

## APPENDIX

### Introduction

The fire resistance tables that follow are a part of Resource A and provide a tabular form of assigning fire resistance ratings to various archaic building elements and assemblies.

These tables for archaic materials and assemblies do for archaic materials what Tables 720.1(1), 720.1(2), and 720.1(3) of the *International Building Code* do for more modern building elements and assemblies. The fire resistance tables of Resource A should be used as described in the “Purpose and Procedure” that follows the table of contents for these tables.

## RESOURCE A TABLE OF CONTENTS

<b>Purpose and Procedure</b>		Resource A-17	
<b>Section I—Walls</b>			
1.1.1	Masonry	0 in. - 4 in. thick	Resource A-18
1.1.2	Masonry	4 in. - 6 in. thick	Resource A-22
1.1.3	Masonry	6 in. - 8 in. thick	Resource A-31
1.1.4	Masonry	8 in. - 10 in. thick	Resource A-37
1.1.5	Masonry	10 in. - 12 in. thick	Resource A-46
1.1.6	Masonry	12 in. - 14 in. thick	Resource A-50
1.1.7	Masonry	14 in. or more thick	Resource A-57
1.2.1	Metal Frame	0 in. - 4 in. thick	Resource A-60
1.2.2	Metal Frame	4 in. - 6 in. thick	Resource A-64
1.2.3	Metal Frame	6 in. - 8 in. thick	Resource A-66
1.2.4	Metal Frame	8 in. - 10 in. thick	Resource A-67
1.3.1	Wood Frame	0 in. - 4 in. thick	Resource A-68
1.3.2	Wood Frame	4 in. - 6 in. thick	Resource A-69
1.3.3	Wood Frame	6 in. - 8 in. thick	Resource A-77
1.4.1	Miscellaneous Materials	0 in. - 4 in. thick	Resource A-77
1.4.2	Miscellaneous Materials	4 in. - 6 in. thick	Resource A-78
1.5.1	Finish Ratings—Inorganic Materials	Thickness	Resource A-79
1.5.2	Finish Ratings—Organic Materials	Thickness	Resource A-80
<b>Section II—Columns</b>			
2.1.1	Reinforced Concrete	Min. Dim. 0 in. - 6 in.	Resource A-81
2.1.2	Reinforced Concrete	Min. Dim. 10 in. - 12 in.	Resource A-81
2.1.3	Reinforced Concrete	Min. Dim. 12 in. - 14 in.	Resource A-85
2.1.4	Reinforced Concrete	Min. Dim. 14 in. - 16 in.	Resource A-86
2.1.5	Reinforced Concrete	Min. Dim. 16 in. - 18 in.	Resource A-87
2.1.6	Reinforced Concrete	Min. Dim. 18 in. - 20 in.	Resource A-89
2.1.7	Reinforced Concrete	Min. Dim. 20 in. - 22 in.	Resource A-90
2.1.8	Hexagonal Reinforced Concrete	Diameter - 12 in. - 14 in.	Resource A-91
2.1.9	Hexagonal Reinforced Concrete	Diameter - 14 in. - 16 in.	Resource A-92

