

17747
17748

THE THRONE - SET SCREW STANDING SEAM METAL



A DIVISION OF QUICKSCREWS INTERNATIONAL CORP

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UPLIFT & LATERAL LOAD TEST

SPEC SHEET

Part #	Box Quantity
17747	60 Mounts
17748	15 Mounts

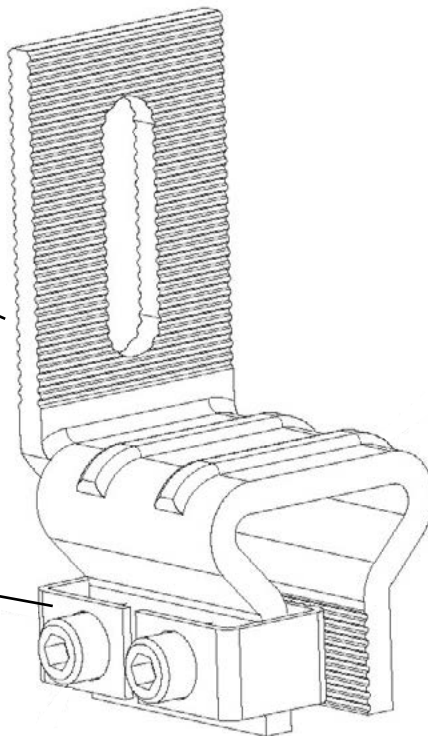


Integrated L-Foot

Ripples can effectively enhance the pull-out resistance of the L-Foot.

Grip Plate

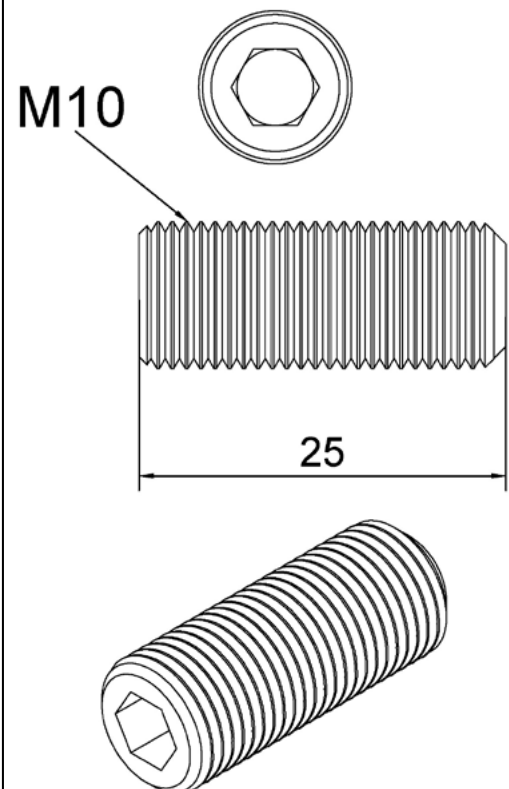
Grip Plate with cross-knurling provides extra grip to enhance pull-out resistance and prevents Set Screws from damaging the metal roof.



Set Screw

Material: SUS 304

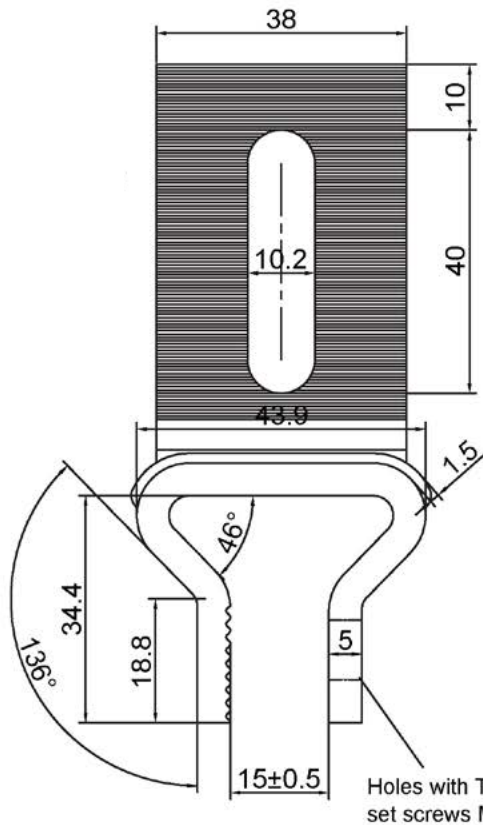
Come assembled with L-Foot



Tolerance Range			
Tolerance	mm		
6-30	±0.1		
31-120	±0.2	Design	
121-400	±0.3	Drawing	
401-1000	±0.4	Confirm	
	±0.5	Verify	



