohibited:** Hoisting men from the ground by derricks on steel or other material shall not be allowed.

(e) **Acetylene Blow Torches** or other sources of great heat shall not be used for cutting or punching steel work during erection and no such torch or apparatus shall be kept on or near the job without the written permission of the Chief Inspector, who may refuse or revoke such permission whenever he finds such instruments being improperly used.

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Reinforced Concrete.

Section 1.—**Explanation of Term:** The term "reinforced concrete" shall be understood to mean an approved concrete mixture reinforced by steel of suitable shape, so that the steel shall take up all tensile stresses

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and assist in the resistance to compression and shear.

Section 2.—**Permits and Drawings:** Drawings, specifications and typical details of all reinforced concrete construction showing the size and position of all reinforcing members and the live load for which they were designed shall be filed with the Department as a permanent record before a permit to construct such work shall be issued. All calculations made may be required by the Department to be submitted with the drawings and specifications.

Section 3.—**Method of Calculation:** In calculating the strength of reinforced or plain concrete used for walls, columns, beams or floor construction, the thickness of the structural concrete only shall be used, exclusive of any plastering, floor ballast or finish not poured with the construction proper.

Reinforced concrete slabs, beams and girders shall be designed in accordance with the following assumptions:

(a) The accepted theory of flexure shall be applied to all members resisting bending.

(b) The steel shall take all the tensile stresses.

(c) The modulus of elasticity shall remain constant at all working stresses.

Section 4.—**Concrete Mixtures:** Concrete shall be mixed according to one of the following proportions by volume:

Mixture	Portland Cement	Sand	Broken Stone or Pebbles
1:2:4	1	2	4
1:1½:3	1	1½	3
1:1:2	1	1	2

When sand and aggregate are combined in gravel conforming to requirements given below, the following substitutions will be considered equivalent to the mixtures given above:

Mixture	Portland Cement	Gravel
1:2:4	1	4½
1:1½:3	1	3¼
1:1:2	1	2¼

All sand used for concrete aggregate shall be clean and hard, containing not over one (1) per cent of clay or loam and free from organic matter. It shall be graded from fine to course, but no material retained on a one-quarter (¼) inch screen shall be considered sand.

Broken stone or pebbles shall be clean and hard, free from soft particles and shall all be retained on a one-quarter (¼) inch screen and shall pass a three-quarter (¾) inch screen.

Gravel shall consist of a uniform mixture of sand and broken stone or pebbles of such composition that when tested with a one-quarter (¼) inch screen the portion remaining on the screen shall be not less than sixty (60) per cent nor more than seventy (70) per cent of the original volume of the gravel. The superintendent shall keep a one-quarter (¼) inch screen at the job and shall test all mixed gravels whenever necessary or when demanded by the Department.

Section 5.—**Allowable Unit Stresses:** The following unit stresses in pounds per square inch shall not be exceeded when the ratios of moduli of elasticity are assumed as given herein:

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Ratio of Moduli of Elasticity	1:2:4	1:1½:3	1:1:2
Steel to Concrete = n	15	12	10
Extreme fibre in bending	750	930	1100
Shear on concrete not reinforced against diagonal tension	40	50	60
Shear on concrete reinforced against diagonal tension	120	150	180
Bond between steel and concrete:			
Plain bars	80	100	120
Deformed bars	120	150	180
Bond between steel and concrete for deformed bars to be used in spread footings only	150	180	200
Bearing on concrete	650	800	1000
Compression for stayed columns	450	560	675
Compression for spirally hooped columns as defined in Section 6 with ½% hooping	600	775	950
Same with 1% hooping	700	875	1050
Same with 1½% hooping	800	975	1150

Allowable compression for spirally hooped columns having more than one-half (½) per cent and less than one and one-half (1½) per cent may be determined by interpolation.

The following unit tensile stresses per square inch on reinforcing bars shall not be exceeded:

Plain round bars or deformed bars of structural grade	18,000 lbs.
Deformed bars, intermediate or hard	20,000 lbs.

In no case shall the stress used exceed 50% of the elastic limit.

Section 6.—(a) **Columns:** The allowable load on columns reinforced with vertical bars and lateral ties shall be calculated by the following formulae:

Safe load in pounds = fc [Ac + (n-1) As].

Where fc is the allowable stress on stayed columns as given in Section 5, Ac is the gross area of the column in square inches, n is the ratio of moduli of elasticity of steel to concrete as given in Section 5, and As is the area of the vertical steel in square inches.

"As" shall not be less than one-half (½) of one (1) per cent of Ac, nor less than one (1) square inch and not more than four (4) per cent of Ac. The lateral stays shall not be less than one-fourth (¼) inch in diameter and shall not be spaced more than twelve (12) inches apart, nor more than sixteen (16) times the diameter of the vertical rods.

(b) The safe load for columns having spiral hooping and longitudinal bars shall be computed as follows:

Safe load in pounds = fc [Ac + (n-1) As].

In which

Ac = the gross area in square inches enclosed within the inner face of the spiral hooping and the diameter thereof shall be four (4) inches less than the outside diameter of the column.

fc = the allowable unit compression stress as given in Section 5.

n = the ratio of moduli of elasticity according to Section 5.

As = the area in square inches of the longitudinal reinforcement and shall not be less than Ah nor more than five (5) per cent of Ac. The distance, center to center, of the longitudinal bars measured around the circumference of the hooping shall not be more than nine (9) inches

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or one-eighth (⅛) the circumference nor less than four (4) inches.

$$Ah = \frac{3.14\ da}{P}$$

Where d = diameter of core in inches, p = pitch of hooping in inches and a = area in square inches of the rod or wire forming the hoop.

Ah shall not be less than one-half (½) of one (1) per cent nor more than one and one-half (1½) per cent, and p shall not be more than 1/6d nor more than three (3) inches.

(c) The above stresses and formulae shall apply to columns whose unsupported length does not exceed fifteen (15) times the least external diameter. For columns longer than this the stress shall be determined by the following formulae:

$$\text{Safe load} = \frac{S}{10}\left[25 - \frac{L}{D}\right]$$

In which S is the safe load as computed according to Section 6, paragraphs (a) or (b).

D = the least external diameter in inches, and

L = the unstayed length in inches.

No square or rectangular column shall be less than ten (10) inches in its least dimension and no round column shall be less than twelve (12) inches in diameter, but columns supporting flat slabs may be required to be larger as given in Section 9, paragraph (x).

(d) Where columns are subject to loads of known eccentricity, the combined stresses in the extreme fibre due to direct compression and to the bending moment shall not exceed the maximum stresses allowed for compression in columns by more than thirty (30) per cent.

(e) Column rods shall be lapped a sufficient length so that they will not be over-stressed in bond, as given in Section 5, and in no case less than eighteen (18) inches.

(f) When hollow columns are used, the walls of such columns shall not be less than five (5) inches in thickness, exclusive of fireproofing.

(g) Where horizontal openings are provided in column capitals in connection with hollow columns, such openings may be made by means of cast iron sleeves of sufficient strength and size to transmit such loads as would ordinarily come on the concrete which they displace or by any other method approved by the Building Department, but sheet iron sleeves will not be permitted for this work.

Section 7.—(a) **Combination Columns:** Structural steel columns of any rolled or built-up section wrapped with the equivalent of No. 10 U. S. standard gauge wire spaced six (6) inches on center and encased in concrete not less than two (2) inches thick over all of metal except rivet heads and connections will be permitted to carry a load equal to

$$\left(1 + \frac{Ac}{100\ As}\right) \text{ X safe load for steel columns, in which}$$

As = area of steel columns in square inches.

Ac = area of enclosing concrete in square inches.

The safe load for steel column shall be determined by the formula given in Article XVIII, Section 4, provided the structural steel column

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acting independently of the concrete shall have sufficient capacity to carry all dead loads which will be placed thereon.

(b) Columns constructed with not less than one (1) per cent of spirally wound hooping and reinforced by a cast iron or structural steel core may be designed as a reinforced concrete column described in Section 6-b, provided that the area of the steel or cast iron core plus the area of vertical rods, if they are used, shall not exceed ten (10) per cent of the total cross sectional area enclosed by the hooping. Cast iron or structural steel cores shall be clean, unpainted and free from scale and shall be accurately milled where splices occur.

Positive provision shall be made to properly locate metal cores while concrete is being poured and to hold adjacent sections directly over one another.

The clear space between the face of the cast iron column and the hooping shall not be less than four (4) inches.

(c) In all cases the structural steel or cast iron column itself shall meet all conditions specified in this code.

(d) In all cases concrete used for such filling, if figured to carry load, shall be not less than the equivalent of a one (1) to one and one-half (1½) to three (3) mixture.

Section 8.—**Bending Moments and Continuous Action:** The bending moment for slabs and beams with a uniformly distributed load, when not continuous over supports, shall be taken at one-eighth (⅛) WL.

Span length for beams or slabs shall be taken as the distance face to face of supports. Flanges of Tee beams shall not be taken as supports.

(a) When slabs or beams are continuous over both supports, the bending moment for a uniformly distributed load shall be taken at not less than one-twelfth (1/12) WL and the negative bending moments at supports not less than one-twelfth (1/12) WL. The maximum compressive unit stresses in concrete resisting negative moment may be eight hundred fifty (850) pounds per square inch for a 1:2:4 mix and one thousand (1,000) pounds for a 1:1½:3 mix.

(b) Where slabs and beams are continuous over one support only, the bending moment for a uniformly distributed load shall be taken at not less than one-tenth (1/10) WL and the negative bending moment at the support over which the slab or beam is continuous not less than one-tenth (1/10) WL. The maximum compressive unit stress of the concrete resisting the negative moment at this latter point may be eight hundred fifty (850) pounds and one thousand (1,000) pounds per square inch, as in paragraph (a) above.

(c) In all cases where a beam girder or floor slab is partly or entirely fixed at a point of support, but is not regarded as continuous, at least one-fourth (¼) as much steel shall be provided at the top over the support as at the center.

(d) Beams or slabs supported partly or entirely by cantilever action at the supports other than those herein especially mentioned may be used, provided that the negative and positive bending moments taken together are not less than six-fifths (6/5) of the bending moment for non-continuous members and that proper allowance is made for bending moments in columns and torsional moments in girders arising from unequal loading of such structures, and provided that the total shear and compression due to combined shear and compression in con-

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crete does not exceed the allowed value. When such special cantilever construction is used, the point of inflexion assumed shall be clearly marked, labeled and dimensioned in at least one (1) typical case on each sheet of drawings.

(e) Where slabs are continuous over supports at least one-half (½) of the steel used to resist positive moment in the middle of the slab shall be bent up and carried over point of support to the point of inflexion in the adjoining panel or the top and bottom steel shall be adequately connected by bent bars or other suitable shear reinforcing, except in the case of solid slabs five (5) inches or less in thickness and less than twelve (12) feet span.

Section 9.—**Flat Slabs:** Girderless flat slab floors and roofs supported on enlarged column capitals may be constructed when designed according to the following principles:

(a) **Notation:** L — shall equal the distance in feet center to center of the column of a square panel, or in the case of a rectangular panel it shall equal the side of a square of equal area.

(b) D — shall be the diameter of the column capital and shall not be less than .225 L.

(c) The sides of the column capital considered structurally shall not make an angle of more than forty-five (45) degrees with the axis of the column.

(d) w — shall be the sum of live load and dead load in pounds per square foot.

(e) For a slab without dropped panels, minimum total thickness of slab in inches $= 0.024\ L \sqrt{w + 1\frac{1}{2}}$.

For a slab with dropped panels, minimum total thickness of slab in inches $= 0.02\ L \sqrt{w + 1}$.

For a dropped panel whose width is .375 L, minimum total thickness of slab and dropped panel in inches $= .0265\ L \sqrt{w + 1\frac{1}{2}}$.

(f) I nno case shall the slab thickness be made less than six (6) inches, nor shall the thickness of a floor slab be made less than one-thirty-second (1/32) of L, nor the thickness of a roof less than one-fortieth (1/40) of L.

(g) P — shall be the horizontal dimension of the depressed or raised portion of the slab adjacent to the column capital when this portion of the slab is made thicker than the remainder. P shall not be less than .375 L for depressed portion of a slab nor less than .50 L for raised portions.

(h) W — shall be the total dead and live load on an entire panel, including the weight of any raised or depressed portion of the slab.

(i) If the effective depth of the slab is reduced by the presence of slotted inserts cast in the slab or in any other way, the total slab thickness shall be increased sufficiently to compensation for this reduction.

