



December 27, 2010

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

Project Number 110717C

Subject: Quick Mount Standoff (QMSO) Load Testing

Dear Mr. Wentworth:

As requested, Applied Materials & Engineering, Inc. (AME) has completed load-testing Quick Mount Standoff (QMSO) hardware. The purpose of our testing was to evaluate the tensile and shear load capacity of Quick Mount Standoff (QMSO) hardware attached to a 2"x4" Douglas Fir rafter.

SAMPLE DESCRIPTION

Six (6) mockup samples were delivered to our laboratory on December 22, 2010. Mockup configuration consisted of three 16" long rafters at 7"o.c., screwed to 1/2" OSB sheathing. The 7" Quick Mount Standoff (QMSO) is attached through the OSB into the rafter with two 5/16"x3" lag bolts.

TEST PROCEDURES & RESULTS

1. Tensile Strength

Three samples were tested for tensile strength on December 23, 2010 using a United Universal testing machine. Samples were rigidly attached to the testing machine and a tensile load was applied to the 5/16"x1" machine bolt connected to the aluminum standoff. The samples were loaded in tension at a constant rate of axial deformation of 0.05 in./min. without shock until failure. Detailed results are provided in Table I. Test setup is provided in Appendix A. Based on the above testing, the average ultimate tensile load of the Quick Mount Standoff hardware in Douglas Fir rafter was determined to be 3857 lbf.

2. Shear Strength

Three samples were tested for shear strength on December 23, 2010 using a United Universal testing machine. Samples were rigidly attached to the testing machine and a shear load was applied to the 5/16"x1" machine bolt connected to the standoff. The samples were loaded in shear at a constant rate of axial deformation of 0.10 in./min. Detailed results are provided in Table II. Test setup is provided in Appendix A. Based on the above testing, the average ultimate shear load of the Quick Mount Standoff hardware in Douglas Fir rafter was determined to be 570 lbf.

Mr. Stuart Wentworth
QUICK MOUNT PV
QMTMH Tile Mount Hardware Load Testing
December 27, 2010

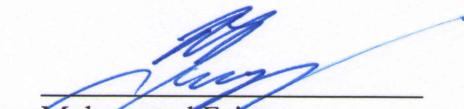
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If you have any questions regarding the above, please do not hesitate to call the undersigned.

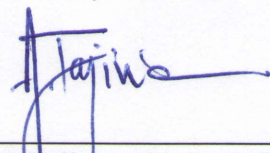
Respectfully Submitted,

APPLIED MATERIALS & ENGINEERING, INC.

Reviewed By:



Mohammed Faiyaz
Laboratory Manager



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



TABLE I
7" QUICK MOUNT STANDOFF (QMSO)
TENSILE LOAD TEST RESULTS
PROJECT NUMBER 110717C

SAMPLE ID	RAFTER	ULTIMATE TENSILE LOAD (lbf)	FAILURE MODE
QMSO-T-1	Douglas Fir	4069	5/16"x3" lag bolt in rafter pulled out
QMSO-T-2	Douglas Fir	3936	5/16"x3" lag bolt in rafter pulled out
QMSO-T-3	Douglas Fir	3566	5/16"x3" lag bolt in rafter pulled out
AVERAGE	...	3857	...

TABLE II
7" QUICK MOUNT STANDOFF (QMSO)
SHEAR LOAD TEST RESULTS
PROJECT NUMBER 110717C

SAMPLE ID	RAFTER	ULTIMATE SHEAR LOAD (lbf)	FAILURE MODE
QMSO-S-1	Douglas Fir	660	Standoff base depressed in OSB
QMSO-S-2	Douglas Fir	461	Standoff base depressed in OSB
QMSO-S-3	Douglas Fir	590	Standoff base depressed in OSB
AVERAGE	...	570	...

APPENDIX A

7" QUICK MOUNT STANDOFF (QMSO)

TEST SETUP

PROJECT NUMBER 110717C



Figure 1a. Shear Test



Figure 1b. Shear Test Close-up



Figure 2a. Tensile Test



Figure 2b. Tensile Test Close-up