

## Division Opinion

**Inquiry:** 2008-09

**Subject:** Spray Foam Insulation Inspections

**Code:** 2006 International Residential Code  
2006 International Building Code  
2007 Minnesota State Building Code chapter 1309

**Submitted By:** 10,000 Lakes Chapter of the International Code Council  
Uniformity of Inspections Committee

**Approved By:** Thomas Anderson, State Building Official

**Issue Date:** Aug. 1, 2008

**Question:** The building codes do not make reference to either open-cell or closed cell spray-applied foam insulations.

**Answer:** Both the 2006 IRC and 2006 IBC define “FOAM PLASTIC INSULATION”, “A plastic that is intentionally expanded by the use of a foaming agent to produce a reduced-density plastic containing voids consisting of *open or closed cells*...”

**Question:** How do I as a building inspector, verify the specific product used and that the application was done to the manufacturer’s instructions? Is third party testing required to approve spray-applied foam insulation?

**Answer:** First, “third party inspections” or “special inspections” are not specifically required for spray foam installations by the code. Minnesota Rule 1300.0210 subp.6 item L. states, “Special inspections shall be as required by the code.” Special inspections must be required by a specific provision of the code before they can be required by the building official. In addition, Minnesota Rule 1300.0210 subp. 6 item M. authorizes the building official to make or require other inspections, however only for items A to K, and not for item L which is special inspections. Minnesota Rule 1300.0210 subp. 6 further identifies required inspections to be performed by the building official, which includes energy efficiency inspections to determine compliance with the Minnesota Energy Code requirements.

At this point the “verification process” for foam products installed in buildings regulated by the IRC is limited to the requirements of IRC, R314.1, which states, “The provisions of this section shall govern the materials, design, application, construction and *installation* of foam plastic materials,” and, IRC, R314.2 “Labeling and Identification.”

For all other buildings, IBC 2601.1 and 2603.1 regulate foam products in a similar manner.

In practical application, if the building official is aware that a particular installation may not meet the installation requirements of the code, then the building official can require tests on the installed material as set forth in Minnesota rule 1300.0110 subp.15, "Tests." For instance, core tests or other sampling methods can be used to determine if the material was installed in the proper proportions of the "A" and "B" components.

**Background Information:** The IBC and IRC each address the requirements for foam plastic in sections 2603 and R314 respectfully. The model code language addresses specific minimum requirements regarding product labeling, identification, burning characteristics, when a thermal barrier is required and other foam product applications. Code requirements do not differentiate the use of open or closed cell foam products but focuses on whether the product complies with minimum flame spread index and smoke-developed index for use in a structure and protected with a thermal barrier where required.

The relevance between open-cell or closed-cell spray foam insulation becomes of greater importance regarding a vapor retarder where required by the Minnesota Energy Code. Typically open-cell spray foam insulations will require a vapor retarder per code. Several closed-cell spray foam insulations on the other will not require a vapor retarder. Be aware, that the specific requirements determining whether a vapor retarder is required must be verified with each spray foam insulation manufacturer. The manufacturer's product literature must define the permeability rating for their specific product or assembly by identifying whether their spray foam insulation product has a permeability rating of greater or less than one. A product or assembly having a permeability rating of one or less will not require a vapor retarder.

**Discussion:** It is the responsibility of the spray foam insulation installation contractor and applicator to comply with the manufacturer's installation requirements for their product. Most manufacturers have very detailed requirements regarding the application equipment, temperature, humidity and other atmospheric conditions pertaining to the product and substrate material receiving the product.