APA

System Report

SR-405D NOVEMBER 2015

Fire Protection of Floors Constructed with Prefabricated Wood I-Joists for Compliance with the International Residential Code

1. BASIS OF THE SYSTEM REPORT

- 2015 International Residential Code (IRC): Sections R502.1.2 Prefabricated wood I-joists and R302.13 Fire Protection of Floors
- 2012 IRC: Sections R502.1.4 Prefabricated wood I-joists and R501.3 Fire Protection of Floors
- ASTM D5055-13 and ASTM D5055-09 recognized by the 2015 and 2012 IRC, respectively
- International Code Council Evaluation Service, LLC (ICC-ES) Acceptance Criteria for Prefabricated Wood I-joists (AC14), dated October 2013 (editorially revised February 2014)
- ICC-ES Evaluation Report ESR-1405

2. SYSTEM DESCRIPTION

Starting with the 2009 IBC and IRC, one- and two-family dwellings are required to install an automatic fire sprinkler system (IBC Section 903.2.8 and IRC Section R313.2). However, not all local jurisdictions in the U.S. have adopted these provisions for the use of sprinkler systems as an active home fire protection system. In May 2010, the International Code Council (ICC) approved the following new fire protective membrane provisions for the 2012 IRC (The same wording applies to the 2015 IRC Section R302.13):

> ***R501.3 Fire protection of floors.*** *Floor assemblies, not required elsewhere in this code to be fire resistance rated, shall be provided with a 1/2 inch gypsum wallboard membrane, 5/8 inch wood structural panel membrane, or equivalent on the underside of the floor framing member.*
>
> ***Exceptions:***
>
> 1. *Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA13D, or other approved equivalent sprinkler system.*
> 2. *Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.*
> 3. *Portions of floor assemblies can be unprotected when complying with the following:*
>
>   ***3.1*** *The aggregate area of the unprotected portions shall not exceed 80 square feet per story.*
>
>   ***3.2*** *Fire blocking in accordance with Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.*
> 4. *Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.*

These fire protective membrane provisions apply to not only I-joist floors but all residential floor assemblies, including all floor trusses and light-gauge steel framing, and less than 2-inch by 10-inch nominal dimension lumber and structural composite lumber. They will become effective when adopted by the local jurisdiction. However, not all local jurisdictions have elected to adopt these provisions. The project designer should consult with the local jurisdiction for code requirements.

The purpose of this document is to provide prescriptive fire assemblies for fire protection of floors constructed with prefabricated wood I-joists when the 2012 IRC Section R501.3 or 2015 IRC Section R302.13 requirements are adopted by the local jurisdiction.

3. METHODOLOGY

After the publication of the 2012 IRC, ICC-ES developed methodologies for determining the equivalency to Exception 4 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13 for I-joists, as documented in ICC-ES AC14. Full-scale fire tests at an accredited laboratory in accordance with the standard ASTM E119 time-temperature exposure are required to demonstrate the equivalency, which is determined by the test duration that is equal to or in excess of the required minimum duration calculated using the methodology specified in Chapter 16 of the National Design Specification for Wood Construction (NDS), assuming unprotected solid-sawn 2x10 floor joists, a 3-sided fire exposure, a nominal char rate of 1.5 inches/hour, a load corresponding to 50 percent of the full allowable stress design (ASD) bending design load, and a bending strength to ASD ratio of 2.85.

The failure of the tested fire assembly is defined by the occurrence of the following conditions, whichever occurs first:

a. An individual member within an assembly fails,

b. Multiple members within an assembly fail,

c. Center span deflection exceeds 1/40 of the clear span,

d. The deflection rate of change exceeds 0.10 in./min./ft of the clear span, or

e. The deflection rate of change decreases.

Exception: Item "e" does not apply when the decrease in deflection rate of change was not due to a change in the load-carrying mechanism.

In addition to the 1/2-inch gypsum or 5/8-inch wood structural panel protection (see FP-01, page 3), this document provides prescriptive fire assemblies for prefabricated wood I-joists that have demonstrated equivalency to Exception 4 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, in accordance with ICC-ES AC14 requirements (see FP-02 through FP-07, pages 4-15).

4. LIMITATIONS

a. The prefabricated wood I-joists shall meet the requirements of ASTM D5055, and be installed and constructed in accordance with the codes, product evaluation reports, and manufacturer's recommendations.

