



Farabaugh Engineering and Testing Inc.

Project No. T264-21

Report Date: October 30, 2021

No. Pages: 18 pgs (Inclusive)

PERFORMANCE REPORT

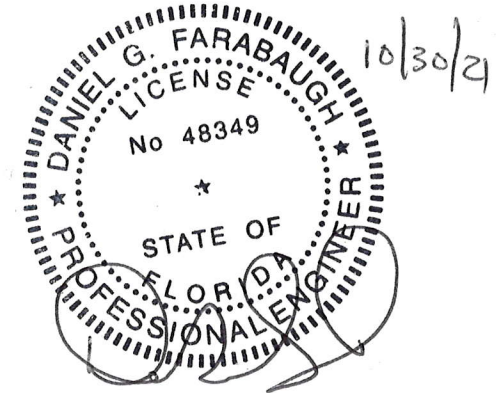
ASTM E330 UNIFORM LOAD TEST

ON

MODULARAL METAL PANEL
3" DEEP X 24" WIDE COVERAGE X 0.050" ALUMINUM

FOR

PETERSEN ALUMINUM CORP.
10551 PAC RD.
TYLER, TX. 75707



Prepared by:

Paul G. Farabaugh

Approved by:

Daniel G. Farabaugh

DANIEL G. FARABAUGH, P.E.
255 Saunders Station Rd
Trafford, PA 15085
412-373-9238



DADE COUNTY
ACCREDITED
LABORATORY



AAMA
ACCREDITED
LABORATORY



TEXAS
ACCREDITED
LABORATORY



FLORIDA
ACCREDITED
LABORATORY
& QC ENTITY

Project No. T264-21

ASTM E330- STRUCTUAL TESTING

Purpose

The purpose of this test is to establish the structural loads on a 8'-0" wide x 8'-0" high wall system.

Test Completion Date

10/29/21

Test Specimen

Manufacturer: Petersen Aluminum Corp.
10551 Pac Rd.
Tyler, TX. 75707

Test Specimen: ModularAL Metal Panel, - 3" Deep x 24" wide coverage x 0.050" alum.
(See Dwg A206 for actual dimension)

Mock-up Size: 96" wide X 96 high (nominal) consisting of 15 panels x 24" (or 12") wide x various lengths of 0.050" thick aluminum panels. All panels are 3" deep.
See page 8 for panel layout

Mock up -Installation

- The test setup consisted of a 96" wide x 96" high mock-up that used 6" x 16 ga. vertical channel studs spaced at 24" o.c that were attached to the top and bottom horizontal 16 ga. channel track.
- 5/8" thick Densglass Gypsum board was attached to the vertical stud supports using #6 x 1" lg. self -drilling fasteners spaced at 10" o.c.
- The panel support consisted of 16 ga. Zee horizontal supports attached thru the gypsum board and into 16 ga. vertical channel supports using #12 x 1-1/2" long wafer-head self -drilling screws. Additional vertical Zee supports were used at the panel clip locations.
- 1" foam board insulation was between all zee supports and entire mock-up was covered with Ice and Water Shield.

- A 16 ga. lower “J” channel was along the bottom and two sides of the mock-up. The “J” channel had predrilled holes thru the top leg and a #12 -14 x 1-1/2” long wafer-head self-drilling screws spaced at 22” o.c. secured the lower “J” channel thru the gypsum board and into the 16 ga. stud/channel track. The lower “J” channel secured the ends of the foam board and zee supports.
- A starter clip was attached to the Zee support using #12 x 1” lg. wafer-head, self-drilling screws. A minimum of two fasteners per starter clip or 12” o.c max. spacing per clip based on length of clip.
- The starter panel engaged into a starter clip and was top-fastened with #12 x 1” lg. Stainless Steel Cap head w/EPDM Sealing washer fasteners at the predrilled holes spaced at 8” o.c. max. spacing.
- The vertical edge of the panel had two (2) clips to attach that edge to the 16 ga. vertical Zee supports using (2) #12 x 1” lg. wafer-head, self-drilling screws at each clip.
- A 0.08” aluminum “J” face trim was along the bottom and sides of the mock-up that sat on top of the lower “J” trim. The face trim was secured thru the lower 16 ga. trim and into stud supports with #14 x 3” lg. wafer-head, self-drilling screw spaced at 24” o.c..
- See installation details for location of fasteners at supports and attachment of each panel.

Test Procedure

The tests were conducted in accordance with the sections as shown in the following:

- ASTM E-330-02, “Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference “

ASTM E330 UNIFORM LOAD TEST

POSITIVE PRESSURE

Load Pressure (in-h20)	Load Pressure (psf)	Deflection #1 (in)	Deflection #2 (in)	Deflection #3 (in)
0	0.0	0.000	0.000	0.000
3	15.6	0.092	0.268	0.098
0	0.0	0.001	0.002	0.001
6	31.2	0.188	0.453	0.209
0	0.0	0.008	0.010	0.009
9	46.8	0.252	0.563	0.282
0	0.0	0.015	0.015	0.015
12	62.4	0.327	0.705	0.362
0	0.0	0.028	0.036	0.029
15	78.1	0.404	0.859	0.448
0	0.0	0.036	0.047	0.036
18	93.7	0.482	1.028	0.525
0	0.0	0.048	0.086	0.048
21	109.3	0.590	1.273	0.636
0	0.0	0.060	0.115	0.057
24	124.9	0.666	1.504	0.729
0	0.0	0.073	0.208	0.073
27	140.5	0.721	1.605	0.790
0	0.0	0.084	0.237	0.085
30	156.1	0.828	1.762	0.883
0	0.0	0.105	0.291	0.102
33	171.7	0.891	1.847	0.936
0	0.0	0.128	0.342	0.117
38.4	199.8	1.045	2.054	1.072
0	0.0	0.161	0.423	0.141

