



Quality Accuracy Assurance

# Fenestration Testing Laboratory, Inc.

8148 N.W. 74th Avenue Medley, FL 33166 Phone: (305) 885-3328 Fax: (305) 885-3329 (888) 819-7877  
e-mail: clientservices@fenlab.com www.ftl-inc.com

Certificate Number TST1657  
Report Date: 5/1/2013  
Completion Date: 4/12/2013  
Expiration Date: 4/12/2023  
File Number: 13-792  
Lab Number: 7279  
Project Number: 13-4494

## OFFICIAL TEST REPORT

**MANUFACTURER:** Petersen Aluminum Corporation      **SPECIFICATIONS:** ASTM E1592-05  
**ADDRESS:** 102 Northpoint Parkway, Bldg. 106      **PROJECT:** Florida State Approval  
Acworth, GA 30102

### DESCRIPTION OF SAMPLE

**Model Designation:** Series: Tite-Loc Plus (TLP)

**Sample A-1**

The roof deck system consisted of eight full width panels. The panels measured 18" wide by 0.040" thick by 288" long. The side of the panel at the clips utilized a 2 1/8" high upright bend. The deck system was fastened to the steel purlins using one two piece deck clip with \*\*18 gauge base and \*\*22 gauge top each deck clip spaced every 12" on center. Deck clips were fastened to the steel purlins using two No. 14-13 by 1 1/2" pancake head with drill point per clip. The first two outer rows of panels were fastened to the steel purlins with a single row of No. 14-13 by 1 1/2" pancake head with drill point located 48" on center.

**Test Frame:** The test apparatus frame utilized 3" by 12" by 24' long Douglas fir wood. The steel purlins were bolted to the inside of the test apparatus. Purlins were spaced every 12" on center and were bolted to the test apparatus.

### Test Results and Observations

Deflection table is included on page 2 of 15 for Sample A-1. Please reference appendix A for location of deflection measurements.

Sample A-1 ultimate test load and observations made during testing: achieved load 405.0 PSF. No failure occurred during testing. Test was stopped at 405.0 PSF at client's request.

### Test Summary:

The test specimen area measuring 18" by 288" long, was tested in accordance with ASTM E 1592-05, *Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference*. The purpose of this test is to evaluate the comparative resistance of the roof deck assembly to negative pressures.



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Sample A-1	Temperature: 72.4				Barometric Reading: 30.24			
Negative Pressure: Each load was held for sixty seconds								
DEFLECTION TABLE MEASUREMENTS								
Loads (PSF)	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8
1.0 PSF	0	0	0	0	0	0	0	0
67.5 PSF	0.021"	0.028"	0.020"	0.029"	0.003"	0.024"	0.004"	0.022"
1.0 PSF	0.001"	0.002"	0.001"	0.002"	0	0.002"	0	0.001"
135.0 PSF	0.238"	0.246"	0.236"	0.244"	0.208"	0.241"	0.209"	0.241"
1.0 PSF	0.022"	0.023"	0.022"	0.023 "	0.010"	0.024"	0.021"	0.023"
202.5PSF	0.381"	0.392"	0.378"	0.391"	0.321"	0.384"	0.323"	0.384"
1.0 PSF	0.041"	0.046"	0.049"	0.045"	0.044"	0.048"	0.046"	0.045"
270.0 PSF	0.411"	0.427"	0.408"	0.421"	0.356"	0.414"	0.353"	0.414"
1.0 PSF	0.079"	0.078"	0.077"	0.080"	0.069"	0.081"	0.076"	0.081"
337.5 PSF	0.446"	0.460"	0.443"	0.278"	0.387"	0.444"	0.388"	0.445 "
1.0 PSF	0.099"	0.098"	0.96"	0.101"	0.094"	0.098"	0.096"	0.095"
405.0	0.506"	0.495"	0.474"	0.305"	0.422"	0.484"	0.427"	0.485"
NOTES: The ultimate load achieved was 405.0 PSF. 1.0 PSF represents the zero load condition.								



