



Coffee Break Training - Fire Protection Series

Building Construction: Roof Structure Fire Protection

No. FP-2014-38 September 23, 2014

Learning Objective: The student will be able to identify where tabular footnotes can be applied to substitute fire resistance requirements in buildings.

In Coffee Break Training FP-2013-31, we described the importance of reading building and fire codes with an eye on detail; specifically, always read the footnotes to any table that is published in the book.

The illustration is a perfect example, showing how a quick review of a model building code may lead to misinterpretation and misapplication.

The illustration is a noncombustible, assembly type (Group A) occupancy used as an aircraft museum. It is large enough to require that the building have a minimum one-hour fire resistance rating. This would be interpreted in National Fire Protection Association (NFPA) 5000, *Building Construction and Safety Code*[®] as Type II 111 construction, and in the *International Building Code*[®], it would be labeled Type IIA construction.



In some occupancies, spray-on fire-resistant material is not required for roof structural protection above 20 feet (6 meters). (Photo/Byron Blake)

A quick glance at the fire resistance rating tables in the model building codes reveals that the structural frame, interior and exterior bearing walls, floors, and roof construction are required to be protected by one-hour fire-resistant materials. This could be accomplished through passive means by encasing it in concrete, protecting it with appropriate applications of gypsum wallboard, or applying spray-on fire-resistant materials.

There are two footnotes to these tables that are important for the code official to consider:

1. The installation of an automatic sprinkler system designed and installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems* may substitute for one-hour construction if the sprinkler system is not required for other purposes.
2. Except in factory, hazardous, mercantile or moderate-hazard storage occupancies, the passive fire protection could be omitted on the roof's framing and decking where every part of the roof is 20 feet (6 meters) or more above the floor.

Footnotes are commonly used in the model fire and building codes to address special circumstances and exceptions from the text. Always remember to check the footnotes to obtain a complete picture of the issue at hand.

For additional information, consider enrolling in the National Fire Academy (NFA) course "Fire and Life Safety Plan Review" (R0132). Information and applications can be obtained at <http://apps.usfa.fema.gov/nfacourses/catalog/details/10316>. The course is available at the NFA in Emmitsburg, Maryland, or through your state fire service training agency.



Eligible for Continuing Education Units (CEUs)
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www.usfa.fema.gov/nfa/coffee-break/