



Farabaugh Engineering and Testing Inc.

Project No. T145-17

Report Date: March 23, 2017

Total Pages: 12 (inclusive)

ASTM E 1592
STANDARD TEST METHOD FOR
STRUCTURAL PERFORMANCE OF SHEET METAL ROOF AND SIDING SYSTEMS
BY UNIFORM STATIC AIR PRESSURE DIFFERENCE

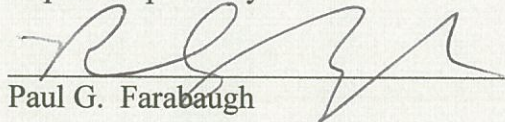
ON

GEORGIA METALS R-PANEL ROOF PANEL
36" WIDE X 26 GA. STEEL PANEL
(5 SPANS @ 5'-0" O.C.)

FOR

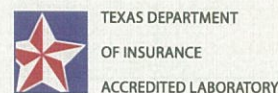
GEORGIA METALS, INC.
60 INDUSTRIAL BLVD.
NAHUNTA, GA. 31553

Report Prepared By:


Paul G. Farabaugh

Reviewed and Approved By:


Daniel G. Farabaugh, PE



Project No. T145-17

ASTM E1592-05
STANDARD TEST METHOD FOR
STRUCTURAL PERFORMANCE OF SHEET METAL ROOF AND SIDING SYSTEMS
BY UNIFORM STATIC AIR PRESSURE DIFFERENCE

Purpose

This test method covers the evaluation of the structural performance of Sheet Metal Panels and Anchor to Panel Attachments for roof or siding systems under uniform static air pressure difference.

Test Date

3/8/17 Test #1 - 5 Spans @ 5'-0" o.c.

Test Specimen

Manufacturer: Georgia Metals, Inc.
60 Industrial Blvd.
Nahunta GA.31553

Panel: R-Panel, 36" wide x 26 ga. steel panel

Testing Apparatus

A vacuum test chamber was used with two static pressure taps located at diagonally opposite corners. A controlled blower provided a vacuum to uniformly load the specimen mock-up. Calibrated manometers were used to measure the pressure at each pressure tap. The uniform load pressure was performed in the negative direction to monitor wind uplift on the panel specimen mock-up. Calibrated deflectometers were attached to monitor panel deformation as shown.

Installation

- The panels were installed on to 16 ga supports with using #12 - 14 x 1-1/4" self drill, hex head fasteners with washer located as shown on the attached drawings. Stitch fasteners at lap are #14 x 7/8" long self drill, hex head fastener with washer at 18" o.c. See detail drawing showing fastening at supports and at ends of panel. The outer side panels were fastened with #12-14 x 1-1/4" long self drill, hex head fasteners at 6" o. c. along each side of the mock-up.
- Plastic (4 mil thick) was employed loosely between the panels and subgirts and in the side joints to create a vacuum seal.

Procedure

- The specimen was checked for proper adjustment and all vents closed in the pressure measuring lines.
- The required deflection measuring apparatus' were installed at their specified locations.
- A nominal initial pressure was applied equal to at least four times but not more than ten times the dead weight of the specimen. This nominal pressure was used as the reference zero and initial deflection readings were recorded.
- At each load increment, pressure was maintained for a period of not less than 60 seconds and until the deflection gages indicated no further increase in deflections.
- Successive increments were achieved as above until failure or ultimate load was reached.

The test was conducted according to the procedure in ASTM E-1592-05 and as noted herein. In our opinion the tape and plastic had no influence on the results of the test.

