

Fire tests heat up insulation war

The North American Insulation Manufacturers Association, which represents manufacturers of fiberglass and other batt insulation materials, is questioning the validity of fire testing performed on reflective foil insulation products for exposed applications.

NAIMA claims that the foil-sided "bubble pack" or foam sheets have been improperly rated by previous tests, and that their own tests on the material "as installed" show high indices of flame spread and flash-over. The association presented a video at October's Metalcon convention, and in November began distributing a technical bulletin on the topic. The Reflective Insulation Manufacturers Association hotly denies the claims, questioning the validity of tests conducted on behalf of a competing product and standing by its own members' successful tests that followed the same protocol. Reflective insulation has been used in wall cavities, attics, around ductwork, and even under concrete. It has also become popular in otherwise uninsulated metal and post-frame buildings, particularly to cut down on summertime heat gain or lessen cool weather condensation problems. Reflective insulation has two advantages in such applications: draped over purlins and under metal, the 1/4-in. thickness interferes less with the metal-to-purlin connections than the thicker batts; and it's significantly less expensive to manufacture and install than batt insulation.

NAIMA has long challenged the thermal performance claims made by reflective manufacturers, and the fire test results represent another salvo in a long rivalry.

At issue is the reflective insulation's performance in two laboratory tests: the ASTM E84 Steiner Tunnel Test and the UL 1715 Room Corner Test. The E84 tunnel test allows materials to be supported, whether by rods or poultry netting, so that it remains in the "ceiling position" in the test tunnel. When tested with support, reflective insulation generates an acceptably low flame spread index. But NAIMA argues that wire support should not be used because the reflective insulation is not usually installed with such support, and it is "stiff enough to be used without support" in the test. When NAIMA had foil insulation tested without wire support, the tunnel test generated many times the allowable flame spread numbers.

NAIMA's test of the material in the UL1715 Room Corner Test resulted in a flash-over in 2 minutes, 10 seconds, which was interpreted as a failure.

A statement issued by RIMA calls NAIMA's results "suspect." "Manufacturers of reflective insulation products have conducted room corner fire testing in strict accordance with UBC Standard 26-3/UL 1715 with favorable results." Supports are necessary in the E84 test, says RIMA, since "reflective insulation will not remain in the test position when unsupported and will typically collapse and fall" from the ledges in the test tunnel.

"Manufacturers of reflective insulation products that have building code evaluation reports are required to test in strict



The Steiner Tunnel used in the ASTM E84 test.

accordance with ASTM E84," notes the statement, "thus the use of a mounting method is a requirement."

Individual reflective insulation manufacturers also dispute the findings. "We've been testing it according to ASTM's instructions," says Dustin Muller of Environmentally Safe Products, which makes Low-E insulation. The company cites testing at five different labs, including Omega Point, where NAIMA conducted its tests. "Any test results that are published by an industry group with competitive products may have results that are clouded by a conflict of interest," notes a statement from ESP.

Testing laboratories contacted by *Frame Building News* noted the difficulties in setting up and interpreting fire tests fairly.

"There are a lot of questions to be answered here," says Ken Rhodes of Underwriters' Laboratories. "If the material simply fell down into the flames without support, that doesn't seem like a fair test."

There's enormous discretion in how a laboratory mounts material for testing, says Rhodes, and that can make all the difference. The test has to be interpreted for specific installations: insulation draped over purlins, he says, would probably count as supported, while material stapled underneath might not.

Furthermore, there are limits to what fire testing tells you, notes Rhodes. "These are benchmark tests, they don't represent real-world conditions."

NAIMA technical director Charles Cottrell says the group is questioning the Class A flame spread ratings advertised by some reflective insulation manufacturers, and is not trying to brand all reflective products as unsafe. "We just didn't see how they were getting those numbers," says Cottrell. "We think the chicken wire interferes with combustion, and that other means of support need to be tested."