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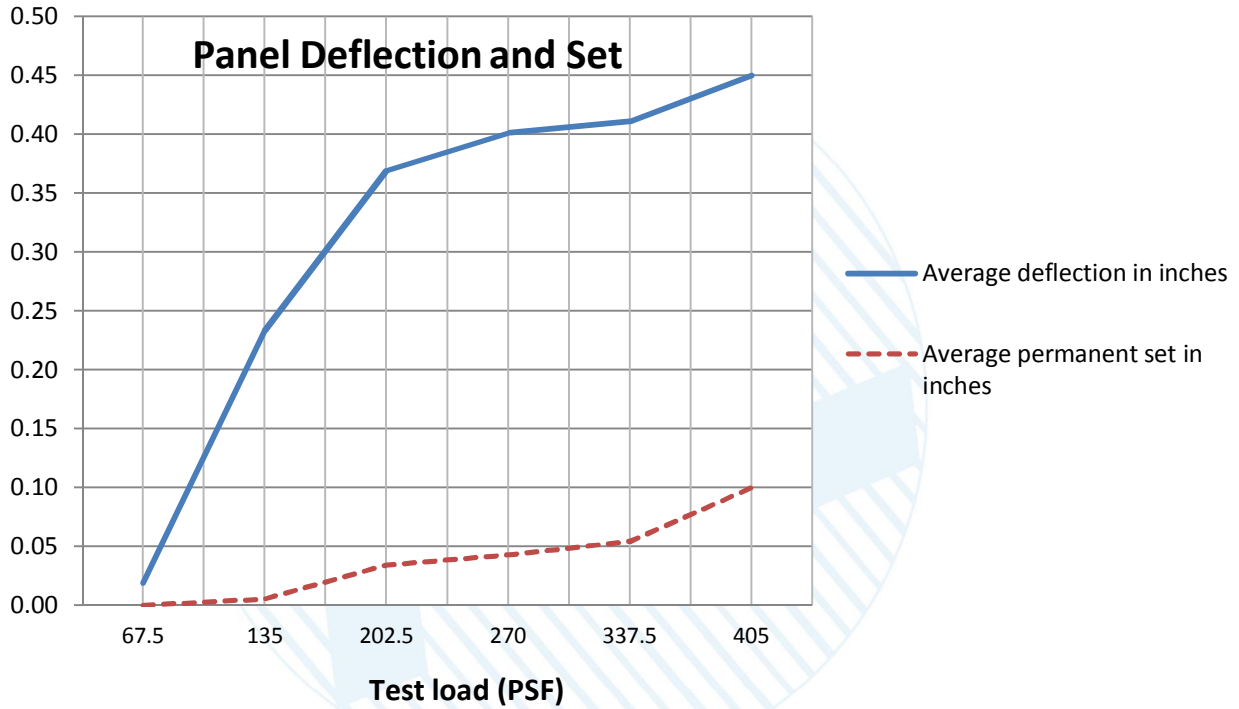
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## OFFICIAL TEST REPORT





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## OFFICIAL TEST REPORT

### DESCRIPTION OF SAMPLE

**Model Designation:** Series: Tite-Loc Plus (TLP)

**Sample B-1**

The roof deck system consisted of eight full width panels. The panels measured 18" wide by 0.040" thick by 288" long. The side of the panel at the clips utilized a 2 1/8" high upright bend. The deck system was fastened to the steel purlins using one two piece deck clip with \*\*18 gauge base and \*\*22 gauge top each deck clip spaced every 60" on center. Deck clips were fastened to the steel purlins using two No. 14-13 by 1 1/2" pancake head with drill point per clip. The first two outer rows of panels were fastened to the steel purlins with a single row of No. 14-13 by 1 1/2" pancake head with drill point located 60" on center.

**Test Frame:** The test apparatus frame utilized 3" by 12" by 24' long Douglas fir wood. The steel purlins were bolted to the inside of the test apparatus. Purlins were spaced every 60" on center and were bolted to the test apparatus.

### Test Results and Observations

Deflection table is included on pages 5 of 15 for Sample B-1. Please reference appendix B for location of deflection measurements.

Sample B-1 ultimate test load and observations made during testing: achieved load 112.0 PSF. Failure occurred at 114.0 PSF when the clips at mid span of sample, on purlin number 1, number 2, number 3 and number 4 sheared.

**Test Summary:**

The test specimen area measuring 18" by 288" long, was tested in accordance with ASTM E 1592-05, *Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference*. The purpose of this test is to evaluate the comparative resistance of the roof deck assembly to negative pressures.