RESULTS

Upon completion of the testing at the positive pressures noted above there were no noticeable failures of the specimen

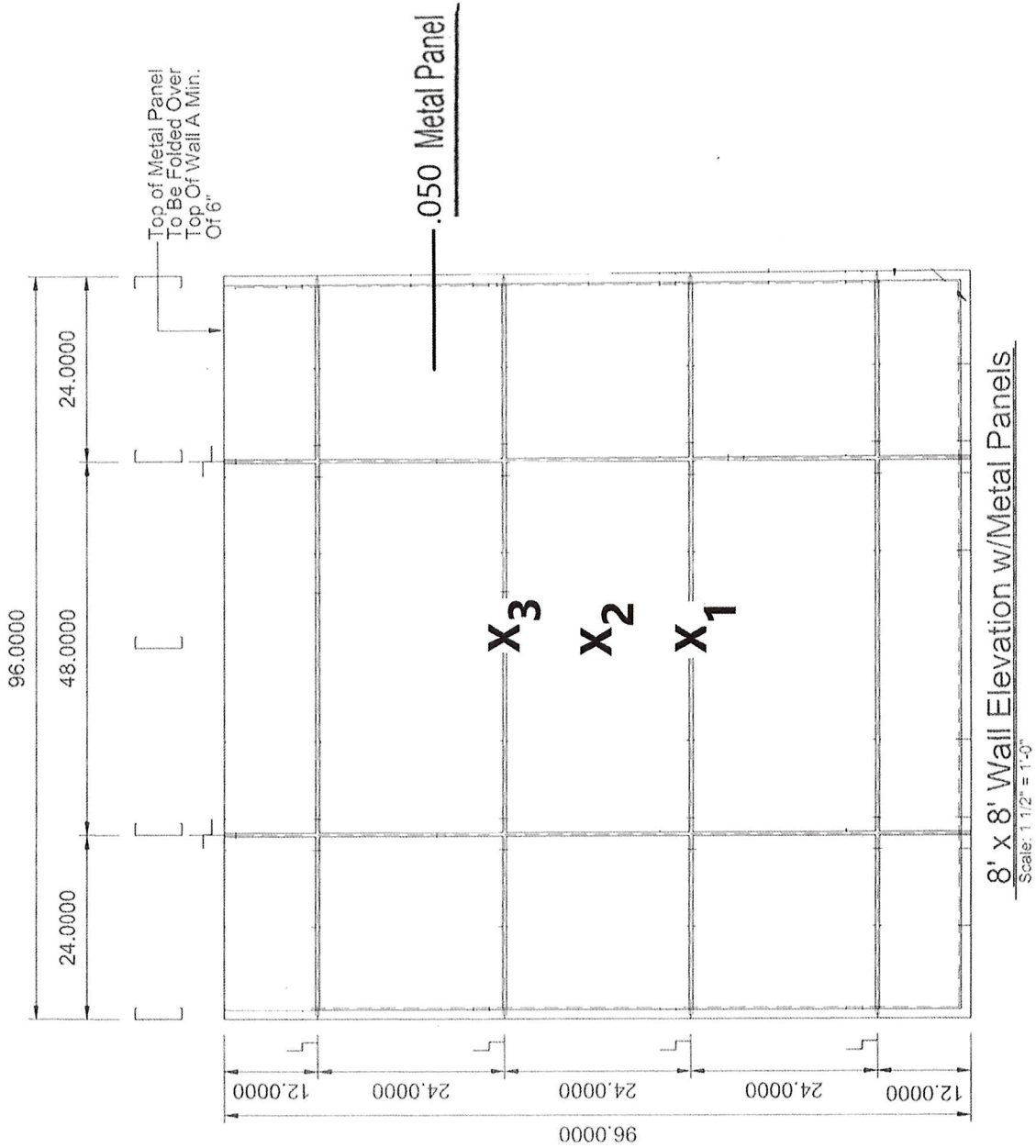
NEGATIVE PRESSURE

Load Pressure (in-h20)	Load Pressure (psf)	Deflection #1 (in)	Deflection #2 (in)	Deflection #3 (in)
0	0.0	0.000	0.000	0.000
2	10.4	0.051	0.101	0.042
0	0.0	0.003	0.003	0.004
4	20.8	0.119	0.205	0.101
0	0.0	0.011	0.013	0.013
6	31.2	0.182	0.292	0.158
0	0.0	0.021	0.025	0.023
8	41.6	0.257	0.390	0.224
0	0.0	0.034	0.039	0.033
10	52.0	0.334	0.486	0.288
0	0.0	0.048	0.054	0.044
12	62.4	0.409	0.577	0.350
0	0.0	0.060	0.066	0.051
14	72.9	0.493	0.677	0.420
0	0.0	0.089	0.096	0.069
16	83.3	0.581	0.778	0.492
0	0.0	0.111	0.121	0.086
18	93.7	0.672	0.882	0.569
0	0.0	0.136	0.147	0.109
20	104.1	0.767	0.987	0.646
0	0.0	0.183	0.187	0.138

RESULTS:

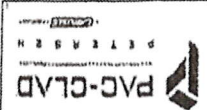
Maximum Test Load = 133.6 psf (Seam Disengagement with Zee support fastener pulled out of 16 ga. metal stud supports)

