Key Thought & Common Questions

- We are all “Solar Installers” but when we step onto a roof with a drill and pull the trigger we become “Roofers” and we have to think like one!

- Wouldn’t put a skylight or vent jack in without complete waterproof flashing

- How would a roofer approach mounting and affixing PV or Solar thermal panels to a customer's roof?

- What is the “CODE” for a mount?
“Instructions from roof manufacturers, guidelines and standards in the roofing industry, accepted best practices and building codes all require the use of flashed penetrations.”

“…80% of all construction related litigation stems from water intrusion.”

~ Rob Hernandez
(Jim Whitten Roof Consultants)
Other Common Mounting Methods
Other Common Mounting Methods
Common Mounting Methods

Leaks and corrosion found at point of penetration
Quick Mount PV
Your Solution in Mounting Products
Solar • H₂O • Conduit • HVAC • Custom
Wheel of Accountability

AHJ
Authority Having Jurisdiction

IBC
International Building Code

SBC
State Building Code

NRCA
National Roofing Contractors Association

IRCA
International Residential Code

SMACNA
Sheet Metal & Air Condition Contractors National Association

SMACNA
National Fire Protection Association

ARMA
Asphalt Roofing Manufacturers Association

UL
Underwriters Laboratories

IRCC
International Code Council

NFPA
National Electrical Code

© 2008
Code Compliance

UBC & IBC – flashing required at all roof openings
NRCA: “Best Practices” – no exposed fasteners
ARMA: must follow manufactures specs
SMACNA: galvanized – not for use on roofs exceeding 15 year lifespan

Roofing Manufacturer: must follow specs to maintain roof warranty
Quick Mount PV
Your Solution in Mounting Products
Solar • H₂O • Conduit • HVAC • Custom

The ALL-IN-ONE
Waterproof Flashing & Mount
For Engineers, & Installers who DEMAND:
NRCA’S Standards & Best Practices
Code Compliance
50 Year Lifespan
Labor Savings
No Roof Cutting
Works with all Racks

www.quickmountpv.com
INSTALLATION INSTRUCTIONS

TOOLS NEEDED
Measuring tape, roofer’s flat bar, chalk line, stud finder, caulk gun with roofing sealant, drill with 1/4” long bit, drill with 1/2” deep socket.

1. LOCATE RAFTER
Using horizontal and vertical chalk lines to align hole for placement of each Quick Mount.

2. DRILL PILOT HOLE
Using drill with 1/4” long bit, drill pilot hole through roof and rafter, taking care to drill square to the roof.

3. LIFT TILE
Lift composition roof tile with roofer’s flat bar, just above placement of Quick Mount.

4. SEAL HOLE
Using caulk gun with roofing sealant, squeeze a dab of roofing sealant into hole.

5. SLIDE QUICK MOUNT INTO PLACE
Lift comp tile and slide Quick Mount into place.

6. SET HANGER BOLT, SEALING WASHER & NUT
Using drill with 1/2” deep socket, set sealing washer with rubber side down, then nut, and tighten into place.

7. ADD RUBBER GASKET
Push black gasket into place flush with top of Quick Mount block.

8. SECURE RACK INTO PLACE, WITH FLAT WASHER & NUT
Using drill with 1/2” deep socket, set up rack over bolt, with flat washer, then nut, and tighten into place.

PATENT PENDING
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One Minute Installation!!!

1. Lift composite tile and clear nails
2. Drill ¼” pilot hole for lag bolt
3. Add roof sealant to pilot hole
4. Slide Quick Mount into place
5. Drive lag bolt into rafter

6. Add EPDM rubber gasket to seal block

7. Attached rail of choice

8. Move onto the next...
Comp Mount with UniRac rail & L foot
ProSolar Rail = low profile
Save time & money: cuts down on labor costs!
Anodized Bronze Comp Mount
Anodized Bronze Comp Mount
QuickMount PV™ is an all-in-one waterproof flashing and mount to anchor photovoltaic racking systems to a new or existing roof. It is made in the USA of aluminum and includes stainless steel hardware. It works with all standard racks, installs seamlessly and is a better low-profile mount.

