



Building Construction: Separating Sprayed-Foam Insulation

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Learning Objective: The student shall be able to identify the thermal protection requirements for sprayed-foam insulation.

This eerie looking material is a sprayed-foam insulation product that is popular in single-family dwellings for its ease of installation and insulating properties. A similar product can be poured into building cavities to slow air infiltration.

A polyurethane derivative, this particular product is made from two components that are mixed on the job before application. In the liquid spray form, the material expands about 100 times its original volume as it dries into these shapes.

Once it has dried, the material can be destroyed by flames, but it will not sustain combustion. The material should not be installed within 2 inches (50 mm) of a heat-emitting device where the temperature can exceed 180 °F (82 °C). It cannot be used in electrical outlet or junction boxes. When tested in accordance with ASTM E-84, *Test Methods for Surface Burning Characteristics of Building Materials* (the Steiner Tunnel test), the product has a flame spread index less than 20, smoke development index less than 400, and a fuel contribution of 0.



This polyisocyanurate foam insulation must have an approved thermal barrier between it and the living space.

If the material is used in spaces where there is normal and routine human activity, it must be protected by a 15-minute **thermal** barrier consisting of 1/2-inch (12.7 mm) gypsum wallboard or equivalent protection that meets the local building code for thermal barriers and will limit the average temperature of the unexposed side to no more than 250 °F (121 °C) after 15 minutes of exposure.

If the material is applied in an attic or crawl space where the only access is for utility service, it must be protected by an **ignition** barrier consisting of 1- 1/2-inch-thick (38 mm) mineral fiber insulation; 1/4-inch (6.4 mm) wood structural panel, particleboard, or hardboard; 3/8-inch (9.5 mm) gypsum wallboard; corrosion-resistant steel having a base metal thickness of 0.016 inch (0.4 mm) or other approved material that is installed so the foam plastic is not exposed.

For additional information, refer to NFPA® 5000, *Building Construction and Safety Code*®, the *International Residential Code*®, and the *International Building Code*® chapters on “foam plastics.”