(j) The columns shall be arranged at the corners of a square or a rectangle not more than one and one-fourth (1¼) times as long as it is broad.

(k) **Bending Moments, Two-Way System.** To compute the bending moments to be resisted by this construction, the slab shall be divided into two (2) bands. The first of these, to be known as the main band, shall be one-half (½) as wide as the panel width of the slab, and shall extend the short dimension between the columns and shall be symmet-

rically arranged around the line of centers of the supporting columns. The other band, to be known as the intermediate band, shall consist of that portion of the slab between any two (2) main bands.

(l) The positive bending moment at the center of any main band continuous at both ends shall be assumed to be not less than WL/64. The maximum negative moment for this band shall be considered as existing at the edge of the column capital and shall be not less than WL/32.

(m) The positive bending moment at the center of an intermediate band continuous at both ends shall be not less than WL/128, and the negative bending moment at the line of column centers shall be not less than WL/128.

(n) The above moments shall be provided for in each of two (2) directions across the panel. The steel in each band shall be sufficient to take the tension and the concrete in each band sufficient to take the compression necessary to resist these moments.

(o) **Four-Way System:** When reinforced by this method each panel shall be considered as consisting of two (2) direct bands parallel to the sides of the panel and two (2) diagonal bands running from corner to corner of the panel. Each direct and each diagonal band shall be designed to carry a positive bending moment at the center of WL/100 and a negative bending moment at the supporting column of WL/60. The concrete at the column capital shall be designed to resist the compression due to any one band and the components of the two (2) adjacent bands.

In this system top steel at right angles to the main bands between column capital shall not be required, but if such top steel is provided to resist a negative moment of not less than WL/128, the positive moment in each diagonal band may be reduced by one-quarter (¼) from that herein required.

(p) All bands in both two and four-way systems which are not continuous at one (1) end shall be assumed to resist twenty-five (25) pe rcent more positive moment than those continuous at both ends.

(q) At the capital of wall columns or other columns beyond which the slab does not continue two-thirds (⅔) of the positive steel in both the main and intermediate bands at right angles to the outer edge of the slab and in all diagonal bands intersecting the outer edge of the slab shall be bent up to the top of the slab as reinforcing against negative moment. The remaining one-third (⅓) of the steel shall continue in the bottom of the slab. All top bars shall be bent or hooked to provide adequate bond resistance and all bottom bars shall have a bearing of at least six (6) inches in spandrel beams or columns. At the edges of all flat slabs there shall be spandrel beams assumed to carry not less than one-sixth (1/6) of W for corner panels and one-eighth (⅛) W for intermediate panels in addition to any other loads directly imposed. On wall columns drop panels may be omitted and a forty-five (45) degree bracket substituted the same width as the face of the column and of a projection of at least one-fifteenth (1/15) L at a point where bracket is two and one-half (2½) inches thick. The half main band parallel to and adjacent to the outer edge of the slab shall be treated the same as one half (½) of an interior main band.

(r) When a flat slab floor or roof is only two (2) bays in width, the negative moment in all the bands running across the building shall be increased by fifteen (15) per cent along the line of interior col-

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umns, and the negative bending moment in diagonal bands crossing the line of interior columns shall be increased seven (7) per cent.

(s) Arrangement and Distribution of Steel: In order to properly locate the reinforcing bars the point of inflection in the main and diagonal bands shall be assumed to be located one-fifth (1/5) of the clear span between edges of column capitals out from the column capital, and the point of inflection for intermediate bands shall be assumed to be one-sixth (1/6) of the total span out from center line of column.

(t) **Rectangular Panels:** If the long side of a rectangular panel is not more than five (5) per cent longer than the short side the steel areas used shall be those calculated for a square panel of equivalent area. In case the long side exceeds this amount the main bands running in the long direction in both the two and four-way system shall have the same amount of steel as would be required in the corresponding bands of a square panel having sides equal to the long dimension, and the main bands running in the short direction shall have the same amount of steel as would be required in the corresponding bands of a square panel having sides equal to the short dimension, but in no case shall the short bands have less than two-thirds (⅔) the area of the long bands.

The intermediate bands in the two-way system shall be designed so that the short bands shall have the same area of steel as the intermediate bands in a square panel having sides equal to the long side of the panel and the long bands shall have the same area of steel as the intermediate bands in a square panel having sides equal to the short sides of the panel, but in no case shall the long bands have less than two-thirds (⅔) the area of the short bands. The diagonal bands in the four-way system shall be those calculated for a square panel of equal area.

(u) No bar shall be considered as resisting tension which does not extend at least to the point of inflection and in all cases at least one-half (½) of such bars as are not bent up shall extend thirty (30) diameters beyond the point of inflection.

(v) A sufficient number of the top bars resisting the negative moment over the column capital to comprise at least one-half (½) of the area required to resist this moment shall be bent down at or near the point of inflection and continued out to serve as reinforcing against the positive movement in the outer portion of the slab, unless one-half (½) of the bottom steel extends six (6) inches into the flare of column caps.

(w) No flat slab floor shall be supported upon a plain brick wall, pier, pilaster or other structural member except an approved reinforced concrete column or structural steel column incased in poured concrete.

(x) Design of Columns Supporting Flat Slabs: When a reinforced concrete column is used the least dimension of either an interior or exterior column shall not be less than one-fifteenth (1/15) L. In no case shall any column be less than sixteen (16) inches. When structural steel cores are used the least dimension of the column may be reduced, provided the least resisting moment is not less than for the required concrete column. Such structural steel cores shall extend at least to within two (2) inches of the top of the rough floor supported.

(y) Wall columns or other columns carrying a flat slab on one side only shall have the same minimum as other columns, and shall in addition to the vertical load be capable of resisting a moment of

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WL/70 for columns that continue past the floor in question to the floor or roof above and WL/35 for columns that stop at the floor or roof supported. Corner columns shall resist one-half (½) of these moments in each direction.

(z) Openings in Flat Slabs: Around all openings more than one-fifth (1/5) L in longest dimension in any flat slab there shall be a frame of concrete beams of sufficient strength to resist all the necessary moments and shears.

(a-1) Extra bars shall be supplied in the slab adjacent to holes to supply the difference between the bars left out and the bars required in these slabs.

(b-1) There shall be no opening of greater dimension than one-fifteenth (1/15) L in any main reinforcing band.

(c-1) When the openings are so large or so numerous as to prevent one-fourth (¼) of all the bars in any one panel from occupying their natural positions this panel shall not be calculated as a flat slab, but shall be computed as an ordinary slab on beams according to the methods given in Section 7 of this Article.

(d-1) No flat slab shall be constructed which is non-continuous on two (2) opposite sides.

(e-1) Where panel of other than square or rectangular forms occur having greater areas or greater spans than the typical panels, they shall be made proportionately thicker and shall have a proportionately larger amount of reinforcing. In any case, however, when because of the irregular shape of panels due to column spacing, openings cut through the floor or for other reasons, it does not appear to the Department that the flat slab theory can be properly applied, the Department may require that that portion of the slab be designed as a system of beams and slabs according to the provisions of Section 8 of this Article.

Section 10.—Concrete floors supported on four sides by beams, girders or walls and reinforced in two (2) directions, shall be designed as follows, using moments given in Section 8.

(a) If the length of the slab exceeds one and five-tenths (1.5) times its width, the entire load shall be carried in the short direction.

(b) In case of square panels and uniformly distributed load one-half (½) the live and dead load may be assumed as being resisted by each cross band.

(c) In rectangular panels of length L and breadth B the load which shall be assumed as being supported in the short direction shall be equal to

$$\frac{L}{B} - \frac{1}{2}$$

The remainder of the load shall be assumed as being supported in the long direction.

(d) In placing the reinforcement account may be taken that the moment is greater at the center of the slab and three-quarters (¾) of the calculated moment may be assumed as taken by the center half of the slab and one-quarter (¼) by the outside quarters.

(e) Beams supporting such slabs shall be assumed to take their portion of the load as determined by the formula for the slab.

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Section 11. **Tile and Concrete Joist—Floor Construction:** In tile and concrete joist floor construction where clay or gypsum tile are used, the concrete joists shall be parallel and in perfect line and not less than four (4) inches wide. When concrete is used only on top of such tile and is considered as taking compression in bending it shall be not less than one ane one-half (1½) inches thick, and shall be poured at the same time as the joists and shall be of the same mixture. The tile shall be thoroughly soaked with water before pouring the concrete in hot weather.

(a) Where metal or composition tile are used either to remain in the construction or to be removed and joists are spaced more than sixteen (16) inches on centers, the minimum width of joists shall be four (4) inches, and where concrete is used on top of such tile for compression and so figured, its thickness shall not be less than one and one-half (1½) inches nor less than one-tenth (1/10) of the clear distance between joists.

(b) In no case shall the stem of the joist be more than three (3) times as deep as its width.

(c) No tile or dome used in this capacity which remains in the construction shall contain any combustible material.

(d) Electrical conduits or other pipes built in concrete construction shall not be of such character or so located as to reduce the strength of the construction. Conduits less than one (1) inch in diameter will not be regarded as reducing the strength of concrete in compression but when larger conduits are used the actual area of the void in the conduit shall be deducted from the effective area of concrete in compression.

(e) Shrinkage reinforcing shall be provided as called for in Section 14.

Section 12.—**Limitation of T's on Beams and Girders:** If the girders, beams and slabs are poured in one continuous operation, then the girders and beams may be treated as "T" beams, with a portion of the slab as a flange.

(a) In no case shall the flange be of greater width than the distance between adjacent beams or girders, nor greater than one-third (⅓) of the clear span, nor be assumed to extend to a distance on each side of the beam or girder greater than six (6) times the thickness of the slab. Beams in which the "T" flange is used only for the purpose of providing additional compression area of concrete and does not form part of a floor or roof slab shall have a width of flange not more than three (3) times the width of the stem and a thickness of flange not less than one-fourth (¼) of the depth of the beam.

Section 13.—**Steel in Compression in Transverse Members:** Where it is necessary to introduce steel to resist compression in girders, beams or slabs, the compressive unit stress allowed on such steel shall not exceed "n" times the computed compressive stress in the concrete at the same distance from the neutral axis, "n" depending on mixture of concrete and being in accordance with ratios given in Section 5.

(a) Such steel shall be thoroughly anchored into the mass of the concrete by means of stirrups or otherwise to prevent any possibility of buckling, and shall have a minimum of one and one-half (1½) inches of concrete over it. Compression steel shall not be used in beams or slabs of less than ten (10) inches in depth.

Section 14.—**Shrinkage and Thermal Stresses:** Shrinkage reinforc-

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ment of not less than one-tenth (1/10) of one (1) per cent of the gross area of the cross section of concrete and running at right angles to main reinforcing shall be provided in all concrete floor and roof construction which is reinforced in only one direction. In case of tile and joist construction, the area to be considered shall be that of concrete on top of tile only.

Section 15.—**Shear:** The following formulae shall be used in calculating the unit shear in beams:

$$v=\frac{8V}{76d}$$

Where v is the maximum unit shear in pounds per square inch.

V is the total external shear in pounds.

d is the effective depth in inches.

b is the breadth of the web section of the beam in inches.

(a) Where the above value of v exceeds the safe load given in Section 5, web reinforcement is to be added as follows:

$$\text{Area of vertical web reinforcing}=\frac{3Vs}{4fd}$$

s being the spacing of stirrups measured in the same units as used for d.

f, the steel stress must not exceed a maximum of 18,000 pounds per square inch.

s is in no case to exceed ½ d.

(b) The area of web reinforcing inclined at thirty (30) to forty-five (45) degrees with the axis of the beam shall not be less than seven-tenths (.7) of the area required for vertical web reinforcing.

(c) In all cases the web reinforcing must extend above the neutral axis sufficiently to develop the required stress without exceeding the allowable bond stress.

(d) In all other cases where shear or other than punching shear exceeds the safe load as given in Section 5 sufficient steel shall be provided to resist the entire stress without developing a unit stress of more than eighteen thousand (18,000) pounds per square inch.

(e) The values for shear on concrete not reinforced against diagonal tension may be increased fifteen (15) per cent over the values given in Section 5 if the member is continuous over support.

Section 16.—(a) **Reinforced Concrete Footings:** All plain concrete footings shall be so constructed that a line drawn from the edge of the column base to the outside edge of the bottom of the footing shall make an angle of not more than thirty (30) degrees with the vertical. In the case of stepped footings all projections shall be outside of this line.