SPEC SHEET

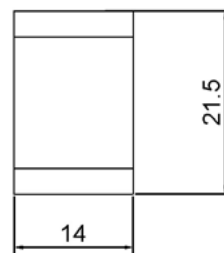
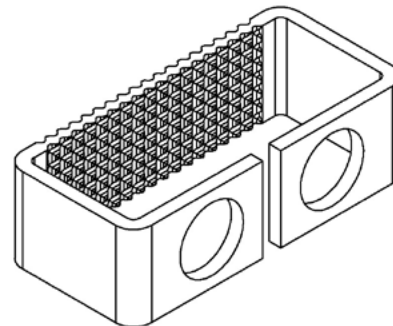
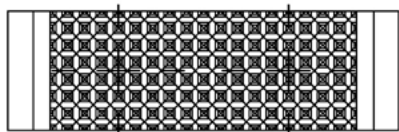
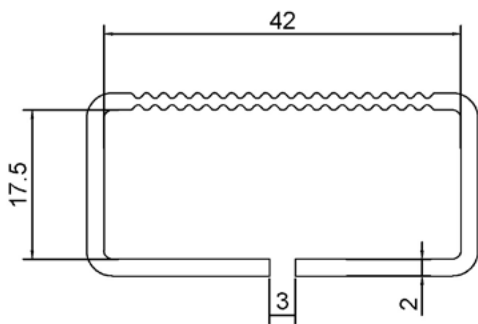
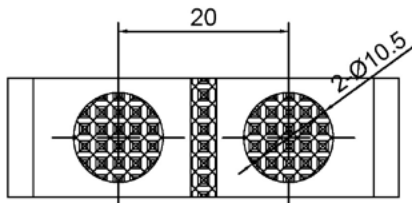


Holes with Thread for 2pcs set screws M10x25mm

L-Foot
Material: SUS 304

Part # 17747 - 60 per case
Part # 17748 - 15/KTP

Holes with Thread for 2pcs set screws M10x25mm



Stainless-Steel Clip
Material: SUS 304

CERTIFICATE OF COMPLIANCE

Certificate Number E493748
Report Reference E493748-20170817
Date 2023-April-07

Issued to: QuickBOLT a Division of Quickscrews International Corp
5830 Las Positas Rd
Livermore CA, 94551 US

**This is to certify that
representative samples of**

MOUNTING SYSTEMS, MOUNTING DEVICES, CLAMPING
DEVICES AND GROUND LUGS FOR USE WITH
PHOTOVOLTAIC MODULES AND PANELS - COMPONENT
See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the component
requirements in the Standard(s) indicated on this Certificate. UL
Recognized components are incomplete in certain constructional
features or restricted in performance capabilities and are
intended for installation in complete equipment submitted for
investigation to UL LLC.

Standard(s) for Safety: UL 2703, Mounting systems, mounting devices,
clamping/retention devices, and ground lugs for use with flat-
plate photovoltaic modules and panels-.

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This Certificate of Compliance indicates that representative samples of the product described in the certification
report have met the requirements for UL certification. It does not provide authorization to apply the UL
Recognized Component Mark. Only the Authorization Page that references the Follow-Up Services Procedure
for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Recognized Component Mark should be considered as being UL Certified
and covered under UL's Follow-Up Services.

Look for the UL Recognized Component Mark on the product.