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TEST #1

Specimen: R-Panel, 36" wide X 26 ga. steel panel

Clip Spacing: 5 ft o/c

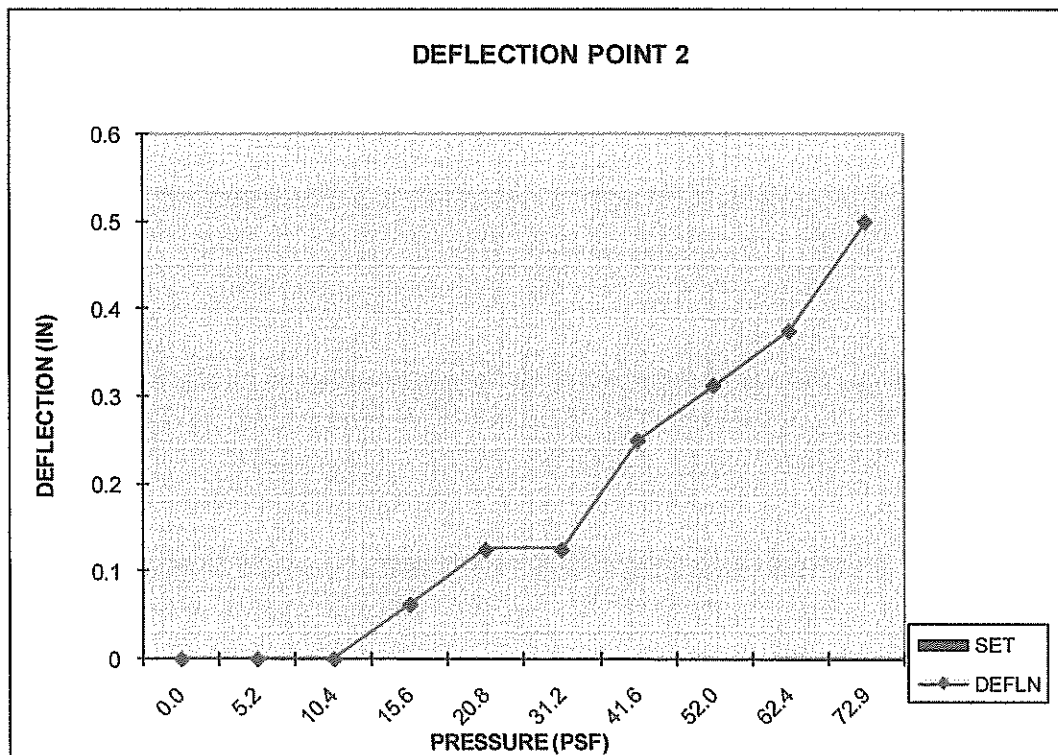
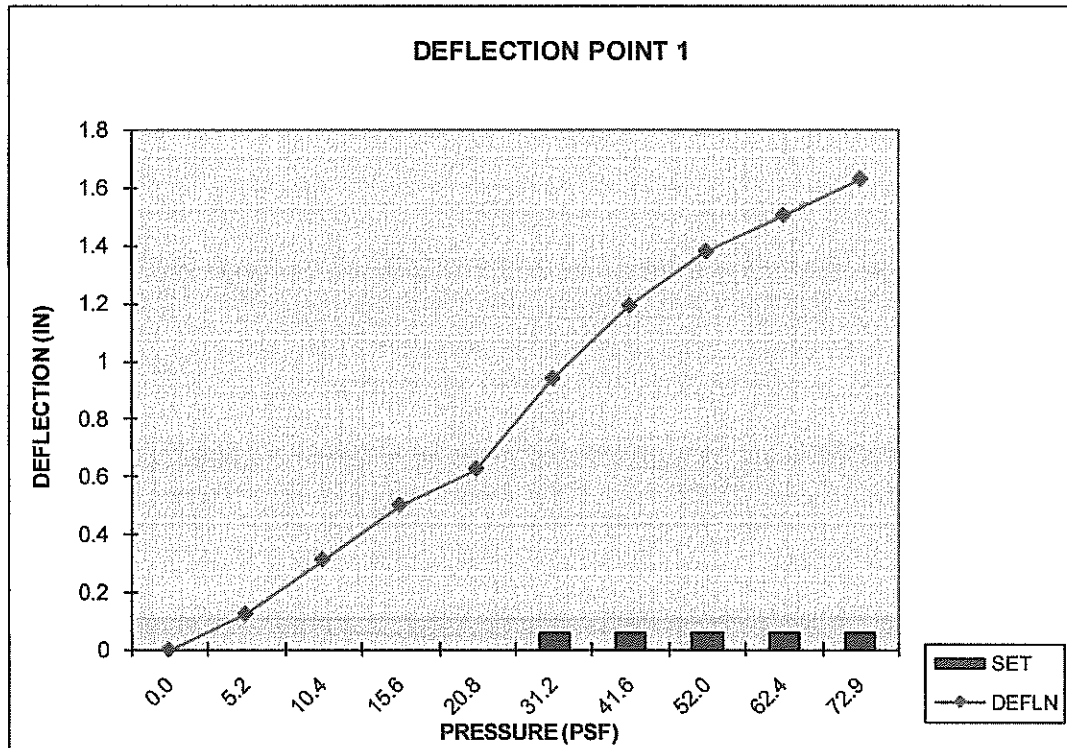
NEGATIVE (UPLIFT) PRESSURE