(b) Footings in which the projection is greater than this shall be reinforced to resist tension and shear. Such footings shall be designed as concrete cantilever beams and the maximum shear and bending moment shall be computed immediately under the edge of the column and also immediately under the edge of the column base or plynth if one is used. The shear at these points shall not be more than one hundred seventy-five (175) pounds per square inch and the shear at a distance from the edge of the column or plynth equal to the depth of

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the steel shall not be more than forty (40) pounds per square inch. In the case of round columns the shear is to be figured on the perimeter of the circumscribed square.

(c) Continuous footings shall be designed as inverted beams and the same methods of design and stress shall be used as are required for beams.

Section 17.—**Proportions of Ingredients:** The concrete for reinforced footings, walls, beams, girders and floor construction shall be mixed in the proportion by volume of one (1) part of Portland cement to two (2) parts of sand and not more than four (4) parts of either broken stone or pebbles; or one (1) part of Portland cement to four (4) parts and one-half (½) of gravel.

(a) The concrete for concrete columns shall be mixed in the proportion by volume of one (1) part of Portland cement to one and one-half (1½) parts of sand and three (3) parts of broken stone or pebbles; or one (1) part of cement to three and one-quarter (3¼) parts of gravel, except as noted in Section 5.

(b) For mass concrete without reinforcing, the mixture in proportion by volume shall be one (1) part of Portland cement to three (3) parts of sand and not more than five (5) parts of either broken stone or pebbles; or one (1) part of Portland cement to six (6) parts of gravel.

(c) When gravel is used which does not conform to requirements for gravel given in Section 4, it may be used if crushed stone, pebbles or sand are added to bring the aggregate within the requirements.

(d) The Builder Superintendent shall keep proper sieves at the work and shall test materials whenever necessary or required and shall be responsible at all times for the proper consistency of the aggregate.

(e) All mixing shall be done by machine if the total amount of concrete exceeds fifty (50) cubic yards.

(f) The proportioning of ingredients shall be by actual measurement of volume and not by weight.

(g) Clean water, free from strong acids, alkalis or organic materials shall be used in all mixing.

(h) Iron slag or other similar porous material may be used in place of broken stone or pebbles when approved in writing by the Department, and in such cases the Department may require an increase in the proportion of cement to be used in order to have the voids properly filled. Slag shall not be used in footings, foundations or other places exposed to moisture.

Section 18.—**Quality of Materials:** All reinforcing bars shall conform to the current requirements of the American Society for Testing Materials, adopted in 1911 and revised in 1914, Serial Designation A 15-14.

(a) Hooping reinforcing shall be made of steel having a yield point of not less than fifty thousand (50,000 pounds per square inch.

(b) Stirrups may be made of either structural or intermediate grade of steel as described in the above specifications.

(c) Bars from re-rolled steel shall not be used for reinforcing.

(d) Cement. Portland cement shall conform to the standards of the American Society for Testing Materials, as adopted in 1904 and revised in 1916, Serial Designation, C 9-17.

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(e) In every building in which more than fifty (50) barrels of cement are used in reinforced concrete construction, the cement shall be tested by an accepted independent testing laboratory, and a report of the tests shall be filed with the Department before any of the cement is used. These tests shall be made according to the current standards of the American Society for Testing Materials, adopted in 1904 and revised in 1916, and shall include tests for specific gravity, fineness, soundness, time of setting and tensile strength at the end of seven (7) days. Provided the cement is required for immediate use a twenty-four hour test may be substituted for the above, in the opinion of the Chief Inspector the emergency justifies.

(f) Sand, stone, pebbles, gravel and slag shall meet the requirements for these materials as given in Section 4.

(g) The Department shall have the right at any time to take samples of concrete mixture in the field for the purpose of testing the same. Records of these tests at the end of seven (7), fourteen (14) or twenty-eight (28) days shall be kept in case the compressive strength of the concrete does not equal that given in the following table the Department shall have the right and it shall be its duty to readjust the live loads for which the structure was intended and if the condition, in the opinion of the Chief Inspector, warrants such action, the matter shall be referred to the Common Council who may condemn that portion of the building or structure in which the concrete was poured from which the samples were taken.

	Pounds Per Square Inch		
Mixture	7 Days	14 Days	28 Days
1:2:4	1300	1600	2000
1:1½:3	1600	2000	2500
1:1:2	1950	2400	3000

Cubes for these tests shall be six (6) inches by six (6) inches by six (6) inches, or samples can be tested in the form of a cylinder eight (8) inches in diameter by sixteen (16) inches long or six (6) inches in diameter and six (6) inches long.

Section 19.—**Materials Prohibited:** The following materials shall not be used in the aggregate for reinforced concrete construction: Boiler cinders, plaster of paris, calcium chloride when over two (2) per cent by weight of the cement, and all similar injurious materials.

Section 20.—**Centering and Forms:** All monolithic reinforced concrete shall be built on centers or forms. All forms shall be built of sufficient strength and rigidity and be thoroughly braced to safely support the loads which may come upon them during the course of construction without undue deflection. They shall have tight joints to prevent any appreciable part of the concrete mixture from escaping.

(a) An opening shall be left at the bottom of all column forms for cleaning the forms and adjusting the steel. The openings shall not be closed until the column is about to be poured. This applies to both wood and steel forms. The forms shall be thoroughly cleaned immediately before the concrete is poured, and all chips, ice and other foreign materials removed.

(b) Before removing the shores under any beam or girder the column supporting it shall be stripped, so that the column may be examined on all sides.

(c) If ample shores are used to carry the full weight of the floor, column forms may be removed as soon as the concrete has set

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hard, but in no case within forty-eight (48) hours after pouring.

(d) The sides of girder and beam forms shall not be removed within six (6) days after pouring, except in case where such forms do not carry any vertical load, when they may be removed after forty-eight (48) hours after pouring.

(e) The minimum time which shall elapse before removing the shores under the girders and beams will vary with the design and the condition of the weather, but in no case shall the time be less than fifteen (15) days after pouring between April 1st and November 15th; and in no case less than twenty-five (25) days after pouring between November 15th and April 1st. The minimum time which shall elapse after pouring before removing the shores under floor slabs shall be ten (10) days between April 1st and November 15th, and twenty (20) days between November 15th and April 1st.

(f) During the period between November 15th and April 1st, permission may be obtained in writing from the Chief Inspector to remove forms in less time than stated above; provided that conditions warrant such action, and that, in the opinion of the Chief Inspector, proper precautions are being taken, and that responsibility for accidents is assumed by the contractor. In no case, however, shall forms under beams and girders be removed in less than fifteen (15) days, nor those under slabs within ten (10) days during the period above stated.

(g) The times given are minimum times in all cases, and in no case shall shores be removed before the concrete is set hard and has sufficient strength to safely carry its own weight and all additional loads upon it or about to be put upon it.

(h) The builder or his representative in charge of concrete construction shall always be present during the removal of forms and shall be personally responsible for the safety of this operation at all times and under all conditions. During the winter months, no shores shall be removed until portions of the concrete have been chipped off and removed to a warm place and tested for frost or ice.

Section 21.—**Placing of Reinforcement:** All reinforcing members shall be accurately located in the forms and firmly held in place, before and during operation, by means of metallic supports, spacer bars, wires or other devices adequate to insure against displacement during the course of construction, and to keep them the proper distance above the forms. The reinforcing members shall have a protection of concrete not less than two (2) inches thick for vertical reinforcing bars in columns or structural steel reinforcing columns, one and one-half (1½) inches on the bottom and sides of girders and beams and three-fourths (¾) inch on bottom of floor slabs.

(a) The amount of concrete protection shall be outside of all reinforcing material, except hooping and ties.

Section 22.—**Placing of Concrete:** All concrete shall be so mixed that it will not contain any more water than is necessary to enable it to properly fill forms and surround reinforcing and no excess of water shall appear upon the surface without troweling.

(a) Before pouring concrete, each piece of steel or iron reinforcement shall be in its proper position, and be held until the pouring is complete.

(b) All concrete shall be placed immediately after mixing, and any concrete having a partial set before placing, shall not be used in any portion of the work and shall not be returned to the mixer.

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(c) When concreting is once started it shall be carried on as a continuous operation, until the pouring of the section or panel is completed. If, for any reason, the concreting be stopped, care shall be taken to stop the work at such a point that the joint formed when the work is resumed will not weaken the member structurally.

(d) All columns shall be filled at least two (2) hours ahead of the floor construction to allow the concrete in the columns to properly set up. The pouring of the column shall be in one continuous operation to the level of the bottom of the girder or beam supported by it.

(e) In pouring columns the first five (5) per cent shall be a mixture of one (1) part cement to two (2) parts of clean sharp sand, and the concrete shall be kept well stirred or puddled with a long pole or tamp to prevent voids and honeycombing. Filling the columns completely and puddling afterwards will not be allowed.

(f) All beams shall be poured so as to be monolithic with the adjacent slab, that is, poured continuously from the bottom of the beam to the top of the slab.

(g) When a section of the floor is once poured, it shall be left entirely undisturbed until the concrete has thoroughly set.

(h) When fresh concrete joins concrete that is set or partially set, the exposed surface of the old concrete shall be thoroughly cleaned and roughened and have applied to it a coating of cement mortar, mixed in the proportion of one (1) part of cement to one (1) part sand, before any more concrete is poured.

(i) Concrete shall not be spouted directly into the forms, but may be spouted into a movable bucket.

(j) The Builder Superintendent in charge of concrete work shall mark in ink on the drawings, the time and the date of the pouring of the different columns, girders, beams and floor slabs. Such drawings shall be kept on file at the job until the completion of the building and shall be subject to the inspection of the Department at all times.

Section 23.—**Freezing Weather:** Concrete work shall not be permitted when the temperature is thirty-two (32) degrees Fahrenheit or less, unless sufficient precautions are taken to prevent the concrete from freezing after having been put in place; and at no time shall concrete be actually poured when the temperature is below fifteen (15) degrees Fahrenheit above zero, unless written permission is obtained from the Department. This permission is to be given only when such work is being performed inside of an enclosure which is adequate in the opinion of the Chief Inspector to give proper protection.

(a) Proper protection for concrete work after pouring shall be considered that necessary to maintain the concrete so poured at a temperature of at least fifty (50) degrees for five (5) days. Manure shall not be used for protection when applied directly to concrete. All forms shall remain until assurance is had that all frost has left the concrete and it has obtained its permanent set.

(b) No frozen material or materials covered with ice shall be used.

(c) The use of chemicals or other materials to reduce the freezing point of materials used in concrete, which, in the opinion of the Department are injurious to the concrete, shall not be permitted.

(d) All methods and materials used for concreting in freezing weather shall be subject to the approval of the Department.

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Section 24.—**Hot Weather:** Concrete laid during hot weather shall be thoroughly wet with clean water twice daily during the first week after placing.

(a) In hot weather all broken stone, pebbles, slag or gravel shall be thoroughly wet before it is placed in the mixer.

Section 25.—**Monolithic Walls and Piers:** Monolithic concrete walls, constructed in place without reinforcement shall be the full thickness prescribed in this ordinance for brick walls and with steel or iron reinforcement, they shall be at least two-thirds (⅔) the thickness required for brick walls, when reinforced with not less than one-fourth (¼) of one (1) per cent of the area of the cross section in each direction.

Section 26.—**Inspection and Tests:** All reinforced concrete construction shall be performed under the personal and constant supervision of a competent building superintendent, who shall be licensed by the Department, and who shall be removed, upon notice, from supervision of such work as in the opinion of the Department he is not qualified to supervise.

(a) Each supervisor or superintendent of concrete construction shall apply to the Department of Buildings for a license to perform this work. Upon satisfying the Chief Inspector of his competence and reliability the Department shall issue such license. The Chief Inspector may revoke such license for neglect, lack of care or using improper materials or methods on the work.

(b) If loading tests are considered necessary by the Department, the contractor shall be prepared within a reasonable time and at his own expense to make such tests on such parts of the building as may be directed. Floor tests shall be conducted on not less than one (1) entire panel.

(c) Such tests shall be made approximately sixty (60) days after the concrete has been poured. Each panel shall be loaded over its entire area with a uniformly distributed load equal to twice the superimposed load for which the structure has been designed, and under such test the deflection shall not exceed onesix-hundredth (1/600) part of the span and the member shall return to within twenty (20) per cent of its original position after the removal of the load. The load shall be removed twenty-four (24) hours after being placed.

Section 27.—**Points of Dispute:** Any question regarding reinforced concrete not covered in this article or any questions as to any portion of this article of which the meaning shall not be clear, shall be decided by reference to the Report of the Joint Committee on Concrete and Reinforced Concrete, published July 1, 1916.