## RESOURCE A

2.1.10	Hexagonal Reinforced Concrete	Diameter - 16 in. - 18 in.	Resource A-92
2.1.11	Hexagonal Reinforced Concrete	Diameter - 20 in. - 22 in.	Resource A-92
2.2	Round Cast Iron Columns	Minimum Dimension	Resource A-93
2.3	Steel—Gypsum Encasements	Minimum Area of Solid Material	Resource A-94
2.4	Timber	Minimum Dimension	Resource A-95
2.5.1.1	Steel/Concrete Encasements	Minimum Dimension less than 6 in.	Resource A-95
2.5.1.2	Steel/Concrete Encasements	Minimum Dimension 6 in. - 8 in.	Resource A-96
2.5.1.3	Steel/Concrete Encasements	Minimum Dimension 8 in. - 10 in.	Resource A-97
2.5.1.4	Steel/Concrete Encasements	Minimum Dimension 10 in. - 12 in.	Resource A-99
2.5.1.5	Steel/Concrete Encasements	Minimum Dimension 12 in. - 14 in.	Resource A-104
2.5.1.6	Steel/Concrete Encasements	Minimum Dimension 14 in. - 16 in.	Resource A-106
2.5.1.7	Steel/Concrete Encasements	Minimum Dimension 16 in. - 18 in.	Resource A-107
2.5.2.1	Steel/Brick and Block Encasements	Minimum Dimension 10 in. - 12 in.	Resource A-108
2.5.2.2	Steel/Brick and Block Encasements	Minimum Dimension 12 in. - 14 in.	Resource A-108
2.5.2.3	Steel/Brick and Block Encasements	Minimum Dimension 14 in. - 16 in.	Resource A-109
2.5.3.1	Steel/Plaster Encasements	Minimum Dimension 6 in. - 8 in.	Resource A-109
2.5.3.2	Steel/Plaster Encasements	Minimum Dimension 8 in. - 10 in.	Resource A-110
2.5.4.1	Steel/Miscellaneous Encasements	Minimum Dimension 6 in. - 8 in.	Resource A-110
2.5.4.2	Steel/Miscellaneous Encasements	Minimum Dimension 8 in. - 10 in.	Resource A-110
2.5.4.3	Steel/Miscellaneous Encasements	Minimum Dimension 10 in. - 12 in.	Resource A-111
2.5.4.4	Steel/Miscellaneous Encasements	Minimum Dimension 12 in. - 14 in.	Resource A-111
<b>Section III—Floor/Ceiling Assemblies</b>			
3.1	Reinforced Concrete	Assembly thickness	Resource A-112
3.2	Steel Structural Elements	Membrane thickness	Resource A-118
3.3	Wood Joist	Membrane thickness	Resource A-125
3.4	Hollow Clay Tile with Reinforced Concrete	Assembly thickness	Resource A-130
<b>Section IV—Beams</b>			
4.1.1	Reinforced Concrete	Depth - 10 in. - 12 in.	Resource A-133
4.1.2	Reinforced Concrete	Depth - 12 in. - 14 in.	Resource A-136
4.1.3	Reinforced Concrete	Depth - 14 in. - 16 in.	Resource A-138
4.2.1	Reinforced Concrete/Unprotected	Depth - 10 in. - 12 in.	Resource A-139
4.2.2	Steel/Concrete Protection	Depth - 10 in. - 12 in.	Resource A-139
<b>Section V—Doors</b>			
5.1	Resistance of Doors to Fire Exposure	Thickness	Resource A-140

**PURPOSE AND PROCEDURE**

The tables and histograms which follow are to be used only within the analytical framework detailed in the main body of this guideline.

Histograms precede any table with 10 or more entries. The use and interpretation of these histograms is explained in Part 2 of the guideline. The tables are in a format similar to that found in the model building codes. The following example, taken from an entry in Table 1.1.2, best explains the table format.

1. Item Code: The item code consists of a four place series in the general form w-x-y-z in which each member of the series denotes the following:

- w = Type of building element (e.g., W=Walls; F=Floors, etc.)
- x = The building element thickness rounded down to the nearest one inch increment (e.g., 4<sup>5</sup>/<sub>8</sub> inches is rounded off to 4 inches)
- y = The general type of material from which the building element is constructed (e.g., M=Masonry; W=Wood, etc.)
- z = The item number of the particular building element in a given table

The item code shown in the example W-4-M-50 denotes the following:

- W = Wall, as the building element
- 4 = Wall thickness in the range of 4 inches (102 mm) to less than 5 inches (127 mm)
- M = Masonry construction
- 50 = The 50th entry in Table 1.1.2

- 2. The specific name or heading of this column identifies the dimensions which, if varied, has the greatest impact on fire resistance. The critical dimension for walls, the example here, is thickness. It is different for other building elements (e.g., depth for beams; membrane thickness for some floor/ceiling assemblies). The table entry is the named dimension of the building element measured at the time of actual testing to within ± 1/8 inch (3.2 mm) tolerance. The thickness tabulated includes facings where facings are a part of the wall construction.
- 3. Construction Details: The construction details provide a brief description of the manner in which the building element was constructed.

4. Performance: This heading is subdivided into two columns. The column labeled “Load” will either list the load that the building element was subjected to during the fire test or it will contain a note number which will list the load and any other significant details. If the building element was not subjected to a load during the test, this column will contain “n/a,” which means “not applicable.”

The second column under performance is labeled “Time” and denotes the actual fire endurance time observed in the fire test.

5. Reference Number: This heading is subdivided into three columns: Pre-BMS-92; BMS-92; and Post-BMS-92. The table entry under this column is the number in the Bibliography of the original source reference for the test data.

6. Notes: Notes are provided at the end of each table to allow a more detailed explanation of certain aspects of the test. In certain tables the notes given to this column have also been listed under the “Construction Details” and/or “Load” columns.

7. Rec Hours: This column lists the recommended fire endurance rating, in hours, of a building element. In some cases, the recommended fire endurance will be less than that listed under the “Time” column. In no case is the “Rec Hours” greater than given in the “Time” column.

ITEM CODE	THICKNESS	CONSTRUCTION DETAILS	PERFORMANCE		REFERENCE NUMBER			NOTES	REC. HOURS
			LOAD	TIME	PRE-BMS-92	BMS-92	POST-BMS-92		
W-4-M-50	4 <sup>5</sup> / <sub>8</sub> ”	Core: structural clay tile, See notes 12, 16, 21; Facings on unexposed side only, see note 18	n/a	25 min.		1		3, 4, 24	1/3