

PETERSEN ALUMINUM CORPORATION TEST REPORT

SCOPE OF WORK

ASTM E330-14 TESTING ON 24 GA STEEL FSP-12 FLAT SEAM PANELS

REPORT NUMBER

H6811.01-450-44-R0

TEST DATE(S)

11/29/17 - 12/21/17

ISSUE DATE

04/06/18

REVISED DATE

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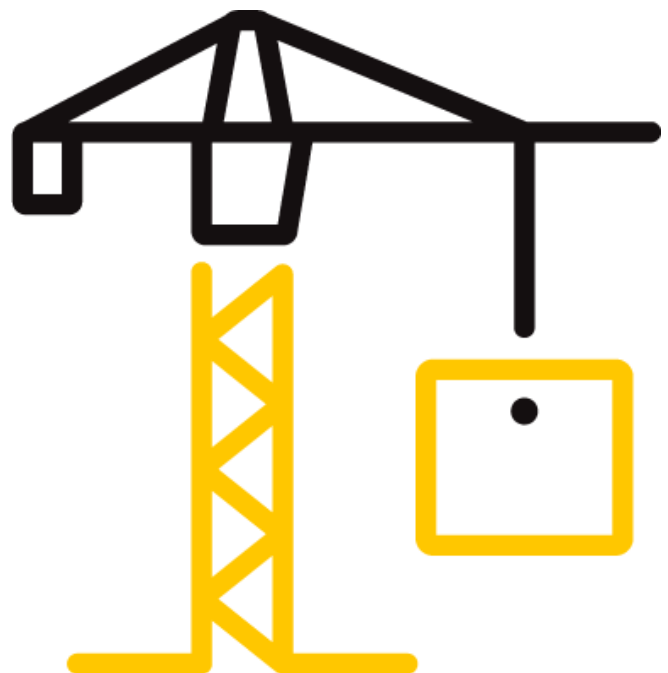
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TEST REPORT FOR PETERSEN ALUMINUM CORPORATION

Report No.: H6811.01-450-44-R0

Date: 04/06/18

REPORT ISSUED TO

PETERSEN ALUMINUM CORPORATION

102 Northpoint Parkway
Building 106
Acworth, GA 30102

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Petersen Aluminum Corporation, 102 Northpoint Parkway, Building 106, Acworth, GA 30102 to perform testing in accordance with ASTM E330-14, Procedure B, on their 24 Ga Steel FSP-12 Flat Seam Panels. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted Intertek B&C test facility in West Palm Beach, FL.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2

SUMMARY OF TEST RESULTS

SPEC.	PURLIN SPAN	MAXIMUM SUSTAINED LOAD
1	12"	-150.0 psf
2	48"	-100.0 psf

For INTERTEK B&C:

COMPLETED BY:	Alan Rule
TITLE:	Field and Quality Supervisor
SIGNATURE:	
DATE:	04/06/18

AR/ab

REVIEWED BY:	Vinu Abraham, P.E.
TITLE:	Vice President – Global Business Development
SIGNATURE:	
DATE:	04/06/18

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TEST METHOD(S)

The specimens were evaluated in accordance with the following:

ASTM E330-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

SECTION 3

MATERIAL SOURCE/INSTALLATION

Test specimens were provided by the client. Representative samples of the test specimens will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed onto 16ga metal purlin framing that was wrapped a double pine wood buck. No shim space was utilized. The metal purlin perimeter track was secured to the test buck using #8 x 1-1/4" FH screws spaced 12" on center for specimen #1. Specimen #2 was secured using the same screws spaced at 12" on center at the head and sill and 16" on center at the jambs. The intermediate purlins were secured to the top and bottom track using a single #8 x 1/2" Self-Drilling PH screw through each track flange. Installation of the tested product was performed by the client.

