



May 22, 2009

Revised Pages 10 & 11 on 12/13/2011 for Editorial Changes Only

Mr. Stewart Wentworth
QUICK MOUNT PV
936 Detroit Avenue, Suite D
Concord, CA 94518-2539

Project Number 108443C
ICC-ES FILE # 08-09-16

Subject: Quick Mount PV Load Testing
ICC-ES AC13 & ASTM D 1761

Dear Mr. Wentworth:

As requested, Applied Materials & Engineering, Inc. (AME) has completed load-testing Quick Mount PV system anchors for shear and tensile strength. The purpose of our testing was to evaluate the tensile and shear load capacity of the Quick Mount PV system in a high density (Douglas Fir) and a low density wood (Cedar).

SAMPLE DESCRIPTION

Twelve (12) 12"x12" samples with 2-1/4" X 3-1/8" Unirac Angle were delivered to our laboratory on April 26, 2009; six each for Douglas Fir and Cedar. A copy of the installation instructions is provided in Appendix A. Typical sample photo is provided in Appendix B.

PROCEDURES & RESULTS

Since an acceptance criterion (AC) has not been developed for this product, the samples were tested under the direction of Mr. Yamil Moya, P.E. with ICC-ES, and in general accordance with applicable procedures outlined in ASTM D 1761 and AC13.

a. Tensile Strength

Three samples each of the two types of wood were tested for tensile strength on April 28, 2009 using a United Universal testing machine. Samples were rigidly attached to the testing machine and a tensile load was applied to the Unirac Angle at a displacement rate 0.1 inches per minute without shock until failure. Detailed results are provided in Table I. Based on these results, the average tensile strength of the hanger bolt in Douglas Fir and Cedar wood species were determined to be 2554 lbf and 1355 lbf, respectively.

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b. Shear Strength

Three samples each of the two types of wood were tested for shear strength on May 12, 2009 using a United Universal testing machine. Samples were rigidly attached to the testing machine and a shear load was applied to Unirac Angle at a displacement rate 0.1 inches per minute without shock until failure. Detailed results are provided in Table II. Based on these results, the average shear strength of the hanger bolt in Douglas Fir and Cedar wood species were determined to be 2203 lbf and 1957 lbf, respectively.

Photographs illustrating typical setups are provided in Appendix C.

If you have any questions regarding the above, please do not hesitate to call the undersigned.

Respectfully Submitted,

APPLIED MATERIALS & ENGINEERING, INC.

Reviewed By:


Mohammed Faiyaz
Laboratory Manager



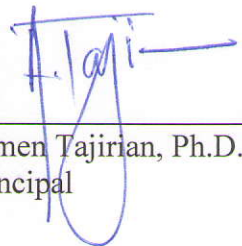

Armen Tajirian, Ph.D., P.E.
Principal



TABLE I
QUICK MOUNT PV- 5/16"X6" HANGER (LAG) BOLT
WITH 2-1/4" X 3-1/8" UNIRAC ANGLE
TENSILE LOAD TEST RESULTS
PROJECT NUMBER 108443C

SAMPLE ID	WOOD SPECIES	ULTIMATE LOAD IN TENSION (LBF)	FAILURE MODE
T-1	Douglas Fir	2660	Lag bolt pulled out
T-2	Douglas Fir	2567	Lag bolt pulled out
T-3	Douglas Fir	2434	Lag bolt pulled out
Average	...	2554	...
T-4	Cedar	1323	Lag bolt pulled out
T-5	Cedar	1309	Lag bolt pulled out
T-6	Cedar	1433	Lag bolt pulled out
Average	...	1355	...

TABLE II
QUICK MOUNT PV- 5/16"X6" HANGER (LAG) BOLT
WITH 2-1/4" X 3-1/8" UNIRAC ANGLE
SHEAR LOAD TEST RESULTS
PROJECT NUMBER 108443C

SAMPLE ID	WOOD SPECIES	ULTIMATE LOAD IN SHEAR (LBF)	FAILURE MODE
S- 1	Douglas Fir	2351	Bent lag bolt
S-2	Douglas Fir	2012	Bent lag bolt
S-3	Douglas Fir	2245	Bent lag bolt
Average	...	2203	...
S-4	Cedar	2060	Bent lag bolt
S-5	Cedar	1907	Bent lag bolt
S-6	Cedar	1903	Bent lag bolt
Average	...	1957	...