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Encroachments Into Public Property

Section 1.—No portion of a building or other structure shall encroach upon or project into any street, alley, park or other public property. Any building any part of which encroaches on public property shall be liable to the city of Ann Arbor for any damage which may result to any person or property by reason of such encroachment, whether or not such encroachment is specifically allowed by this code.

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The owner of any building or other structure any part of which projects into or encroaches upon any public property shall remove at once any part or all of such encroaching portion of his building or other structure upon being ordered to do so by the Common Council, and the City of Ann Arbor shall not be liable for any damages resulting to the property owner by reason of such an order.

Section 2.—**Footings or Foundations** may extend into street or alley lines not to exceed three (3) feet when wholly below the level of the ground provided such footings or foundations do not interfere with or damage any sewers, pipes or conduits of the City of Ann Arbor or any public service corporation.

Section 3.—**Base Course** of buildings above the sidewalk shall not project beyond the street line.

Wheel Guards may extend into alley not more than eight (8) inches but such guards shall be of metal or concrete and not over twenty (20) inches high.

Pilasters of masonry at the entrance of buildings my project into streets not more than four (4) inches.

Window Sills and cornices over windows, if of masonry, may project into streets or alleys not to exceed four (4) inches.

Section 4.—**Cornices and Eaves** (including gutters) of buildings of Classes F and G of combustible material may project into streets or alleys not more than eighteen (18) inches, but such cornices must be at least twelve (2) feet above the ground and not more than twenty-five (25) feet and the projection shall not exceed one (1) inch for each foot above the ground level.

For all cornices and eaves on buildings of other classes or on buildings of Classes F and G when more than twenty-five (25) feet above the ground level or projecting more than eighteen (18) inches the following shall be required:

Such cornices and eaves when thirty-five (35) feet or less above the ground level may be of wood, but must be covered with sheet metal or other similar incombustible material on the bottom, and when more than thirty-five (35) feet above the ground level such cornices and eaves shall be constructed entirely of incombustible material.

No cornice or eaves shall project into any street or alley at a less height than twelve (12) feet above the ground level.

No cornice or eave shall project into any public property more than one (1) inch for each foot that such projection is located above the ground level, and in no case shall this projection exceed seven (7) feet nor more than one-tenth (1/10) of the width of the street or alley into which it projects.

Section 5.—**Bays and Oriols** of combustible construction shall not be projected into public property. When of masonry they may project into streets, but not into alleys, subject to the following restrictions:

(a) The lowest part of such a projection shall not be less than twelve (12) feet above the sidewalk level and the maximum projection over the property line shall not exceed three (3) feet.

(b) No such structure shall be more than three (3) stories or over

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thirty-five (35) feet in height, nor more than fifteen (15) feet wide.

(c) The total width of all such structures on any building shall not exceed thirty (30) per cent of the street frontage.

Section 6.—**Balconies and Stairs:** No porch, balcony or stairs of combustible construction shall project into public property, but balconies and stairs of open latticed metal construction may project into streets and alleys, subject to the following restrictions:

(a) The lowest part of such a projection shall not be less than twelve (12) feet above the sidewalk or alley grade.

(b) Balconies and stairs for fire escapes, when constructed as specified in Specification No. 38, may project not more than four (4) feet, but no such fire escape shall be constructed unless the Chief Inspector deems such a fire escape necessary for the safety of the occupants of the building.

(c) Balconies for ornamental purposes only may be constructed projecting into streets, but not into alleys. Such balconies may project not more than two (2) feet. No such balcony shall be used for purposes of advertising or display.

Section 7. (a) **Awnings:** Fixed awnings over entrances of buildings, when constructed entirely of incombustible materials, may project into streets only when not less than ten (10) feet above the sidewalk level. Such awnings or marquises shall not project more than two-thirds (⅔) of the width of the sidewalk. They shall be supported entirely on the building on which they are erected and there shall be no posts, brackets or other obstacles located on public property less than ten (10) feet above the sidewalk level. And before the erection of any such fixed awning or marquis there shall be filed with the City Clerk a surety bond in the penal sum of ten thousand ($10,000) dollars conditioned that the City of Ann Arbor will be saved and kept harmless from any and all claims for damages or injury to persons or property arising out of the erection or maintenance of any such awning or marquis, and all such awnings or marquises heretofore or hereafter erected shall be maintained only if and when a surety bond in like sum, on like conditions, shall be filed annually with the City Clerk.

(b) Movable awnings of cloth supported on metal frames may project into streets when lowered for use. No such awnings shall project into any street more than six (6) feet and the lowest part of such awning which projects into the street when in use shall be at least seven (7) feet above the level of the sidewalk. Such awnings shall not be limited in length.

Section 8.—(a) **Miscellaneous Projections: Metal Lamp Brackets** for ornamental lights may project not to exceed two (2) feet into streets if ten (10) feet or more above the sidewalk level, and such brackets may project not to exceed two (2) feet into alleys if twelve (12) feet or more above the alley grade.

(b) **Clocks**, when entirely of metal construction and supported on metal brackets, may project not to exceed four (4) feet into streets or alleys if twelve (12) feet or more above the sidewalk or alley level.

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Procedure in Building Operations

Section 1.—Building operations shall not be started until a Building

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Permit shall have been obtained as well as all other permits required by the City of Ann Arbor for temporary occupancy of any public property which it is necessary to occupy during building operations.

All building operations shall be conducted in a safe and careful manner with due regard to the rights and safety of the public, the adjoining property owners and the workingmen.

The Chief Building Inspector shall have the power and it shall be his duty to stop any work not being so conducted.

The erection or wrecking of buildings shall not be conducted at night or on Sundays to the annoyance or detriment of other persons.

Section 2.—**Excavations:** The procedure in excavating shall be as given in Article XV, Section 1.

Section 3.—(a) **Barricades, Sidewalk Covers and Scaffolds: Barricades:** In the construction of buildings in congested portions of the city substantial barricades shall be constructed whenever required by the Chief Building Inspector. Such barricades may be erected on public property with the permission of the Department of Buildings, but such barricades shall not be used for advertising purposes.

(b) **Sidewalk Covers** shall be provided whenever a building over four (4) stories high is erected or taken down. Such sidewalk covers shall protect all sidewalks adjacent to walls being constructed or razed. They may be built of wood, but shall be designed to carry a live load of at least two hundred (200) pounds per square foot and shall be covered with planks not less than one (1) and five-eighth (⅝) inches thick. The top of such covers shall be made watertight.

(c) **Scaffolds** for use of masons, painters or other mechanics, when suspended over public property or adjacent thereto, shall be substantially constructed with a solid floor and a substantial rail of wood or iron at least three (3) feet high and a toe board at least four (4) inches high on the side furthest from the face of the building. All ropes, platforms and hooks or other means of support shall be adequate to safely carry twice the the total load on the scaffold.

Section 4.—**Hoisting and Lowering:** Building materials shall not be hoisted or lowered over streets or alleys unless the place where such hoisting or lowering is being done is securely barricaded with the permission of the Department of Buildings, but with the permission of that Department materials may be hoisted or lowered over sidewalk or lowered through chutes over sidewalk covers.

Workmen shall not be permitted to be hoisted with building materials.

Hoisting and lowering may be done on temporary elevators erected either inside or outside of the building under construction, but when such hoists are inside of the building the sides of such hoistways except the front thereof shall be securely barricaded to a height of at least seven (7) feet and the front shall be guarded with a gate at least four (4) feet high. Hoists inside of buildings may, with the consent of the Chief Inspector, be used for hoisting workmen, but building materials shall not be hoisted at the same time men are being hoisted.

Section 5.—**Steel Frame Building** under construction shall be completely floored with at least three (3) inch planks in such a manner as to provide a floor not more than four (4) stories below erectors and not more than two (2) stories below riveters.

No mechanics other than steel workers shall be allowed to work below the erectors and riveters unless such a floor intervenes.

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Section 6.—**Concrete Buildings:** Concrete forms shall be erected and taken down as required in Article XIX, Section 20. Steel and concrete shall be placed and the work of concreting conducted as required in Sections 21 to 26, inclusive, of Article XIX.

Proper precautions shall be taken to prevent concrete from falling on persons or vehicles or public property or on adjoining property or from damaging adjoining buildings.

All ladders and runways shall be securely fastened in place. Guards shall be provided around well holes and other openings.

Section 7.—**Shoring and Underpinning** shall be performed only by persons skilled in this work to the satisfaction of the Chief Inspector only in accordance with detailed plans approved by the Department of Buildings. The Chief Building Inspector shall have the power to refuse permits for this work to persons who cannot show the proper qualifications and it shall be his duty to stop all work of this kind which is not being conducted in a skillful manner.

Section 8.—**Wrecking of Buildings** shall be conducted in such a manner as not to create a nuisance to persons on public streets or on adjoining property. When necessary to prevent excessive dust, the building material shall be well wet down. Materials removed from structure shall not be permitted to fall into streets, alleys or adjacent property or otherwise create a nuisance. Whenever a building is being wrecked in violation of these requirements it shall be the duty of the Chief Building Inspector to order such work stopped until conditions complained of have been remedied.

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Specifications

Section 1.—**Chimneys:** Chimneys shall be constructed of at least eight (8) inches of brick or, if provided with a three-quarter (¾) inch terra cotta flue lining, they may be of four (4) inches of brick or concrete, eight (8) inches of terra cotta tile. All chimneys shall be set in Portland cement mortar tempered with hydrated lime and the space behind flue linings shall be slushed with mortar. The inside surface shall be finished smooth.

The minimum net area for any house furnace or stove flue shall be sixty-five (65) square inches; only one (1) heating unit shall connect to each flue, and no vent pipe for any stove, hot water heater or other apparatus shall enter such a chimney.

For large power installations steel or iron stacks may be used, in which case the thickness of the metal shall be at least one-four hundred fiftieth (1/450) of the diameter of the stack and not less than one-quarter (¼) inch. Such stacks shall be lined with fire brick for a distance of twenty-five (25) feet from the point where smoke pipe enters, and protected on the outside up to the roof of the building with eight (8) inches of masonry or an eight (8) inch ventilated air space and a metal shield.

All chimneys shall be carried on a masonry foundation or on a masonry wall of adequate size to prevent undue settlement, or on fireproof construction, and all chimneys shall be securely stayed against wind pressure.

No wood joists, beams, plugs, grounds, furring strips or other combustible material shall be permitted to come within one (1) inch of

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the outside of any masonry chimney nor come within eight (8) inches of any metal stack.

Every chimney shall be provided with a metal cleanout door at the base of each flue.

All chimneys shall be built at least four (4) feet above flat roofs or two (2) feet above the peaks of pitched roofs, and chimneys for iron cupolas, foundries and similar purposes shall project at least fifteen (15) feet above the highest point of any roof within a radius of one hundred (100) feet.

Every chimney of masonry construction shall be finished at the top with a solid stone or concrete block large enough to completely cover the top.

The Department shall have the power to require the lengthening or alteration of any chimney that may prove to be creating a smoke nuisance to surrounding property.

Specification No. 2—**Smoke Pipes:** All smoke pipes shall be as short and straight as possible. They shall be constructed of black iron of not less than twenty-four (24) U. S. gauge or of masonry and shall fit tightly into the side of chimney. Galvanized iron shall not be used. No wood or other combustible material shall be permitted within twelve (12) inches of any smoke pipe and all combustible material within one (1) foot six (6) inches shall be covered with a metal or asbestos shield. When smoke pipes enter chimneys that are furred and plastered there shall be a four (4) inch firestop of mortar where the smoke pipe penetrates the furring.

Specification No. 3.—**Fireplaces:** All fireplaces shall be built of brick or concrete at least eight (8) inches thick, supported from the ground on masonry or on fireproof construction, and no wood or other combustible material shall be permitted to enter into this eight (8) inches. The hearth shall be at least twenty (20) inches wide measured from the outer face of the masonry and shall extend at least twelve (12) inches on each side of the fireplace opening. The hearth shall be of brick or concrete at least four (4) inches thick, supported on brick arches, reinforced concrete or steel. One (1) end of the hearth supports shall rest on the fireplace supports and the other end may rest on the wooden floor joists, but no wood centering shall be left under the hearth.

Above each fireplace there shall be a chimney meeting the requirements of Specification No. 1.

False fireplaces for gas or electrical heaters shall not be constructed in imitation of fireplaces unless complying with all the requirements of this specification.

