Thermal Barriers

A thermal barrier, or fire barrier, as it relates to a roofing system and as referenced in the Insulation Specifications section of the Insulfoam Roofing Manual, is defined in Chapter 26 of the International Building Code® (IBC) as *a material that will limit the average temperature rise of the unexposed surface to not more than 250 °F after 15 minutes of fire exposure, complying with the standard time-temperature curve of ASTM E 119. The thermal barrier shall be installed in such a manner that it will remain in place for 15 minutes based on FM 4880, UL1040, NFPA286 or UL 1715.* Thermal barriers meeting this criterion are called 15-minute thermal barriers or are classified as having an index of 15. An example given by the IBC of an approved thermal barrier is a 0.5" gypsum wallboard or its equivalent.

The 15-minute time frame is considered to be a typically sufficient time for occupants to exit a building before becoming trapped or overcome by smoke from combustible materials.

The thermal barrier material should have a valid building code certification that lists a report number and date. In some cases, a local building code official will allow the use of a thermal barrier that has been tested to the satisfaction of the official, but is not certified by a code agency.

Direct-to-Deck Applications

In Section 2603.4.1.5 of the IBC, it also indicates that a thermal barrier is not required in roof systems that meet the following conditions.

For wood deck applications:

Foam plastic insulation under a roof assembly or roof covering that is installed in accordance with the code and the manufacturer's instructions shall be separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints or other approved type of edge, or an equivalent material.

And for applications meeting the above criterion:

A thermal barrier is not required for foam plastic insulation that is part of a Class A, B or C roof-covering assembly, provided the assembly with the foam plastic insulation satisfactorily passes FM 4450 or UL 1256.

Insulfoam has passed UL 1256 with numerous roofing membrane systems. Contact your local Insulfoam representative for a list of partner membrane suppliers.

Fire Rated Roof/Ceiling Assemblies (Underwriters Laboratories' P-Designs)

Depending on a building's use, the IBC may require enhanced fire ratings for key components of that building. Structures such as schools, hospitals and emergency shelters are just a few examples of when these ratings may be required. The enhanced fire ratings are commonly referred to as hourly fire ratings, and have been tested by Underwriters Laboratories (UL). For example, a one-hour fire-rated roof/ceiling assembly would maintain its position during a fire for at least one hour. Rated roof/ceiling assemblies have been designated as P-Designs by UL. For certain assemblies, ratings are available for up to three hours. It should be noted that these P-Design roof/ceiling assemblies require strict adherence to ensure full compliance.

Those assemblies that allow the use of InsulFoam insulations can be found in the Codes section of the Insulfoam Roofing Manual. A complete description of these assemblies is available in the Underwriters Laboratories Directory.