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## OFFICIAL TEST REPORT

Sample B-1	Temperature: 73.1			Barometric Reading: 30.26		
Negative Pressure: Each load was held for sixty seconds						
<b>DEFLECTION TABLE MEASUREMENTS</b>						
Loads (PSF)	D-1	D-2	D-3	D-4	D-5	D-6
1.0 PSF	0	0	0	0	0	0
18.6 PSF	0.174"	0.019"	0.120"	0.021"	0.015"	0.149"
1.0 PSF	0.019"	0.001"	0.027"	0.001"	0	0.017"
37.2 PSF	0.204"	0.039"	0.326"	0.038"	0.039"	0.176"
1.0 PSF	0.039"	0.005"	0.051"	0.004"	0	0.037"
55.8 PSF	0.378"	0.079"	0.463"	0.091"	0.051"	0.341"
1.0 PSF	0.061"	0.011"	0.078"	0.012"	0	0.042"
74.4 PSF	0.501"	0.102"	0.601"	0.109"	0.069"	0.498"
1.0 PSF	0.099"	0.022"	0.107"	0.023"	0.001"	0.071"
93.0 PSF	0.637"	0.127"	0.729"	0.130"	0.081"	0.611"
1.0 PSF	0.110"	0.034"	0.124"	0.037"	0.003"	0.084"
112.0	0.755"	0.145"	0.899"	0.146"	0.094"	0.729"

NOTES: The ultimate load achieved was 112.0 PSF. System failed at 114.0 PSF.  
 1.0 PSF represents the zero load condition.





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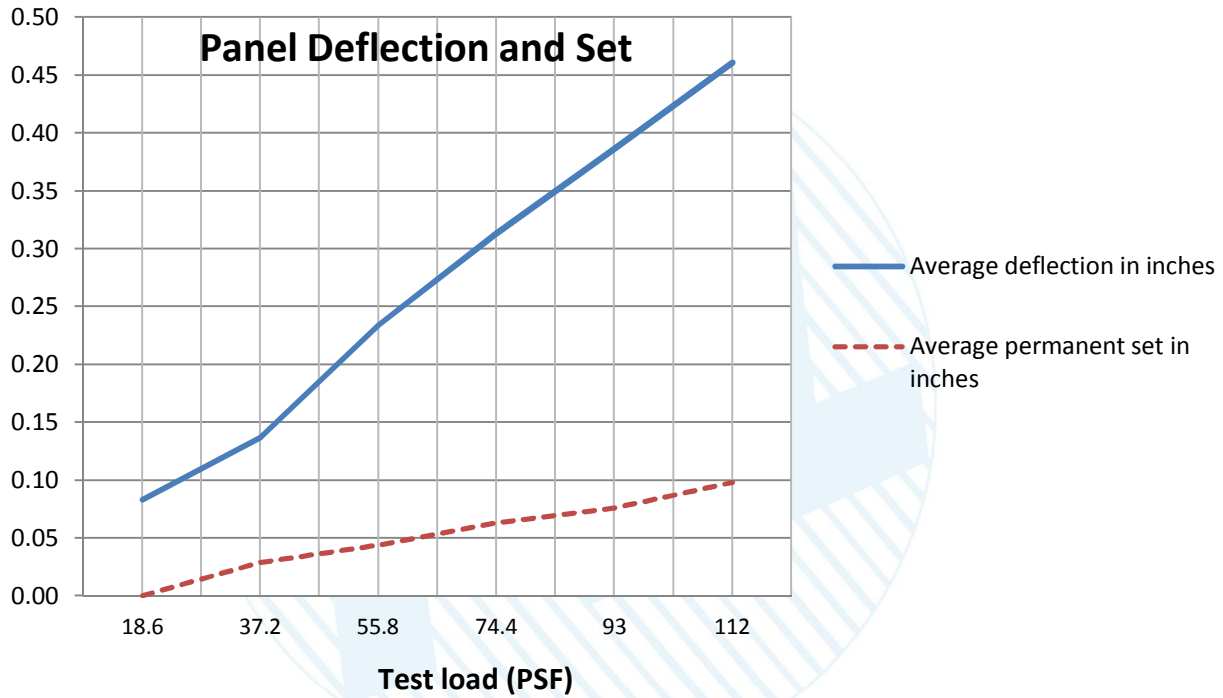
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## OFFICIAL TEST REPORT





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## OFFICIAL TEST REPORT

Tensile Test Report								
<b>Material Designation:</b>		Aluminum						
<b>Specimen Type:</b>		Flat Reduced Section						
<b>Laboratory Comment:</b>		Tested as per ASTM E A370-05						
Sample Number	Thickness (in.)	Width (in)	Area (sq.in.)	Ultimate Load (lbs.)	Yield Load (lbs.)	Ultimate Stress (psi)	Yield Stress (psi)	Elongation % in 2 in.
1	0.040"	0.500"	0.020"	513	453	25,665	22,640	2.80%
2	0.040"	0.500"	0.020"	515	459	25,765	22,928	3.20%
3	0.040"	0.500"	0.020"	497	436	24,835	21,815	4.30%



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## OFFICIAL TEST REPORT

### Tite-Lock Plus (TLP) 18" wide by 0.040" thick

Purlin Span		Loads (psf)	
ft	in	Test	Allowed
<b>1.00</b>	<b>12</b>	<b>405</b>	<b>245</b>
2.00	24		201
2.50	30		179
3.00	36		157
3.50	42		134
4.00	48		112
4.50	54		90
<b>5.00</b>	<b>60</b>	<b>112</b>	<b>60</b>

Design Load Safety Factor of 1.65

#### NOTES:

1. Tested in accordance with ASTM E 1592-05 Air Bag testing, negative uplift.
2. Intermediate values based on linear interpolation from tested values.
3. Actual testing conducted at 1'-0" and 5'-0" spacing.