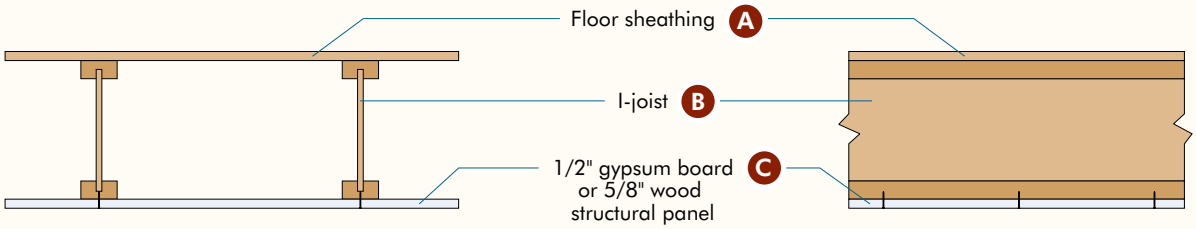
b. The fire assemblies shall be installed as prescribed in this document.

c. This report is subject to periodic review. The latest version of this report is available for free download at www.apawood.org/resource-library.

Fire Protection: 1/2-inch Gypsum Board Attached to Bottom of Flange

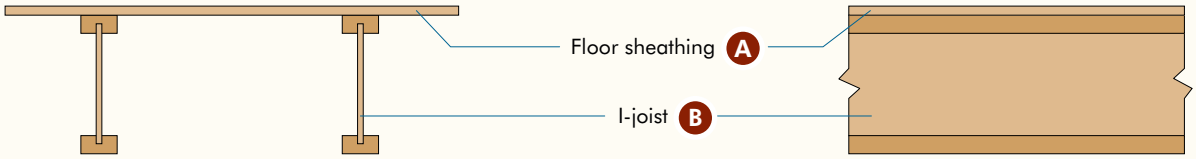
The following fire resistance design is in compliance with the 2012 IRC Section R501.3 and 2015 IRC Section R302.13.

1/2-INCH GYPSUM BOARD ATTACHED TO BOTTOM OF FLANGE[a,b,d]



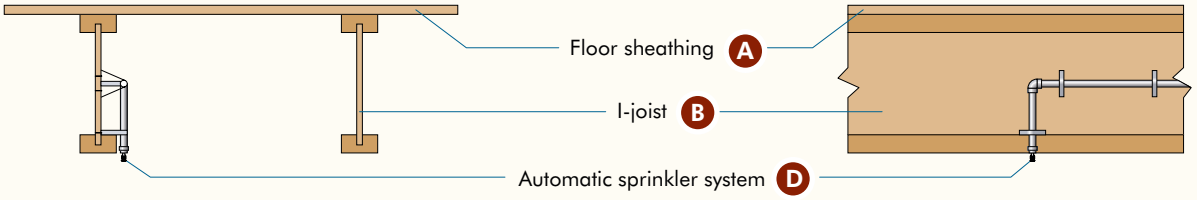
CRAWL SPACE EXCEPTION[b]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require membrane protection.



AUTOMATIC SPRINKLER EXCEPTION[c]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require membrane protection.



A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Applicable to all flange sizes. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.

C 1/2-inch gypsum board: Materials and installation in accordance with the 2012 and 2015 IRC Section R702.3.1 or equivalent. 1x3 (nominal) wood furring strips are permitted to be installed perpendicular to the bottom flange of the I-joists at 16 inches on center provided that the gypsum boards are directly attached to the furring strips using 1-1/4-inch Type W drywall screws at 12 inches on center. Gypsum board not required to be finished with tape and joint compound; or

5/8-inch wood structural panel: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.2 or equivalent. Wood structural panel not required to be finished with wood filler or sanded.

D Automatic sprinkler system: System in accordance with the 2012 and 2015 IRC Section P2904, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

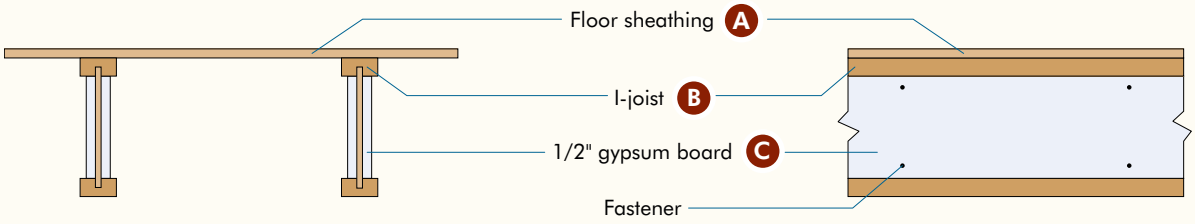
c. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

d. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

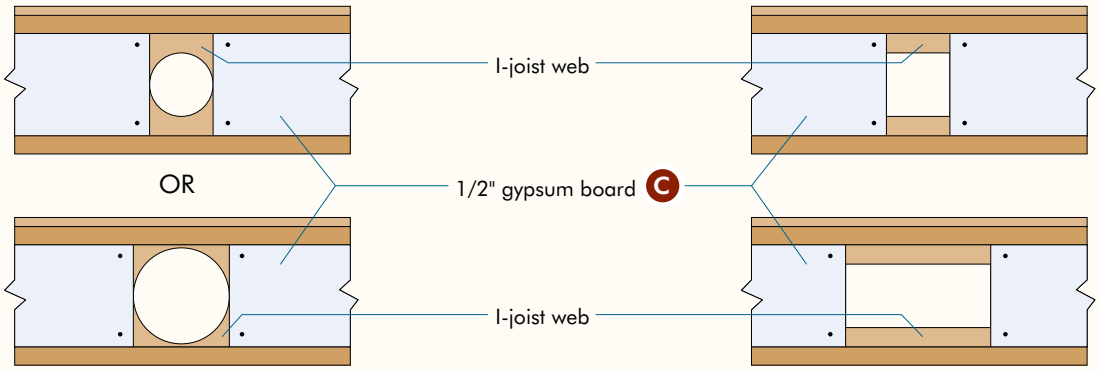
Fire Protection: 1/2-inch Gypsum Board Attached Directly to Web

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in Exception 4 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13 with demonstrated equivalent fire performance.

1/2-INCH GYPSUM BOARD ATTACHED TO WEB[a,b,d]

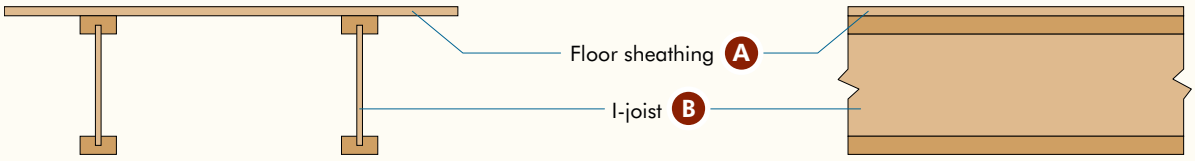


INSTALLATION REQUIREMENTS AT WEB HOLES



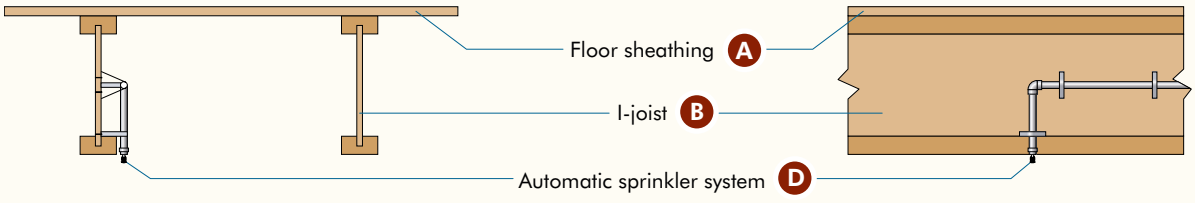
CRAWL SPACE EXCEPTION[b]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require 1/2-inch gypsum board attached to web.



AUTOMATIC SPRINKLER EXCEPTION[c]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require 1/2-inch gypsum board attached to web.



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A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/2 inches thick x 2 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA. At hole location, fasteners shall be installed 1 inch from the edge and end of the gypsum board.

C 1/2-inch gypsum board: Materials (entire length of I-joist) in accordance with the 2012 and 2015 IRC Section R702.3.1 (not required to be finished with tape and joint compound). Fasteners: Minimum 1-inch screws (Type W or Type S) or nails installed 1 inch from edges and ends, and 16 inches on center, top and bottom. Fasteners may be staggered from top to bottom.