**Flat Washer (B)** 1” x 5/16”  
**Rubber Gasket** 60 Durometer EPDM  
**Sealing Washer (A)** 3/4” x 5/16”  
**Hanger Bolt** 5/16” x 6”  
1-1/2” Machine, 1-1/2” Spacer, 3” Lag  

**Mount & Flashing** Aluminum  
Mount 2-1/4”l x 1-1/4”w x 1-1/4”h  
Flashing .05” thick. For standard composition roofs: flashing is 12” x 12”, mount is attached 3” off center. For high definition cut composition, or shake roofs: flashing is 18” x 18”, mount is attached 3” off center. For flat applied roofing during installation of roof: flashing is 18” x 18”, mount is attached in the center.

### Lag pull-out (withdrawal) capacities (lbs) in typical lumber:

<table>
<thead>
<tr>
<th></th>
<th>Specific gravity</th>
<th>5/16” shaft* 3” thread depth</th>
<th>5/16” shaft* per 1” thread depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douglas Fir, Larch</td>
<td>.50</td>
<td>798</td>
<td>266</td>
</tr>
<tr>
<td>Douglas Fir, South</td>
<td>.46</td>
<td>705</td>
<td>223</td>
</tr>
<tr>
<td>Engelmann Spruce, Lodgepole Pine (MSR 1650 f &amp; higher)</td>
<td>.46</td>
<td>705</td>
<td>223</td>
</tr>
<tr>
<td>Hem, Fir</td>
<td>.43</td>
<td>636</td>
<td>212</td>
</tr>
<tr>
<td>Hem, Fir. (North)</td>
<td>.46</td>
<td>705</td>
<td>223</td>
</tr>
<tr>
<td>Southern Pine</td>
<td>.55</td>
<td>921</td>
<td>307</td>
</tr>
<tr>
<td>Spruce, Pine, Fir</td>
<td>.42</td>
<td>615</td>
<td>205</td>
</tr>
<tr>
<td>Spruce, Pine, Fir (E of 2 million psi and higher grades of MSR and MEL)</td>
<td>.50</td>
<td>798</td>
<td>266</td>
</tr>
</tbody>
</table>

Sources: Uniform Building Code; American Wood Council  
Notes: 1) Thread must be embedded in a rafter or other structural roof member.  
2) Pull-out values incorporate a 1.6 safety factor recommended by the American Wood Council.  
3) See UBC for required edge distances.  
* Use flat washers with lag screws.
Quick Mount PV®
Your Solution in Mounting Products
Solar • H₂O • Conduit • HVAC • Custom

18x18
Quick Mount
For
Shake Roofs!
- The Only Mount Designed Specifically for Shake Roofs!

- Quick and Easy Install
Quick Mount PV
Your Solution in Mounting Products
Solar • H2O • Conduit • HVAC • Custom
Quick Mount PV®

Your Solution in Mounting Products
Solar • H₂O • Conduit • HVAC • Custom

Tile Mounts

Curved Tile Mount

Flat Concrete Tile Mount
Things to consider before installing on tile roof:

- What is the best way to attach to the roof?
  - rafters, plywood, blocks between rafters
- What is under the tiles?
  - plywood, OSB, skip sheeting, felt paper
- Condition of subroof
- Wind & Load Calculations

INSTALLER MUST DO THEIR RESEARCH!
Making a Secure Connection

Lag bolts into the deck must go into **plywood** thicker than 1/2”

1/2 OSB calls for toggler bolts or putting in blocks for lags
Quick Mount PV

FLAT TILE “RAFTERLESS” MOUNTING INSTRUCTIONS

Remove Tile at location of Mount. Measure up 6 5/8” to center of mount. Mark paper, then measure 5 1/2” from exposed edge of adjoining right tile to center of mount, and mark paper.

Use the Mounting Base as a template to mark the drilling of the 4 each 1/4” holes. Use a screw driver to break out the sealed portion.

Drive Lags into substraight. Clean paper really well.

Apply peel and stick flashing over mount and up and under paper. *

With wedge still in place on the leading edge of tiles above, lift left side tile and set aluminum flashing into place.

Insert post through flashing and secure to base threads.

You are now ready for the rack of your choice. Follow all of the directions of the rack manufacturer as well as the module manufacturer.