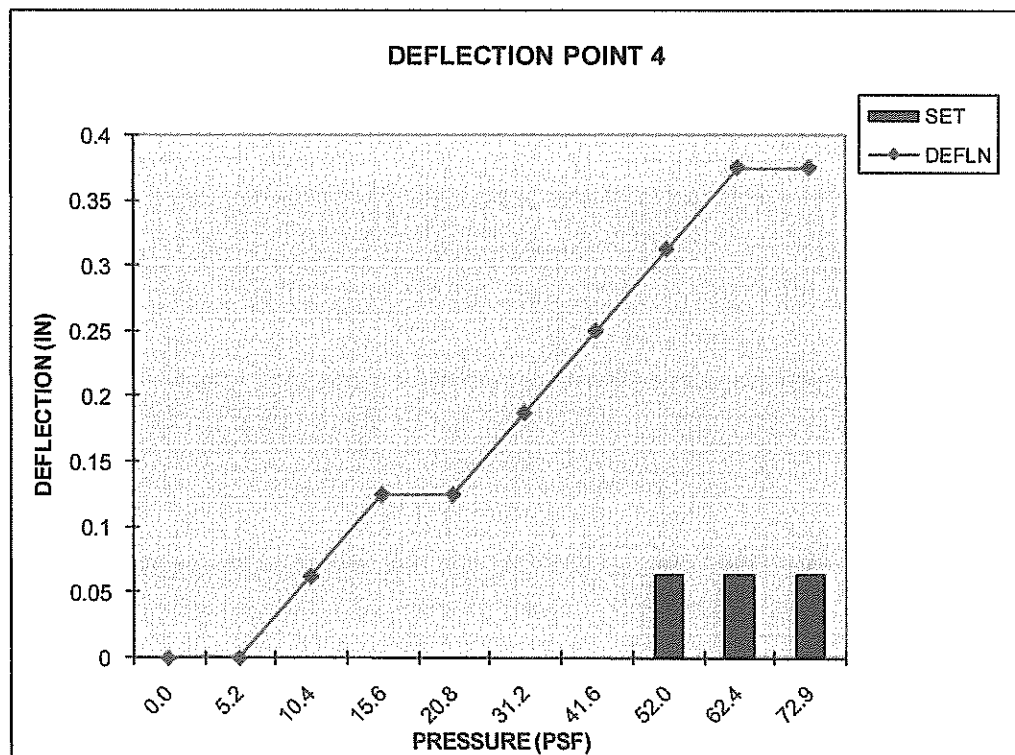
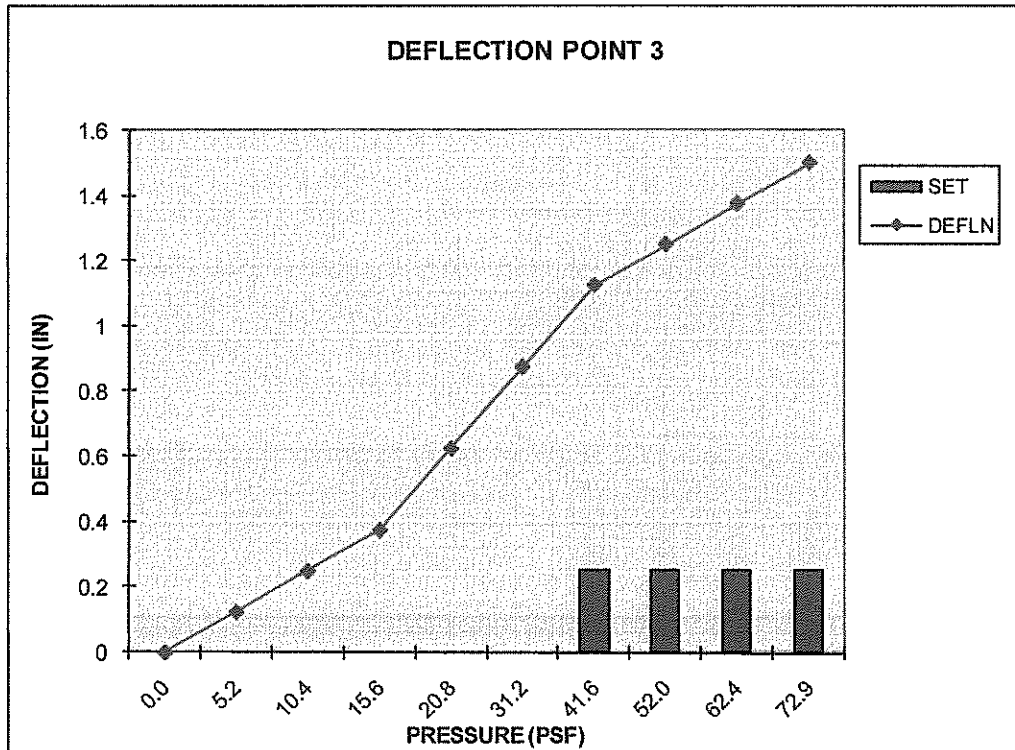
GEORGIA METALS R-PANEL 36"WIDE X 26 GA. STEEL(5 SPANS @ 5'OC)						
DEFLECTION DIAL READINGS (INCHES)						
LOAD (PSF)	D-1	D-2	D-3	D-4	D-5	D-6
0.0	0	0	0	0	0	0
5.2	0.125	0	0.125	0	0	0.125
0.0	0	0	0	0	0	0
10.4	0.3125	0	0.25	0.0625	0.0625	0.25
0.0	0	0	0	0	0	0
15.6	0.5	0.0625	0.375	0.125	0.0625	0.375
0.0	0	0	0	0	0	0
20.8	0.625	0.125	0.625	0.125	0.0625	0.5
0.0	0	0	0	0	0	0
31.2	0.9375	0.125	0.875	0.1875	0.125	0.75
0.0	0.0625	0	0	0	0	0.1875
41.6	1.1875	0.25	1.125	0.25	0.125	0.875
0.0	0.0625	0	0.25	0	0	0.0625
52.0	1.375	0.3125	1.25	0.3125	0.1875	1
0.0	0.0625	0	0.25	0.0625	0.0625	0.125
62.4	1.5	0.375	1.375	0.375	0.25	1.125
0.0	0.0625	0	0.25	0.0625	0.125	0.375
72.9	1.625	0.5	1.5	0.375	0.25	1.25
0.0	0.0625	0	0.25	0.0625	0.125	0.375

