

TECHNICAL BULLETIN

TARGET MARKET ROOFING



BUILDING TRUST



Subject: Polystyrene (XPS & EPS) Insulations

With the continuing demand for the use of extruded polystyrene (XPS) and expanded polystyrene (EPS) insulation boards within our roofing systems a review on our requirements and an update on approved products is warranted.

Warranty & Suppliers

Roofing and Waterproofing projects are eligible for System warranties when utilizing Types IV, VI, VII, and V XPS or Type II EPS boards supplied by Sika Corporation – Roofing (Sika). EPS insulation is not acceptable for installation in Protected Membrane Assemblies (PMA). Only XPS may be used when in such applications. Approved suppliers for our XPS boards are Dow Chemical Company and Owens Corning. Approved suppliers for our EPS boards are AFM Corporation, Insulfoam, and Starrfoam Manufacturing Inc. Only Dow, Owens Corning, and AFM Corp. are eligible for 25 – 30 year warranties.

Storage and Handling

When stored outdoors all material should be protected from exposure to direct sunlight using an opaque, light-colored tarp. **Do not use a dark colored tarp.** Factory applied packaging is intended only for protection during transit. When stored outdoors or on the job site, the insulation should be stacked on pallets at least four inches above the surface level and completely covered with a light colored weatherproof covering such as a tarpaulin. The temporary factory applied packaging should only be slit enough to prevent accumulation of condensation and then removed prior to immediate use. Roof insulation which becomes wet or damaged should be removed and replaced with dry insulation.

Approval Requirements

To achieve an external fire rating of Class A or B a thermal barrier is needed between the membrane and polystyrene insulation board. This barrier may be either 1/4 inch thick minimum U.S.G. Securock, Georgia-Pacific DensDeck board or a thermal slip-sheet such as Atlas FR-10 or FR-50.

Polystyrene insulations may be applied directly over metal decks depending on local code requirements and providing the property is NOT insured by FM. Underwriters Laboratories (UL) approves polystyrene insulation direct to steel deck. UL Standard 1256, Fire Test of Roof Deck Constructions, tests roof deck constructions subjected to internal fire exposure. UL Standard 790, Test Methods for Fire Tests of Roof Coverings, tests fire resistance performance of roof coverings subjected to external fire exposure.

Factory Mutual requires a thermal barrier such as 5/8 inch thick Type X core gypsum board or minimum 1/2 inch thick DensDeck board between the steel deck and polystyrene insulation. Check with local building officials for direct to steel deck applications.

System Requirements

Sika polystyrene insulations are for use on all deck types, new, re-roof, and re-cover applications (nailable and non-nailable). With adhered systems, the membrane shall be adhered to the thermal barrier¹ with Sarnacol water based adhesives or Sarnacol low rise urethane foam membrane adhesives (felt-backed membranes only). Boards may be attached to roof decks with Sarnafasteners and Sarnaplates or with Sarnacol low rise urethane foam board adhesives (insulation boards shall be 4' x 4') over acceptable deck types. All adhered systems or mechanically fastened systems using a vapor/air retarder shall be installed in correspondence with specified uplift requirements per the job specifications. A minimum of 6 fasteners per 4' x 8' board shall be used in a mechanically attached system without a vapor/air retarder. With a vapor retarder, fastener density is to be equivalent to that required for an adhered system. Consult Sika Roofing Technical Department for further information or questions.

Additional polystyrene products approved for use in Sika systems include, Sarnatherm Fanfold recover board for use in mechanically attached roof systems over existing smooth or gravel surfaced built up roofs and Sarnatherm LightGuard and HeavyGuard may be used for use in ballasted roof systems (see Sika Technical Bulletin #07-06 for additional information).

Warning

Care must be taken whenever solvents are present near polystyrene insulation. **Solvent based adhesives are not to be used with systems incorporating polystyrene insulation.** Foam plastic insulation will ignite if exposed to fire of sufficient heat and intensity. Protect foam insulation from exposure to open flame or other ignition sources during shipment, storage, and installation. Polystyrene insulations should not be used in direct contact with chimneys, heater vents, steam pipes or other surfaces where temperatures exceed 150°F (65°C). Polystyrene insulations should have additional protection in addition to normally specified cover boards in areas where dark membranes are used and where "reflected solar energy" is expected to be present. Areas adjacent to higher walls or other structures with reflective cladding should be considered for additional heat protection. For example; areas near metal or glass cladding, or near, or in between large groupings of mechanical equipment, or near higher reflective parapets, should be considered for additional heat protection. Additional heat protection for such roof areas include covering roofing membrane with Sarnafil PVC Protection Layer and then applying pavers or ballast to the affected area. Polystyrene insulation is susceptible to degradation when exposed to high temperatures or when exposed to solvents or solvent fumes. The typical maximum service temperature for polystyrene insulations is 165°F (74°C). Should ambient or surface temperature be expected to exceed this value, please consult the manufacturer of the insulation.

¹ NOTE: Only feltbacked Sarnafil G410 is to be adhered to Securock.