All roofing manufactures written instructions must also be followed by anyone modifying a roof system. Please consult the roof manufacturers specs and instructions prior to touching the roof.

* Make sure the Peel and stick is firmly adhered and that all air bubbles are pushed out.

Apply a bead of sealant to post - flashing connection

Apply rail of choice

For Questions Call 925-687-6686

www.quickmountpv.com

info@quickmountpv.com
Quick Mount PV

FLAT TILE “RAFTERLESS” MOUNTING INSTRUCTIONS

Remove Tile at location of Mount. Measure up 6 5/8” to center of mount. Mark paper, then measure 5 1/2” from exposed edge of adjoining right tile to center of mount, and mark paper.

Use the Mounting Base as a template to mark the drilling of the top and bottom holes.

Remove Plate, drill 3/4” hole through deck. Insert toggle bolts per Toggles Instructions.

Insert machine bolt under plate in hex slot so threads point upward. Place mount over toggles and secure with 2 ea 5/16” x 1 1/2” mach bolts into toggles.

Press peel and stick firmly around base and paper. *

With wedge still in place on the leading edge of tiles above, lift left side tile and set aluminum flashing into place.

You are now ready for the rack of your choice. Follow all of the directions of the rack manufacturer as well as the module manufacturer.

All roofing manufactures written instructions must also be followed by anyone modifying a roof system. Please consult the roof manufactures specs and instructions prior to touching the roof.

* Make sure the Peel and stick is firmly adhered and that all air bubbles are pushed out.

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info@quickmountpv.com
Quick Mount PV
CURVED TILE MOUNTING INSTRUCTIONS
RAFTER INSTALLATION

1. Select location of Mount
2. Remove Tile at Location of Mount Installation. Locate center of rafter and mark with a sharpie pen.
3. Use a straight edge and measure up 6 5/8" from bottom of tiles to center of the post, over the center of rafter.
4. Remove protective paper from bottom of post base and place onto center-marks.
5. Drill 1/4" pilot holes for 2 each lag bolts. Drive lags into holes until secure.
6. Remove post from plate, instal "peel and stick flashing" over plate with stud protruding through hole.
7. Re-install post onto stud. Make sure peel and stick slides under existing building paper.
8. Place Aluminum Flashing into position over post and bend to the contour of tiles.
9. Instal sealant around cone to post.
Quick Mount PV

Your Solution in Mounting Products

Solar • H₂O • Conduit • HVAC • Custom

**Tile Mounts**

Curved Tile Mount

Flat Concrete Tile Mount
Conduit Mount

The Conduit Mount kills three birds with one stone

It handles the code required structural attachment at 10'-0" O.C.
It handles the waterproofing of the penetration
It lifts the conduit off the roof to allow airflow around the conduit
relieving the direct heat conduction build up from contact with the roof.

www.quickmountpv.com
Accessories

Height extensions are available in 2 1/2", 3 1/4", and 4". These are normally used with Pro Solar or Uni-Strut Rails.

Stainless Steel Hanger Bolts come with each unit in a 6" length. Optional hardware is available in; 8", 10", and 12" lengths to accommodate the variety of insulations found on a typical roof.

The Roofers Bar simplifies the installation.
Height Extensions available in: 2 1/2”, 3 1/4”, & 4”
## CODE COMPLIANCE AND INDUSTRY ACCEPTANCE COMPARISON

<table>
<thead>
<tr>
<th>Building Authority / Quality</th>
<th>Quick Mount PV</th>
<th>Uni-Rac L-Foot</th>
<th>Uni-Rac 2 piece alum w/Alum Flashing</th>
<th>Uni-Rac 1 piece Galv w/ Galv Oatey Flashing</th>
<th>Pro-Solar tile track over comp no flashing</th>
<th>Pro-Solar Fast Jack w/Alum Flashing</th>
<th>Pro-Solar Fast Jack w/Oatey Flashing</th>
<th>TTI Flat Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meets UBC Uniform Building Code - Structural</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>Meets UBC Uniform Building Code - Flashing</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
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<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Meets IBC International Building Code - Structural</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Meets IBC International Building Code - Flashing</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>Meets IRC International Residential Code</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>Meets “Best Practices” Guidelines of NRCA</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>Meets Specifications of ARMA manual</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>Meets flashing specs of SMACNA</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
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<tr>
<td>Lifespan in years</td>
<td>40</td>
<td>25</td>
<td>15</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Maintains Valid Roofing Warranty</td>
<td>YES</td>
<td>YES</td>
<td>NO *</td>
<td>NO *</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
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<tr>
<td>Easily Retrofitable</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td>Made in USA</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td>All Fasteners Stainless Steel</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
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<tr>
<td>All hardware and flashing included</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