D Automatic sprinkler system: System in accordance with the 2012 and 2015 IRC Section P2904, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

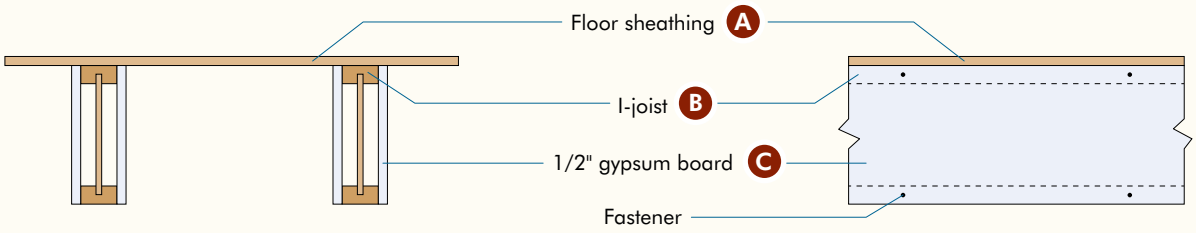
c. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

d. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

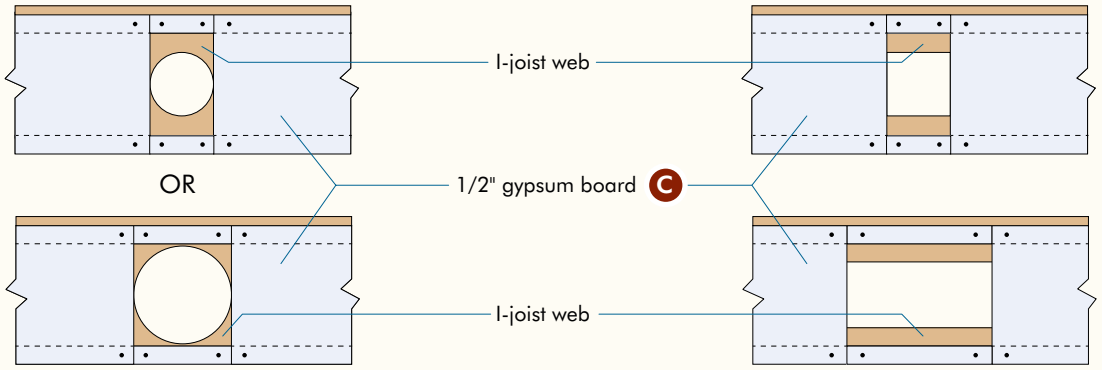
Fire Protection: 1/2-inch Gypsum Board Attached Directly to Sides of Flange

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in Exception 4 of 2012 IRC Section R501.3 and 2015 IRC Section R302.13 with demonstrated equivalent fire performance.

1/2-INCH GYPSUM BOARD ATTACHED TO SIDES OF FLANGE[a,b,d]

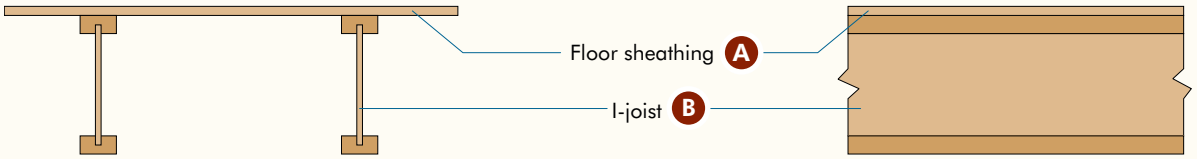


INSTALLATION REQUIREMENTS AT WEB HOLES



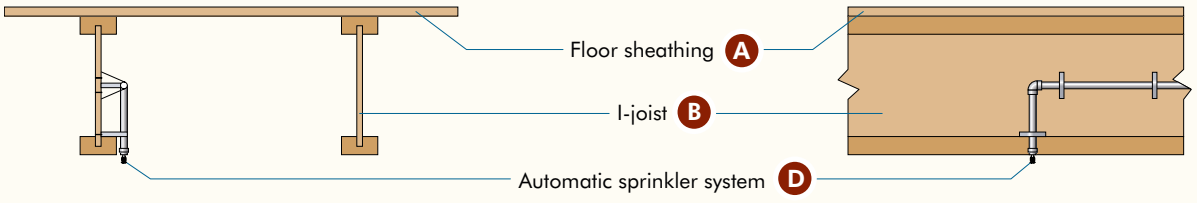
CRAWL SPACE EXCEPTION[b]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require 1/2-inch gypsum board attached to sides of flange.



AUTOMATIC SPRINKLER EXCEPTION[c]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require 1/2-inch gypsum board attached to sides of flange.



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A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/8 inches thick x 1-3/4 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA. At hole location, fasteners shall be installed 1/2 inch from the edge and 1 inch from the end of the gypsum board. Maximum fastener spacing shall be no more than 8 inches on gypsum board above and below the hole.

C 1/2-inch gypsum board: Materials (entire length of I-joist) in accordance with the 2012 and 2015 IRC Section R702.3.1 (not required to be finished with tape and joint compound). Fasteners: Minimum 1-inch screws (Type W or Type S) or nails installed 1/2 inch from edges and 1 inch from ends, and 16 inches on center, top and bottom. Fasteners may be staggered from top to bottom.