APPENDIX A

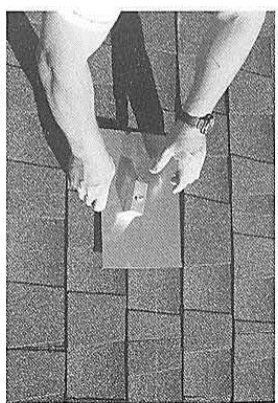
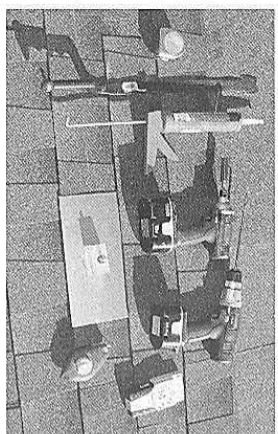
INSTALLATION INSTRUCTIONS

Quick Mount PV™

(510) 652-6686
www.quickmountpv.com

TOOLS NEEDED

Measuring tape, roofer's flat bar, chalk line, stud finder, caulking gun with roofing sealant, drill with 1/4" long bit, drill with 1/2" deep socket.



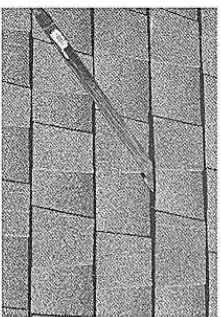
1. LOCATE RAFTER
Using horizontal and vertical chalk lines to align hole for placement of each Quick Mount

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

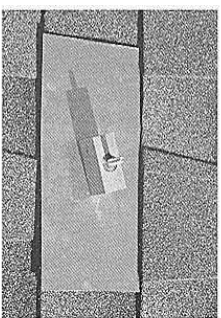
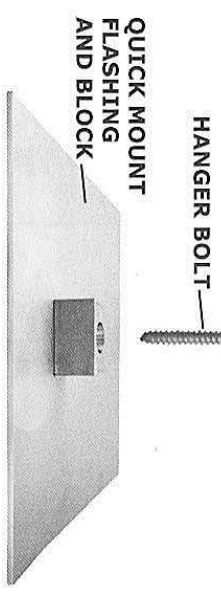
2. DRILL PILOT HOLE
Using drill with 1/4" long bit, drill pilot hole through roof and rafter, taking care to drill square to the roof.



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



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



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

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



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

PATENT PENDING

03-2008 [InstallInstc.]

APPENDIX B

Quick Mount PV™

SPECIFICATION SHEET

Quick Mount PV™ is an all-in-one waterproof flashing and mount to anchor photovoltaic racking systems, solar thermal panels, air conditioning units, satellite dishes, or anything you may need to secure to a new or existing roof. It is made in the USA of all aluminum and includes stainless steel hardware. It works with all standard racks, installs seamlessly and saves labor by not needing to cut away any roofing, will out live galvanized 2 to 1, 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"

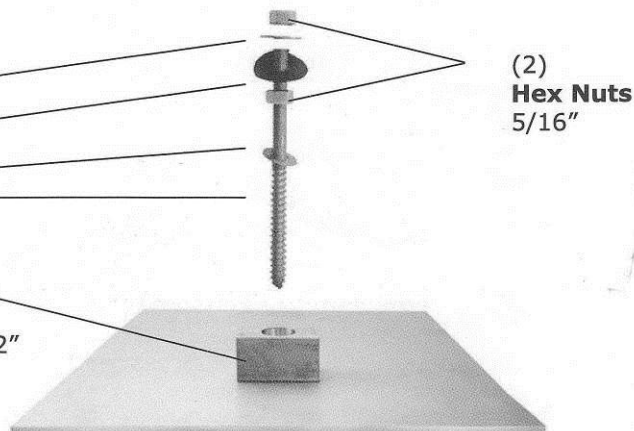
1-1/2" Machine, 1-1/2" Spacer, 3" Lag

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 shake roofs: flashing is 18" x 18", mount is attached 6" off center.