*2 Only Maintains warranty if flashing is set to roof with ASTM D4586 roofing cement, and cut shingles around flashing is set to flashing with ASTM D4586 roofing cement. (Per ARMA)

*3 Galvanized Flashings Not for use on roofs with lifespan greater than 15 Years. (Per SMACNA)
## Retail Comparison of Mounts – Installation on an existing composition roof

Based on 12 or 18 pack purchase

<table>
<thead>
<tr>
<th>Product</th>
<th>Quick Mount PV</th>
<th>UniRac</th>
<th>UniRac</th>
<th>Pro Solar – Fast Jack</th>
<th>TTI – Flat Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aluminum</td>
<td>Aluminum</td>
<td>Galvanized Steel</td>
<td>Aluminum</td>
<td>Galvanized Steel</td>
</tr>
<tr>
<td>Cost of product</td>
<td>$21.00</td>
<td>$10.50</td>
<td>$15.00</td>
<td>$6.50</td>
<td>$15.00</td>
</tr>
<tr>
<td>Additional cost of flashing</td>
<td>$0.00</td>
<td>$14.66</td>
<td>$6.29</td>
<td>$8.75</td>
<td>$0.00</td>
</tr>
<tr>
<td>Additional cost of bolts</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
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<tr>
<td>Total material cost</td>
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<td>$25.16</td>
<td>$21.29</td>
<td>$13.25</td>
<td>$16.50</td>
</tr>
<tr>
<td>Materials</td>
<td>All Aluminum with stainless hardware</td>
<td>2-pc. Aluminum Mount and Smaller Aluminum Flashing v Zinc Lags</td>
<td>1-pc. Zinc plated Steel mount and smaller Calvanized Steel Flashing</td>
<td>Aluminum Stand Off w/ Calvanized Oatey Flashin</td>
<td>Thin Galvanized Steel Flashing with Aluminum and Stainless Steel mount</td>
</tr>
<tr>
<td>Need to purchase</td>
<td>Included</td>
<td>Flashing</td>
<td>Flashing</td>
<td>Flashing</td>
<td>Lag Bolt</td>
</tr>
<tr>
<td>Installation time (app.)</td>
<td>1 Minute</td>
<td>15 minutes</td>
<td>30 minutes</td>
<td>15 minutes</td>
<td>8 minutes</td>
</tr>
<tr>
<td>Cost of Labor at $65.00 per hour</td>
<td>$1.08</td>
<td>$16.25</td>
<td>$32.50</td>
<td>$16.25</td>
<td>$8.64</td>
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<tr>
<td>Total cost installed materials and labor</td>
<td>$22.08</td>
<td>$41.41</td>
<td>$53.79</td>
<td>$29.50</td>
<td>$33.14</td>
</tr>
<tr>
<td>Expected Lifespan</td>
<td>50 years</td>
<td>25 years</td>
<td>15 years</td>
<td>15 years</td>
<td>15 years</td>
</tr>
<tr>
<td>Cost per year</td>
<td>$0.44</td>
<td>$1.66</td>
<td>$3.39</td>
<td>$1.97</td>
<td>$1.68</td>
</tr>
</tbody>
</table>

Additional discount may be taken when purchased in pallet quantity.
Recap...

- Waterproofing roof penetrations is one of the most important aspects of installations but it is often given little attention.
- Following the proper code compliance can protect roof warranties and installer’s liability.
- “Wheel of Accountability” good place to start

“In a competitive bid situation, Quick Mount PV is an integral part of our value added proposition” — Phillipe Hartley (Phat Solar)
THANK YOU!

More info, specs/instructions, pictures, and videos at:

www.quickmountpv.com

Johan Alfsen

(925) 687-6686

johan@quickmountpv.com