Specification No. 4.—**Warm Air Furnaces:** Warm air furnaces may be used for heating buildings not over three (3) stories in height. Such furnaces shall be encased in a double metal shield with an air space between and shall be protected with at least three (3) inches of sand on top and shall rest on masonry or concrete floors. No wooden partitions shall be built within seven (7) feet of the front or four (4) feet of the sides of the outer shield of such furnaces, but the distance to the partitions at the sides may be reduced to two (2) feet if they are covered with sheet metal. The distance from the top shield of such furnace to any ceiling or wood above shall be not less than twelve (12) inches and ceiling or wood shall be protected with asbestos millboard or sheet metal kept one (1) inch below the ceiling or wood. Such protection may be omitted if the clearance is two (2) feet or more.

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All such furnaces shall be connected by a smoke pipe into a chimney as required in Specifications numbered 2 and 1.

Specification No. 5.—**Steam Heating Plants, for Not More Than Fifteen (15) Pounds Pressure:** Hot water heating plants and hot water heaters using solid or liquid fuel may be used in all classes of buildings. Such furnaces shall rest upon concrete floors or on fireproof construction and shall be protected on the outside with asbestos. The clearance of wooden partitions, ceilings and other combustible material shall be the same as given for warm air furnaces. All such furnaces shall be connected by a smoke pipe into a chimney as required in Specifications numbered 2 and 1.

Specification No. 6.—**Steam Heating Plants for Over Fifteen (15) Pounds Pressure:** Steam heating plants for over fifteen (15) pounds pressure shall not be installed in Class D, E or F buildings, but such buildings may be heated with such heating plants if located in separate buildings with a reducing valve on the steam line outside of the Class D, E or F building, so arranged as to reduce the pressure to fifteen (15) pounds per square inch or less.

Such heating plants shall be placed on concrete or fireproof floors and the ceiling over such heating plants, if of wood or other combustible material, shall be at least two (2) feet clear of the top of the boiler, and if less than three (3) feet the ceiling shall be protected with a double metal shield or one (1) inch of metal lath and plaster or equivalent material extending at least four (4) feet beyond the furnace on all sides. No combustible partitions or other material shall be placed within four (4) feet of the sides or seven (7) feet of the front of such furnace.

All such heating plants shall be connected by a smoke pipe to a chimney as required in Specifications numbered 2 and 1.

Specification No. 7.—**Boilers:** Large boilers for power or other purposes or for generating high pressure steam shall be so located that no wood or other combustible material shall be less than five (5) feet from the top or sides or ten (10) feet from the front of such apparatus, and all combustible material less than ten (10) feet from the top or sides or less than twenty (20) feet from the front shall be protected with at least four (4) inches of concrete, brick or similar incombustible material and shall be well ventilated to prevent the temperature rising above 125 degrees Fahrenheit. Steel, cast iron or concrete columns adjacent to such boilers shall not be in direct contact with furnace settings, but there shall be an open and unobstructed space at least four (4) inches wide for ventilation.

Specification No. 8.—**Large Ovens, Coffee Roasters and Similar Appliances:** Large ovens, coffee roasters and similar appliances in which fires are maintained shall have the same clearance and protection required for steam plants for over fifteen (15) pounds pressure, except that the Department may permit such appliances to be set upon wood floors when protected below by a one-eighth (⅛) inch steel plate turned up one (1) inch at edge and filled with four (4) inches of hollow tile or hollow brick. Such floor protection shall extend two (2) feet on each side and four (4) feet in front of such appliances. All such installations shall be connected by means of a smoke pipe into a chimney as required in Specifications numbered 2 and 1.

Specification No. 9.—**Drying Rooms:** Drying rooms for use at temperatures of one hundred twenty-five (125) degrees Fahrenheit or less may be of wood, but when designed to be used for temperatures above

one hundred twenty-five (125) degrees Fahrenheit they shall be of metal, masonry or other incombustible material and shall be insulated from all wood other combustible materials by four (4) inches of masonry or by a four (4) inch air space and an asbestos or metal shield.

Specification No. 10.—**Kilns:** Kilns and similar apparatus for use at temperatures of one hundred twenty-five (125) degrees Fahrenheit and over shall be constructed of masonry, concrete or metal, and all wood and other combustible material shall be so protected and ventilated that the temperature thereof cannot rise above one hundred twenty-five (125) degrees Fahrenheit under maximum working conditions.

Specification No. 11.—**Incinerators** for garbage and other materials shall be supported on masonry and shall be protected from all wood or other combustible materials by eight (8) inches of masonry or by four (4) inches of masonry and a terra cotta or cast iron lining and shall be provided with a flue constructed as required for furnace chimneys in Specification No. 1.

Specification No. 12.—**Stoves:** All stoves for heating, cooking or laundry purposes using solid or liquid fuel when resting on wood floors shall be securely supported at least six (6) inches above such wood floors by metal supports and there shall be a metal and asbestos pad at least three-eighths (⅜) inch thick below such stove extending at least six (6) inches on each side and at least twelve (12) inches in front of such stove. Such stoves shall not be placed nearer than six (6) inches to any wood partition or other combustible material, and if placed nearer than twelve (12) inches such wood or other combustible material shall be protected with a metal or asbestos shield. There shall be at least three (3) feet clearance between such stoves and any wood or other combustible material above. All such installations shall be connected by a smoke pipe to a chimney meeting the requirements of Specifications numbered 2 and 1.

Specification No. 13.—**Gas Ranges, Domestic Hot Water Heaters and Hot Plates:** Gas ranges, domestic hot water heaters and hot plates shall be supported at least six (6) inches above any wood floor or other combustible material, and where burners are not provided with a shield below the wood or other combustible material shall be protected with a double metal shield with one (1) inch air space between or with a one-quarter (¼) inch pad of metal and asbestos or equivalent. Such ranges and hot plates shall not be nearer than three (3) inches to any wood partition or other combustible material, and if less than six (6) inches the wood or other combustible material shall be protected with sheet metal or asbestos. Wood ceilings or other combustible material shall be at least three (3) feet above such installations. All such installations shall be connected by a smoke pipe to a vent pipe meeting the requirements of Specification No. 18. In the case of domestic gas ranges the oven and any water heater only need be connected to such vent.

Specification No. 14.—**Gas Ranges for Restaurants or Hotels** shall be supported at least six (6) inches above any wood floor, and if less than twelve (12) inches above the floor the wood shall be protected by a metal shield, or such ranges may rest on a steel and terra cotta support as called for under "Large Ovens," Specification No. 8. Such ranges shall not be placed nearer to any wood partitions or other combustibles than six (6) inches, and if nearer than twelve (12) inches such partition shall be protected with a metal or asbestos shield. The distance from any such range to any wood ceiling or other combustible material above shall not be less than twelve (12) inches, and if less than three (3) feet

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the ceiling or cimbustible material above shall be protected with a double metal shield with one (1) inch air space between or with one (1) inch of metal lath and Portland cement plaster or one (1) inch of asbestos. Hood and ventilating flues from such ranges may be of sheet metal or masonry, and if of sheet metal shall be protected from all wood or other combustible materials by four (4) inches of concrete, gypsum or terra cotta tile or an eight (8) inch air space and a metal shield. Such ventilating flues shall not be carried through wood floors or up combustible partitions unless protected with at least four (4) inches of masonry or concrete.

Specification No. 15.—**Oil Burners in Stoves, Furnaces, Etc., and Fuel Oil Storage:** Stoves, furnaces and other heating or power apparatus in which oil burners are installed shall be constructed and erected as required for similar apparatus using solid fuel. In addition, the following restrictions shall be observed:

Oil burners burning gasoline or other inflammable liquid having a flash point in an open cup tester of less than one hundred thirty-five (135) degrees shall not be provided with tanks of more than one (1) gallon capacity.

Oil burners burning kerosene or other inflammable liquid having a flash point of over one hundred thirty-five (135) degrees may be used when approved by the Chief Building Inspector and may have feeder fuel tanks of not to exceed sixty (60) gallons and one (1) supply tank of not exceeding two hundred twenty (220) gallons capacity, but all oil storage in excess of two hundred eighty (280) gallons shall be buried at least three (3) feet under ground or under the basement floor level or shall be encased in at least six (6) inches of reinforced concrete. The fuel in the feeder tank may flow by gravity to the burner, but all such burners shall be provided with an approved automatic apparatus to check flow of oil at any time the burner ceases to operate or becomes deranged. All other oil tanks shall feed into this feeder tank by a manually operated pump. All piping for transferring oil shall be permanently installed iron or steel pipe securely protected against accidental damage and free from leaks. All fill pipes and vents shall be outside of building and there shall be a gauge provided to indicate the quantity of oil in the tank.

Specification No. 16.—**Other Sources of Heat and Flame Not Specifically Mentioned Herein** shall be so constructed and so protected as to prevent heating any wood or other combustible material used in the construction of floors, ceilings, partitions or other parts of the buildings to a temperature of over one hundred twenty-five (125) degrees Fahrenheit when in full operation, and shall be so constructed as not to be liable to undue corrosion or deterioration and not subject to accidental overturn or other derangement conducive to dangerous conditions.

Specification No. 17.—**Warm Air Ducts or Pipes** for warm air furnaces in buildings not over two and one-half (2½) stories high shall be of not less than thirty (30) U. S. gauge sheet metal and shall be tightly fitted together and securely suspended or fastened in place. All register boxes and vertical ducts or pipes installed in combustible partitions shall be double-walled metal boxes or ducts with one-quarter (¼) inch between the inner and outer wall. Horizontal ducts or pipes shall be kept three (3) inches below any wood or combustible material or shall be protected with an asbestos shield and one (1) inch open space.

Specification No. 18.—**Vent Flues** for stoves, hot water heaters, gas stoves and for ventilation shall be not less than three (3) inches internal

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diameter and shall be of steel or wrought iron not lighter than standard steam pipe, or of crock or terra cotta. No sheet metal shall be used for this purpose. Such vents when of metal shall not come in contact with wood, but shall be separated therefrom by a one-half (½) inch space or by one-quarter (¼) inch of asbestos or similar material. All such vents shall have tight joints and shall be carried to the outside of the building, and in no case shall such vents be terminated in any attic space. Black sheet iron pipe may be used to connect stoves, hot water heaters and gas stoves to such vent flues, but no such sheet iron pipe shall penetrate any combustible floor or partition or be allowed to come nearer than six (6) inches to any combustible material.

Specification No. 19.—**Heating and Ventilating Ducts** for forced air systems may be of metal, but such ducts shall not come in contact with wood or other combustible material. If encased they shall be surrounded by four (4) inches of gypsum, concrete or terra cotta tile or brick or one (1) inch of metal lath and plaster and shall not terminate in any attic space unless provided with a tight-fitting automatic trap door constructed as required for fire doors operated with a fusible link designed to operate at a point not over one hundred (100) degrees Fahrenheit above the normal working temperature of the duct.

Specification No. 20.—**Low Pressure Steam and Hot Water Pipes:** Steam pipes for not more than fifteen (15) pounds pressure and hot water heating pipes shall not be placed nearer than one (1) inch from any wood or other combustible material unless protected with one-quarter (¼) inch of asbestos or similar incombustible covering. Covering for such pipes, when used, shall be of incombustible material for the inner one-eighth (⅛) inch at least, and the entire covering used any place within four (4) feet of the boiler shall be incombustible and shall not have any covering of cloth or other combustible material. Vertical steam pipes shall be provided with tightly-fitted flanges at each floor level.

Specification No. 21.—**Steam Pipes for More Than Fifteen (15) Lbs. Pressure:** Steam pipes for more than fifteen (15) pounds pressure shall not be placed nearer than two (2) inches to any wood or other combustible material, unless protected with one-half (½) inch of asbestos or similar incombustible covering. Covering for such pipes when used shall be provided with tightly fitted flanges at each floor line.

Specification No. 22.—**Gas Supply Lines** when installed in Class A, B, C, D, E or F buildings shall be provided with a shut-off located outside of the building in some place accessible to the Fire Department and keys for shutting off same shall be supplied by the company installing the gas. Not more than two types of keys shall be required for all valves installed. All such valves shall be plainly labeled "GAS" and the company installing such valves shall be responsible for keeping them in operating condition.

Gas shall not be installed in Class E buildings except in the furnace room or carpenter room.

Outside valves will not be required in Class G buildings.

Specification No. 23.—**Gas Outlets:** No gas outlet or bracket shall be placed less than eighteen (18) inches below any ceiling of wood or other combustible material and if placed less than thirty (30) inches below, the ceiling above shall be protected with a shield of metal or asbestor. No fixed gas bracket shall be less than six (6) inches long and all movable brackets shall be so constructed that the burner cannot be

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brought closer than six (6) inches from the wall.