### Tite-Lock Plus (TLP) 18" wide by 0.040" thick

Purlin Span		Loads (psf)	
ft	in	Test	Allowed
<b>1.00</b>	<b>12</b>	<b>405</b>	<b>203</b>
2.00	24		140
2.50	30		112
3.00	36		93
3.50	42		80
4.00	48		70
4.50	54		62
<b>5.00</b>	<b>60</b>	<b>112</b>	<b>56</b>

Design Load Safety Factor of 2.0

#### NOTES:

4. Tested in accordance with ASTM E 1592-05 Air Bag testing, negative uplift.
5. Intermediate values based on linear interpolation from tested values.
6. Actual testing conducted at 1'-0" and 5'-0" spacing.





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### OFFICIAL TEST REPORT

Revision	Description	Author	Effective Date
0	Initial Release	Ms. Iliana Sanchez	5/1/2013

#### Notes

\*\* as per manufacturer

Drawings referenced in this document are an integral part of this report, therefore, are required when distributing this test report. Test results obtained represent the actual value of the tested specimens and do not constitute opinion, endorsement or certification by this laboratory.

This test report is considered the exclusive property of the client named herein and is applicable to the sample tested. This report may not be reproduced without the approval of Fenestration Testing Laboratory, Inc.

4.0 mil plastic sheeting air bag was used to seal from air leakage when load test were performed, however this had no effect on above results.

#### Remarks

Detailed drawings and digital video disc of testing will be retained by Fenestration Testing Laboratory for a period of five years from the original test date, and test report for a period of ten years.

Two assemblies (Sample A-1 and Sample B-1) were tested in accordance with the ASTM E1592-05.

This material was tested in accordance with ASTM A370-05.

Testing was conducted as per instructions received from your company representative.

Witnessed by:

Mr. Marlin D. Brinson, P.E.

Mr. Sal Delfino, Petersen Aluminum Corp.

**FENESTRATION TESTING LABORATOR, INC.**

Technician:

Mr. Harold Anacona

Mr. Roque Zavala

**Mr. Manny Sanchez**

Chief Executive Officer

Attachments:

Appendix A-Deflection Measurement Locations for Sample A-1

Appendix B-Deflection Measurement Locations for Sample B-1

Appendix C-Sample A-1 and B-1 Pictures

Appendix D-Sample B-1 Pictures of Failure

Appendix E-Tensile Test Pictures

Appendix F-Manufacturer Drawings



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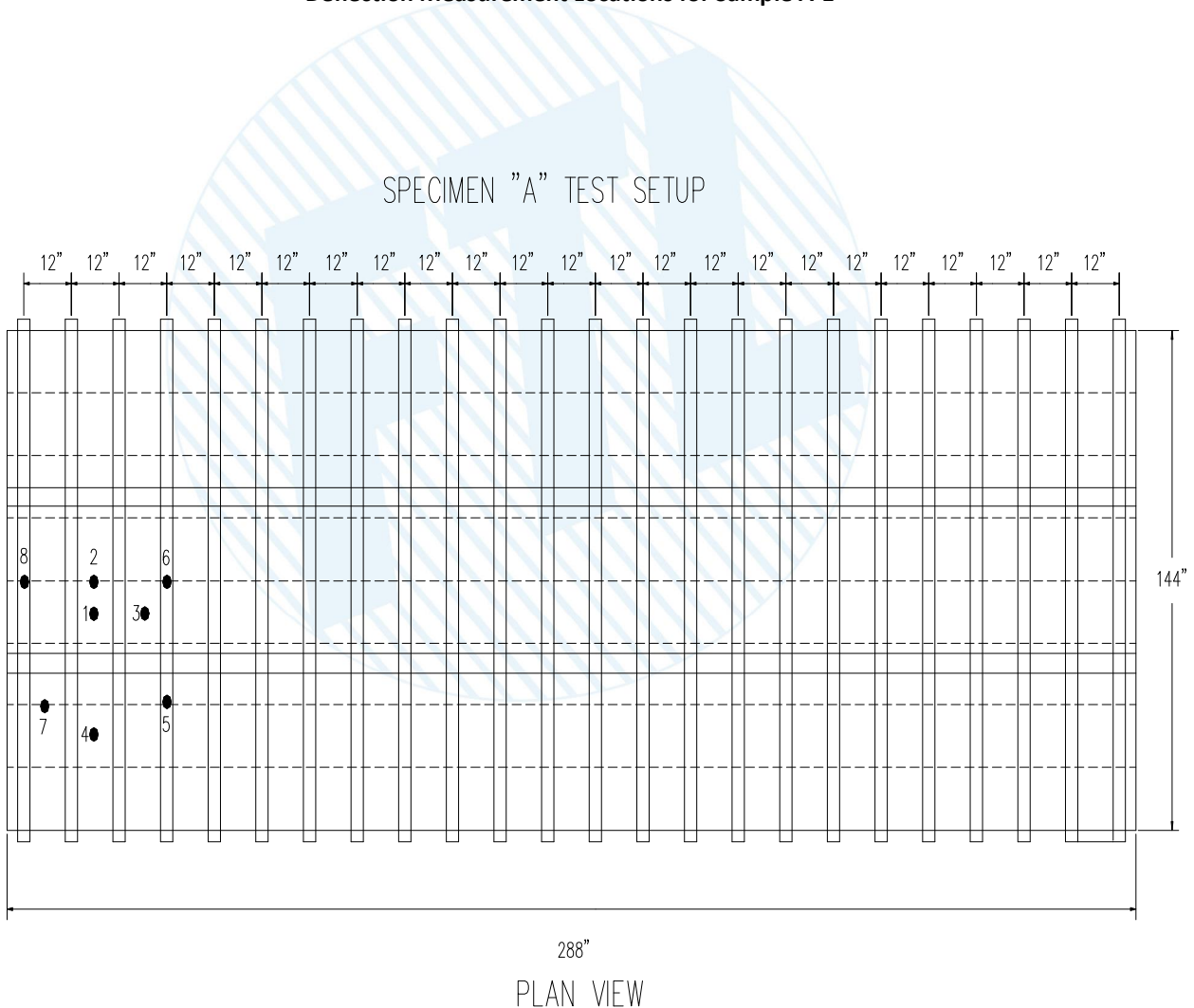
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## OFFICIAL TEST REPORT

### APPENDIX A

#### Deflection Measurement Locations for Sample A-1





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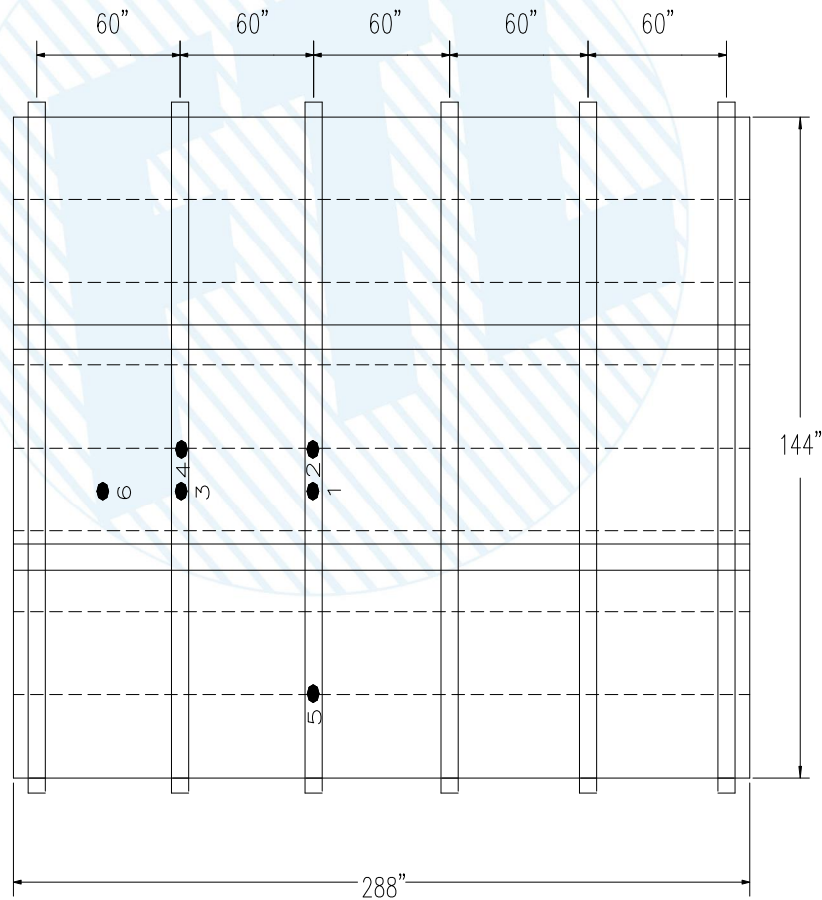
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## OFFICIAL TEST REPORT