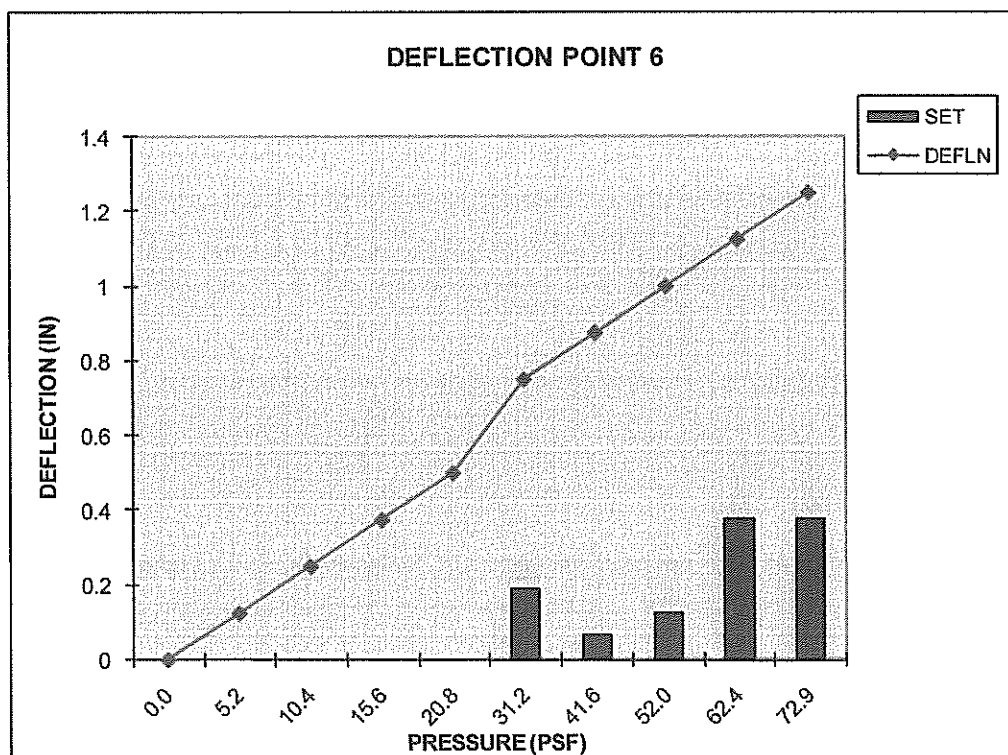
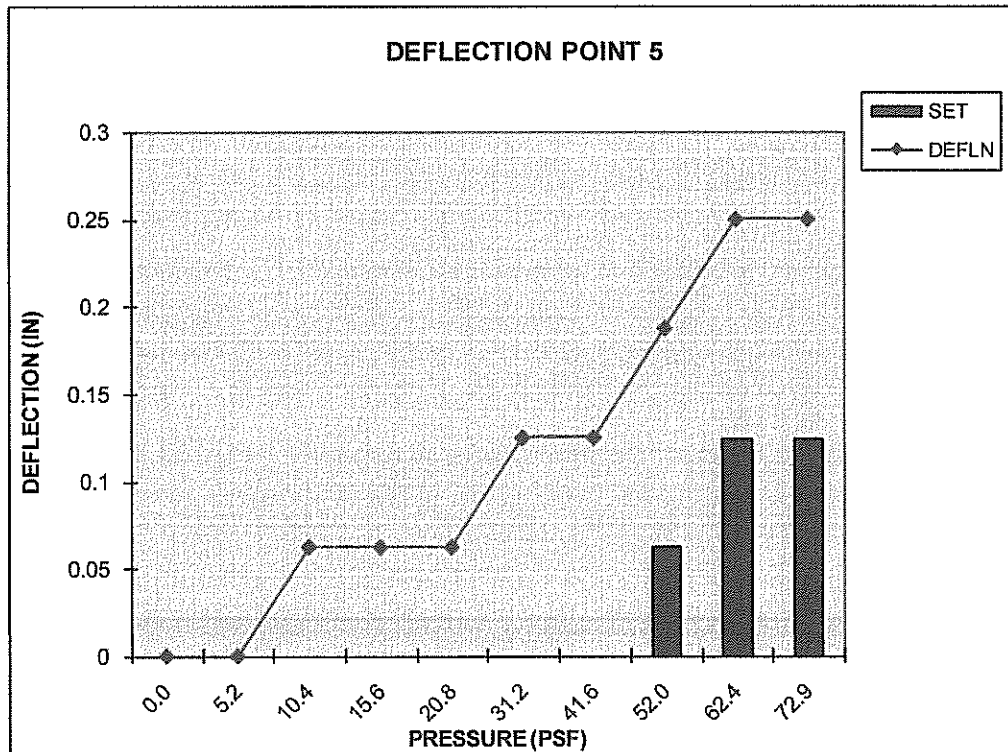
RESULTS:

Load held for 1 minute = 78.1 psf

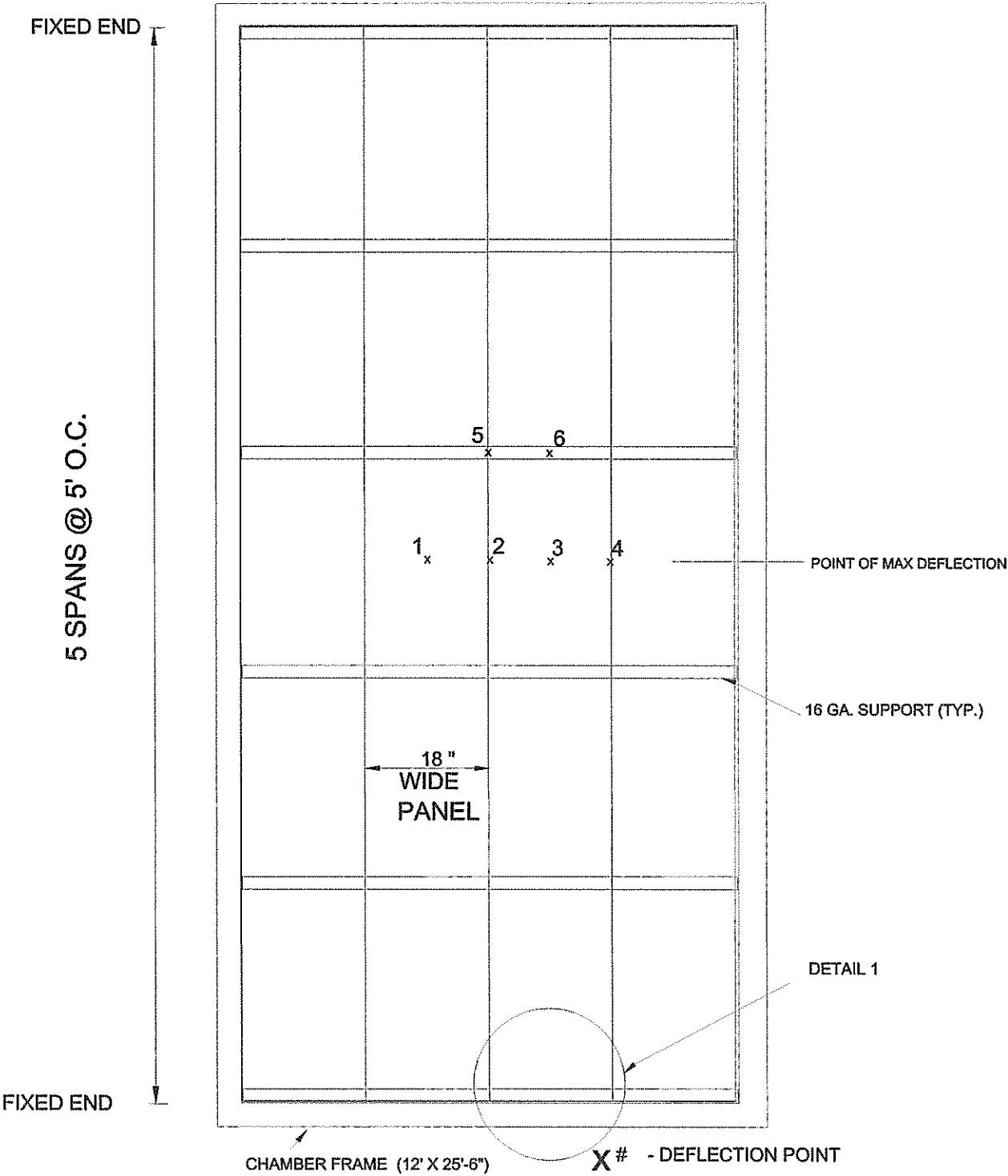
Maximum Test Load = 79.6 psf (Panel buckled on endspan)