Deborah Jennings-Conner, VP Regulatory Services
UL LLC

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contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number E493748
Report Reference E493748-20170817
Date 2023-April-07

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Models:

USR – Component, Roof Mounting Hook Units, Models 15891 15893 15987 16000 16317 16318 16319 16320 16988 16990 16991 16993 17508 17509 17510 17511 17512 17513 17514 17515 17516 17517 17518 17519 17520 17521 17522 17523 17524 17525 17526 17527 17536 17537 17538 17539 17540 17541 17542 17543 17544 17545 17546 17547 17548 17549 17550 17551 17552 17553 17554 17555 17556 17558 17559 17560 17566 17567 17568 17569 17570 17571 17572 17573 17574 17575 17576 17577 17578 17579 17580 17585 17586 17587 17588 17589 17592 17596 17597 17598 17599 17600 17601 17606 17607 17608 17609 17610 17611 17612 17613 17614 17615 17616 17617 17618 17620 17621 17622 17623 17624 17625 17626 17627 17628 17629 17630 17631 17632 17633 17636 17637 17638 17639 17640 17641 17642 17643 17646 17647 17648 17649 17650 17651 17652 17653 17654 17659 17664 17667 17669 17670 17671 17672 17673 17678 17679 17680 17681 17686 17687 17688 17689 17700 17701 17702 17703 17704 17705 17706 17707 17708 17709 17710 17711 17712 17717 17718 17750 17751 17752 17753 17759 15891-10 15891BLK-10 15987A 15987B 17667SS 17672SS 17680SS 17688SS 17713SS 17720 17721SS 17723 17724SS 17726 17727SS 17729 17730SS 15894SS 15891SS 15987BSS 17660 17661 17662 17663 17747 17748

Deborah Jennings-Conner

Deborah Jennings-Conner, VP Regulatory Services

UL LLC

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INSTALL INSTRUCTIONS



RECOMMENDED MATERIALS

Torque Wrench or Hex Key (for M10x25mm Set Screws)

INSTALLATION INSTRUCTIONS

1. Place The Throne over seam and tighten Set Screws

M10x25mm Set Screws require a minimum torque of 44 ft-lbs using a torque wrench

BUILDING CODE LETTER



March 22nd, 2023

To whom this may concern,

QuickBOLT is committed to excellence. The parts tested are durable goods, meaning the material composition and detailed specifications of the parts do not change. Therefore, all stamps are current. Any part tested will have the same results no matter what year the tests are performed. All testing and reports are current and valid with 2022 CBC standards.

SolarRoofHook is the previous name of QuickBOLT. Any test result referencing SolarRoofHook is referring to a QuickBOLT product.

All our parts were tested by a third-party test facility, in possession of a current engineering license for the state where the tests were performed for the following.

1. Uplift test
2. Downward load test
3. Lateral Test – Asphalt Mounts, and Metal Mounts only
4. ASTM E2440 and ASTM E330 Waterproof Tests - QuickBOLT only

The following is an excerpt from:

CALIFORNIA BOARD FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS
guide to Engineering & Land Surveying for City and County Officials
Page 12, Line 27

27. If the license has expired between the time the engineering documents were prepared and the time when the local agency's review is performed, do the documents need to be re-sealed by a licensee with a current license? (B&P Code §§ 6733, 6735, 6735.3, 6735.4)

As long as the license was current at the time the engineering documents were prepared, the documents do not need to be re-sealed prior to review by the local agency. However, any changes (updates or modifications) to the documents that are made following the review by the local agency would have to be prepared by a licensed engineer with a current license and those changes would have to be signed and sealed.

We trust the information provided will resolve any request for the test reports submitted to have a stamp from the current year.

Regards,

Rick Gentry
Executive Vice President

5830 Las Positas Road, Livermore CA 94551 | 3948 Airway Drive, Rock Hill SC 29732
Phone: (844) 671-6045 | Fax: (800) 689-7975 | www.quickbolt.com
QuickBOLT is a division of Quickscrews International Corp.

ENGINEERING REPORT



APPLIED MATERIALS & ENGINEERING, INC.

980 41st Street
Oakland, CA 94608

Tel: (510) 420-8190
FAX: (510) 420-8186
e-mail: info@appmateng.com

April 24, 2023

Project No.: 1230213C

Mr. Rick Gentry
Quickscrews International
5830 Las Posita Road
Livermore, CA 94551

Email: RGentry@quickscrews.com

Subject: PV Mount Standing Seam Metal Mount S/S – 60/CS Laboratory Load Testing

Dear Mr. Gentry:

As requested, Applied Materials & Engineering, Inc. (AME) has completed load-testing the Standing Seam Metal Mount S/S – 60/CS. The purpose of our testing was to evaluate the tensile (uplift) and shear load capacity of the Standing Seam Metal Mount S/S – 60/CS attached to a metal seam roof sample, which in turn was bolted to a 2"x6" rafter through 1/2" OSB using six (6) 5/16"Øx2-1/2" lag screws.