### APPENDIX B

#### Deflection Measurement Locations for Sample B-1

#### SPECIMEN "B" TEST SETUP



PLAN VIEW





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## OFFICIAL TEST REPORT

### APPENDIX C-Sample A-1 and B-1 Photos

Sample A-1



Sample B-1





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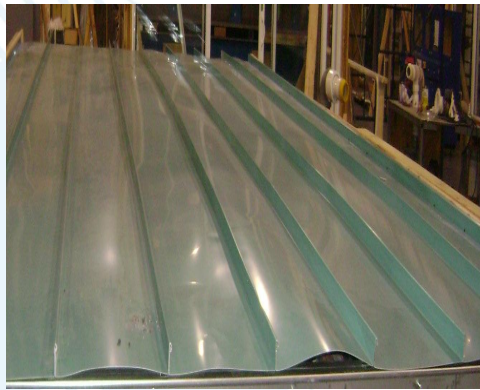
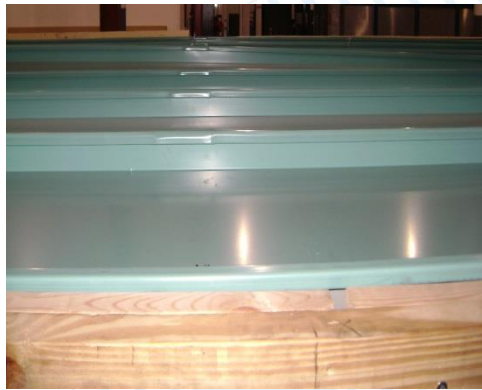
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## OFFICIAL TEST REPORT

### APPENDIX D

#### Sample B-1 Photos of Failure







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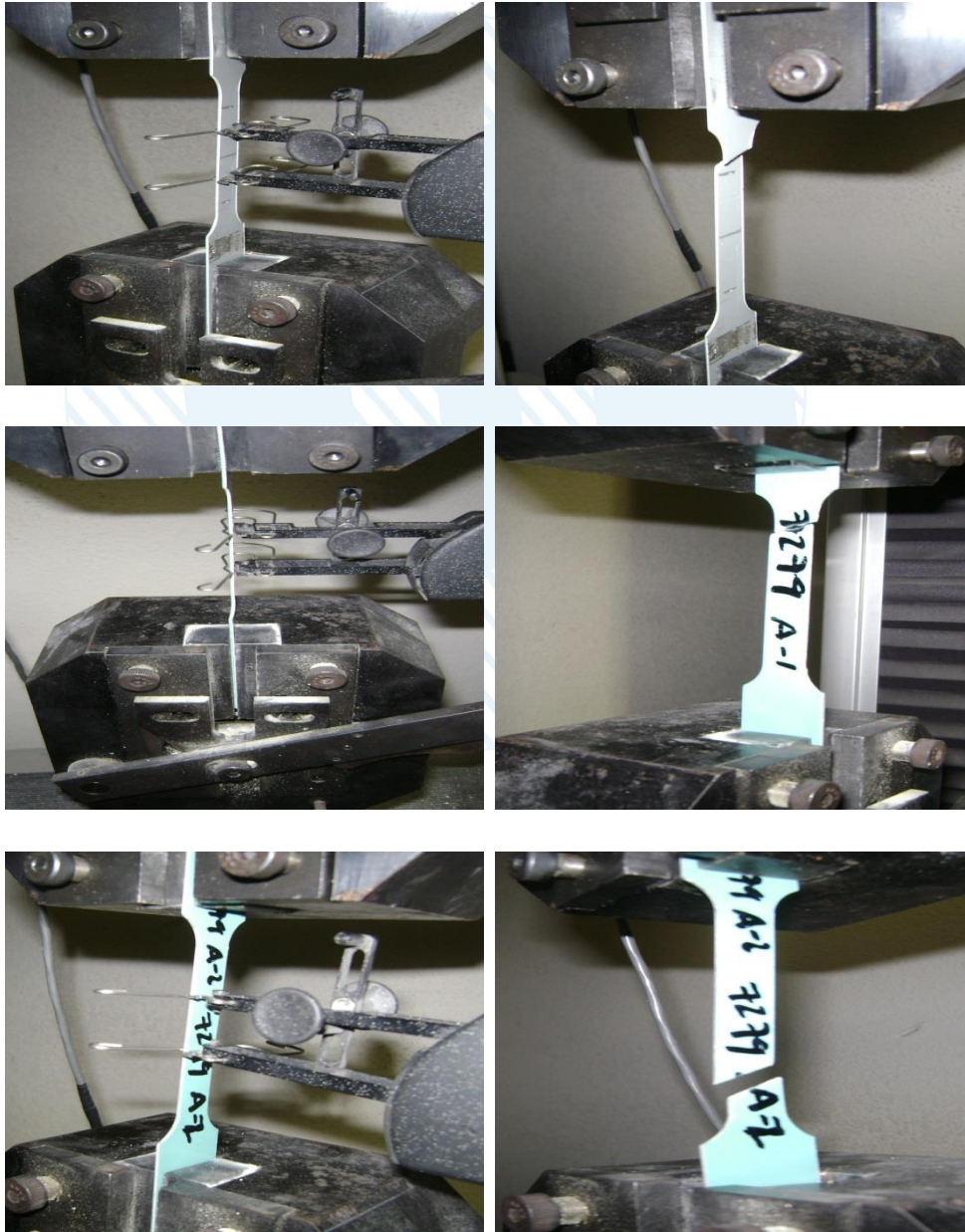
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### APPENDIX E-Tensile Test Pictures





