Mid-Rise Wood Frame
Fire and Life Safety
Requirements

Presented by: Ethan Martin, P.E.
February 24 & 25, 2016
Outline

• Mid-Rise Construction Types & Life Safety Review
• Exterior Walls
• Interior Walls
  • Fire Walls
  • Fire Barriers
  • Fire Partitions
• Shaft Walls
• Corridors
Type III Construction

Exterior walls are of noncombustible materials and interior building elements are of any material. Fire Retardant Treated (FRT) wood is permitted in exterior walls of 2hr fire rating or less.

- Non combustible
  - Exterior walls
- Fire Retardant Treated allowed
  - Exterior walls if fire rating is 2hr or less
- Heavy Timber
  - HT used in place of 1hr rating or less
  - Untreated Lumber
  - All interior elements
Type V Construction

- **Type V** are generally combustible such as wood although V permits any material permitted by code.

All structural elements can be combustible construction:

- Exterior walls
- Floor
- Roof
- Interior walls
# Fire Resistance Ratings

## Key Differences in Fire Ratings for Construction Types

<table>
<thead>
<tr>
<th></th>
<th>IIIA</th>
<th>IIB</th>
<th>VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior (bearing) wall framing</td>
<td>FRT</td>
<td>FRT</td>
<td>non-FRT</td>
</tr>
<tr>
<td>Exterior bearing wall fire rating</td>
<td>2 hr</td>
<td>2 hr</td>
<td>1 hr</td>
</tr>
<tr>
<td>Interior bearing wall fire rating</td>
<td>1 hr</td>
<td>0 hr</td>
<td>1 hr</td>
</tr>
<tr>
<td>Interior non-bearing wall fire rating</td>
<td>0 hr</td>
<td>0 hr</td>
<td>0 hr</td>
</tr>
<tr>
<td>Floor assembly fire rating</td>
<td>1 hr</td>
<td>0 hr</td>
<td>1 hr</td>
</tr>
<tr>
<td>Fire wall rating</td>
<td>3 hr</td>
<td>3 hr</td>
<td>2 hr</td>
</tr>
</tbody>
</table>

**IBC Tables 601 & 706.4**

Note: FRT = Fire Retardant Treated
Fire Performance

- Combustibility
- Fire Resistance
- Flame Spread
- Fire Protection Systems
- Classification
Fire-Resistance Rated Wall Assemblies

**Fire-Resistance Rating:** The period of time a building element, component or assembly maintains the ability to confine a fire, continues to perform a given structural function, or both, as determined by the tests, or the methods based on tests, prescribed in Section 703.

Tested under a standardized test fire exposure for a given duration to:

1. Prevent the passage of flame and temperature rise from one side to the other
2. Continue to provide vertical structural support when exposed to fire and elevated temperatures

**Fire Confinement**

**Structural Performance**
Fire-Resistance Rated Wall Assemblies

There are five basic types of fire-resistance rated wall assemblies:

• Light Frame Bearing Walls (IBC 704.4.1)
• Exterior Walls (IBC 705)
• Fire Wall or Party Wall (IBC 706)
• Fire Barrier (IBC 707)
• Fire Partition (IBC 708)
King studs, jack studs, and boundary elements may have fire-resistance rating provided by membrane in load bearing wall.
Outline

• Mid-Rise Construction Types & Life Safety Review
• Exterior Walls
• Interior Walls
  • Fire Walls
  • Fire Barriers
  • Fire Partitions
• Shaft Walls
• Corridors
# Exterior Wall Fire Resistance

## TABLE 601

<table>
<thead>
<tr>
<th>BUILDING ELEMENT</th>
<th>TYPE I</th>
<th>TYPE II</th>
<th>TYPE III</th>
<th>TYPE IV</th>
<th>TYPE V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
<td>A</td>
<td>B</td>
<td>HT</td>
</tr>
<tr>
<td>Primary structural frame&lt;sup&gt;f&lt;/sup&gt; (see Section 202)</td>
<td>3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td>0</td>
<td>HT</td>
</tr>
<tr>
<td>Bearing walls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior&lt;sup&gt;e, f&lt;/sup&gt;</td>
<td>3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Interior</td>
<td>3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nonbearing walls and partitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Floor construction and associated secondary members</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>(see Section 202)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roof construction and associated secondary members</td>
<td>1&lt;sup&gt;1/2&lt;/sup&gt;&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>(see Section 202)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## TABLE 602