SECTION 4

EQUIPMENT

Structural Load Mechanism: Computer controlled centrifugal blower with electronic pressure measuring device

Deflection Measuring Device: Linear transducers

SECTION 5

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Sal Delfino	Petersen Aluminum Corporation
Nick Delfino	Petersen Aluminum Corporation
Alan Rule	Intertek B&C
Vinu Abraham, P.E.	Intertek B&C
Veron Wickham	Intertek B&C
Melissa Nuttall	Intertek B&C
Felipe Morales	Intertek B&C

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TEST SPECIMEN DESCRIPTION

Product Type: 24 Ga Galvanized Steel Flat Seam Panels

Series/Model: FSP-12

Product Size(s):

Test Specimen #1: Purlins @ 12" on Center

OVERALL AREA:	WIDTH	HEIGHT
34.4 ft ²	inches	inches
Overall Size	97"	51-1/8"
Panel Coverage	96"	12"

Test Specimen #2: Purlins @ 48" on Center

OVERALL AREA:	WIDTH	HEIGHT
68.5 ft ²	inches	inches
Overall Size	193-1/2"	51"
Panel Coverage	192"	12"

The following descriptions apply to all specimens.

Anchors:

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Panel to metal purlin	#10 x 5/8" Self-Drilling Pancake Screw	12" OC
Panel to panel (stitch)	#10 x 5/8" Self-Drilling Pancake Screw	24" OC

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TEST RESULTS

The temperature during testing was 75°F. The results are tabulated as follows:

Test Specimen #1: Purlins @ 12" on Center

TITLE OF TEST	LOAD (psf)	RESULT	NOTE
Uniform Load Deflection, per ASTM E330-14 Procedure B, Refer to Table 1 for Deflection Results	30	PASS	1,2
	35	PASS	1,2
	40	PASS	1,2
	45	PASS	1,2
	50	PASS	1,2
	55	PASS	1,2
	60	PASS	1,2
	65	PASS	1,2
	70	PASS	1,2
	75	PASS	1,2
	80	PASS	1,2
	85	PASS	1,2
	90	PASS	1,2
	95	PASS	1,2
	100	PASS	1,2
	105	PASS	1,2
	110	PASS	1,2
	115	PASS	1,2
	120	PASS	1,2
	125	PASS	1,2
	130	PASS	1,2
	135	PASS	1,2
	140	PASS	1,2
	145	PASS	1,2
	150	PASS	1,2
	155	FAIL	1,2,3

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Test Specimen #2: Purlins @ 48" on Center

TITLE OF TEST	LOAD (psf)	RESULT	NOTE
Uniform Load Deflection, per ASTM E330-14 Procedure B, Refer to Table 2 for Deflection Results	30	PASS	1,2
	35	PASS	1,2
	40	PASS	1,2
	45	PASS	1,2
	50	PASS	1,2
	55	PASS	1,2
	60	PASS	1,2
	65	PASS	1,2
	70	PASS	1,2
	75	PASS	1,2
	80	PASS	1,2
	85	PASS	1,2
	90	PASS	1,2
	95	PASS	1,2
	100	PASS	1,2
	105	FAIL	1,2,4

General Note: All testing was performed in general accordance with the referenced standard(s).

Note 1: Loads were held for 10 seconds.

Note 2: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Note 3: Panels separated, screws securing panels to each other pulled out.

Note 4: Panels pulled away from installation screws.

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LOAD TABLE

Load Table: 24 Ga Steel FSP-12 Flat Seam Panel

Span, L	Span, L	Test Result	Allowable Design Pressure with Safety Factor of 1.65	Allowable Design Pressure with Safety Factor of 2.00
1'-0"	12"	150 psf	91 psf	75 psf
1'-6"	18"		86 psf	71 psf
2'-0"	24"		81 psf	67 psf
2'-6"	30"		76 psf	63 psf
3'-0"	36"		71 psf	58 psf
3'-6"	42"		66 psf	54 psf
4'-0"	48"	100 psf	61 psf	50 psf

General Notes:

Tested in general accordance with ASTM E 330-14, Procedure B, as negative loads (away from surface).

Intermediate values based on linear interpolation from tested values.

Actual testing was conducted at 1'-0" and 4'-0" purlin spans with stitch screws at 24" on center.