SAMPLE DESCRIPTION

Six Standing Seam Metal Mount S/S – 60/CS samples were delivered to our laboratory on March 22, 2023. Mockup configuration consisted of three 12" long rafters at 6"o.c., screwed to 1/2" OSB. The Standing Seam Metal Mount S/S – 60/CS is attached to a metal seam roof sample, which in turn is bolted to a 2"x6" rafter through 1/2" OSB using six (6) 5/16"Øx2-1/2" lag screws. Drawings of the sample are provided in Appendix A.

TEST PROCEDURES & RESULTS

1. Tensile (Uplift) Load Test

A total of three tests were conducted for tensile (uplift) load capacity on April 21, 2023 using a United Universal testing machine. Samples were rigidly attached to the testing machine and an uplift (tensile) load was applied to the mount. The samples were loaded in tension at a constant rate of axial deformation of 0.1 in. /min. without shock until failure occurred; displacement at maximum load was recorded.

Based on the above testing, the average maximum uplift load of the Standing Seam Metal Mount S/S – 60/CS attached to a metal seam roof sample was determined to be 1103 lbf; at 1/8" displacement, the average uplift load was determined to be 241 lbf. Detailed results are provided in Table I and Figure 1. Test setup and mode of failure are provided in Appendix B.

Mr. Rick Gentry

Quickscrews International

PV Mount Standing Seam Metal Mount S/S -- 60/CS Laboratory Load Testing

April 24, 2023

2. Shear (Lateral) Load Test Parallel to Rafter

A total of three tests were conducted for shear load capacity on April 22, 2023 using a United Universal testing machine. Samples were rigidly attached to the testing machine and a shear load (parallel to the rafter) was applied to the hook. The samples were loaded in compression at a constant rate of axial deformation of 0.1 in. /min. without shock until failure occurred; displacement at maximum load was recorded.

Based on the above testing, the average maximum shear load of the Standing Seam Metal Mount S/S -- 60/CS attached to a metal seam roof sample was determined to be 790 lbf; at 1/8" displacement, the average shear load was determined to be 102 lbf. Detailed results are provided in Table II and Figure 2. Test setup and mode of failure are provided in Appendix B.

Respectfully Submitted,

APPLIED MATERIALS & ENGINEERING, INC.

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

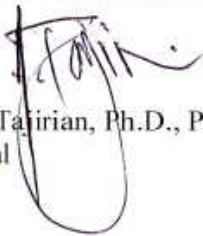


TABLE I
TENSILE (UPLIFT) LOAD TEST RESULTS
STANDING SEAM METAL MOUNT S/S – 60/CS LABORATORY LOAD TESTING
PROJECT NUMBER 1230213C

Test No.	Maximum Uplift Load (lb)	Load at 1/8" Displacement (lb)	Displacement At Maximum Load (in.)	Mode of Failure
8573 U-1	1400	281	0.7	Roof Seam Unfolded
8574 U-2	721	252	1.0	Roof Seam Unfolded
8575 U-3	1189	190	0.7	Roof Seam Unfolded
Average	1103	241	5.1	..