<table>
<thead>
<tr>
<th>FIRE SEPARATION DISTANCE = X (feet)</th>
<th>TYPE OF CONSTRUCTION</th>
<th>OCCUPANCY GROUP H&lt;sup&gt;6&lt;/sup&gt;</th>
<th>OCCUPANCY GROUP F-1, M, S-1&lt;sup&gt;f&lt;/sup&gt;</th>
<th>OCCUPANCY GROUP A, B, E, F-2, I, R, S-2, U&lt;sup&gt;h&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>X &lt; 5&lt;sup&gt;b&lt;/sup&gt;</td>
<td>All</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5 ≤ X &lt; 10</td>
<td>IA</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10 ≤ X &lt; 30</td>
<td>IA, IB</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>IIB, VB</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>X ≥ 30</td>
<td>All</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Exterior Wall – Bearing vs. Non Bearing

Non loading-bearing exterior walls may have lower fire resistance rating requirements than bearing walls in certain situations. IBC Chapter 2 defines load bearing walls as:

[Bs] WALL, LOAD-BEARING. Any wall meeting either of the following classifications:

1. Any metal or wood stud wall that supports more than 100 pounds per linear foot (1459 N/m) of vertical load in addition to its own weight.

[Bs] WALL, NONLOAD-BEARING. Any wall that is not a load-bearing wall.
Exterior Walls - FSD

Basic assumption is that fires begin at the interior and rated wall assemblies are not required from the exterior unless close to another structure.
**Exterior Walls (IBC 705)**

705.5 **Fire Resistance Ratings**: Exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602 and this section. The required fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside. The required fire-resistance rating of exterior walls with a fire separation distance of less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides.
Exterior Wall Fire Ratings

• Using the provisions of section 705.5 and Tables 601 and 602 could result in requiring a 1 hour or 2 hour rating on the inside face of exterior walls, while no rating is required on the exterior face of exterior walls.

• How do we specify such an asymmetric assembly?

• This is where prescriptive code methodology begins to break down: procedural data does not align with requirements. Most building jurisdictions understand that this is a deficiency of the system and will recognize one tested assembly for the outside and a second for the inside.
Type III Exterior Walls – FRT

Type III and IV Construction - IBC Section 602.3: Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.

What does this FRTW requirement include?
• Wall Framing (Studs & Plates) – Yes
• Wall Sheathing – Yes
Floor sheathing?
Rim Joist?
Floor Joists?
Everything in the plane of the wall?
Or only wall framing?
Exterior Walls – Structural Stability

705.6 Structural Stability:
The wall shall extend to the height required by Section 705.11 and shall have sufficient structural stability such that it will remain in place for the duration of time indicated by the required fire-resistance rating. Where exterior walls have a minimum fire separation distance of not less than 30 feet (9144 mm), interior structural elements which brace the exterior wall but which are not located within the plane of the exterior wall shall have the minimum fire-resistance rating required in Table 601 for that structural element. Structural elements which brace the exterior wall but are located outside of the exterior wall or within the plane of the exterior wall shall have the minimum fire-resistance rating required in Tables 601 and 602 for the exterior wall.
Exterior Walls – Vertical Offsets

There is no requirement for an exterior wall to extend to the foundation in a stepped building.

Posts, beams or walls, that support a rated exterior wall must be fire – resistance rated not less than the rating of the supported wall (IBC 704.1)
Exterior Walls – Addition of WSP

Can include WSP in assemblies which were tested without them:

- ESR 2586
- AWC’s DCA4
- Gypsum Association Manual

GA Fire Resistance Design Manual item 23 in Section 1 of the General Explanatory Notes:

"When not specified as a component of a fire-resistance rated wall or partition system, wood structural panels shall be permitted to be added to one or both sides."

ESR 2586:

4.7 Fire-resistive Construction:

Structural-use panels may be installed between the fire protection and the wood studs on either the interior or exterior side of fire-resistance-rated wood frame wall and partition assemblies described in the applicable code, provided the length of fasteners is adjusted for the added thickness of the panel.
Exterior Walls – Using FRT Studs

“Wood stud walls may contain fire-retardant-treated studs as well as untreated wood studs. The use of fire-retardant-treated plywood (wood structural panels) may be used in Designs that contain use of untreated plywood when all other specified attributes are equivalent to the wood structural panel used in the Design.”
### Intersection of Assemblies - Ratings