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SECTION 9

TABLES

See sketches 1 and 2 for indicator locations

TABLE 1: DEFLECTION AND PERMANENT SET RESULTS FOR SPECIMEN #1

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)	PERMANENT SET (in.)
30	1	0.07	0.00
	2	0.06	0.00
	3	0.08	0.01
	4	0.23	0.02
35	1	0.08	0.00
	2	0.06	0.00
	3	0.09	0.01
	4	0.42	0.03
40	1	0.08	0.00
	2	0.07	0.00
	3	0.10	0.01
	4	0.42	0.03
45	1	0.10	0.00
	2	0.07	0.00
	3	0.11	0.02
	4	0.42	0.04
50	1	0.11	0.00
	2	0.09	0.00
	3	0.12	0.02
	4	0.48	0.04
55	1	0.11	0.00
	2	0.09	0.00
	3	0.13	0.02
	4	0.52	0.04
60	1	0.11	0.01
	2	0.10	0.00
	3	0.14	0.02
	4	0.55	0.05
65	1	0.12	0.01
	2	0.11	0.00
	3	0.14	0.02
	4	0.58	0.05

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TABLE 1: DEFLECTION AND PERMANENT SET RESULTS FOR SPECIMEN #1 (Continued)

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)	PERMANENT SET (in.)
70	1	0.12	+
	2	0.12	+
	3	0.16	+
	4	0.61	+
75	1	0.12	+
	2	0.13	+
	3	0.17	+
	4	0.64	+
80	1	0.12	+
	2	0.14	+
	3	0.18	+
	4	0.68	+
85	1	0.13	0.01
	2	0.15	0.00
	3	0.19	0.02
	4	0.70	0.06
90	1	0.13	0.01
	2	0.16	0.01
	3	0.19	0.03
	4	0.73	0.06
95	1	0.14	0.01
	2	0.17	0.01
	3	0.21	0.03
	4	0.78	0.06
100	1	0.14	0.01
	2	0.18	0.01
	3	0.21	0.03
	4	0.82	0.06
105	1	0.16	0.02
	2	0.19	0.01
	3	0.22	0.03
	4	0.87	0.06
110	1	0.16	0.02
	2	0.20	0.01
	3	0.23	0.04
	4	0.90	0.06

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TABLE 1: DEFLECTION AND PERMANENT SET RESULTS FOR SPECIMEN #1 (Continued)

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)	PERMANENT SET (in.)
115	1	0.16	0.02
	2	0.20	0.01
	3	0.24	0.04
	4	0.94	0.06
120	1	0.17	0.02
	2	0.21	0.01
	3	0.25	0.04
	4	0.96	0.06
125	1	0.18	0.02
	2	0.23	0.01
	3	0.26	0.04
	4	1.06	0.06
130	1	0.18	0.03
	2	0.24	0.02
	3	0.26	0.04
	4	1.18	0.07
135	1	0.19	0.02
	2	0.24	0.03
	3	0.27	0.04
	4	1.23	0.07
140	1	0.28	0.02
	2	0.25	0.03
	3	0.27	0.05
	4	1.23	0.10
145	1	0.28	0.04
	2	0.26	0.03
	3	0.28	0.05
	4	*	0.10
150	1	0.28	0.12
	2	0.27	0.04
	3	0.29	0.04
	4	1.35	0.13

+Values not recorded

*Indicator Error

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TABLE 2: DEFLECTION AND PERMANENT SET RESULTS FOR SPECIMEN #2

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)	PERMANENT SET (in.)
30	1	0.20	0.01
	2	0.63	<0.01
	3	0.28	<0.01
	4	0.66	<0.01
35	1	0.26	0.04
	2	0.70	0.04
	3	0.31	0.02
	4	0.76	0.04
40	1	0.30	0.06
	2	0.75	0.06
	3	0.34	0.03
	4	0.86	0.07
45	1	0.41	0.12
	2	0.86	0.12
	3	0.39	0.05
	4	1.00	0.13
50	1	0.46	0.48
	2	0.91	0.37
	3	0.43	0.18
	4	1.09	0.37
55	1	0.87	0.53
	2	1.22	0.43
	3	0.60	0.21
	4	1.47	0.40
60	1	0.93	0.56
	2	1.30	0.47
	3	1.69	0.23
	4	1.74	0.63
65	1	1.00	0.58
	2	1.35	0.44
	3	1.69	0.15
	4	1.82	0.59
70	1	1.07	0.60
	2	1.42	0.47
	3	1.73	0.17
	4	1.94	0.62

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TABLE 2: DEFLECTION AND PERMANENT SET RESULTS FOR SPECIMEN #2 (Continued)