STRUCTURAL TEST SETUP



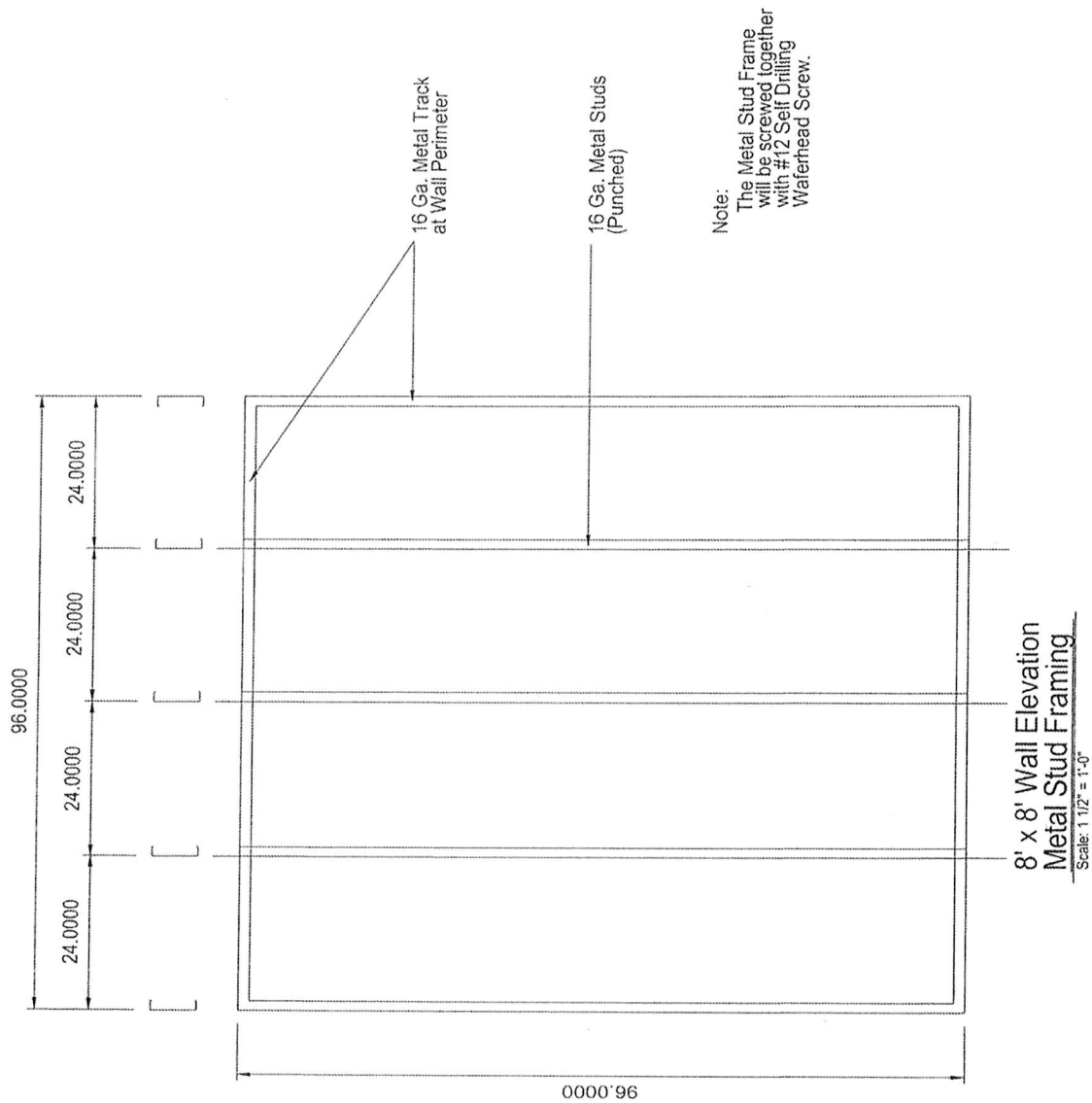
X# - DEFLECTION
LOCATION

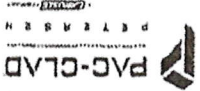
PLAN VIEW