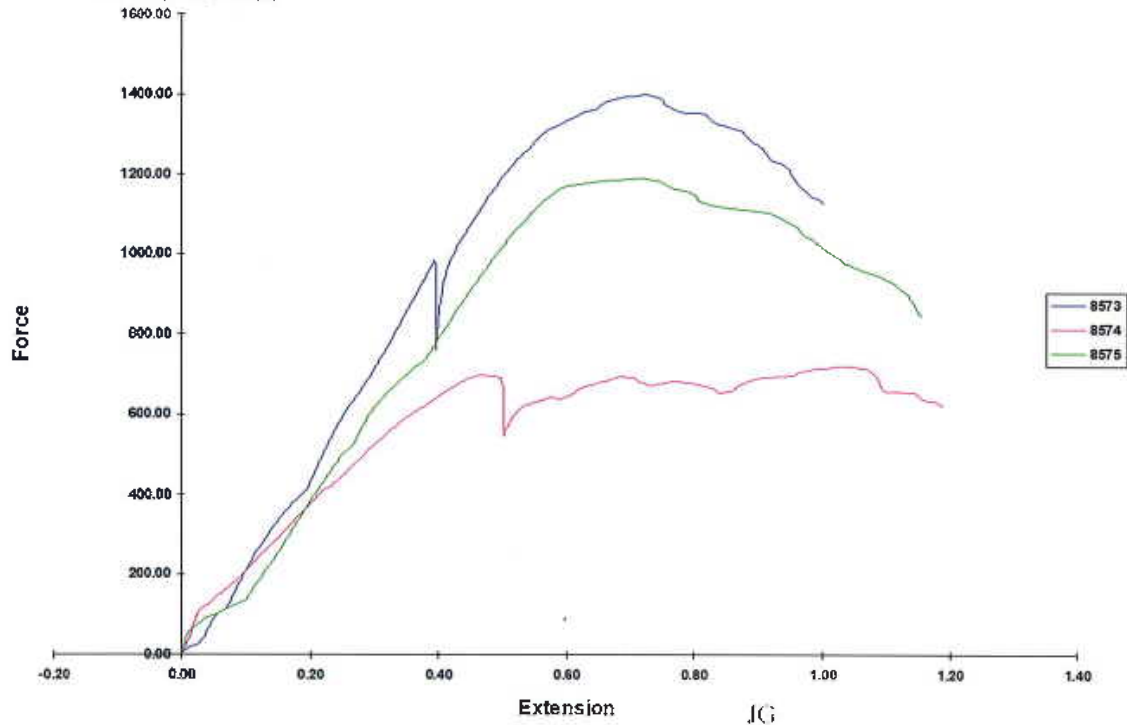
TENSILE (UPLIFT) LOAD-DISPLACEMENT CURVES



APPLIED MATERIALS & ENGINEERING, INC.

Report No 1732 Tensile Test - XHD Control

Force (Lbs) vs Extension (%)



Template 7 Testing Machine SMART Test

By JG

Apr 24, 2023

Applied Materials & Engineering 520 41st Street Oakland, CA 94642 TEL FAX

Figure 1. Test 8573, 8574, 8575 tensile (uplift) load vs. displacement curve.

TABLE II
SHEAR LOAD TEST RESULTS
STANDING SEAM METAL MOUNT S/S – 60/CS LABORATORY LOAD TESTING
PROJECT NUMBER 1230213C

Test No.	Maximum Shear Load (lb)	Load At 1/8" Displacement (lb)	Displacement At Maximum Load (in.)	Mode of Failure
8667 S-1	602	70	4.1	Excessive Clamp Slippage
8666 S-2	956	98	3.7	Excessive Clamp Slippage
8673 S-3	813	138	3.6	Excessive Clamp Slippage
Average	790	102	3.8	..