<table>
<thead>
<tr>
<th>Key Differences in Fire Ratings for Construction Types</th>
<th>IIIA</th>
<th>IIIB</th>
<th>VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior (bearing) wall framing</td>
<td>FRT</td>
<td>FRT</td>
<td>non-FRT</td>
</tr>
<tr>
<td>Exterior bearing wall fire rating</td>
<td>2 hr</td>
<td>2 hr</td>
<td>1 hr</td>
</tr>
<tr>
<td>Floor assembly fire rating</td>
<td>1 hr</td>
<td>0 hr</td>
<td>1 hr</td>
</tr>
<tr>
<td>Fire wall rating</td>
<td>3 hr</td>
<td>3 hr</td>
<td>2 hr</td>
</tr>
</tbody>
</table>

**IBC Tables 601 & 706.4**

Note: FRT = Fire Retardant Treated
Intersection of Tested Assemblies

Design No. U301
May 20, 2015
Bearing Wall Rating — 2 HR.
Finish Rating — 66 Min.

2 Hour Wall

GA FILE NO. WP 4135

GYPSUM WALLBOARD, WOOD STUDS
Base layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to each side of 2 x 4 wood studs 24" o.c. with 6d coated nails, 1 7/8" long, 0.085" shank, 1/4" heads, 24" o.c. Face layer 5/8" type X gypsum wallboard or gypsum veneer base applied at right angles to each side with 8d coated nails, 2 3/8" long, 0.100" shank, 1/4" heads, 8" o.c.

Joints staggered 24" each layer and side. Sound tested with studs 16" o.c. and with nails for base layer spaced 6" o.c. (LOAD-BEARING)

<table>
<thead>
<tr>
<th>GENERIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 HOUR FIRE</td>
</tr>
<tr>
<td>40 to 44 STC SOUND</td>
</tr>
</tbody>
</table>

- Thickness: 6 1/8"
- Approx. Weight: 12 psf
- Fire Test: FM WP 360, 9-27-74
- Sound Test: NGC 2363, 4-1-70
Intersection of Tested Assemblies

1 Hour Floor

Design No. L550
August 27, 2015
Unrestrained Assembly Rating — 1 Hr.

FLOOR-CEILING SYSTEMS, WOOD FRAMED
GA FILE NO. FC 5111

WOOD I-JOISTS, GYPSUM WALLBOARD, RESILIENT CHANNELS

Base layer 1/2" type X gypsum wallboard applied at right angles to resilient channels 16" o.c. with 11/4" Type S drywall screws 12" o.c. Resilient channels applied at right angles to minimum 91/2" deep wood I-joists, with minimum 11/4" deep x 11/2" wide flanges and minimum 3/8" webs, 24" o.c. with 11/4" Type W drywall screws. Face layer 1/2" type X gypsum wallboard applied at right angles to channels with 11/8" Type S drywall screws 12" o.c. Face layer end joints located midway between channels and attached to base layer with 11/2" Type G screws 12" o.c. Edge joints offset 24" from base layer edge joints. Wood I-joists supporting 3/8" oriented strand board applied at right angles to I-joists with 8d common nails 12" o.c.

STC and IIC tested with 40 oz carpet over 1/4" foam pad.
Intersection of Tested Assemblies

- Many options are available for fire resistance tested floor assemblies and wall assemblies
- No tested intersection details exist
- We must understand the intent of the code, provide a rationale that meets the code’s intent, and utilize available information and testing results
Outline

- Mid-Rise Construction Types & Life Safety Review
- Exterior Walls
- Interior Walls
  - Fire Walls
  - Fire Barriers
  - Fire Partitions
- Shaft Walls
- Corridors
### Interior Fire-Rated Walls: Differences

<table>
<thead>
<tr>
<th>Fire walls</th>
<th>Fire Barrier</th>
<th>Fire Partition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Openings are protected</td>
<td>• Continuous from floor through concealed space</td>
<td>• Openings are protected</td>
</tr>
<tr>
<td>• Continuous from foundation to/through roof</td>
<td></td>
<td>• May terminate at a fire rated floor/celling/roof assembly</td>
</tr>
<tr>
<td>• Structural stability per</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Fire Walls – Ratings & Materials

**TABLE 706.4**

<table>
<thead>
<tr>
<th>GROUP</th>
<th>FIRE-RESISTANCE RATING (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, E, H-4, I, R-1, R-2, U</td>
<td>3&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>F-1, H-3&lt;sup&gt;b&lt;/sup&gt;, H-5, M, S-1</td>
<td>3</td>
</tr>
<tr>
<td>H-1, H-2</td>
<td>4&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>F-2, S-2, R-3, R-4</td>
<td>2</td>
</tr>
</tbody>
</table>