Specification No. 24.—(a) **Stand Pipes:** Size of stand pipes shall be as follows: For buildings less than seventy1five (75) feet high not less than four (4) inches in diameter. For buildings seventy-five (75) feet or more in height not less than six (6) inches in diameter for first seventy-five (75) feet, and not less than four (4) inches in diameter for remaining height. Piping for stand pipes and sprinkler systems shall be wrought iron or steel strong pipe and heavy fittings. All valves to be equal in strength to pipe. All piping shall be tested for leaks and defects under working pressure by the Ann Arbor Fire Department. Application for test shall be made to the Chief of the Fire Department, who shall order such test and record made of the same.

(b) Standpipes shall be located within fireproof stair shafts when practical, otherwise as near stair shafts as possible.

(c) Standpipes shall extend from sub-basements, basement or cellar to and through the roof.

(d) Standpipes shall be equipped on all floors with a two and one-half (2½) inch angle valve with renewable soft disc for cold water, valve to be equipped in such a manner as to provide a two and one-half (2½) inch U. S. Bureau of Standards male coupling for use by the Ann Arbor Fire Department. There shall also be provided at each standpipe such number of feet of one and one-half (1½) inch Underwriters approved unlined linen hose, equipped with a two and one-half (2½) inch female reducing coupling and one and one-half (1½) inch by twelve (12) by one-half (½) inch smooth bore brass nozzle as specified by the Chief of the Fire Department. Hose racks shall be provided on all floors and must be of the self-releasing type of approved pattern; same shall be located not higher than five (5) feet from the floor.

(e) Roof Standpipes: Where there is only one standpipe in a building a two-way spreader shall be provided and so arranged that each opening may be used independently. Where more than one (1) standpipe is in a building one (1) opening on each will be deemed sufficient. These openings are to be provided with standard two and one-half (2½) inch U. S. Bureau of Standards male coupling and all roof hydrants shall be equipped with a shut-off valve and drain located below the roof to prevent freezing. Hose may be omitted from all roof hydrants if so desired.

(f) Siamese pumper connection shall be installed in such numbers and locations as are designated by the Chief of the Fire Department. Same shall be equipped with clapper valves, substantial caps and a drain shall be provided between check valve and siamese. Each such pumper connection shall provide two (2) two and one-half (2½) inch U. S. Bureau of Standards female threaded hose connections. Siamese connections shall be elevated at least eighteen (18) inches above grade and not more than three (3) feet and there shall also be provided with a straight-way check valve on horizontal section of pipe just inside of building and one (1) on supply pipe from water supply tank.

(g) Water supply may be from one (1) of the following sources: Gravity tank, pressure tank, or house service tank; provided they are located above roof or immediately below roof and are capable of maintaining at least fifteen (15) pounds pressure per square inch at the highest outlet other than roof outlet. Where water supply is used for combined standpipe and domestic use, the house supply pipe shall extend above bottom of the tank to such a height as will reserve the required amount of water for fire purposes. The amount of water to be provided

or reserved for fire purposes shall be at least one thousand (1,000) gallons of water and for each additional standpipe above two (2) at least an additional five hundred (500) gallons of water for each additional standpipe. When water is to be supplied by automatic pumps such pumps shall have a capacity of at least two hundred fifty (250) gallons per minute.

Standpipes for sprinklered buildings may be supplied with water from the sprinkler tank.

(h) **Maintenance:** It shall be the duty of the owner or lessee of the building to keep the siamese pumper connection, valves, etc., well oiled and see that the hose, hose pipe, pumps and tank are maintained in good repair and ready for instant use.

Specification No. 25.—**Standpipes for Theatres:** There shall be one (1) four (4) inch standpipe connected to the sprinkler tank, on each side of the stage, with hose connections at the stage floor and at each gallery level above. All standpipe connections shall be provided in or readily accessible to the carpentry room, the heating room, and any room used for painting or storing scenery. There shall be fifty (50) feet of one and one-half (1½) inch unlined cotton hose on a self-releasing hose rack attached to each such hose connection. The connections including Siamese connections outside of building shall be constructed and maintained as required in Specification No. 24.

Specification No. 26.—**Sprinkler Systems** when required by this code or provided to take advantage of the special provisions of this code shall be constructed and installed in accordance with the specifications of the National Board of Fire Underwriters, except that with the approval of the Chief Inspector sprinkler systems in basements and one (1) story buildings may be connected directly to the city water supply. All systems shall be wet systems unless such systems are impractical because of the occupancy of the building.

Specification No. 27.—**Hand Fire Extinguishers** may be of any type approved by the Chief of the Fire Department. The character of the extinguisher to be used in any place shall be of the type most suited to the occupancy of the building as determined by the Chief of the Fire Department. Where hand extinguishers are required in this code they shall be at least equal in effectiveness to a two and one-half (2½) gallon soda and acid extinguisher.

Specification No. 28.—**Fire Doors, Type "A"** shall be constructed with wood cores covered with sheet metal according to the specifications of the National Board of Fire Underwriters for standard tin clad fire doors or they may be of any other construction having equal resistance to fire and water. No wired glass shall be used in such doors and all frames for such doors shall be metal covered as required in specifications referred to above.

Two roller steel curtains, one on each side of the opening, shall be considered as equivalent to one Type A fire door when constructed and erected according to the specifications of the National Board of Fire Underwriters.

Specification No. 29.—**Fire Doors, Type "B"** shall be constructed of wood cores covered with sheet metal and may have not more than seven hundred twenty (720) square inches of wired glass or may be of any other construction having equal resistance to fire and water. Such doors shall be constructed and erected in accordance with the specifications of the National Board of Fire Underwriters for corridor

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type fire doors. All frames for such doors shall be metal covered as required in specifications referred to above.

Specification No. 30.—**Fire Shutters and Fire Windows:**

Fire windows shall have frames and sash of iron or steel bars or of sheet iron or steel hollow forms fabricated by pressing, welding or crimping together but not by the use of solder or other fusible alloy. Wood cores may be used if completely incased in metal as required for fire doors but no exposed wood shall be used. All glass shall be wired glass.

Fire shutters shall be constructed of roller steel curtains or shall be of any material allowed for fire doors. All fire shutters shall be attached with metal fastenings to the inside of windows and shall operate by gravity with fusible links as required for firedoors. Where fire windows are required ordinary windows with fire shutters may be provided.

Specification No. 31.—**Roofing—Incombustible:** To be used on all buildings in the fire limits and all buildings outside of the fire limits except frame or Type 8 buildings and private residences less than three (3) stories high shall consist of terra cotta, concrete, sheet metal, slate or any of the following:

Tar or asphalt covered roofing, felt covered, with at least one-quarter (¼) inch of gravel.

Asbestos prepared roofing.

Other prepared roofing material laid over at least one (1) layer of asbestos, paper weighing one and one-half (1½) pounds per yard.

Other roofing of equal fire resisting value if approved after test by the Chief Building Inspector.

Specification No. 32.—**Roofing—Combustible:** All composition roofs other than those mentioned under incombustible roofs and all wood shingle roofs shall be considered combustible roofs and shall not be used in the fire limits or on buildings other than Type 8 or frame buildings or private residences less than three (3) stories high.

Specification No. 33.—**Moving Picture Machine Booths:** Every moving picture machine using inflammable films together with all electric devices, rheostats, sewing machines and other films present in buildings shall be enclosed in a booth large enough to permit the operator to walk freely on either side or in back of the machine and at least seven (7) feet high.

The floor of such booths shall be constructed of concrete at least two (2) inches thick, the walls of masonry eight (8) inches thick, reinforced concrete or gypsum blocks four (4) inches thick, or metal lath and Portland cement plaster on metal studs at least two (2) inches thick. The ceilings shall be constructed of concrete, gypsum or Portland cement mortar reinforced with steel angles, ties, rods, or lath and at least two (2) inches thick.

The entrance to the booth shall be closed with a self-closing fire door of Type A without latch, which shall open out. There shall be not more than four (4) openings for operating machine and for observation, each not over twelve (12) inches in either dimension, and each such opening shall be provided with a shutter of not less than fourteen (14) U. S. gauge sheet metal large enough to overlap one (1) inch on all sides. These shutters shall be held open normally by the

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use of a fine combustible cord fastened to a one hundred sixty (160) degree Fahrenheit fusible link, the whole so arranged that the shutters may be easily released and closed either by hand or automatically by fire. When released the shutters shall close the openings tightly by sliding easily into place in well constructed grooves.

At the top of every booth there shall be at least a ten (10) inch vent constructed of sheet metal not less than fourteen (14) U. S. gauge. This vent shall connect either into a masonry flue or go directly through the roof and twelve (12) inches above and shall be provided with an exhaust fan for ventilating booth. No wood or other combustible material shall be allowed to come within four (4) inches of the vent and all such material within eight (8) inches shall be protected with a metal shield. There shall not be more than one (1) elbow or change in direction of this metal vent in any attic space. No such vent shall pass through any occupied room unless encased in four (4) inches of masonry, concrete or gypsum.

All shelves, furniture and fixtures within booth shall be constructed of metal or other incombustible material.

Every moving picture machine shall be securely attached to the floor to prevent accidental overturning.

All electric wiring, both in the booth and in the machine shall be constructed and installed as required by the National Electric Code and the special provisions of the City of Ann Arbor.

Every moving picture machine shall have the approval of the State and the City Fire Marshal.

Specification No. 34.—Vaults for the storage of celluloid, inflammable liquids, acetylene and similar materials shall have a floor of concrete at least four (4) inches thick, a ceiling of reinforced concrete or gypsum at least four (4) inches thick supported on masonry, concrete or structural steel members and side walls of reinforced concrete four (4) inches thick or of masonry eight (8) inches thick. There shall be not more than one (1) entrance to any such vault and this shall be closed with a self-closing fire door of Type A. Every such vault shall have a vent at or near the top leading to the outside of the building. Such vent shall have an area of at least one hundred forty (140) square inches, and if the vaults exceed one thousand (1,000) cubic feet in volume it shall be increased in area to give one hundred forty (140) square inches for each one thousand cubic feet of volume in vault. Such vent shall pass directly through an outside wall or into a chimney or stack complying with the requirements of Specification No. 1 for chimneys or stacks, except that No. 16 gauge sheet metal may be used in the latter case. When vault is used for films or other pyroxylin products the area of vent shall be increased to provide one hundred forty (140) square inches per one thousand (1,00) pounds of such product.

Specification No. 35.—**Asbestos Curtains for Theatres:** In all theatres where there is movable scenery the proscenium opening shall be provided with a fireproof curtain of asbestos weighing at least two and one-quarter (2¼) pounds to the yard. Such curtain shall overlap the opening at least twelve (12) inches on each side and shall be supported and operated by flexible steel cable working over iron sheaves, head block and tension floor pulley, and on metal fastenings. There shall be a proper counterweight system and the whole shall be equipped with automatic fused link line for controlling curtain in case of fire. The

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curtain shall have metal battens at top and bottom. The curtain shall operate for its full height in smoke slots at least twelve (12) inches deep. These slots shall be constructed of steel angles and steel plates with removable portions for the admission of curtain. The whole structure of the slots shall be securely fastened to the masonry of the proscenium wall. Provision shall be made to prevent the curtain from being forced out of the smoke slots and the curtain so hung that pressure tends to close the joint between curtain and wall. Curtain shall be lowered each evening at close of performance.

Specification No. 36.—**Stage Ventilators:** There shall be one (1) or more ventilators constructed of metal or other incombustible material, near the center and above the highest part of the stage of every theater, raised above the stage roof, and of combined sectional area equal to at least ten (10) per cent of the floor area within the stage walls. The openings in such ventilators shall have an aggregate sectional area at least equal to that required for the ventilators. The entire equipment shall conform to the following requirements or their equivalent:

1. The doors shall open by force of gravity sufficient to overcome the effects of neglect, rust, dirt, frost, snow, or expansion by heat, or warping of the framework.

2. Glass if used in ventilators must be protected against falling on the stage. A wire screen if used under the glass must be so placed that if clogged it cannot reduce the required vent area or interfere with the operating mechanism or obstruct the distribution of water from the automatic sprinklers.

3. The doors or other covers shall be arranged to open instantly after the outbreak of fire by the use of approved automatic fusible links of the thinnest metal practicable. Manual control must also be provided by a cord run down to the stage at a point designated by the Chief Inspector.