LOAD (psf)	INDICATOR LOCATION	DEFLECTION (in.)	PERMANENT SET (in.)
75	1	1.09	0.60
	2	1.51	0.49
	3	1.80	0.19
	4	2.06	0.49
80	1	1.17	0.64
	2	1.58	0.53
	3	1.88	0.21
	4	2.06	0.65
85	1	1.26	0.68
	2	1.65	0.59
	3	1.94	0.24
	4	2.14	0.73
90	1	1.36	0.74
	2	1.73	0.67
	3	1.01	0.30
	4	2.43	0.69
95	1	1.47	0.79
	2	1.83	0.71
	3	2.08	0.32
	4	2.70	0.75
100	1	1.60	0.81
	2	1.95	0.73
	3	2.16	0.32
	4	3.45	0.84

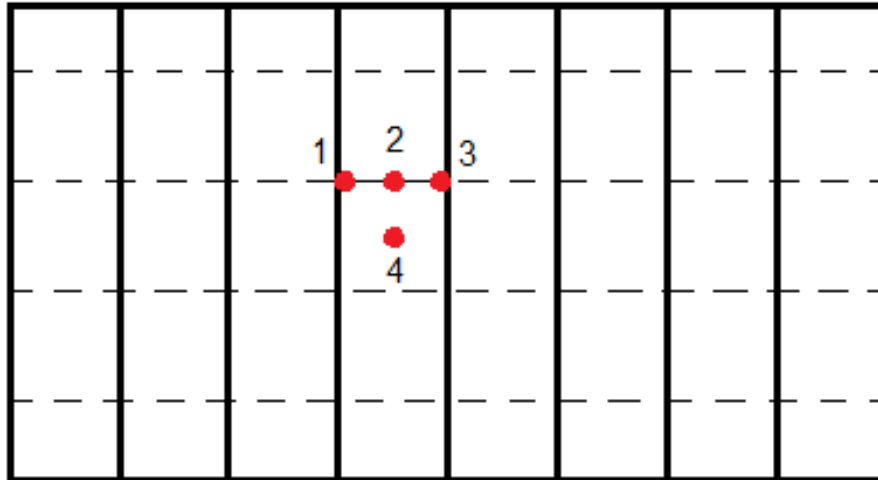
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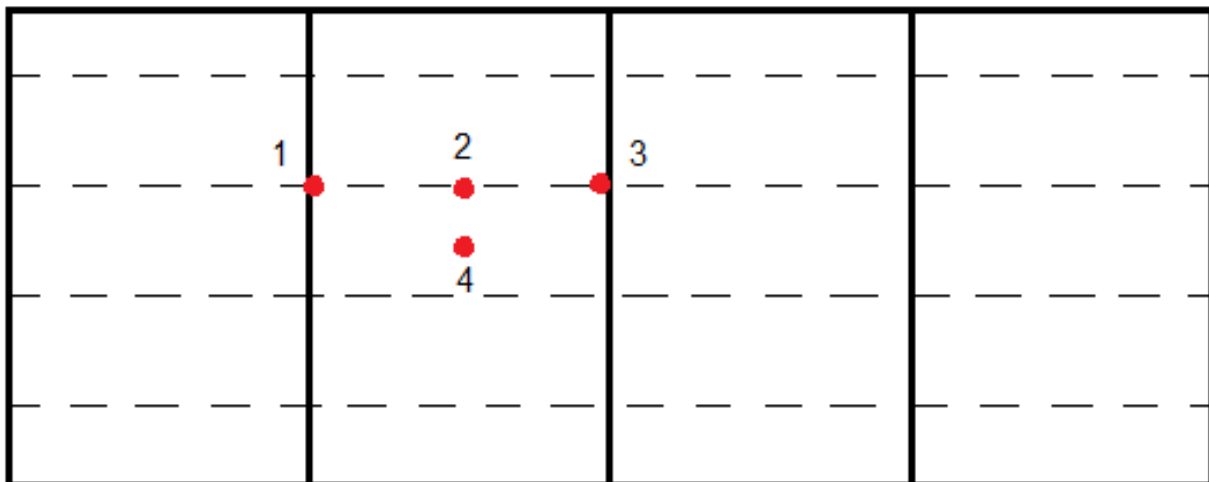
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SECTION 10