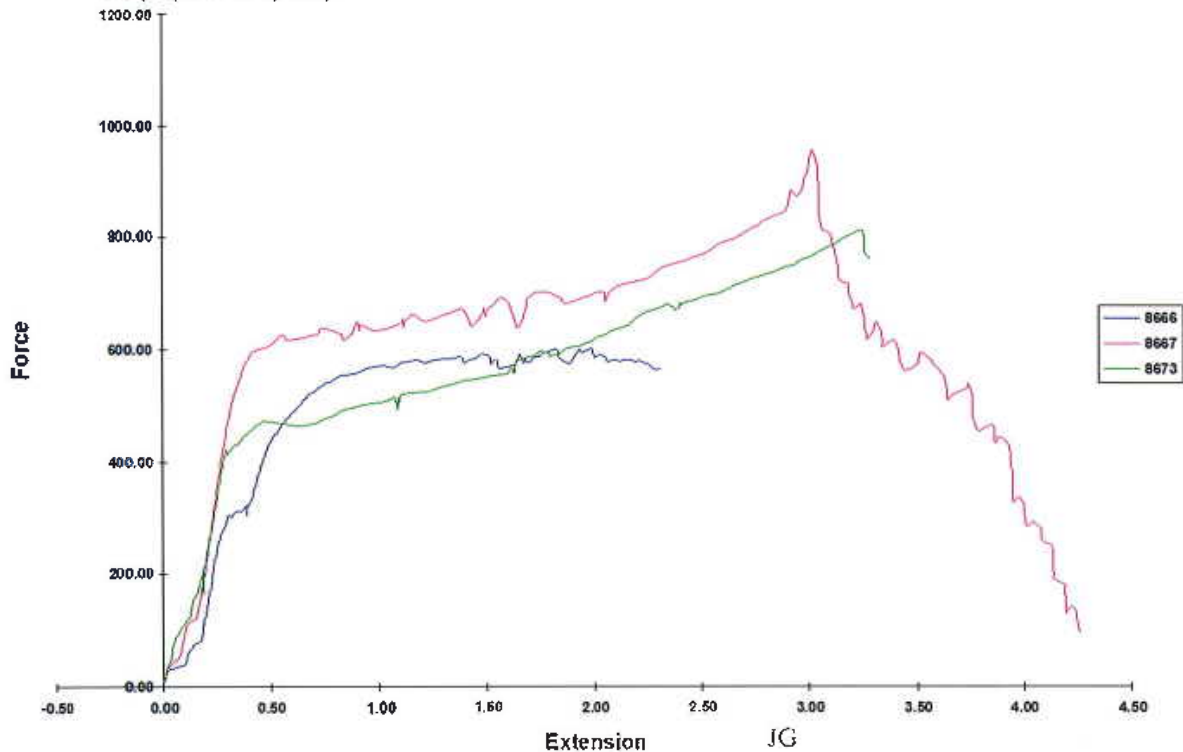
SHEAR LOAD-DISPLACEMENT CURVES



APPLIED MATERIALS & ENGINEERING, INC.

Report No 1754 Compressive Test - XHD Control

Force (-Lbs) vs Extension (-Inches)



Template 9 Testing Machine SMART Teste

By : _____

Apr 24, 2023

Applied Materials & Engineering 960 41st Street Oakland, CA 94642 TEL FAX

Figure 2. Test 8666, 8667, 8673 shear load vs. displacement curve. Tests extended past initial slippage; tests aborted after excessive slip along roof seam sample.

REFERENCES

AC13-2010, "*Acceptance Criteria for Joist Hangers and Similar Devices*", ICC Evaluation Service.

ASTM D1761-2006, "*Standard Test Methods for Mechanical Fasteners in Wood*", ASTM International.

ASTM D2395-2007, "*Standard Test Method for Specific Gravity of Wood and Wood-Based Materials*", ASTM International.

APPENDIX B

TENSILE LOAD TEST SETUP
STANDING SEAM METAL MOUNT S/S – 60/C/S
LABORATORY LOAD TESTING
PROJECT NUMBER 1230213C



Figure 3a. Test set up.

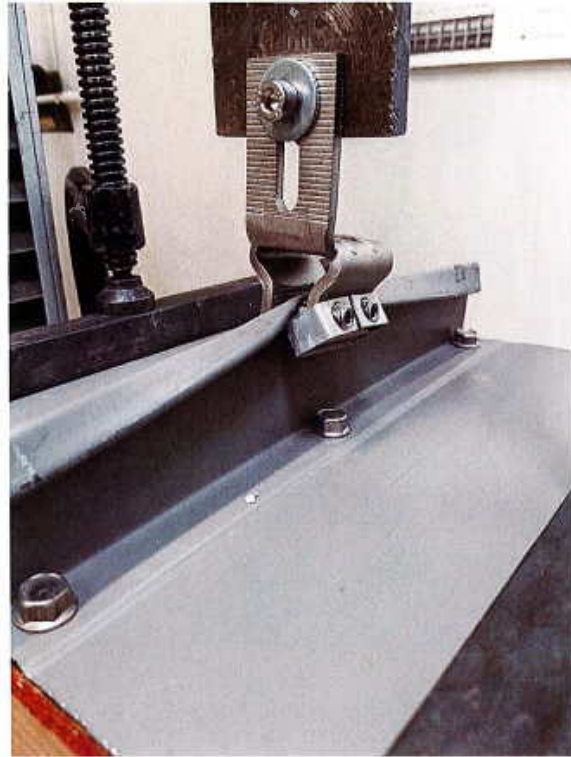


Figure 3b. Typical failure mode.

SHEAR LOAD TEST SETUP

STANDING SEAM METAL MOUNT S/S – 60/CS
LABORATORY LOAD TESTING

PROJECT NUMBER 1230213C



Figure 2a. Test set up.



Figure 2b. Typical failure mode.