



An Objective Attorney's Point of View Regarding the IRC/IBC 2012 Language Related to Fire Protection of Floors

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Introduction:

The Structural Building Components Association (SBCA) and its members strongly believe in a key engineering and building code principle – to provide structural building component solutions that safeguard the public health, safety and general welfare of building occupants, while serving the general public's desire to have buildings constructed that are affordable and environmentally responsible. As the building code states, this also includes providing “safety to fire fighters and emergency responders during emergency operations.”

Issue:

In May 2010, the following language was passed at the International Code Council Hearings. It will be added and implemented in to the *2012 IRC/IBC* code:

R501.3 Fire protection of floors. Floor assemblies, not required elsewhere in this code to be fire resistance rated, shall be provided with a ½ 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. (emphasis added)

Analysis and Interpretation:

An attorney and others have read the language in exception #4 literally. According to the following interpretation of the specific code language, the exception to the required membrane protection:

- A. Applies to all wood floor assemblies using dimension lumber or structural composite lumber
- B. Requires dimensional lumber or composite lumber with a nominal dimension equal to or greater than 2" by 10"
- C. Includes approved floor assemblies that demonstrate equivalent fire performance

With respect to interpretation of exemption items A and B, it is clear that:

1. Nominal “2-inch by 10-inch” (2" wide by 10" deep) or greater wood trusses made from dimensional lumber comply with this code language.
 - a. Examples of the truss applications that comply with this specific language include:
 - i. All nominal 2" wide by 10" or greater in depth dimensional lumber/structural composite lumber floor trusses.
 - ii. All nominal 3" wide by 10" or greater in depth dimensional lumber/structural composite lumber floor trusses.
 - iii. All nominal 4" wide by 10" or greater in depth dimensional lumber/structural composite lumber floor trusses.
 - iv. All nominal 2" wide by 10" or greater in depth dimensional lumber/structural composite lumber floor joists.
 - b. In general, any product that is made from dimensional lumber that is a nominal 2" wide by 10" or greater in depth engineered wood product meets the code language as specifically stated.

Conclusion:

The National Association of Home Builders (NAHB) and the American Wood Council (AWC) have promulgated this code change proposal which:

1. Contains language that is confusing at best.
2. Cannot be easily applied.
3. Allows the use of 2" by 10" or greater in depth engineered wood products that are made from nominal dimension lumber *without* the application of a ½" gypsum wallboard membrane or 5/8" wood structural panel membrane.
4. Seeks to promote exclusions that make a structure that is on fire less safe rather than safer.
5. Allows other approved floor assemblies that demonstrate equivalent fire performance using 2" by 10" or greater in depth engineered wood products that are made from nominal dimension lumber.

SBCA’s policy is to foster the concept of fire ground safety that is fair and rational. Where increased fire resistance is desired, beyond what has traditionally been allowed by the *IRC* and *IBC*, a minimum of ½" gypsum wallboard or other materials that increase the fire resistance of the floor assembly should be applied to unprotected floor applications, regardless of the structural framing materials that make up the floor assembly.