

# EPS INSULATION DELIVERS CONSISTENT ENERGY SAVINGS AND THERMAL PROTECTION OVER LIFE OF BUILDING

## *FIELD TESTS PROVE EPS INSULATION RETAINS R-VALUE AND MOISTURE RESISTANCE UNDER EXTREME FREEZE-THAW CONDITIONS*

Crofton, Maryland (November 12, 2008) – A new study commissioned by the EPS Molders Association (EPSMA) found that expanded polystyrene (EPS) insulation maintains its R-Value over time, even under tough freeze-thaw conditions. The study, *Thermal Resistance and Moisture Content Testing of Foam Plastic Insulation*, also concluded that competing insulation materials can lose R-Value over time.

As energy prices increase, selecting the best building insulation becomes even more important. Choosing insulation that maintains its thermal resistance over the life of the building means long-term energy savings. Thermal resistance is measured by R-value which represents the ability of a product to resist heat flow, the primary function of insulation.

“Insulation performance standards have been determined in laboratory conditions,” stated Elizabeth Steiner, executive director of EPSMA. “This is the first long-term test of plastic foam insulation under real-world conditions. EPS insulation clearly demonstrated its superior performance, making it the preferred choice when compared to the competition.”

Performed by independent laboratory, Stork Twin City Testing Corporation of St. Paul, Minnesota, this test studied the in-situ performance of insulation materials used as below grade insulation. Tests evaluated the field performance of expanded polystyrene (EPS) and extruded polystyrene (XPS) insulation samples from a side-by-side installation after 15 years of use.

Samples were tested for thermal resistance using ASTM C518 “*Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Apparatus*” immediately after excavation and again after sample conditioning. Moisture content was determined by measuring the sample weight following a four-week conditioning period and again after being oven dried.

The water absorption demonstrated by the EPS insulation is within the range of the maximum threshold specified in ASTM C578 “*Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*” (by less than 1%) while XPS insulation exceeds the maximum threshold by more than 18%. In addition, while the in-service R-value of the XPS insulation is reduced by half, EPS insulation delivers according to specification with an R-value of 3.6 per inch after 15 years.

Studies show that as much as 25% of energy loss from a structure can be attributed to a lack of insulation on below-grade foundations, crawl spaces and under slabs. The Stork Twin City Testing concluded that EPS insulation outperforms XPS in both R-value retention and water absorption. These long term performance advantages of EPS insulation correlate directly to increased energy efficiency and reduced energy costs over the life of the building.

In addition to its long-term performance advantages, EPS insulation is available in a wide variety of thicknesses, panel sizes and compressive strengths. And, with EPS insulation manufacturers in every state, it is readily available close to installation sites, reducing transportation and storage costs.

For more information on this study and other EPS insulation performance reports, contact Virginia Lyle at the EPS Molders Association at 800-607-3772 or visit [www.epsmolders.org](http://www.epsmolders.org). The EPS Molders Association is a trade organization for the manufacturers of polystyrene building and construction products.

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For more information, see [Below Grade Technical Bulletin 103: 15-Year In-Situ Research Shows EPS Outperforms XPS in R-Value Retention](#).