

Technical Bulletin: Styrofoam™ Brand ST-100 Series XPS Products and Solar Exposure

Summary:

Darker colors can absorb more solar energy from direct exposure or shiny, reflective surfaces leading to excessive heat build-up. The grey color of Styrofoam™ Brand ST-100 Series extruded polystyrene (XPS) Insulation products can reach higher surface temperatures compared to the traditional, blue Styrofoam™ brand XPS Insulation products. These excessive high temperatures can, in rare cases, cause the distortion of the insulation boards making them more difficult to properly install. The following guidelines should be followed to reduce the likelihood of insulation distortion during installation.

Guidelines:

- 1. Always store insulation covered with a light-colored tarp or film.** Whether in the pallet or in individual bundles at the installation point, cover the insulation boards with a light-colored tarp or film if it will be exposed to direct sunlight. Avoid storing insulation next to reflective surfaces, such as glass, glazing, high parapet walls, counter flashing etc. Insulation positioned next to reflective surfaces should be covered as it is being installed.
- 2. Never cover the insulation with clear plastic film outdoors.** The clear plastic film acts as a greenhouse and will dramatically increase the temperature exposure of the insulation below it. Either install the clear plastic film immediately before the final covering (concrete or roof layers) or place the clear plastic film beneath the insulation. Once the original foam unit wrap is removed, cut off the clear banding used to secure the foam pieces during transport and immediately dispose.
- 3. Avoid reflective surfaces adjacent to the insulation.** Surfaces, like glass or polished metal, adjacent to the insulation can direct extra solar energy onto a horizontally placed insulation board, and excessively increase the surface temperature. Check all areas, both in storage and in the application, for potential vertical reflective surfaces. Protect the insulation (see below) if potential reflective surfaces are found.
- 4. Protect insulation boards that are already installed in exposed horizontal applications from direct sunlight.** Protecting the insulation boards when in horizontal applications:
 - a) Cover the insulation with a light-colored tarp or film or layer of gravel (as typical in below grade applications). **Never use clear plastic film to cover foam under construction.**
 - b) If the assembly design includes painting of the foam surface, paint the insulation surface with a low cost, light-colored latex paint. This can be done with paint that is heavily cut with water to make the process much less expensive.

If heat distortion does occur:

- 1. Flip the board over.** In many cases this will relax some of the distortion and make installation of subsequent materials much easier.
- 2. Cool down the surface with water.** When distortion initially occurs, it is sometimes reversible if cooled quickly. Water sprayed on the insulation board within the first few hours of distortion occurring may reverse the distortion.