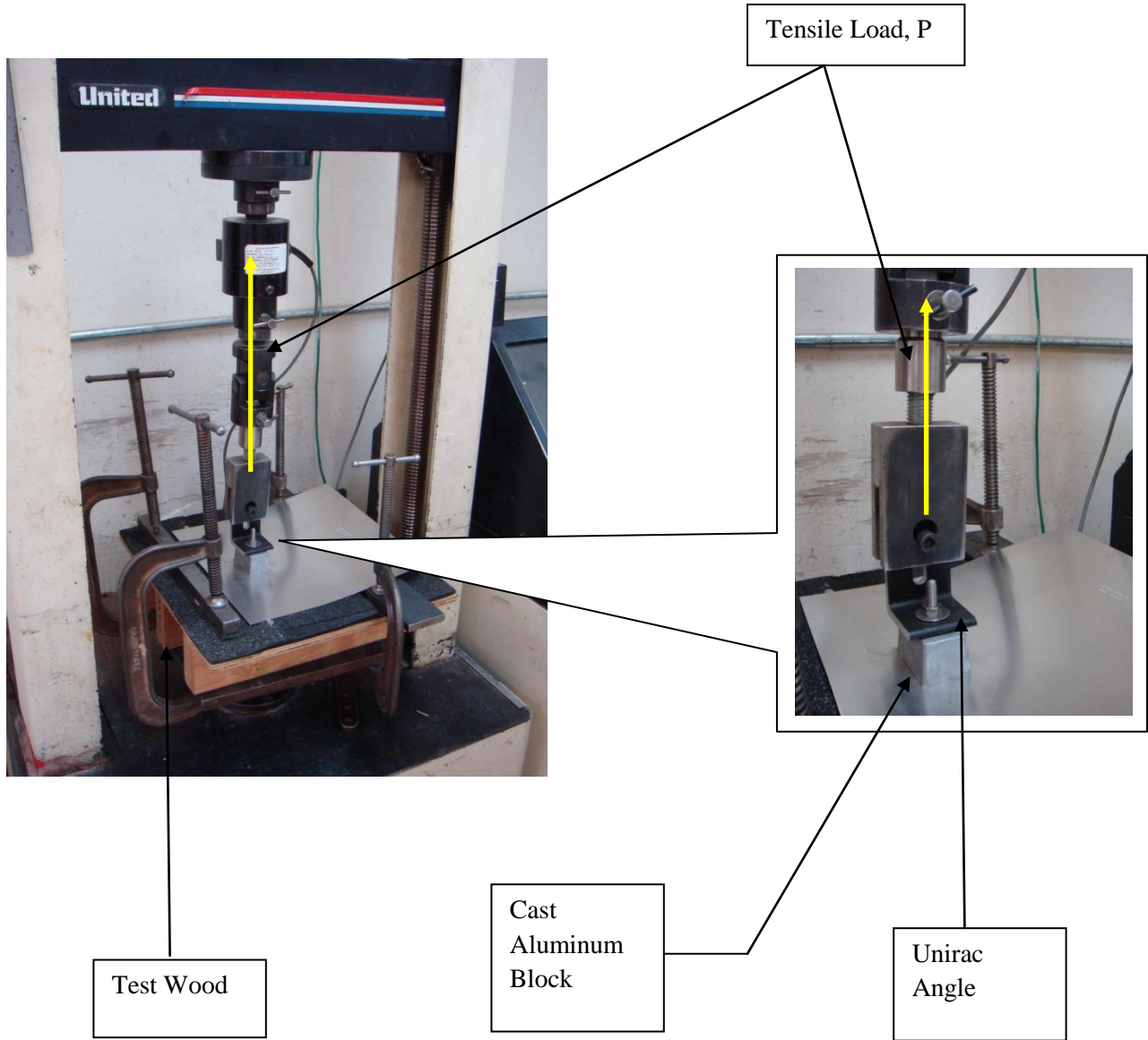
Patent Pending

Note: Mount is cast aluminum

APPENDIX C

QUICK MOUNT PV TENSION TEST SETUP

AME PROJECT 108843C



QUICK MOUNT PV SHEAR TEST SETUP

AME PROJECT 108843C

