



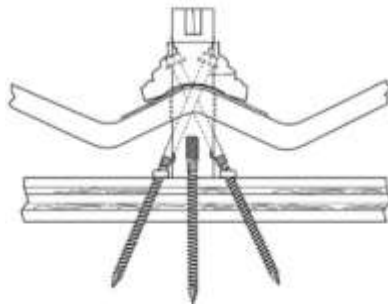
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## **TopTile™ Mount Installation Guidelines**

The TopTile™ Mount System gives the installer the option of mounting to the rafter, or without locating the rafter mounting directly to deck. The foremost advantage to using the TopTile™ Mounts is that well-constructed tile roofs are not deconstructed. No pulling tiles, unseating battens and no leaving unsealed fasteners in the membrane. The TopTile Mounts can be attached to any concrete, clay, stone, fiberglass, rubber, or stone tile roofs per International Code Council (ICC) building codes.

The Tripod version of the TopTile™ Mount provides a departure from the classic attachment of solar panels onto roof rafters. The Tripod mount provides for mounting into the roof sheathing without the need to find a roof rafter. This has advantages in tile roofs since the penetration into the tile can always occur on the peak of the tile ridge, which offers better water ingress protection. It also limits the lifting of tiles and associated cost and breakage.

There are obvious limitations when one considers the mounting of a rooftop solar system to the roof sheathing rather than the rafters. The sheathing will flex so those that insist that deflections are harmful in the mounting of rooftop solar may have problems with a mounting system that will naturally flex as the sheathing flexes. The amount of flex will be greatest when the mount is located centered between two rafters, and less as the mounts are placed closer to the rafters.



In general, the Tripod mounting system should not be considered for high stress environments where high wind and snow loads are combined with steep roof applications. The ideal installation for the Tripod mounting system of the TopTile™ Mount is one where the nominal spacing between mounts is a maximum of 4-feet, and a 2 Rail PV racking design is used. In an environment where the wind speeds exceed 115 MPH LRFD, snow loads are greater than 25 PSF, or the roof pitch is steeper than 4/12 (19 degrees), an engineer should be consulted for design.



Present testing of the Tripod version of the mount in ½-inch plywood has shown a consistent tested pullout of 650 lbs. and a lateral value of 175 lbs. The lateral testing is a test to failure rather than a test to a deflection of 1/8- or ¼-inch since the plywood will bend, producing a non-relevant value. Further, the deflection values and screw pullout values of plywood are well documented in the Wood Industries Handbook.

Preliminary Test Data		
<b>TopTile™ Mount   Tripod</b>		
07-02-16		
<b>Table 1: Allowable Loads (lbs)</b>		
<b>5" Tripod Mount Kit with Flashing – K10207-005</b>		
<b>Load Direction</b>	<b>Tested Load</b>	<b>Allowable Design Load 1,2</b>
Uplift (Withdrawal) <b>3</b>	650	325
Lateral	175	88

Footnotes:

1. Allowable load values are based on the least value from ultimate load tests divided by the safety factor, calculated fastener capacity (withdrawal or lateral) for wood, or allowable stress of the connector load, whichever is lowest.
2. Allowable load is based upon 3 ply plywood.
3. Allowable load values are for withdrawal is based on a minimum fastener penetration of 1/2 inch in wood sheathing.