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## OFFICIAL TEST REPORT

### APPENDIX F Manufacturer Drawings



# TITE-LOC PLUS

## PRODUCT FEATURES

- 20 year non-prorated finish warranty
- Available in 4 variations - see profile drawings to right. Check local factory for panel condition availability.
- Maximum panel length of 64' - check local factory for longer lengths
- Mechanically seamed in the field to 180 degrees
- Weathertightness Warranty Available

## MATERIALS

- 37 stocked colors (24 gauge steel)
- 13 stocked colors (22 gauge steel)
- 36 stocked colors (.032 aluminum)
- 20 stocked colors (.040 aluminum)
- Galvalume Plus available

## UL CLASSIFICATION

- UL-580 Class 90 rated up to 18" O.C.
- UL-1897 wind uplift
- UL-790 Class A fire rated
- UL-263 fire resistance rated
- UL-2218 impact resistance rated

## ASTM TESTS

- ASTM E1592
- ASTM E331/1646
- ASTM E283/1680

\*24 ga. and 22 ga. steel panels and .032 and .040 aluminum panels are UL-90 classified over solid substrate. See roof deck construction in Underwriter Laboratories roofing materials and systems directory.

## FLORIDA BUILDING PRODUCT APPROVALS

- 24 GA & .032 Aluminum (Open Purlins): FL Prod. Approv 5562-R4
- .040 Aluminum: FL Approv 10879-R1
- 24 GA & .032 Aluminum: FL Prod Approv. 13487-R2
- 24 GA & .032 Aluminum: FL Prod. Approv. 16142

## MIAMI-DADE PRODUCT APPROVALS

- .032 Aluminum (Plywood Deck): NOA No. 12-0921.11
- 24 GA Steel (Plywood Deck): NOA No. 12-0829.08
- .032 Aluminum (Steel Deck): NOA No. 12-1011.17
- 24 GA Steel (Steel Deck) NOA No. 12-0710.05

## TESTS

- 24 ga. Steel SSTD Missile Impact Tested - Passed
- .032 Aluminum SSTD Missile Impact Tested - Passed

Only items checked in red have been verified by laboratory

FENESTRATION TESTING LAB, INC

Sample A-1 & B-1

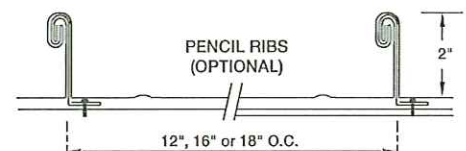
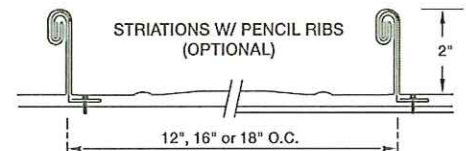
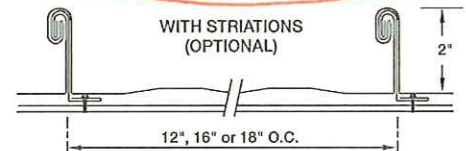
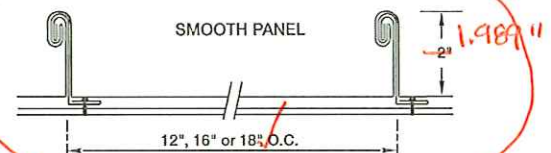
LAB # 7279

DATE: 5-3-13

DRAWING VERIFIED BY: JS



UL 90 CLASSIFIED FM APPROVED



SPECS: 12", 16" OR 18" O.C.