Profile: ModularAL 3" PANEL

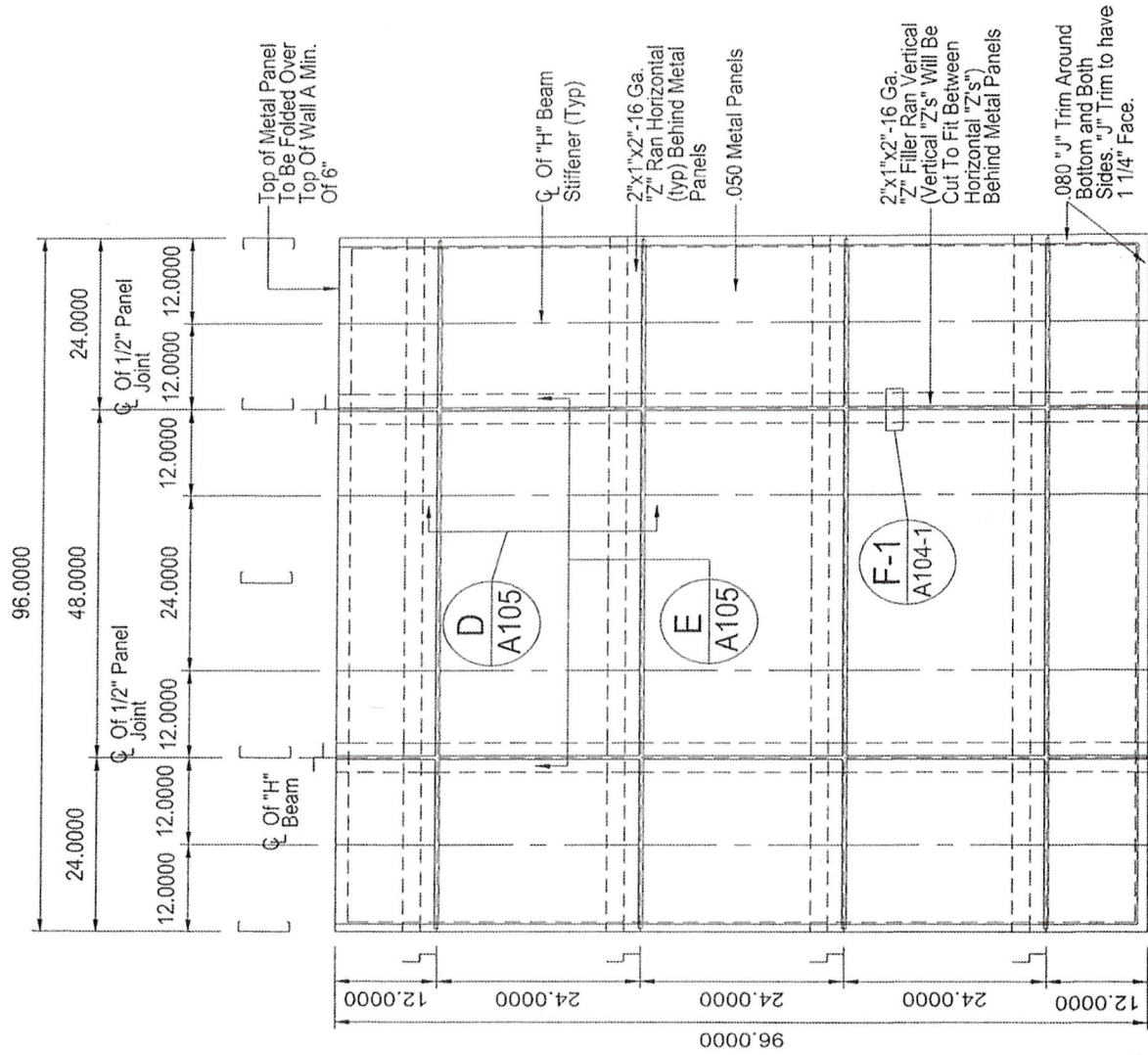
A000



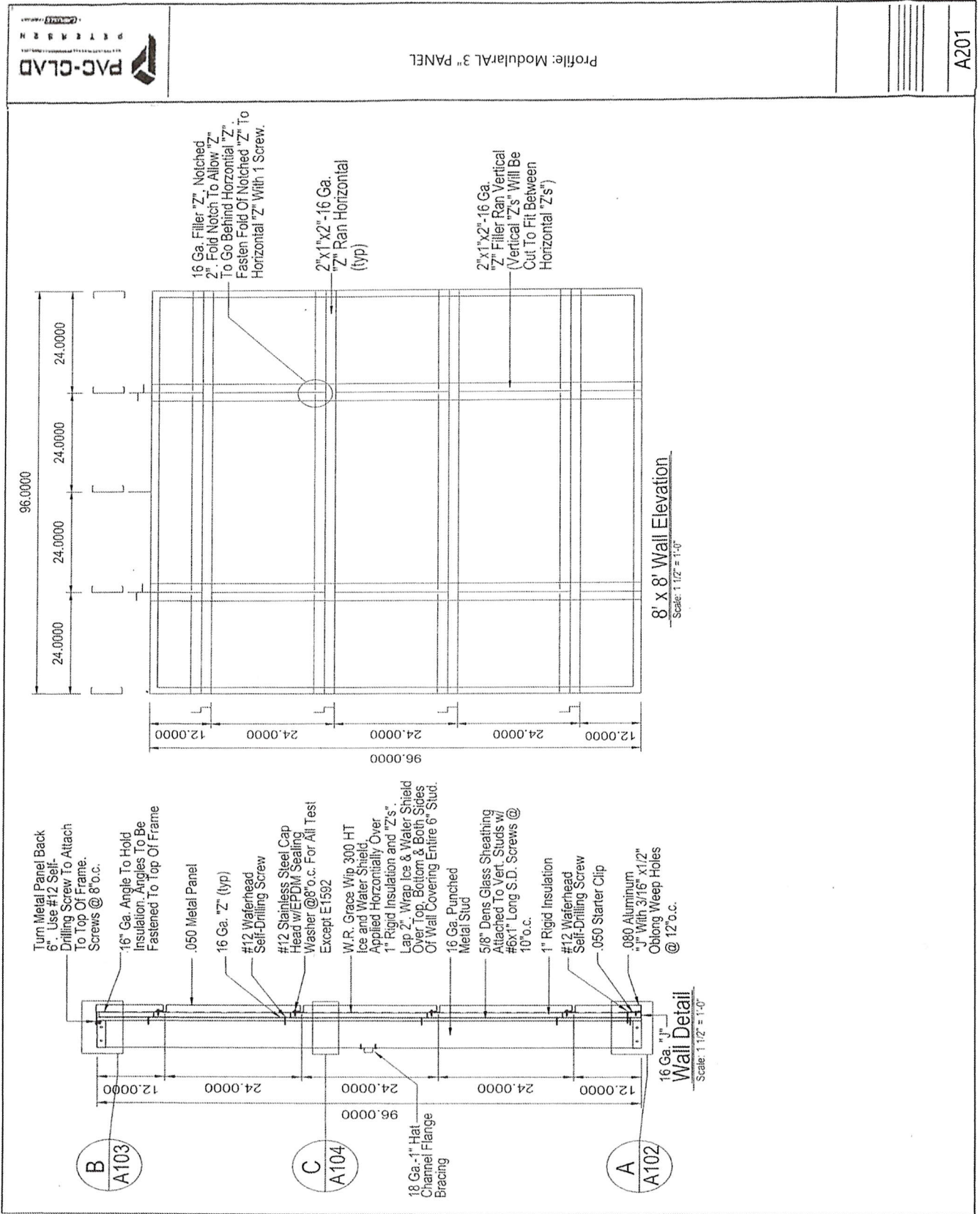


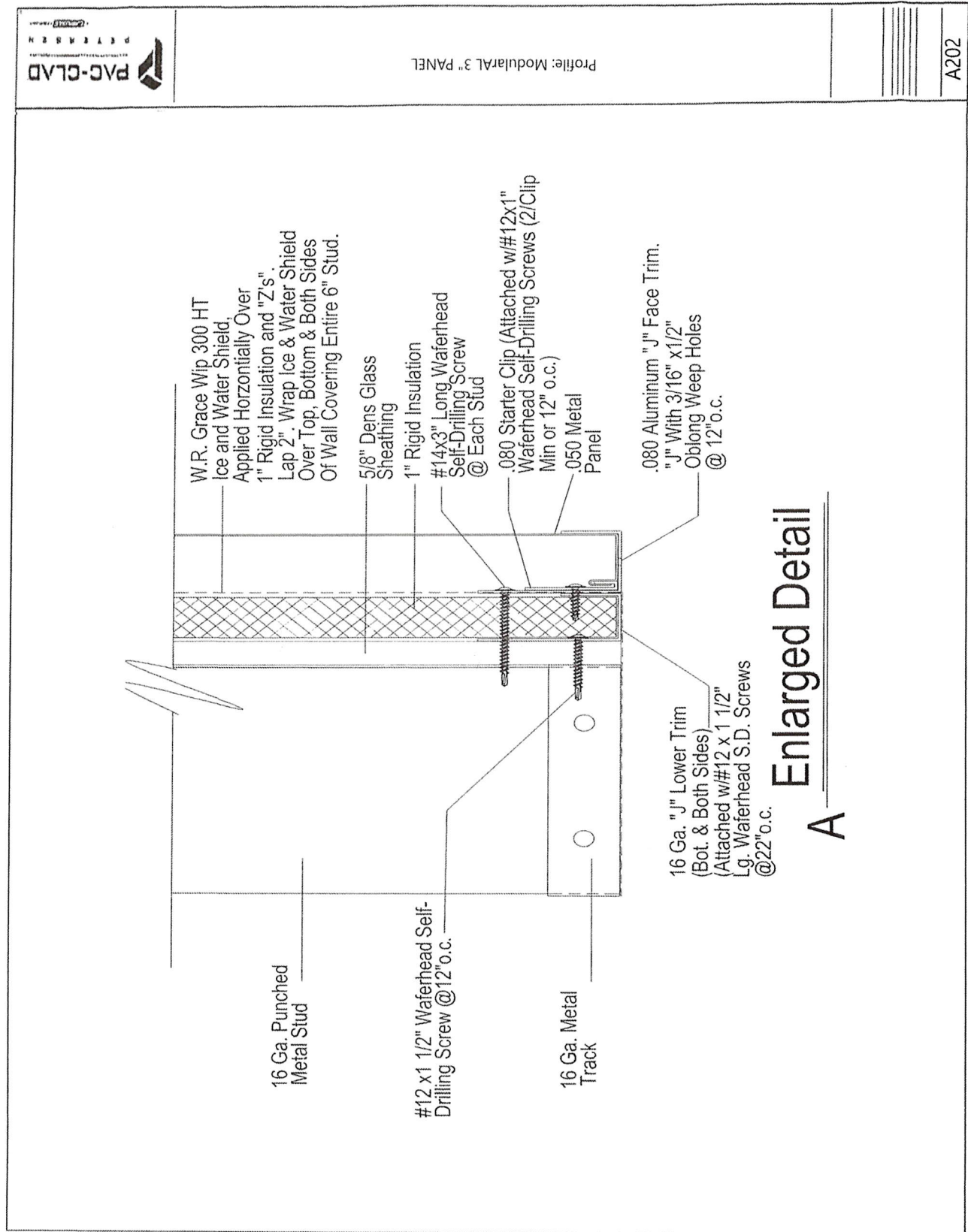
Profile: ModularAL 3" PANEL

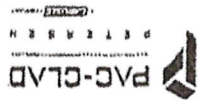
A200



8' x 8' Wall Elevation w/Metal Panels
Scale: 1 1/2" = 1'-0"