4. The link and cord must hold the door closed against a force of at least thirty (30) pounds excess counterweight tending to open the door. Fusible links shall be placed in the ventilator above the roof line and in at least two other points in each controlling cord. No automatic sprinkler heads shall be placed in the ventilator space above the fusible links. While theatre is in use, each ventilator door shall be operated daily by means of the cords.

Specification No. 37.—A fire separation shall consist of a system of fire walls and fireproof floors making a continuous and secure fire break from the ground up to and through the roof at least eighteen (18) inches in buildings not over two (2) stories high and three (3) feet for higher buildings but such projections above the roof may be omitted where the roof is of Type 1 or 2 construction. There shall not be any openings in any floor forming part of a fire separation unless such opening is enclosed in a fireproof shaft provided with self-closing fire doors of Type B and parts of such floor shall be supported from the ground on masonry, concrete or fireproofed steel. All openings in any firewall forming part of a fire separation shall be provided with self-closing or automatic fire doors of Type A. In no case shall the total openings in any such wall exceed twenty-five (25) per cent of the length of the wall. No wooden porches, cornices, siding or other combustible constructions on the exterior of any building shall be so constructed as to continue across the end of any line of fire separation in such a fashion as to communicate fire or defeat the purpose of the fire

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separation, and no line of fire separation shall be discontinued in any vestibule or at any other point than the exterior wall of the building.

Specification No. 38.—(a) **Fire Escapes: Location:** The location of all fire escapes shall be subject to the approval of the Chief Building Inspector.

(b) **Access:** In new buildings access shall be from a door at least two (2) feet six (6) inches wide and six (6) feet six (6) inches high, not more than eight (8) inches above the fire escape platform, communication to such door being by a public corridor. In existing buildings access may be had by at least two windows of adequate size or by one (1) door as given above. The platform level shall not be more than eight (8) inches above or below the window or door opening. Hardware on all fire escape doors and windows shall be of such a type that no key is required to open same and all doors shall open out. Access to fire escapes shall not be obstructed by merchandise, furniture, show cases or other material or object.

(c) **Fire Protection:** Doors and windows opening onto fire escapes, or under fire escapes when within five (5) feet on either side of fire escapes shall be fire windows and doors except that such doors may have unlimited area of wired glass.

(d) **Material and Form:** All fire escapes shall be made of wrought iron or steel and shall have platforms at every floor level above the first floor and fixed stairs connecting all platforms. There shall be a fixed stairs or ladder connecting the topmost platform to the roof and a fixed or drop stairs from the lowest platform to the ground.

(e) Fire escapes which are not constructed over public streets or alleys shall continue to the ground level in which case they must lead to open courts or passageways opening to streets or alleys and such courts and passageways shall always be kept clear of obstructions. Fire escapes constructed over streets and public alleys shall have the lowest portion thereof at least twelve (12) feet above the grade. Any fire escape which does not continue to the ground shall have a counterbalanced drop stair at the lowest platform.

(f) **Platforms and Brackets:** All platforms shall be at least four (4) feet wide and shall consist of three (3) stringers supported on cantilever brackets floored over with metal slats and surrounded by a rail on all exposed sides and around the stair wells except at the head of the stairs. The platform at head of stairs shall be at least two (2) feet long.

(g) The stringers shall be at least three (3) inches, four (4) pound channels for spans under ten (10) feet and shall be increased in size for larger spans to provide a safe floor load of at least sixty (60) pounds per square foot. The ends of platforms shall be finished with the same size channel.

(h) The floor slats shall be at least two (2) by one-quarter (¼) inch flat irons set three (3) inches on centers, fastened with at least one-quarter (¼) inch rivets to stringers or to one and one-half (1½) by one-quarter (¼) inch battens. Battens shall be fastened every two (2) feet to stringers.

(i) The railings shall be at least three (3) feet high in the clear with uprights of at least one and one-half (1½) by one and one-half (1½) by one-quarter (¼) inch angles not over five (5) feet apart and top rail of same material. Uprights to be bolted to channel stringers with at least two (2) three-eighths (⅜) inch bolts and to top rail with

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one (1) three-eighths (⅜) inch bolt or rivet. Top rails shall be braced from the top chord of each bracket with at least a five-eighth (⅝) inch round brace.

(j) Brackets: Brackets spaced not over eight (8) feet centers shall be made as follows: Top, bottom and wall chords to be at least one (1) two (2) by two (2) by one-quarter (¼) inch angle with two (2) bracing members of at least one (1) and one-half (1⅜) by one and and one-half (1½) by one-quarter (¼) inch angle, riveted together with one-half (½) inch rivets. Lower end of bottom chord to be bent at right angles to face of wall and set into same at least three (3) inches. Top chord of bracket to have one and one-quarter (1¼) inch diameter bolt flattened for eight (8) inches at one end to not less than one-half (½) inch thick, riveted to same with not less than three (3) one-half (½) inch rivets, bolts to extend through wall and to be threaded with standard one and one-quarter (1¼) inch nut and washer not less than five (5) inches by one-quarter (¼) inch on inside of wall. Brackets spaced over eight (8) feet and not more than fifteen (15) feet centers to consist of at least two (2) two (2) inch by two (2) inch by one-quarter (¼) inch angles for top, bottom and wall chords, with two (2) bracing members of at least one (1) two (2) inch by two (2) inch by one-quarter (¼) inch angle each. The three (3) corners of brackets to be connected together with at least one-quarter (¼) inch gusset plates with at least two (2) one-half (½) inch rivets for each pair of angles. The bolt through wall and the washer inside to be as specified for lighter brackets. One of the inside braces shall extend in a vertical position directly under the middle stringer of balcony, the other to run in a diagonal direction from the base of this upright to the wall end of the top chord. The minimum distance between upper and lower chords of brackets shall not be less than twenty (20) inches at the wall line. The top chord of brackets shall extend five (5) inches beyond edge of balcony to support five-eighths (⅝) inch round brace to top rail.

(k) Stairs: Stairs shall not be less than twenty-four (24) inches wide and shall rise at an angle of not more than fifty-one (51) degrees but when used as emergency exits for theatres this angle shall be determined by the riser and tread given below. The risers shall not be more than eighth (8) inches and the treads not less than six (6) inches and one-half (½), but when used as emergency exits from theatres the risers shall not exceed seven (7) inches and the treads shall not be less than ten and one-half (10½) inches. The stringers shall consist of at least five by one-quarter (5¼) inch plates. The treads shall consist of at least one (1) piece of one and one-quarter (1¼) inch by one-fourth (¼) inch angle on outer edge and two (2) pieces of at least one and one-half (1½) by one-quarter (¼) inch flat iron all resting on and riveted to shelves of at least one and one-quarter (1¼) by one and one-quarter (1¼) by one-quarter (¼) inch angles riveted to stringers with two (2) three-eighths (⅜) inch rivets. Stair stringers are to be securely fastened to balcony stringers above and below. Stairs shall be set on the outer side of balconies whenever possible and shall be set on the inner side only when on dead walls.

(l) Stairs shall have handrails on both sides (except where one side is against a dead wall) at least two (2) feet six (6) inches high with top bar of at least three-quarter (¾) inch pipe or equivalent securely fastened to uprights of at least one and one-quarter (1¼) by one and one-quarter (1¼) by one-quarter (¼) inch angles or three-

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quarter (¾) inch pipe set not more than five (5) feet apart and fastened to stair stringers with at least two (2) three-eighths (⅜) inch bolts or rivets.

(m) Drop stairs shall be constructed the same as other stairs but shall be pivoted on at least a one (1) inch bolt and so counterbalanced as to remain in a horizontal position when not in use. They shall drop into position instantly when stepped upon and when down shall remain there until raised. They shall be properly braced to prevent them from springing out of shape. Stairs counterbalanced with weights hung from cables will not be allowed.

(n) Ladders: All ladders shall be at least eighteen (18) inches wide in the clear, with side bars of at least two (2) inches by one-half (½) inch bars and rungs of at least three-quarter (¾) inch round iron spaced not over twelve (12) inches on centers and secured to the side bars. The ladder to the roof shall have side bars, extending at least thirty (30) inches above the roof and curved over and fastened to the roof and shall have braces to the wall where necessary.

(o) Maintenance: Every fire escape shall be kept in perfect repair and shall receive at least one (1) coat of mineral paint each year.

(p) Every fire escape shall be kept clear at all times of rubbish, snow, ice or other obstruction and all doors and windows leading to fire escape shall be kept unlocked except for locks easily released from the inside without the use of a key as well as free from all ice, snow or other foreign material, which might prevent the instant opening of same.

(q) Live Load Requirements: Every part of a fire escape shall be made strong enough to safely carry sixty (60) pounds of live load per square foot of platform and the stairs shall be designed to safely carry two hundred (200) pounds per tread uniformly distributed when designed in accordance with the provisions of Article XVIII.

(r) Placards: Every building having fire escapes shall have placards bearing the inscription "Fire Escape" posted in conspicuous places in the corridor of every floor above the first floor indicating the location of the fire escape and it shall be the duty of the owner, manager or any person or persons having charge of a building to see that such placards are provided, properly placed and maintained.

Specification No. 39.—**Snow Guards** shall be provided on all roofs pitching toward public ways not over ten (10) feet away if sloping more than one (1) foot in four (4) feet provided the eaves are more than thirty-five (35) feet above grade.

Snow guards shall be made of wrought iron or soft steel bars standing not less than six (6) inches above roof and shall be securely attached to roof construction. They shall be placed not over three (3) feet on centers and within one (1) foot of the eaves.

Specification No. 40.—**Material to be Used as Substitute for Three-Quarter (¾) Inch Sheathing** shall possess the following properties:

(a) When applied to two (2) by four (4) inch wood studs placed sixteen (16) inches on centers it shall possess at least as great a resistance to distortion in the planes of the face of the material as three-quarters (¾) inch pine sheathing of fair quality.

(b) It shall have a hard, durable surface which will not readily absorb water or become disintegrated or deteriorated by the action of the elements or ordinary wear and tear.

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(c) It shall not rot or decompose more readily than pine timber or become infested with vermin.

(d) It shall be at least equal to three-quarter (¾) inch pine sheathing as a thermo insulator.

(e) It shall not burn more readily than pine timber.

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Effect

Section 1.—This ordinance shall take effect on and after ten (10) days from legal publication thereof.

I hereby certify that the foregoing ordinance was passed by Common Council of the City of Ann Arbor, Michigan, August 19, 1929.

FRED C. PERRY, City Clerk.

Approved August 20, 1929.

EDWARD W. STAEBLER, Mayor.

Chair put the question "Shall this Ordinance pass?"

Passed by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

Ald. Severance presented "An Ordinance to Amend an Ordinance entitled, "An Ordinance Relative to Licenses." Passed July 6, 1891, Approved July 15, 1891; Amended February 4, 1895; Amended March 16, 1896; Amended December 19, 1898; Amended June 4, 1900; Amended Nov. 6, 1905; Amended June 7, 1907; Amended January 6, 1908; Amended December 17, 1917; Amended April 10, 1924.

The Common Council of the City of Ann Arbor Ordain:

Which was given its second reading and referred to Ordinance Committee by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

Sidewalk Committee Report

To the Honorable, The Common Council,

Gentlemen:

Your Sidewalk Committee respectfully recommends that the following sidewalks be ordered built and the following resolution adopted:

Resolved, that the grading and construction of the sidewalks hereinafter mention is deemed and declared to be necessary public improvements.

Therefore, it is hereby ordred that Portland cement concrete sidewalks be graded, built and constructed in the City of Ann Arbor on and along the following property; width of walk to be five feet unless otherwise stated:

New Walks

1303 Packard Street. Lot 79 Eberbach Addition.

1207 Prospect Street. Lot 12, except the north 12 feet Miller's Ad-

dition.

1216, 1220, 1224 Prospect Street. Lots 28, 29 and 30 Miller's Addition.

Repair Walks

1203 Church Street. The north 12 feet of lot 12 and the south 17 feet of lot 13, Miller's Addition.

1208 Prospect Street, 2 new blocks. Lots 26 and 27, Miller's Addition.

1030 E. University Avenue. Lot 17, Vaughn Addition.

1410 Hill Street. Lot 7, Olivia B. Hall's Subdivision.

730 Church Street, Hill Street side, new block. The south 52.3 feet of the east 132 feet of lot 8, block 2, R. S. Smith's Addition.

Level Up and Repair

1220 E. University Avenue, Packard Street side. Beginning at the intersection of the northwesterly line of E. University Avenue and the northeasterly line of Packard Street, thence northeasterly on East University Avenue 54 feet, northwest at right angles 60 feet, southwest 54 feet, thence southeast 60 feet to beginning, part of Section 33, Ann Arbor.