---

**IBC 706.3** – Fire walls shall be of any approved non-combustible materials.

**Exception:** Buildings of Type V construction
Fire Walls – Structural Stability

706.2 Structural Stability:
Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required fire-resistance rating or shall be constructed as double fire walls in accordance with NFPA 221.
Fire Walls – Ratings & Materials

Opportunity for Wood Framed Fire Walls:

- Permitted in type V Construction
- Fire Walls in type V Construction of A, B, E, R and several other occupancies may be 2 hour

Fire Walls in type III and IV construction are required to be constructed of non-combustible materials

- Opportunity for wood frame bearing walls on each side of fire wall to meet structural stability requirements
Fire Barriers – IBC 707

Commonly used in:
• Shaft enclosures
• Interior exit stairway
• Exit stairway enclosures
• Exit passageways
• Incidental uses
• Separated occupancies
• Fire Areas

Fire Barrier Example

2012 IBC Code & Commentary
Fire Barriers – IBC 707

Fire Barriers:
- May be constructed with any materials permitted by the construction type
- Fire Resistance Ratings:
  - Shaft Enclosures: IBC 713.4
    - 2 Hr when connecting 4 stories or more, 1 hr if less
  - Separated Occupancies: IBC Table 508.4
  - Fire Areas: IBC Table 707.3.10
Fire Barriers – IBC 707

707.5: Continuity: Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed space, such as the space above a suspended ceiling.

707.5.1 Supporting Construction: The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported. Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with Section 718.2 at every floor level.

Other requirements for openings, penetrations, joints
Fire Barriers – IBC 707

Common Detailing Method: Fire Barrier & membrane extend to underside of floor deck above
Fire Partitions – IBC 708

Commonly used to separate:

• Dwelling or sleeping units in same bldg.
• Tenant spaces in malls
• Corridor walls

Minimum 1 hr rating except:

• Some corridors
• Separate dwelling units in VB and IIB
Fire Partitions – IBC 708

**Fire Partitions:**
- May be constructed with any materials permitted by the construction type
- 708.3 Fire Resistance Ratings:
  - Fire partitions shall have a *fire-resistance rating* of not less than 1 hour.

**Exceptions:**
1. Corridor walls permitted to have a $\frac{1}{2}$ hour fire-resistance rating by Table 1018.1.
2. Dwelling unit and sleeping unit separations in buildings of Type IIB, IIIb and VB construction shall have fire-resistance ratings of not less than $\frac{1}{2}$ hour in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
Fire Partitions – IBC 708

708.4 Continuity.

Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. In combustible construction where the fire partitions are not required to be continuous to the sheathing, deck or slab, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Section 718.2 and 718.3 at the partition line.

The supporting construction shall be supported to afford the required fire-resistance rating of the wall supported, except for...walls separating dwelling units, walls separating sleeping units, and corridor walls, in buildings of Type IIB, IIIB and VB construction.
Common Detailing Method: Fire Partition & membrane stop at underside of rated floor/ceiling with fireblocking/draftstopping if required
Outline

- Mid-Rise Construction Types & Life Safety Review
- Exterior Walls
- Interior Walls
  - Fire Walls
  - Fire Barriers
  - Fire Partitions
- Shaft Walls
- Corridors
Shaft Walls

Types of Shafts:
- Elevator
- Stair
- Mechanical

Some points of shaft wall construction apply to any type of shaft. Some are unique to each type of shaft. Requirements in the code do not differentiate between these different types of shafts.
Detailing: Shaft Walls vs. Exterior Walls

IBC 713.2: Shaft Walls shall be constructed as Fire Barriers

Key Differences between Exterior Walls and Shaft Walls (Fire Barriers)

• Continuity
• Supporting Construction
• Fire Resistance Ratings
• Construction Materials
Detailing: Shaft Walls vs. Exterior Walls

Shaft Wall Requirements:

707.5: Fire Barrier Continuity:
• Must extend from top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing
• Through concealed spaces

707.5.1: Supporting Construction:
• The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported.
Detailing: Shaft Walls vs. Exterior Walls

Shaft Wall Requirements:

713.4 Fire-Resistance Rating:
• 2 hours (4 stories or more)
• 1 hour (less than 4 stories)
• Number of connected stories includes basement but not mezzanine
• Fire rating shall not be less than floor assembly penetrated, but need not exceed 2 hours

707.2: Construction Materials:
• Any permitted by construction type
  • FRTW not required for shaft walls in types III, IV, V
Detailing: Shaft Walls vs. Exterior Walls

How do we achieve these requirements?

**Continuity:** The general requirements in 707.5 were not written with platform construction in mind . . . they were attempting to preclude large open concealed spaces to provide a continuous barrier between one portion of the building and another.

