

**CHANGE TYPE:** Addition

**CHANGE SUMMARY:** With some exceptions, the code now requires 1/2-inch gypsum board or equivalent material to be applied to the underside of floor assemblies in buildings regulated by the IRC.

## R501.3

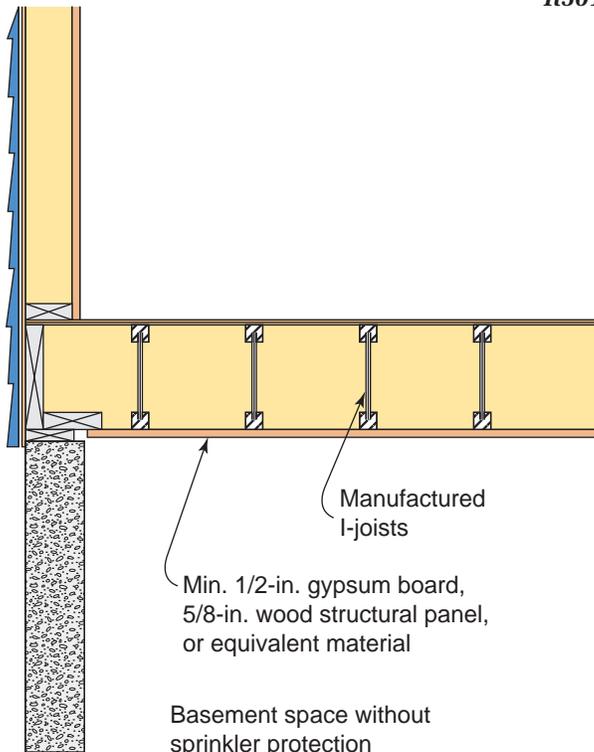
### Fire Protection of Floors

**2012 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 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.

*R501.3 continues*



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**R501.3 continued**

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.

**CHANGE SIGNIFICANCE:** Installation of ½-inch gypsum board, 5⁄8-inch wood structural panel, or other approved material is now required on the underside of floor assemblies of dwelling units and accessory buildings constructed under the IRC. The change addresses concerns for firefighter safety and incidents of injury or death to firefighters while fighting residential fires due to the collapse of floors. The application of gypsum wallboard or other approved material intends to provide some protection to the floor system against the effects of fire and delay collapse of the floor. This provision primarily is aimed at light-frame construction consisting of I-joists, manufactured floor trusses, cold-formed steel framing, and other materials and manufactured products considered most susceptible to collapse in a fire.

There are a number of exceptions to this new rule. Solid-sawn lumber and structural composite lumber perform fairly well in retaining adequate strength under fire conditions. Therefore, floors framed with nominal 2 x 10s or larger of these materials are exempt from this section's fire protection requirements. Similarly, if sprinklers are installed to protect the space below the floor assembly, additional protection is not required. Crawlspace without storage or fuel-fired appliances are not considered to contain sufficient fuel load to present an undue hazard to floor collapse. The code also exempts small areas of ceiling, such as may occur in a utility room in a basement, from the fire protection requirements, provided the space is not open to other portions of the floor system. Therefore, fireblocking is required to isolate the unprotected area from the protected area of the floor system.



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Open web floor trusses require a fire protection membrane applied to the underside.