D Automatic sprinkler system: System in accordance with the 2012 and 2015 IRC Section P2904, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

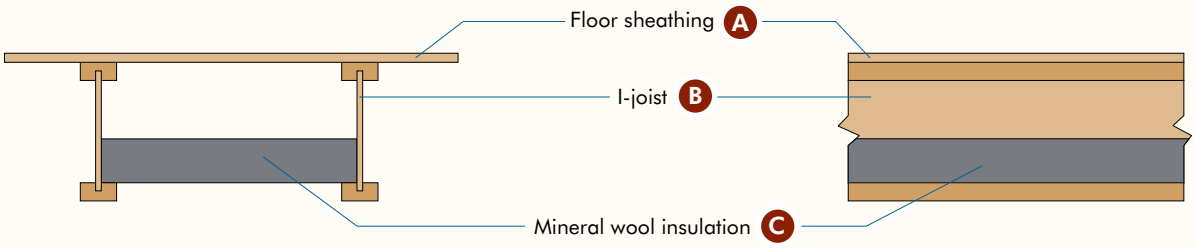
c. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

d. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

Fire Protection: Mineral Wool Insulation

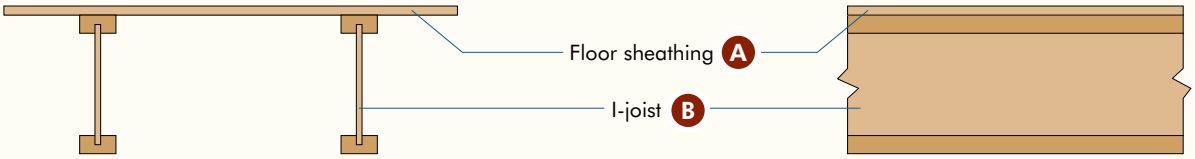
The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in Exception 4 of 2012 IRC Section R501.3 and 2015 IRC Section R302.13 with demonstrated equivalent fire performance.

MINERAL WOOL INSULATION[a,b,e]



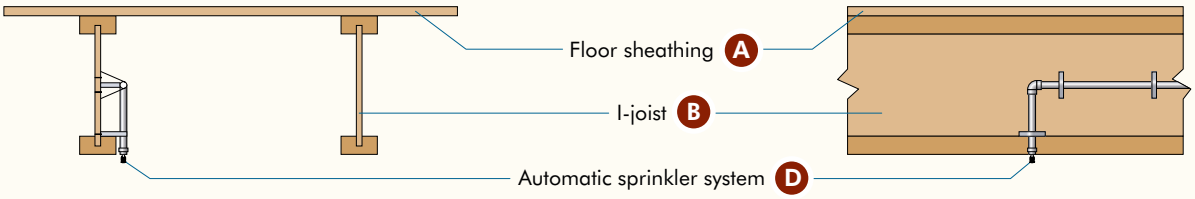
CRAWL SPACE EXCEPTION[c]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require mineral wool insulation for fire protection.



AUTOMATIC SPRINKLER EXCEPTION[d]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require mineral wool insulation for fire protection.



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A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4 of this report. Maximum 19.2 inches on center spacing. Minimum flange size of 1-1/8 inches thick x 1-3/4 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.

C Mineral wool insulation: Minimum 2.9 lb/ft^3 (nominal) and 2-inch thick mineral wool insulation installed without gaps between individual batts as shown with stay wire insulation supports, spaced no more than 24 inches apart and no more than 4 inches from ends of batts. Minimum 2.5 lb/ft^3 (nominal) and 2-inch thick mineral wool insulation shall be permitted if the I-joists are spaced no more than 16 inches on center. Use minimum 15.25-inch and 18.5-inch wide batts when I-joist spacing is 16 inches and 19.2 inches on center, respectively.

D Automatic sprinkler system: System in accordance with the 2012 and 2015 IRC Section P2904, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Thicker insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

c. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

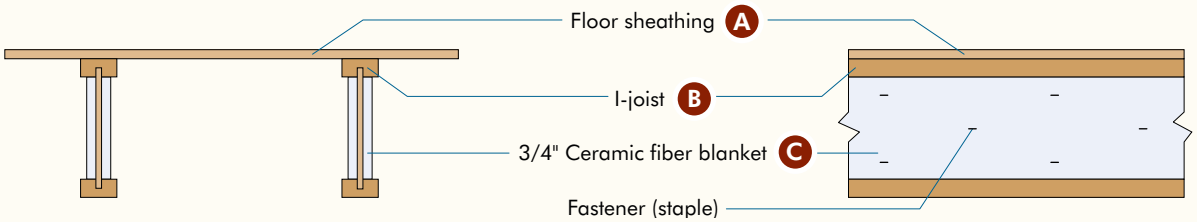
d. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

e. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

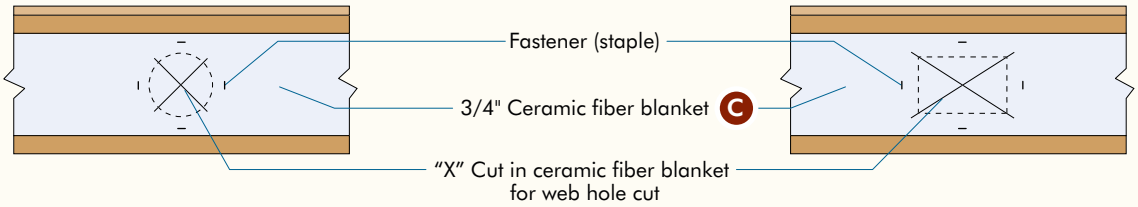
Fire Protection: Ceramic Fiber Blanket Insulation

The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in Exception 4 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13 with demonstrated equivalent fire performance.

FIREBREAK™ PROPRIETARY CERAMIC FIBER BLANKET INSULATION[a,b,d]

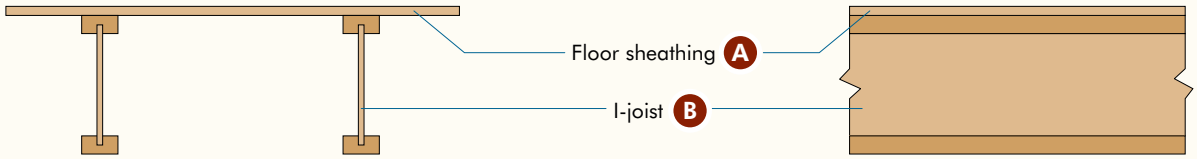


INSTALLATION REQUIREMENTS AT WEB HOLES



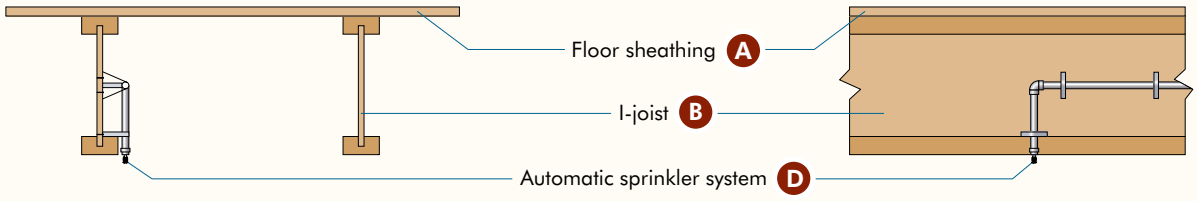
CRAWL SPACE EXCEPTION[b]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require ceramic fiber blanket insulation for fire protection.



AUTOMATIC SPRINKLER EXCEPTION[c]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require ceramic fiber blanket insulation for fire protection.



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A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/2 inches thick x 2.3 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA. At each hole location, an "X" cut that is 1 inch larger than the web hole on both sides of the I-joist shall be made in the ceramic fiber blanket to allow the passage of a wire, pipe, or duct.

C Mei Guo International, LLC (USA) FireBreak™ proprietary ceramic fiber blanket insulation (entire length of I-joist): Minimum 4.0 lb/ft^3 (nominal) and 3/4-inch thick full width ceramic fiber blanket made of aluminum oxide (Al_2O_3) and silicon dioxide (SiO_2) in compliance with ASTM C892 Type III or higher. The ceramic fiber blanket must fill the web space with no gaps and a snug fit within inside faces of the flanges. Fasteners: 7/8-inch long crown staples spaced 16 inches on center and staggered in 2 rows with 1-3/4 inches from both top and bottom of the web, as shown. The vertical staple-to-staple distance between adjacent rows of staples must be 3 inches maximum with additional rows of staples added for I-joist depths greater than 9-1/2 inches (i.e., 2 rows for 9-1/2-inch, 3 rows for 11-7/8-inch, 4 rows for 14-inch, and 5 rows for 16-inch deep I-joists). At each hole location, 4 staples shall be added at 1 inch from the top, bottom, left, and right edges of the web hole.