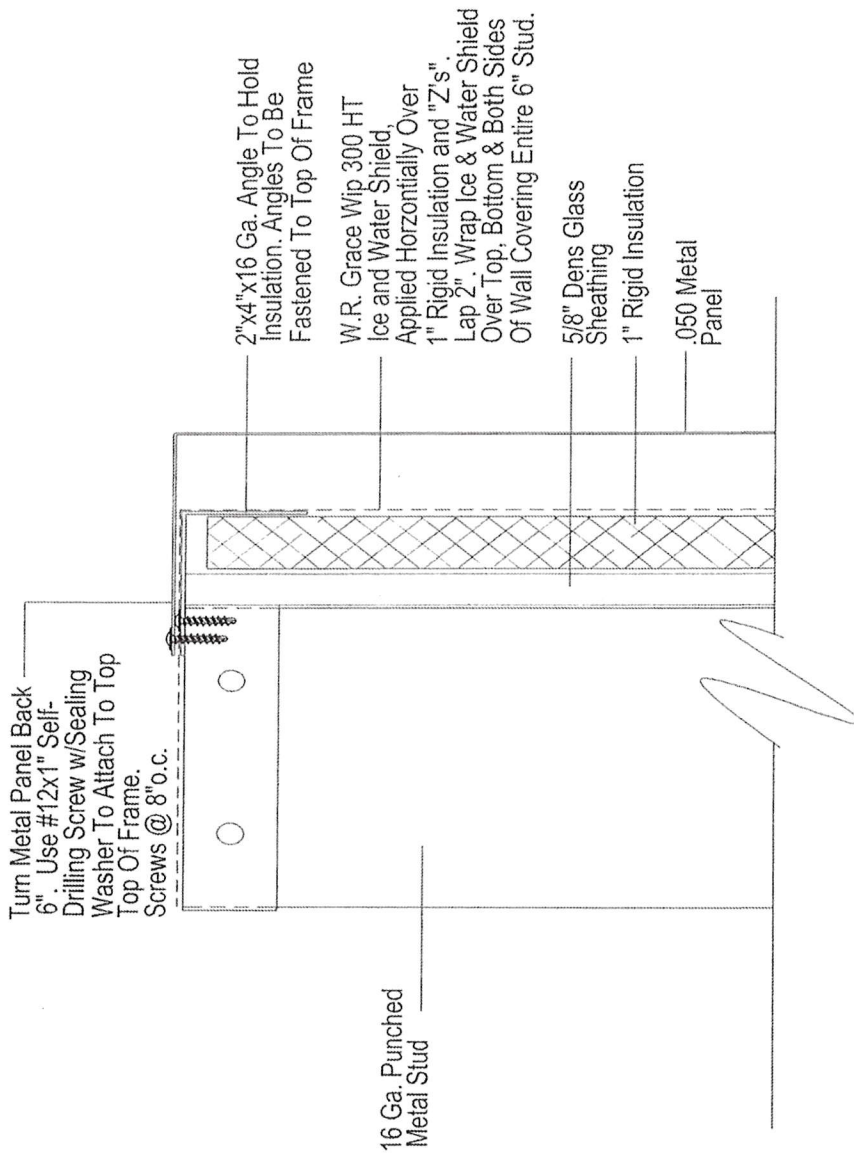




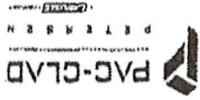


Profile: Modular L 3" PANEL

A203

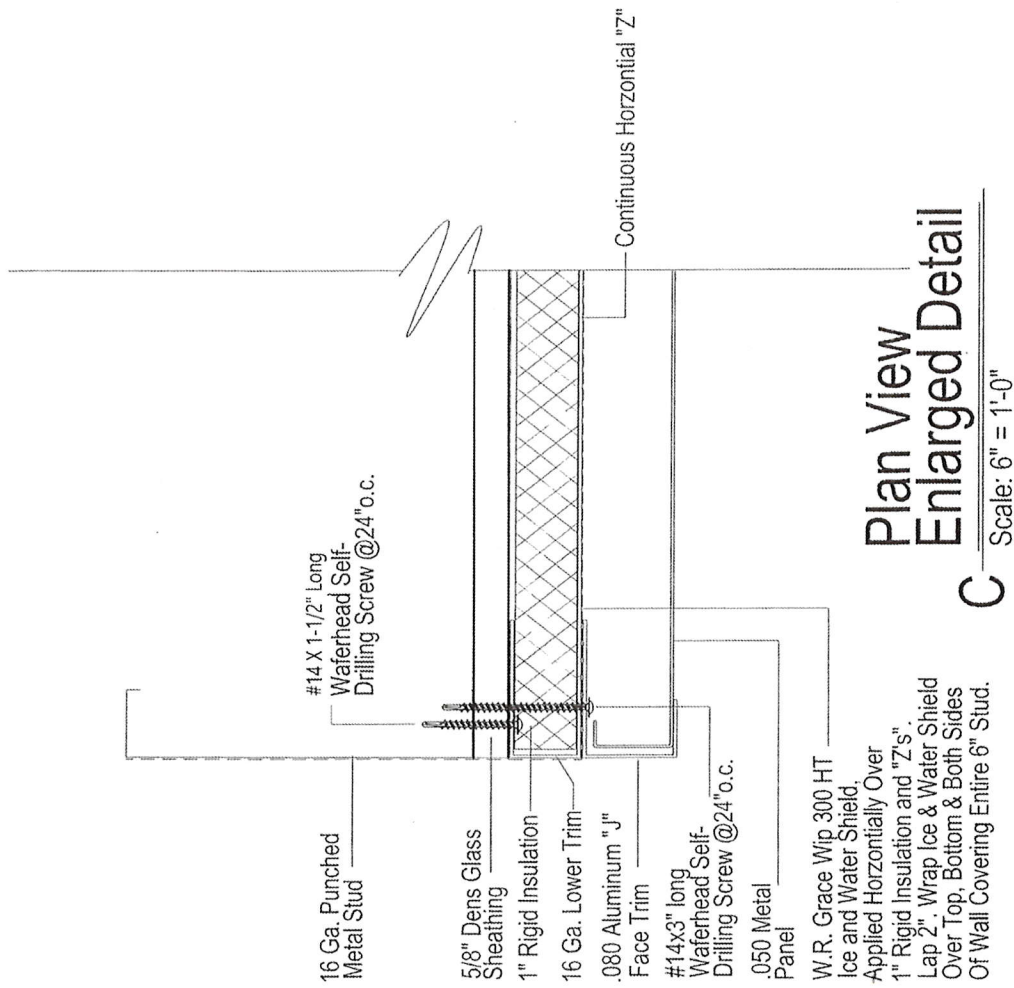


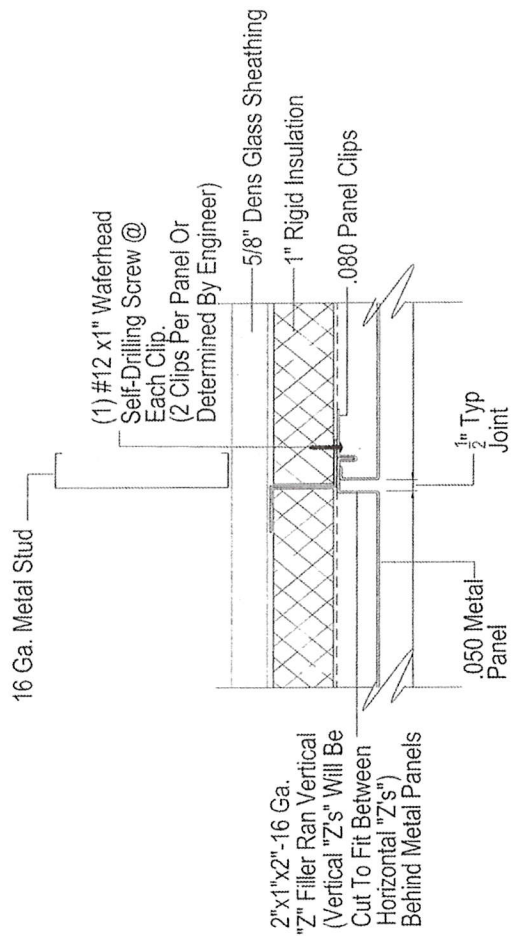
B Enlarged Detail



Profile: ModularAL 3" PANEL

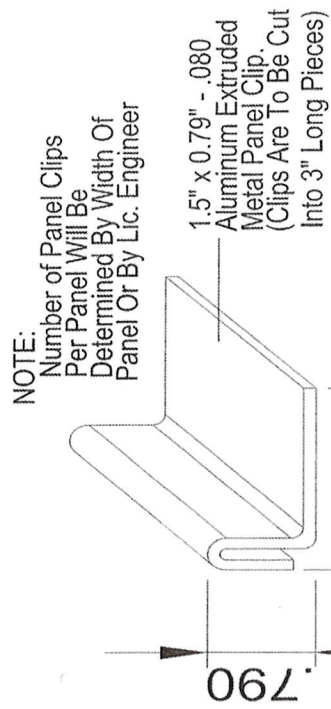
A204



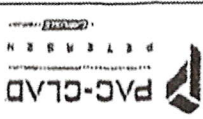


Enlarged Detail

F-1

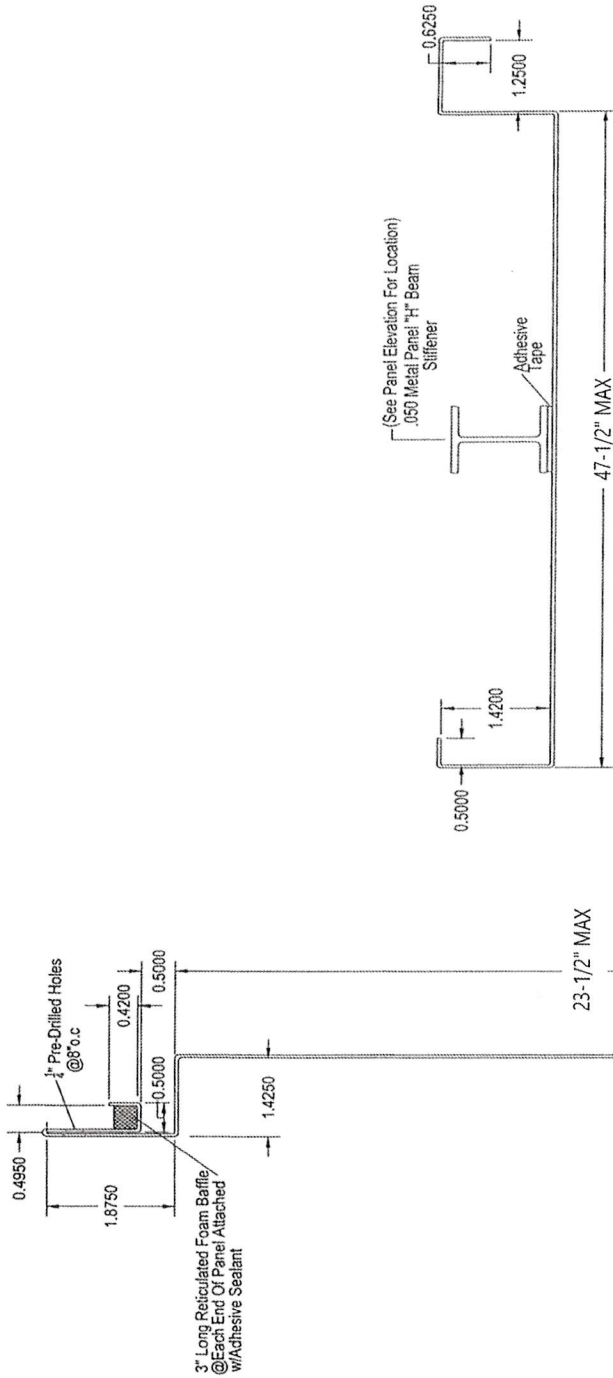