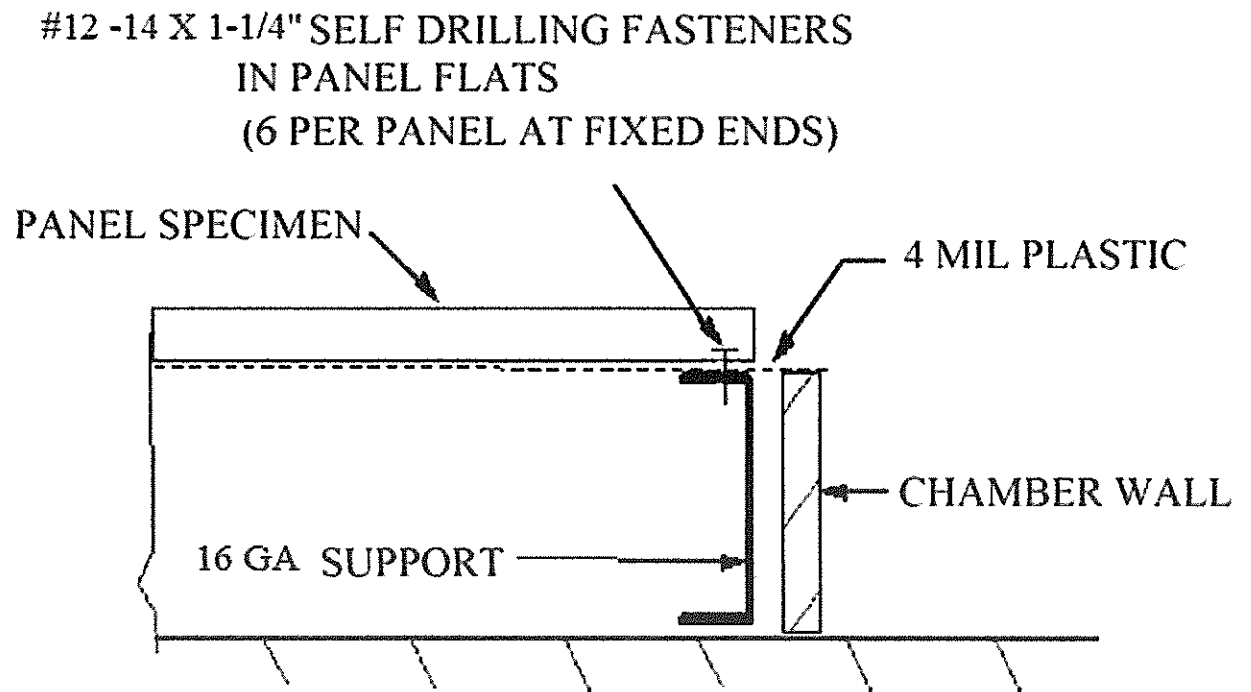




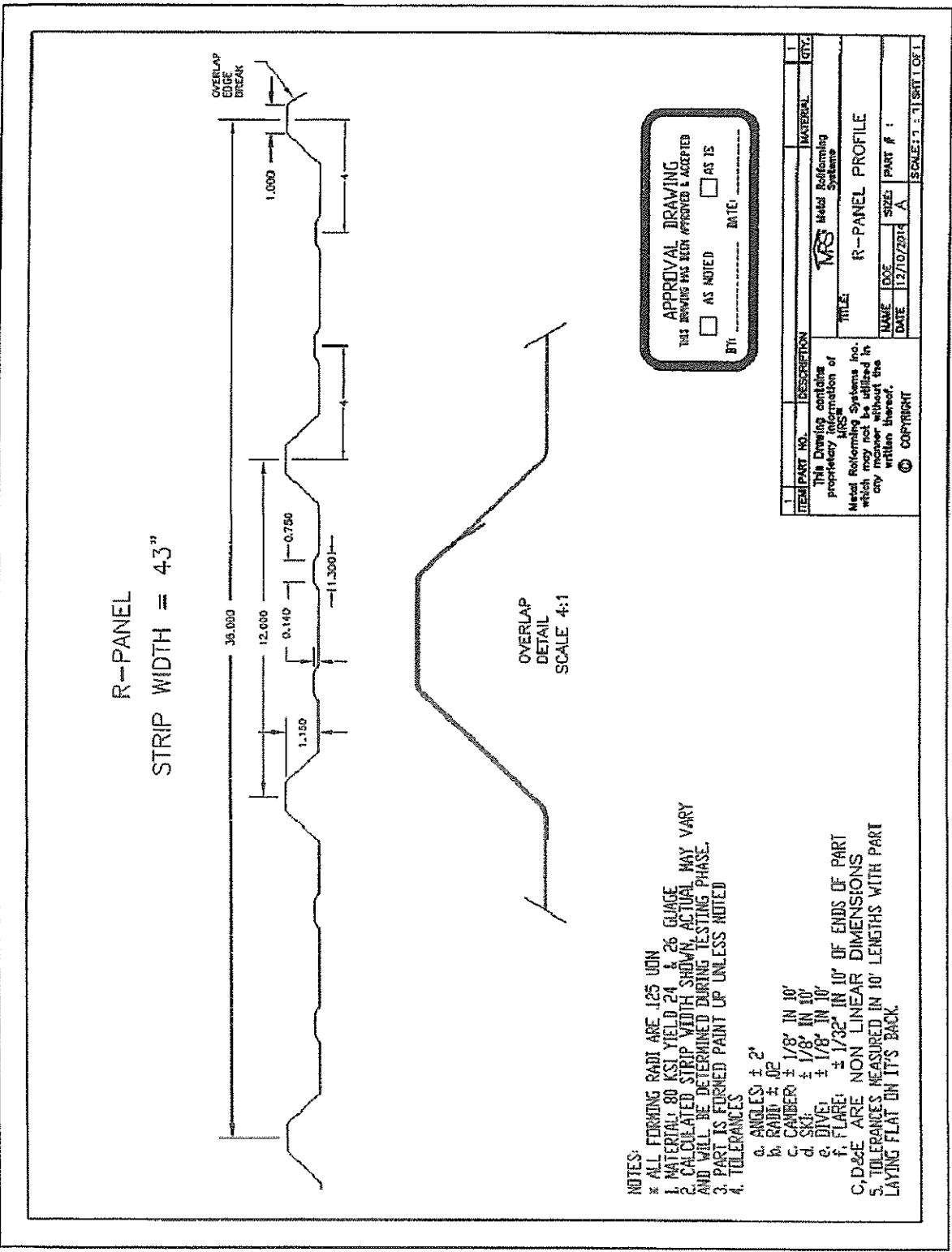
TEST #1

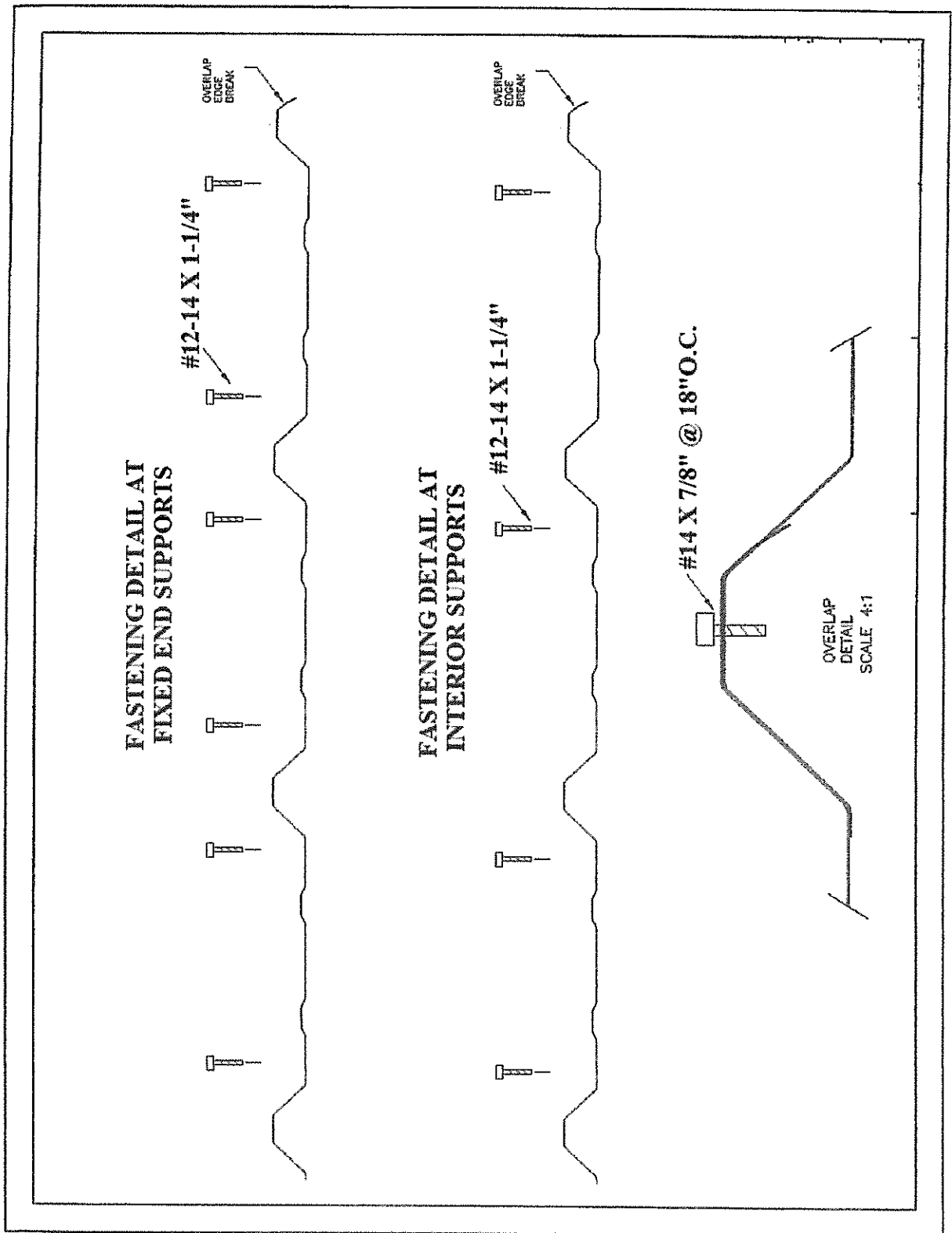


PLAN VIEW



DETAIL 1





Project No. T145-17

TENSILE TEST REPORT

Client: Georgia Metals, Inc.
60 Industrial Blvd.
Nahunta GA.31553

Test Date: March 23, 2017

Test Method: ASTM A370-10

Material Description: R-Panel, 36" wide x 26 ga. steel panel

Sample No.	Width (in)	Thickness (in)	Yield Load (lb)	Max. Load (lb)	0.2% Offset Yield Strength (psi)	Tensile Strength (psi)	Elongation (% in 2 inches)
0048-17	0.507	0.018	892.4	902.8	97,783	98,931	2.45

Equipment Used: Tensile Machine #QT7-061196-020
Caliper #1074379
Extensometer #10311744D
Micrometer #110596927