SKETCHES



SKETCH 1: INDICATOR LOCATIONS FOR SPECIMEN #1



SKETCH 2: INDICATOR LOCATIONS FOR SPECIMEN #2

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SECTION 11

PHOTOGRAPHS



Photo No. 1
Specimen #1



Photo No. 2
Specimen #1 Gauges 1-3

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Photo No. 3
Specimen #2 Mode of Failure



Photo No. 4
Specimen #2 Mode of Failure Close Up at Purlin

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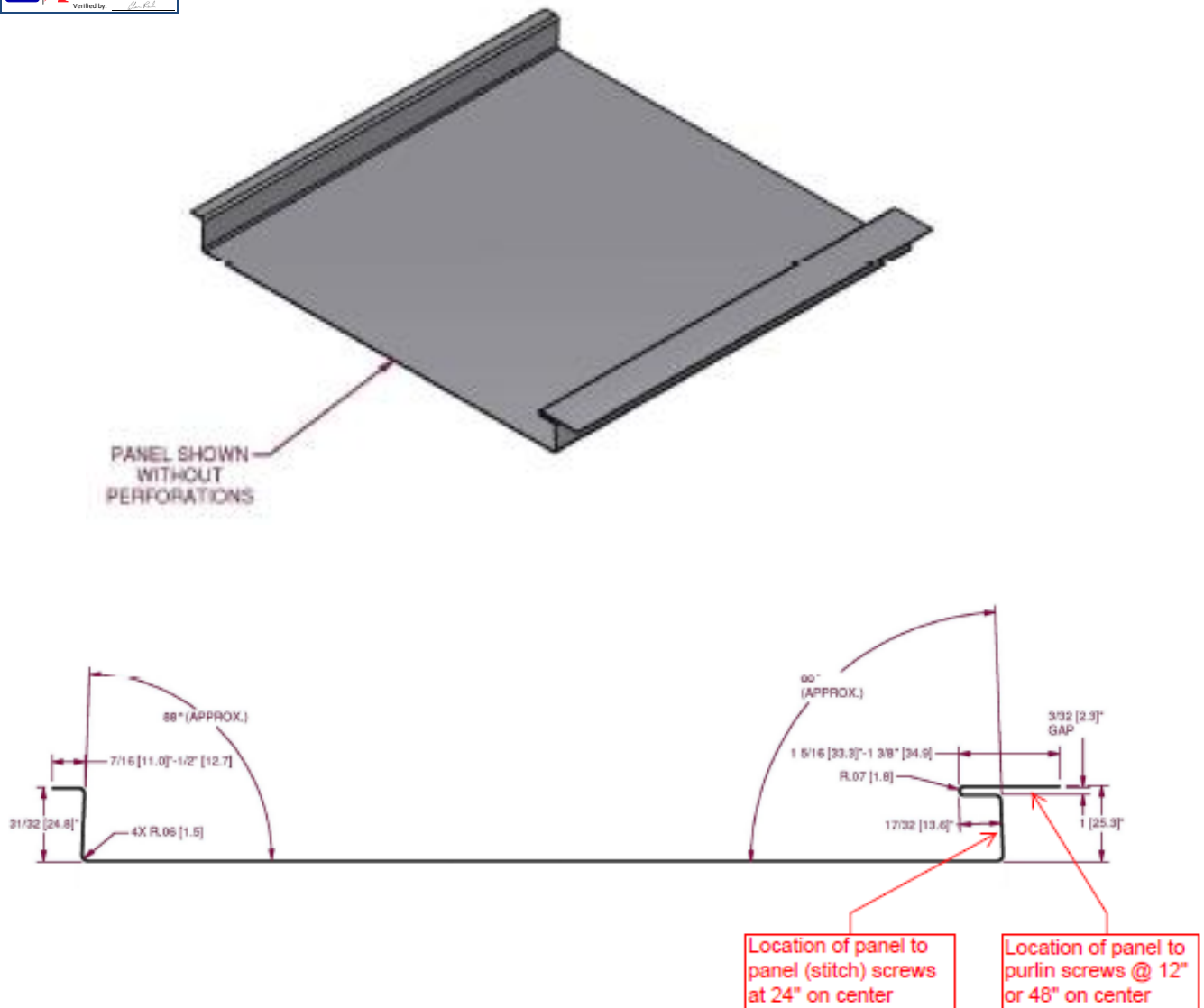
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SECTION 12

DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.





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