

PK-USA PKI Series I-joist with WEBSHIELD® or Topical Coatings

Understanding the Fire Performance Provision as listed in the 2012, 2015, 2018 and 2021 IRC

The purpose of this document is to outline the requirements within the various adopted state codes and provide accurate information concerning PK-USA's product approvals and allowance for use.

Currently numerous states have code adoption practices which are regulated by statewide mandates or local municipalities within the state. Many of the States/Cities/Countries have adopted and are enforcing the Fire Performance of Floors provision within 2012, 2015, 2018 and 2021 IRC (International Residential Code). This can be verified via the following linked pdf document.

<https://www.iccsafe.org/wp-content/uploads/Master-I-Code-Adoption-Chart-Jan-2020-v2.pdf>

Amended versions of the International Codes may be available within each municipal region. Contact the local municipality to verify any amended sections.

Numerous states have adopted the 2012, 2015, 2018 and 2021 IRC "International Residential Code" and "***did not***" amend out or alter the language within **section R501.3** of the 2012 code or **section R302.13** within the 2015 and 2018 IRC and more specifically the language contained in ***Fire Performance of Floor section***.

It is important to note that the provisions for Fire Performance as outlined in **section R501.3** and **section R302.13** as stated above are not the same as tested fire assemblies per **section 703.2** of the 2015, 2018 and 2021 IBC (International Building Code). More specifically the phrase, "*Floor assemblies, not required elsewhere in this code to be fire resistance rated...*" outlines this separation from the standard section.

R302.13 Fire protection of floors.

Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a 1/2-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

Exceptions:

1. *Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other approved equivalent sprinkler system.*
2. *Floor assemblies located directly over a crawl space not intended for storage or for the installation of fuel-fired or electric-powered heating appliances.*
3. *Portions of floor assemblies shall be permitted to be unprotected where complying with the following:*
 1. *The aggregate area of the unprotected portions does not exceed 80 square feet (7.4 m²) per story.*
 2. *Fireblocking in accordance with Section R302.11.1 is 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 (50.8 mm by 254 mm) nominal dimension, **or other approved floor assemblies demonstrating equivalent fire performance.***



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A copy of the above language is available at the following link:

http://media.iccsafe.org/news/icc-enews/2015v12n16/2015_irc_sigchanges_p42-3.pdf

With the newly published language came some isolated confusion as to the nature and intent of the code. The following link <http://awc.org/pdf/faq/AWC-BasisofRCMembraneProtection-Provisions-1507.pdf> provides the background information concerning the 2x10 equivalency justification and an explanation as to why and how the code equivalency can be met.

For I-joist manufacturers such as PK-USA, the requirements to meet this “equivalency” are outlined in two sources:

The first source is contained within revised sections of the International Code Council’s AC14 “Acceptance Criteria for Prefabricated Wood I-joists”. A copy of AC14 may be purchased through ICC at the following link: <http://shop.iccsafe.org/ac14-prefabricated-wood-i-joists-approved-june-2016-pdf-download.html>.

The second source is contained within publications from IAPMO (International Association of Plumbing and Mechanical Officials) EC-017 “Evaluation Criteria for Field-Applied Fire Protective Coatings” A copy of EC-017 may be obtained with the following link: <https://www.iapmoes.org/media/22880/ec-017-2019.pdf>

Additional publication and compliance rationale may be downloaded from WIJMA (Wood I-joist Manufacturers Association) website at the following links:

https://i-joist.org/wp-content/uploads/2019/06/6_4_19-AC14-ES-Reference.pdf

<https://i-joist.org/wp-content/uploads/2020/01/Use-of-Topical-Treatments-with-Engineered-Wood-Products-1-15-20.pdf>

PK-USA chose IAPMO as its ES “Evaluation Services” agency. IAPMO was deemed to be highly respected and had all the required credentials to provide the evaluation of our product and in particular, our compliance to the 2x10 equivalency outlined in the 2012, 2015, 2018 and 2021 IRC. IAPMO’s ANSI Certificate of Accreditation can be reviewed via the following link:

https://www.iapmoes.org/media/23334/ansi-certificate_exp-12-01-2021.pdf

Through the use of PK-USA’s SafeJoist (PKI Series I-joist plus WEBSHIELD) or Code Approved Topical Coatings, PK-USA is able to offer the building community a code approved, cost effective, easy to use, engineered wood product which meets all of the requirements outlined in AC14 or EC017 with the added benefit of traditional I-joist systems.

If you have any questions, please contact PK-USA for details.

