Polyiso, Flame Retardants and Building Codes  
Keeping Fire Safety a Priority

A recent study sponsored by the Green Science Policy Institute (The Babrauskas study) suggests that an existing small-scale test (ASTM E-84, or Steiner Tunnel, developed by Underwriters Laboratories) used to evaluate and qualify foam plastics in residential building codes is unnecessary and should be removed from these codes, as a means to force the elimination of flame retardants in foam insulation. PIMA and its members are particularly concerned about this recommendation as it focuses on a very serious issue – fire safety.

Based on assumptions described in the Babrauskas study, the Safer Insulation Coalition has announced their intention for a formal code change proposal, which is currently working its way through the public code development process. This development process is established by the International Code Council, the organization responsible for the model building codes adopted by almost every U.S. state and municipality. During this process, all proposed code changes will be published on March 11, 2013. If the Safer Insulation Coalition has indeed submitted its proposed change, the proposal will be reviewed and vetted by the top fire scientists and code officials in the United States. The initial hearing will be in April of 2013 with the final hearing in October of 2013. If the proposal is accepted, it would become part of the 2015 International Residential Code to be published in 2014 and ready for state and local adoption.

As long-time advocates and supporters of the national model building code process, PIMA and its members encourage the serious discussion and review of the Babrauskas proposal that the national code process offers. Due to the importance of this code review process, PIMA and its members also believe that any other decision or action regarding this proposal would be premature until this important national code review is completed. A single research study or proposal, regardless of the expertise of the researchers, still requires exhaustive peer review and validation before its recommendations should be established as national policy.

Based on PIMA’s review of the Babrauskas study and the proposal to eliminate E-84 testing requirements for foam plastics, the following observations are offered as a guide for architects, specifiers and buildings owners interested in this issue.

• The Safer Insulation Coalition proposal calls for the elimination of E-84 testing only in the current International Residential Code for specific applications of foam insulation. As a result, it is important for building professionals to remember that this test will still be required for other residential applications of foam insulation as well as nonresidential construction covered by the International Building Code.

• The E-84 Steiner Tunnel is only one test within a much larger body of testing protocols used to determine the fire safety of many building components and assemblies, including those that contain foam insulation. Contrary to information presented in the Babrauskas paper, not all foam insulation is installed behind a thermal barrier or below grade. Code compliance for these other uses requires rigorous complex large scale fire testing, in addition to ASTM E-84 that has proven over many years to increase fire safety.
• The proposed elimination of the E-84 test from the current International Residential Code would apply to only two uses of foam insulation – products installed behind a thermal barrier and exterior below grade foundation insulation. This is an attempt to control the use of flame retardants by application. This aspect of the proposal has a strong potential to result in unintended consequences that reduce overall fire safety. PIMA is especially concerned that foam insulation without flame retardants that would be exempt from the test may accidentally be applied in residential or commercial applications where more stringent fire testing is required. Not only would such use be a violation of the building code, but it could seriously jeopardize public fire safety in residential, public and commercial buildings.

• The proposal to eliminate ASTM E-84 testing for foam insulation fails to consider the significant potential economic and environmental consequences of eliminating the Steiner Tunnel test in non-residential construction. As an example, the elimination of Steiner Tunnel test requirements for non-residential roofs could require the use of billions of square feet of thermal cover boards and thermal barriers not currently required by the code, at an annual cost of hundreds of millions of dollars. Because the manufacture of thermal barriers requires large amounts of process energy, which in turn increases atmospheric pollution and the release of toxic byproducts related to energy production, the addition of billions of square feet of such materials annually to U.S. buildings does not offer a hazard-free option to the use of very small amounts of fire retardants.

• The health risk assessment portion of the Green Science Policy Institute study does not appear to provide an accurate portrayal of the risks associated with the fire retardant currently employed in insulation products manufactured by PIMA members. Currently, this fire retardant has been evaluated by global authorities and regulators in North America and Europe and found to be suitable for commercial use.

• Historically, the expertise of code officials has been focused on the evaluation of buildings and materials in relation to hazards such as fire, wind, hail and other natural events rather than chemical toxicity. As a consequence, the building code development process may not be an appropriate forum for a productive discussion of chemical risk assessment. For individuals and organizations seeking changes in chemical hazard regulatory criteria, PIMA and its members suggest that the rulemaking processes of agencies such as the U.S. EPA or other similar national and international agencies provide a much more credible and effective venue.

PIMA • 7315 Wisconsin Avenue, Suite 400E • Bethesda, MD 20814 • www.polyiso.org

---

3 See ICC website for additional information about the International Codes Council: www.iccsafe.org