2" HIGH

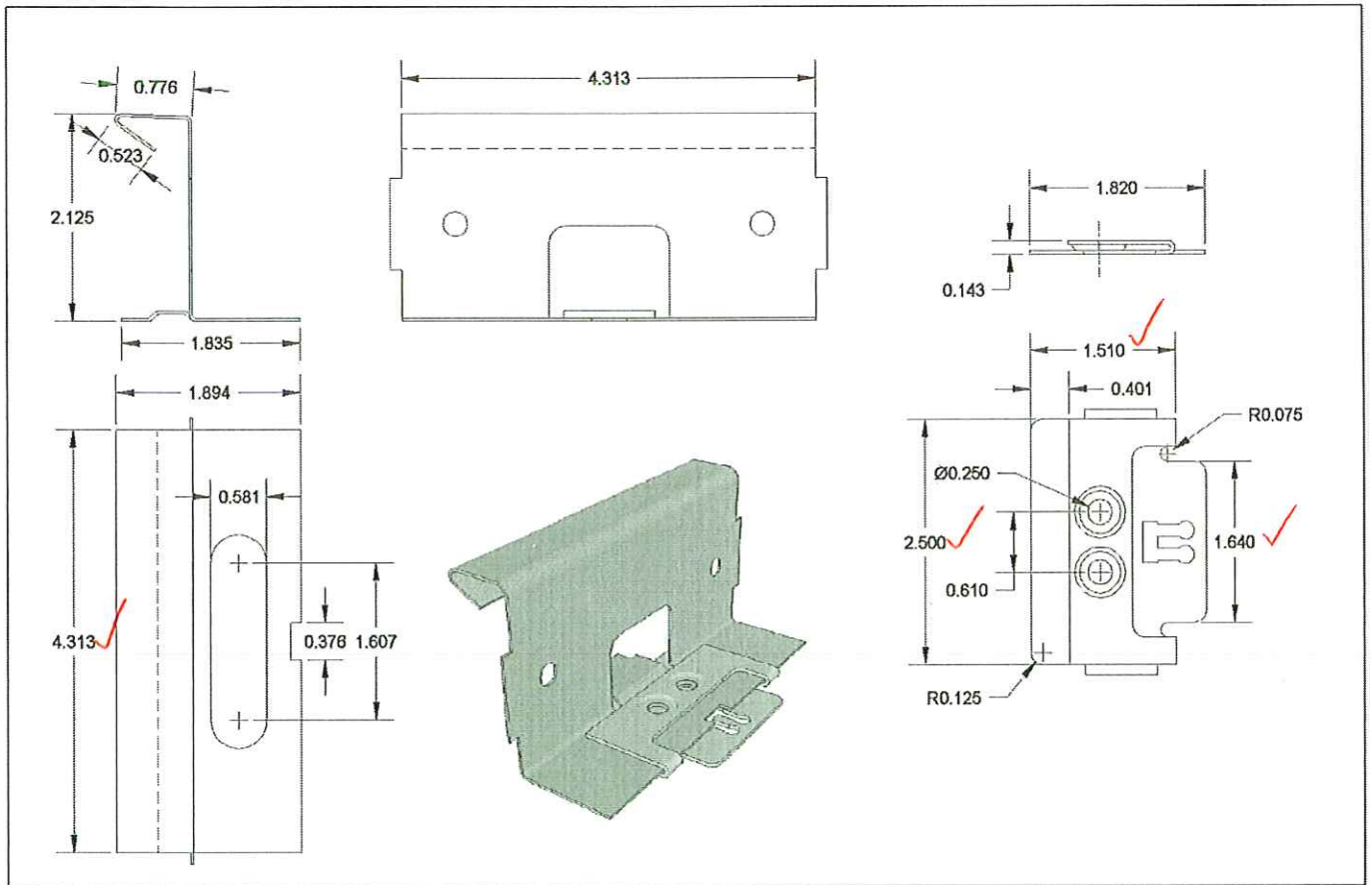
Note: Panel conditions vary by manufacturing facility. Please check local plant for availability.



www.pac-clad.com | 800-PAC-CLAD

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FENESTRATION TESTING LAB, INC

Samples A-1 & B-1

LAB # 7279

DATE: 5-3-13

DRAWING VERIFIED BY: FS

Only items checked in red have been  
verified by laboratory