

Protecting STYROFOAM® Insulation From High Temperatures

The Dow Chemical Company publishes Tech Solutions 519 STYROFOAM® Brand Extruded Polystyrene (XPS) Foam Insulation and Dark Roofing Membranes and Other Dark Coverings to address the potential of the product to exhibit unacceptable levels of dimensional change when the maximum use temperature of the STYROFOAM® (165°F) is exceeded. According to Dow this temperature can be reached quickly (in a matter of minutes, not hours) when a dark roofing membrane is being installed over the foam – even when ambient temperatures are much lower ($\geq 90^{\circ}\text{F}$). Site or building factors such as surrounding walls, windows, etc. can add to the heat and should be considered as well.

To keep the STYROFOAM® well below the maximum use temperature and prevent any potential curling or board warpage, Dow recommends that the following measures be taken whenever STYROFOAM® is being installed during periods when the ambient temperature will be 90°F or higher.

- White, opaque polyethylene sheeting should be placed temporarily over the dark membrane to reflect as much of the potential heat build up as possible.
- The polyethylene should be ballasted temporarily (i.e., lumber, tires, etc.) until the permanent ballast is installed.
- Sections of polyethylene sheeting can be reused by moving it along as the permanent ballast is installed.

Protected Membrane Roof Applications with Monolithic Membrane 6125®

While in a typical Protected Membrane Roof (PMR) installation with MM 6125® the membrane is installed below the foam, there will be instances when implementing the above measures would be prudent. Even though there would not be a dark “roofing membrane” installed in these situations there may be times when a generic drainage mat, which typically has a black filter fabric bonded over the core, is installed directly over the foam. This would be typical in applications where a concrete slab or concrete pavers are specified as the topping materials and an air layer between the insulation and the surfacing is required by Dow Chemical. In addition, many of the generically available filter fabrics approved by Dow for use in a typical IRMA (gravel ballast) are black in color.

As a result, to avoid even the possibility of reaching the maximum use temperature of the STYROFOAM®, Hydrotech is recommending that the steps outlined above, be implemented ***any time*** ambient temperatures will be 90°F or higher and generic drainage mats or a filter fabric will be placed over the STYROFOAM®.

This is also the reason that Hydrotech’s Hydrodrain® AL, 300, and 1000 all have white filter fabric bonded to the tops of the core. In addition, Hydrotech supplies a white filter fabric, PMR Stone Filter Fabric, for typical Protected Membrane Roof installations.

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