D Automatic sprinkler system: System in accordance with the 2012 and 2015 IRC Section P2904, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

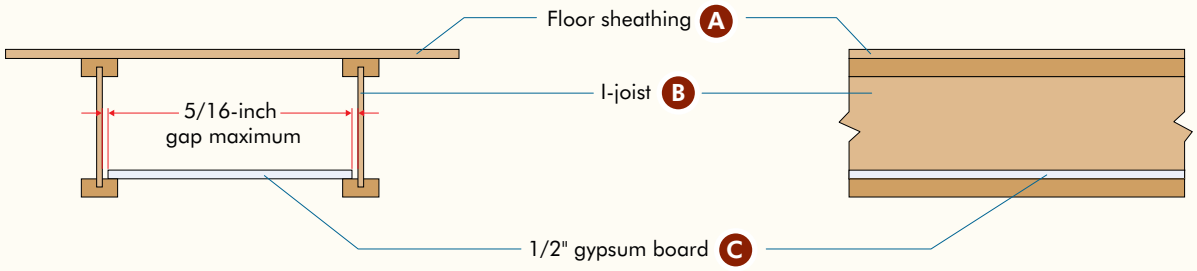
c. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

d. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

Fire Protection: 1/2-inch Gypsum Board Installed on Top of the Bottom Flange

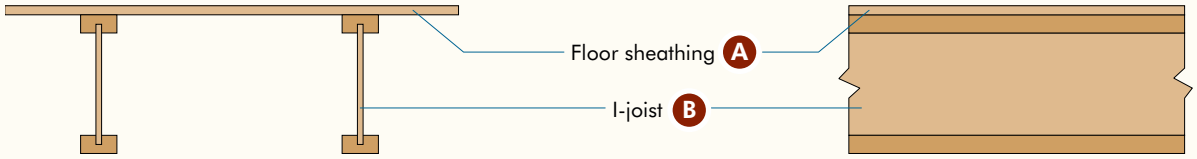
The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in Exception 4 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13 with demonstrated equivalent fire performance.

1/2-INCH GYPSUM BOARD[a,d]



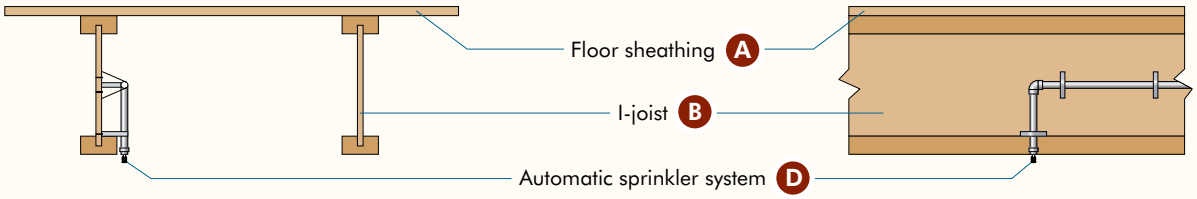
CRAWL SPACE EXCEPTION[b]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require gypsum board for fire protection.



AUTOMATIC SPRINKLER EXCEPTION[c]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require gypsum board for fire protection.



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A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4.0 of this report. Maximum 19.2 inches on center spacing. Minimum flange size of 1-1/8 inches thick x 2 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.

C One layer of 1/2-inch lightweight or normal weight (nominal 1.5 psf minimum) gypsum wall board meeting ASTM C1396 Section 5: Installed on the top of the bottom flange. Mechanical fastener or adhesive attachment to the top of the bottom flange is not required. A maximum gap of 5/16 inch between the edge of the gypsum and the I-joist web shall be permitted.

D Automatic sprinkler system: System in accordance with Section P2904 of the 2012 and 2015 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

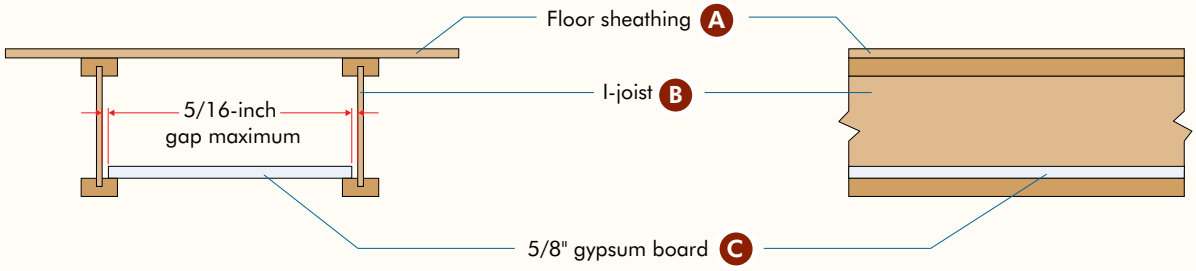
c. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

d. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

Fire Protection: 5/8-inch Gypsum Board Installed on Top of the Bottom Flange

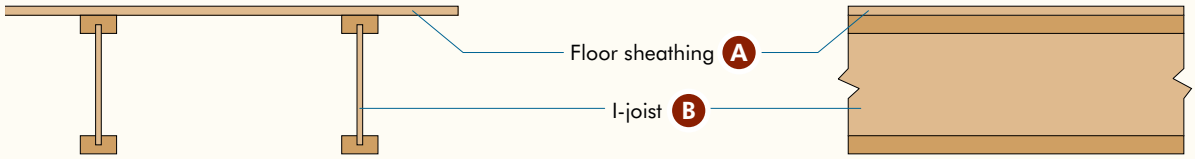
The following fire resistance design is an alternative to the 2-by-10 dimensional lumber prescribed in Exception 4 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13 with demonstrated equivalent fire performance.

5/8-INCH GYPSUM BOARD[a,d]



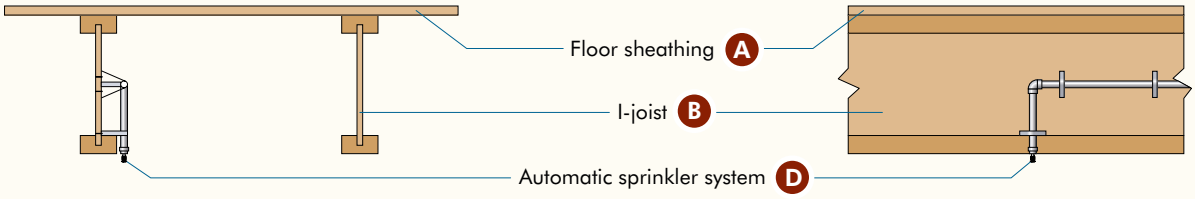
CRAWL SPACE EXCEPTION[b]

In accordance with Exception 2 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances do not require gypsum board for fire protection.



AUTOMATIC SPRINKLER EXCEPTION[c]

In accordance with Exception 1 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, floor assemblies located directly over a space protected by an automatic sprinkler system do not require gypsum board for fire protection.



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A Floor sheathing: Materials and installation in accordance with the 2012 and 2015 IRC Section R503.

B I-joist: Installation in accordance with Section 4.0 of this report. Maximum 24 inches on center spacing. Minimum flange size of 1-1/8 inches thick x 2 inches wide. Minimum web thickness of 3/8 inch. Adhesives used shall be as described in the quality manual approved by APA.

C One layer of 5/8-inch lightweight or normal weight (nominal 1.9 psf minimum) gypsum wall board meeting ASTM C1396 Section 5: Installed on the top of the bottom flange. Mechanical fastener or adhesive attachment to the top of the bottom flange is not required. A maximum gap of 5/16 inch between the edge of the gypsum and the I-joist web shall be permitted.

D Automatic sprinkler system: System in accordance with Section P2904 of the 2012 and 2015 IRC, NFPA 13D, or other equivalent sprinkler systems.

Notes:

a. In accordance with Exception 3 of the 2012 IRC Section R501.3 and 2015 IRC Section R302.13, portions of floor assembly can be unprotected when complying with the following:
   1. The aggregate area of the unprotected portions shall not exceed 80 square feet.
   2. Fire blocking in accordance with the 2012 and 2015 IRC Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

b. Insulation may be required for energy code compliance purposes. Check with the local building official for specific jurisdictional requirements.

c. In accordance with the 2012 and 2015 IRC Section P2904, partial residential sprinkler systems are permitted to be installed only when the entire dwelling unit is not required to be equipped with a residential sprinkler system. Check with the local building official for specific jurisdictional requirements.

d. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping, and similar openings or penetrations shall be permitted.

Fire Protection of Floors Constructed with Prefabricated Wood I-Joists for Compliance with the International Residential Code

APA – The Engineered Wood Association is an accredited certification body under ISO/IEC 17065 by Standards Council of Canada (SCC) and an accredited inspection agency by the International Code Council (ICC) International Accreditation Service (IAS) under ISO/IEC 17020. APA is also a testing organization accredited by IAS under ISO/IEC 17025. APA is a recognized testing laboratory by Miami-Dade County, and a Product Testing Laboratory, Product Quality Assurance Entity, and Product Validation Entity by the Florida Department of Business and Professional Regulation.

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