



City of Creve Coeur Building Division

Fire Protection of Engineered Floor Joists

Effective August 1, 2013, the City of Creve Coeur adopted the *2009 International Residential Code for One- and Two-Family Dwellings*.

One of the amendments the city made to this code was the addition of a new code section, R302.14, which reads as follows:

R302.14 Fire protection of floors. Floor assemblies, not required elsewhere in this code to be fire-resistance rated, shall be provided with 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, NFPA 13D, 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.

The city made this amendment because research has shown that under fire conditions lightweight engineered wood floor assemblies, such as I-joists, fail (within 6 minutes of fire ignition) much sooner than floor assemblies built of traditional (2X) sawn lumber, which fail within 18 minutes - 45 seconds of fire ignition. The ½ inch layer of gypsum wallboard will provide an additional 20 minutes of fire-resistance protection for floor assemblies built of wood I-joists, which will allow building occupants and fire fighters additional time to effect escape and rescue. The joints and seams do not have to be

taped or finished. This will allow the gypsum panels to be easily removed or altered to accommodate remodeling or basement finishes.

“Other approved floor assemblies demonstrating equivalent fire performance” that may be used instead if ½ inch gypsum wallboard could include:

- I - joists coated with a proprietary intumescent coating that ‘swells’ when subjected to the heat of a fire and prevents flames from reaching the 3/8 inch I-joist web.
- A suspended, fire-resistance rated ceiling hung below the I-joists and properly draftstopped every 1,000 square feet above the ceiling membrane.

(Revision Date 7/24/2013)