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Technical Bulletin No. 1017

Recover Boards and Approved Roof Insulations

RECOVER BOARDS

Industry studies and follow up reports consistently indicate that under certain conditions, asphalt applied 1/2" thicknesses of perlite and standard density wood fiber will either curl at the edges or blister, and maybe both, which can be disastrous to any roof membrane system. For the last several years many technical articles and reports have been written warning of these concerns and stating that 1/2" perlite (Retro-Fit Board) or 1/2" standard density wood fiber should not be encapsulated in asphalt. This is especially important when installed over non-vented situations like concrete deck, vapor retarders, existing roof systems, etc.

The use of 1/2" Retro-Fit Board and standard density wood fiber insulation should be limited to situations which allow mechanical fastening of the insulation. BITEC recommends the use of HIGH DENSITY wood fiber insulation when a minimum layer of 1/2" thickness is required to be applied in hot asphalt and it is always recommended that a thicker layer be used when possible. Also, board size for asphalt attachment should be limited to 2' x 4' board size.

When divorcement board

insulations are to be applied in hot asphalt over polyisocyanurate (ISO), urethane, other foamed plastic insulations or any of the other various substrates previously mentioned, they should be a minimum thickness of 3/4" perlite, wood fiber, fiberglass, mineral wool or a layer of iso/composite insulation. When applied in hot asphalt, regardless of insulation thickness, it is important to watch for "frying" or "foaming" which is an indication of the presence of moisture and possibly degassing. Work should be terminated until dry materials are available. Close attention to asphalt application temperatures may prevent or help control excessive degassing from the foamed plastic type insulations or moisture release from the facer sheets.

In any situation, the degassing or moisture release may interfere with proper attachment of the divorcement layer and diminish the necessary wind uplift resistance. This lack of proper attachment can also cause inadequate restraint at the interface between material layers, allowing stress to build up in the roof membrane from building movement due to settlement, wind loading or expansion and contraction. The result of such problems could

be to overstress the roof membrane, even beyond the superior elongation capabilities of modified bitumen membranes.

If each incremental square foot of roof area is properly restrained and the stresses of building movement are evenly distributed and not allowed to concentrate in areas of inadequate restraint, there is less possibility that building movement will accumulate in one area which causes over-stressing. The bottom line is that the roof can not hold the building together and that warranties do not cover damage due to building movement. It is in the best interest of all concerned, to insure that known good construction and roofing practices be used to get the best results.

Cold asphalt (reduced temperature) application of EPS type insulations is not recommended, but should be discouraged and avoided. When possible, EPS boards should be mechanically fastened together with an overlayment of some other type insulation which the roof membrane can be adhered to. The use of EPS type insulations and installation methods requires special approval from BITEC Manager of Technical Services.

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Any insulation used over an existing roof as a "recover board" or "Retro-Fit" insulation, should always be mechanically fastened when possible. When situations occur which require installing the insulation to an existing membrane with hot asphalt the following criteria must be met:

- 1) All existing wet materials must be removed and replaced.
- 2) Gravel surfacing must be spudded down to a reasonably clean smooth surface. Merely sweeping the loose gravel is not acceptable for this application.
- 3) Prime the surface with approximately 1/2 gallon of asphalt primer and allow to thoroughly dry.
- 4) Spot mop, strip mop or solid mop the recover insulation as previously approved by BITEC Technical Services Department.

APPROVED INSULATIONS

The following generic classes of insulations are approved for use with BITEC warranted roof systems:

- Cellular Glass
- Glass Fiber
- Mineral Wool
- Perlite
- Polyisocyanurate (ISO) and composites
- Wood Fiber

Other insulations may be approved only on a project to project basis by Manager of Technical Services. Such approval shall not be construed to establish a precedent for continued use by anyone.

Fastener approvals vary from manufacturer to manufacturer and for various thicknesses of insulations. Please refer to Technical Bulletin #1016 for more information regarding fastener requirements.