

Spray-Applied Fireproofing And Today's Building Code

The International Building Code (IBC) has gained widespread acceptance in the United States. The goal of the International Code Council, the authors of the IBC, was to create a single model building code inclusive of the Building Officials and Code Administrators (BOCA), Southern Building Code Congress International (SBCCI), and the Uniform Building Code (UBC).

The current IBC contains certain key sections relating specifically to fire resistive construction. The goal of this Isolutions is to address important issues within the IBC that arise when investigating fire resistive requirements in commercial structures.

Section 703.2.3 Restrained Classification states, "Fire-resistance rated assemblies tested under ASTM E119 or UL 263 shall not be considered to be restrained unless evidence satisfactory to the *building official* is furnished by the *registered design professional* showing that the construction qualifies for a restrained classification in accordance with ASTM E119 or UL 263. Restrained construction shall be identified on the plans."

Table 601 – Fire Resistance Rating Requirements for Building Elements specifies the hourly fire resistive requirements for building elements such as structural framing, floor and roof construction, and walls and partitions (see table on reverse side).

Section 202 Definitions states Primary Structural Frame "The primary structural frame shall include all of the following structural members:

1. The columns;
2. Structural members having direct connections to the columns, including girders, beams, trusses, and spandrels;
3. Members of the floor construction and roof construction having direct connections to the columns; and

4. Bracing members that are essential to the vertical stability of the primary structural frame under gravity loading shall be considered part of the primary structural frame whether or not the bracing member carried gravity loads".

Secondary Members "The following structural members shall be considered secondary members and not part of the *primary structural frame*.

1. Structural members not having direct connections to the columns;
2. Members of the floor construction and roof construction not having direct connections to the columns; and
3. Bracing members other than those that are part of the *primary structural frame*."

In many instances, the IBC relies heavily upon **active** fire protection systems; i.e., sprinklers as the sole means of satisfying fire resistive requirements. The IBC Height & Area limitations are considerably more liberal; in essence, commercial structures can be built larger and taller with less passive fire protection requirements. Combine this element with the allowable area increases when utilizing a sprinkler system and the reliance on passive fire protection systems becomes even less. Isolatek International is an active participant in industry organizations which are dedicated to the re-emphasis on passive fire protection systems within the IBC.

Section 403 High-Rise Buildings. Within this section there are requirements set forth for minimum bond strength values that are predicated on building height which is measured from above the lowest level of the fire department vehicle access to the highest occupied floor level including mezzanines.

In short, the higher the structure, the higher the minimum bond strength requirements are for the Spray-Applied Fireproofing product being installed. Please refer to Isolutions "Bond Strength Testing of Spray-Applied Fireproofing" or Focus on Fireproofing "IBC Section 403 - High-Rise Buildings Height/Bond Strength Requirements" for further information.

(Continued on next page)

**TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)**

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame ^f (see Section 202)	3 ^a	2 ^a	1	0	1	0	HT	1	0
Bearing walls									
Exterior ^{e, f}	3	2	1	0	2	2	2	1	0
Interior	3 ^a	2 ^a	1	0	1	0	1/HT	1	0
Nonbearing walls and partitions	See Table 602								
Exterior									
Nonbearing walls and partitions							See Section 602.4.6		
Interior ^d	0	0	0	0	0	0		0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 ^{1/2} ^b	1 ^{b,c}	1 ^{b,c}	0 ^c	1 ^{b,c}	0	HT	1 ^{b,c}	0

For SI: 1 foot = 304.8 mm.

- a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
- b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
- c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
- d. Not less than the fire-resistance rating required by other sections of this code.
- e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).
- f. Not less than the fire-resistance rating as referenced in Section 704.10.

Should you have any questions related to these issues, please contact our Technical Service Department at 800.631.9600 or via e-mail at technical@isolatek.com.

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