1307 Packard Street. Lot 80, Eberbach Addition.

800 Lincoln Avenue Hill Street side; 1416 Hill Street. Lots 8 and 9 and 10, except the south 56 feet of lot 10, Olivia B. Hall's Subdivision.

New Walks

1027 Ferdon Road. Lot 60, except the south 30 feet Assessors Plat No. 1 of Ferdon Addition.

1126 Ferdon road, one-half of walk. Lot 14, Assessors Plat No. 1 of Ferdon Addition.

1204 Ferdon Road, one-half of Wells Street side. Lot 20 Assessors Plat No. 1 of Ferdon Addition.

1202, 1204 Granger Avenue. Lots 28 and 29, Assessors Plat No. 9.

401, 409, 415 N. Fourth Avenue. Lots 10, 11 and 12, Block 3 North, Range 4 East.

Corner of Washtenaw Avenue and Ferdon Road, south half on Ferdon Road side. Lots 62 and 63 Assessors Plat No. 1 of Ferdon Addition.

1824 Norway Road, Wm. Arnold, Fair Oaks Parkway. Lot 3, Eastwood.

110 South Ingalls Street. The south 40 feet of Lot 4, Block 1 south, Range 11 east, Eastern Addition.

1313 Geddes Avenue, one new block. The east one-half of lot 80, except the north 34 feet, Plat of Smith's Addition.

1341, 1345 Geddes Avenue, City to pay one-half. Level up walk at 1335 Geddes Avenue at expense of city. Lots 86, 87 and the west 25.1 feet of lot 88, Plat of Smith's Addition.

816 Fuller Street, one new block. Beginning at a point in south line of Fuller Street, 428 easterly of the east line of State Street, thence southerly at right angles 81 feet, easterly 49½ feet, northerly 81 feet to Fuller Street, thence westerly 49½ feet to beginning, part of Section 28, Ann Arbor.

921 E. Huron Street, one new block; 917 East Huron Street, three new blocks. The west 64 feet of lot 4 and the east 33 feet of the south 82 feet of lot 3, F. J. B. Crane Subdivision of Block 1 North, Range 12 East.

New Walks

Wayne Street, west side, from Washtenaw Avenue to Vinewood

Avenue. Lots 5, 18 and 23, College Hill.

Vinewood Avenue, north side, from Washtenaw Avenue to an including No. 1835. Lot 84, College Hill, also a parcel of land bounded east by College Hill, west by Cambridge Road, south by Vinewood Boulevard and north by a line parallel to and 150 feet north of north line of Vinewood Boulevard, part of Section 33, Ann Arbor.

Vinewood Avenue, south side, from No. 2020 to Berkshire Road. Lots 29, 30, 31, and 32 College Hill.

Vinewood Avenue, north side, from N. 2021 to Berkshire Road. Lots 73, 74, 75 and 76, College Hill.

Berkshire Road, west side, from 1010 to Vinewood Avenue. Lot 32 College Hill.

Berkshire Road, east side, from No. 1009 to Vinewood Avenue. Lots 54, 55 and 56, College Hill.

Berkshire Road, west side, from Vinewood Avenue to Dorsett Road. Lots 73, 95, 104, 105, 106, 107, 108, and 109, College Hill.

Forest Hill Cemetery Property—Geddes Avenue from present concrete walk east to Oxford Road. A parcel of land bounded east by east line of Oxford Road west by Observatory street, south by Geddes Avenue, north by a line parallel to and 132 feet north of north line of Geddes Avenue, part of Section 28, Ann Arbor.

Hill Street, north side, No. 1803 Hill Street side. A parcel of land 165.98 feet on Oxford Road, 133.44 on Hill Street, 120 feet on the north line and 77.29 feet on the east line, part of Section 28, Ann Arbor.

Hill Street, south side, No. 1502 Hill Street side. A parcel of land beginning at the intersection of the east line of Lincoln Avenue and the south line of Hill Street, thence south along east line of Lincoln Avenue 200 feet, east 99.98 feet, north 200 feet, west 99.98 feet to beginning, part of Section 33, Ann Arbor.

Respectfully submitted,

E. C. FREEMAN,
LEONARD C. SAUER,
FRANK P. HARRIS,
GEO. J. LUTZ, JR.,
E. L. SEVERANCE,
BENJ. H. GRAF,
Sidewalk Committee.

Ald. Freeman moved the adoption of the report, which was adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

Traffic Committee Report

To the Honorable, the Common Council,

City of Ann Arbor, Michigan.

Gentlemen—Your Traffic Committee to whom was referred the application for parking spaces beg leave to make the following recommendations:

1. Request of Albert J. Jedele for "No Parking" at 306 E. Liberty Street be disapproved.
2. Request of Auto Parts Co. for 15 minutes parking on N. Ashley be denied.

Respectfully submitted,

E. J. ALLMENDINGER,
B. BRADLEY.
BENJ. H. GRAF.

Ald. Allmendinger moved the adoption of the report which was adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

Water Committee Report

Ald. Schlenker reported out resolution calling for special election for the raising by loan of the sum of $325,000.00 for improvement of Distribution System of City Water Supply Plant, as submitted to Common Council on August 5, 1929, with the change of date for election from Monday, September 30, 1929, to Monday, October 14, 1929, and moved its adoption.

Substitute Resolution

Resolution by Ald. Freeman:

Whereas, the Board of Water Commissioners of the City of Ann Arbor did on February 4th, A. D. 1929, send a communication to this Council requesting that this Council arrange for a bond issue of three hundred twenty-five thousand dollars, to cover contemplated improvements to the distribution system of the city wter supply plant, and

Whereas, the afore-mentioned Water Commissioners have presented the following estimates of the cost of the contemplated improvements as follows:

(1) 6,000,000 gallon, reinforced concrete covered reservoir with surface elevation at 10 feet higher elevation that present reservoir, with connection to water mains, $110,000.00.

(2) Cast iron trunk line water mains, $150,,000.00.

3) Connecting dead end mains and installing additional hydrants, $45,000.00.

(4) Contingencies and engineering, $20,000.00.

Total, $325,000.00.

And have given the following explanation of the needs for the contemplated improvements and of the benefits to be derived therefrom and also a plan for the payment of their costs, to-wit:

The six million gallon reservoir is to replace the present two million gallon structure, which is an old open type structure and in bad condition. For years the old reservoir has not been considered safe to carry more than one million gallons storage and this amount is dangerously inadequate. The proposed new reservoir is to be of reinforced concrete and entirely covered and of sufficient capacity to insure the city against a shortage of water in the event of a bad fire. The covered reservoir will keep the water in better condition and at a lower and more uniform temperature.

The cast iron trunk line water mains are for strengthening and improving the distribution system and will insure adequate water at times of maximum demand to all parts of the city and slightly better pressures, and at a much more uniform and satisfactory quality to all consumers.

The new trunk line mains together with the contemplated smaller connecting dead end mains will relieve the condition of stagnant water throughout the city and will improve the condition of water to all consumers.

Your Water Board feels that these are badly needed improvements and are so laid out that they will work in with and in fact be necessary to, and further developments of the water system.

The interest on the proposed bond issue, together with the retirement of the bonds, will be paid from the revenues of the Water Department and will not therefore in any way affect the taxes of the city; and

Whereas, these addition to the distribution system of the City Water Supply Plan are hereby declared to be a necessary public improvement and their period of use-

fulness is hereby determined to be a period of thirty (30) years or more;

Now, therefore, be is resolved that at a special election to be held in the City of Ann Arbor, Michigan, on Monday, the fourteenth day of October, A. D. 1929, the proposition of raising by loan the sum of $325,000.00 be submitted to the qualified voters of this city;

Resolved, further, that the said proposition to raise said money be submitted as two proposition, the first proposition to provide for the raising by loan of the sum of $120,000.00 for the construction of a new reservoir with connection to water mains, and the second propsition to provide forthe raising of $205,000.00 for the construction of cast iron trunk line water mains and connecting dead end mains and installing additional hydrants;

Resolved, further, that the said election be held in the several wards and precincts in the City of Ann Arbor, as follows:

First ward, voting room, in basement of City hall; Second ward, ward building on South Ashley Street; Third ward, ward building on Miller Avenue; Fourth ward, voting room in basement of Armory on North Fifth Avenue; Fifth ward, ward building on Pontiac Street; Sixth ward, voting room, old Engine House on East University Avenue; Seventh ward, first precinct, City building on Mary Street; Seventh ward, second precinct, voting room in the Eberbach school, corner Wells Street and Forest Avenue.

Resolved, further, that the polls of said election be opened at the designated places from seven o'clock a. m. to eight o'clock p. m., Eastern Standard Time.

Resolved, further, that the City Clerk be, and he is hereby authorized to give notice of the said election according to the law of the State of Michigan and the charter of the City of Ann Arbor and that he cause to be printed white paper ballot of equal width and length for the use of the electors at the said special election which shall be in the following form:

For the raising by loan of the sum of $120,000.00 and the issuing of bonds of the City of Ann Arbor therefor, payable not more than thirty (30) years from date of issue and bearing interest not exceeding six per cent per annum, said money when raised to be used by the Board of Water Commissioners of the City of Ann Arbor, Michigan, in the construction of a re-inforced concrete covered reservoire with surface elevation at 10 feet higher elevation than present reservoir, with connection to water mains, contingencies and engineering.

YES ( )
NO ( )

For the raising by loan of the sum of $205,000.00 and issuing the bonds of the City of Ann Arbor therefor, payable not more than thirty (30) years from date of issue and bearing interest not exceeding six per cent per annum, said money when raised to be used for contemplated improvements and additions by the Board of Water Commissioners of the City of Ann Arbor, Michigan, including trunk line water mains, connecting dead end mains, additional hydrants, contingencies and engineering.

YES ( )
NO ( )

Resolved, further, that the City Clerk be and he is thereby directed to issue and publish the notice of registration of electors for said special election in compliance with the Charter of the City of Ann Arbor, and that said clerk make all necessary arrangements for the registration of electors for the said special election.

Resolved, further, that the canvass and determination of the said said vote be made according to the State Law andthe Charter of the City of Ann Arbor.

Ald. Freeman moved the adoption of substitute resolution, which was lost by the following votes: Yeas, Ald. Harris, Severance, Freeman, Lutz, Pres. Myers, 5. Nays, Ald. Sauer, Graf, Schlenker, Allmendinger, Bradley, 5.

The chair then called for a vote on the original resolution, which was adopted by the following vote: Yeas, Ald. Sauer, Schlenker, Harris, Allmendinger, Bradley, Lutz, Pres. Myers, 7. Nays, Ald. Graf, Severance, Freeman, 3.

Bond and License Committee Report

By Ald. Graf:

Resolved, That the Mayor and City Clerk are hereby authorized to draw warrant to Cavanaugh & Burke, attorneys for the Fidelity and Casualty Company of New York, in the sum of seven hundred and four and 03-100 dollars, pursuant to the prayer and petition heretofore filed with this Honorable Body.

Resolved also that the bond of the Fidelity and Casualty Company of New York, and the American Surety Company of New York, as surety, be and the same is hereby approved.

Adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays—None.

Ald. Lutz stated that about a year ago a Special Committee was appointed to consider the question of subdividing the city into additional wards or precincts and as no report from said committee had been received he offered the following:

Moved by Ald Lutz, that President of Council appoint a new committee with President as chairman to take up the matter of dividing City into additional precincts.

Adopted and President announced that he would advise committee at the next meeting.

Officers Reports

City Attorney Lehman stated that he had investigated the claim of Arthur and Cora Brown relative to pavement tax on Packard Street in front of property, which was later platted as Gardner Avenue, and recommended that the four (4) unpaid installments be paid by the City.

Resolution by Ald. Allmendinger:

Resolved, That Paving District No. 50 be credited with the payment of $88.41 for taxes assessed to that portion of Krapf Addition, to this City, which at the present time is included in Gardner Avenue.

Adopted by the following vote: Yeas, Ald. Sauer, Graf, Schlenker, Harris, Allmendinger, Bradley, Severance, Freeman, Lutz, Pres. Myers, 10. Nays, none.

City Attorney reported that he had drawn up necessary conveyances from S. A. Moran to the City and that deed had been left with City Clerk. That the matter of the accident between two (2) motorcycles and the police car, which occurred at the intersection of Fifth Avenue and Packard Streets, had been referred to the insurance company.

Motions and Resolutions

On motion of Ald. Graf, Council adjourned.

Council adjourned.

FRED C. PERRY,

City Clerk.