TILE ROOFING INSTITUTE

TO: Whom It concerns; April 7, 2016

Reason: ***Installation of Solar Panels Requires Additional Attention To Detail***

The TRI has been asked to provide guidance with regard to solar installations on tile roofs. As new products enter the market place, the TRI is challenged in how to provide proper guidance for many various products and installation methods to our contractor base.

The TRI does not endorse, rate or test any particular solar mounting product. The TRI would like to help identify potential needs or concerns such products might need to address so as not to compromise the performance of the tile roofing system. This letter is intended to provide guidance on how to comply with the building codes and tile product requirements, however local building officials will always provide the final approvals within their jurisdictions. Our industry operates on the basic premise that a proper tile roof will function as a water shedding assembly when the individual components are properly installed.

Solar panels are often added to existing roofs. In some cases, the solar panels are installed by electrical trade contractors without sufficient tile roofing expertise. The location of collectors and wiring conduit can create additional challenges to allowing tiles to properly fit as designed.

In many cases the trained roofing contractor is not consulted or involved in work or alterations made to the roof once it is installed. There is concern that roofing contractors may bear undue potential liability for issues created by other trades that might compromise the integrity of the roofing envelope when installing these systems. The involvement of the roofing professional in the application process has always been a key best practice in to ensure proper roof performance.

There are three critical aspects of the installation as it relates to the integrity of the tile roof when installing roof mount systems:

1) Structural attachment –The attachment of solar mounts to the actual tiles is not allowed. It is the responsibility of the roof mount manufacturer to determine how to properly attach to the substrate or framing to meet the code required uplift including additional live and dead load forces.

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2) Interaction with tile – Roof mount systems may require penetrating the existing tile cladding to attach to the roof deck or framing. When tiles are cut, modified or removed to install roof mount systems, the manufacturer of the roof mount system should provide clear installation instructions on how the mounts will be installed to allow the tiles to meet the current code requirements. Tiles that are modified or altered from their proper installation may void the warranty for those tiles. See manufacturer's warranty for details.

3) Flashing and sealing - Roof mount systems must have proper flashings to prevent intrusion of water beneath the tiles. In addition, roof mounts that penetrate the tile cladding must have deck flashing or ability to prevent water intrusion through the roof underlayment or sheathing layers. Where caulking, sealants or other materials are recommended by the roof mount system manufacturer, care should be taken to ensure long term performance of the sealing method to allow for expansion and contraction over the life of the roof. The roof mount system manufacturer should also provide any maintenance requirements. Please see the attached drawing for more information.

The TRI has worked with various solar bracket manufacturers to ensure they understand the above three items of concern.

For any questions or additional information, please feel free to contact me.

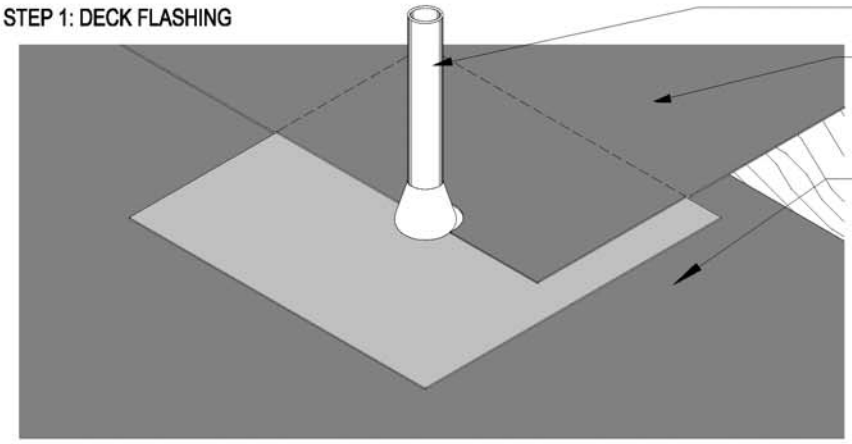
Rick Olson
President & Technical Director
Tile Roofing Institute

TILE PENETRATION FLASHING

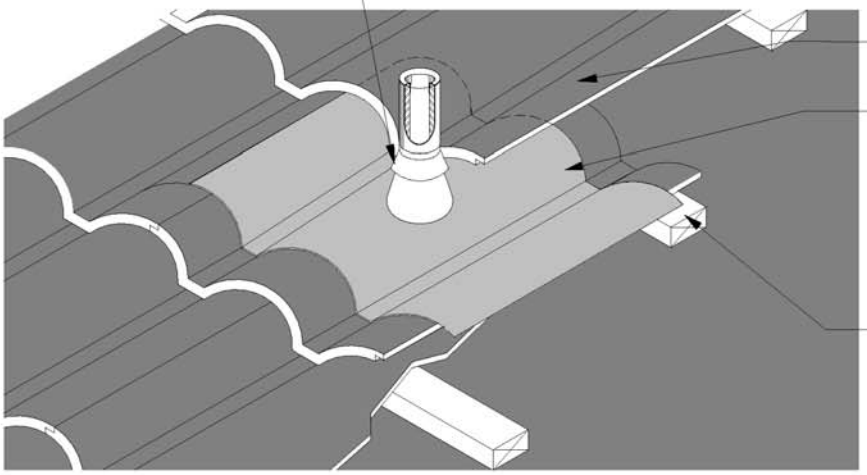
(Shows Required Two-Step Deck And Tile Flashing)

MC-02

STEP 1: DECK FLASHING



STEP 2: TILE FLASHING



ALL PENETRATIONS SHOULD BE LOCATED IN SUCH A MANNER AS TO NOT IMPEDE FLASHINGS AT ROOF TRANSITION.

Notes:

1. For recommended underlayment and fastening requirement, see Table 1A and 1B.
2. All penetrations require a deck flashing and tile flashing.
3. Tile flashings shall extend onto the tile a minimum of 4" on flat tile and a minimum of 1" past the crown of a profiled tile.
4. Dimensions shown are minimums and are intended to be approximate to allow for reasonable tolerances due to field conditions.
5. For flat tile, rigid flashing materials may be used.

Drawing shown depicts the application of all tile profiles. Unless otherwise noted it would apply to either concrete or clay tiles.