Many jurisdictions have recognized that continuity of the fire barrier’s fire protection can be maintained even if the wall framing does not extend to the underside of the decking above.
Detailing: Shaft Walls vs. Exterior Walls

Supporting Construction:
Must have same fire resistance rating as fire barrier being supported
**Detailing: Shaft Walls vs. Exterior Walls**

**Supporting Construction:** In platform and semi-balloon frame construction, if we have a 2 hour shaft wall and a 1 hour floor, how do we achieve this?

If we are able to demonstrate the wall’s 2 hour continuity, should not need to consider the floor “supporting construction”? 
Outline

- Mid-Rise Construction Types & Life Safety Review
- Exterior Walls
- Interior Walls
  - Fire Walls
  - Fire Barriers
  - Fire Partitions
- Shaft Walls
- Corridors
Corridors – Fire Resistance Ratings

Check requirements of IBC Tables 601 and 1018.1 for Corridor Wall and Floor/Ceiling Fire-Resistance Ratings

**TABLE 1018.1 CORRIDOR FIRE-RESISTANCE RATING**

<table>
<thead>
<tr>
<th>OCCUPANCY</th>
<th>OCCUPANT LOAD SERVED BY CORRIDOR</th>
<th>REQUIRED FIRE-RESISTANCE RATING (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Without sprinkler system</td>
</tr>
<tr>
<td>H-1, H-2, H-3</td>
<td>All</td>
<td>Not Permitted</td>
</tr>
<tr>
<td>H-4, H-5</td>
<td>Greater than 30</td>
<td>Not Permitted</td>
</tr>
<tr>
<td>A, B, E, F, M, S, U</td>
<td>Greater than 30</td>
<td>1</td>
</tr>
<tr>
<td>R</td>
<td>Greater than 10</td>
<td>Not Permitted</td>
</tr>
<tr>
<td>I-2³, I-4</td>
<td>All</td>
<td>Not Permitted</td>
</tr>
<tr>
<td>I-1, I-3</td>
<td>All</td>
<td>Not Permitted</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>BUILDING ELEMENT</th>
<th>TYPE I</th>
<th>TYPE II</th>
<th>TYPE III</th>
<th>TYPE IV</th>
<th>TYPE V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A⁵</td>
<td>B</td>
<td>A⁶</td>
<td>B</td>
<td>A⁶</td>
</tr>
<tr>
<td>Primary structural frame⁶ (see Section 202)</td>
<td>3⁶</td>
<td>2⁶</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bearing walls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior⁷, ⁸</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Interior</td>
<td>3⁶</td>
<td>2⁶</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Nonbearing walls and partitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exterior</td>
<td>See Table 602</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonbearing walls and partitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior⁸</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Floor construction and associated secondary member</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(see Section 202)</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
Corridors – Fire Resistance Ratings
Corridor Walls

IBC 1018.1: Corridor walls required to be fire-resistance rated shall comply with Section 708 for fire partitions.

708.3 Fire-resistance rating.
Fire partitions shall have a fire-resistance rating of not less than 1 hour.

Exception: Corridor walls permitted to have a $\frac{1}{2}$ hour fire-resistance rating by Table 1018.1 (applies to R occupancies with sprinkler systems)
Corridor Walls

708.4 Continuity.
Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto.

Exceptions:
2. Where the room-side fire-resistance-rated membrane of the corridor is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the corridor shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the corridor ceiling is constructed as required for the corridor walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
Corridor Walls – 708.4 Exception 2

Figure 708.4(2)(B)
FIRE PARTITION CONTINUITY

- Corridor ceiling as required for 1 hour floor or roof
- Firestopping
- Corridor membrane permitted to stop at ceiling
- Room side membrane to deck above
- Floor or roof sheathing

Room
- Corridor
- Room
- Floor
Corridor Walls – 708.4 Exception 3

Floor or roof sheathing, framing and ceiling membrane as required for a one-hour fire-resistive floor or roof system throughout entire story.

Corridor ceiling constructed the same as corridor walls.

Optional nonrated suspended ceiling.

Corridor wall framing and membrane each side as required for one-hour fire-resistive wall construction.
Questions?

Ethan Martin, P.E.
Pacific Northwest Regional Director
WoodWorks
206.678.2086
ethan@woodworks.org
Copyright Materials

This presentation is protected by US and International Copyright laws. Reproduction, distribution, display and use of the presentation without written permission of the speaker is prohibited.

© The Wood Products Council 2016