Enlarged Detail



Profile: ModularAL 3" PANEL

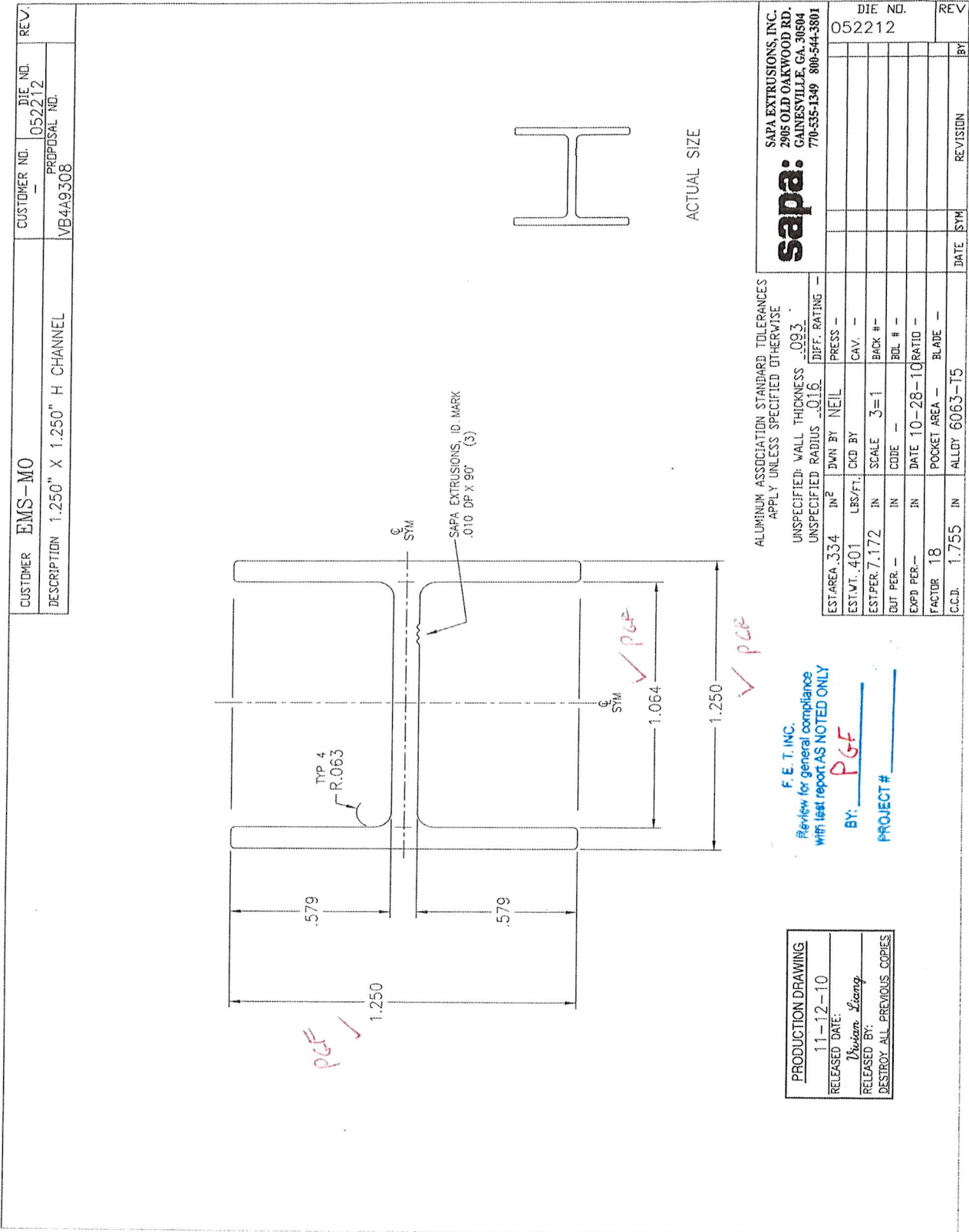
A206



.050 Metal Panel Horizontal Profile

Note:
All Panel Dimensions are
Nominal.

.050 Metal Panel Vertical Profile



ALUMINUM ASSOCIATION STANDARD TOLERANCES
APPLY UNLESS SPECIFIED OTHERWISE

UNSPECIFIED WALL THICKNESS .093

UNSPECIFIED RADIUS .016

DIFF. RATING —

sapa:
SAPA EXTRUSIONS, INC.
2905 OLD OAKWOOD RD.
GAINESVILLE, GA. 30604
770-535-1349 800-544-3801

EST. AREA 3.34	IN ²	DWN BY NEIL	PRESS —
EST. WT. 4.01	LEBS/FT.	CKD BY	CAV. —
EST. PER 7.172	IN	SCALE 3=1	BACK # —
DUT PER —	IN	CODE —	BOL # —
EXPD PER —	IN	DATE 10-28-10	RATIO —
FACTOR 18		POCKET AREA —	BLADE —
C.C.D. 1.755	IN	ALLDY 6063-T5	

F. E. T. INC.

Review for general compliance
with test report AS NOTED ONLY

BY: **PGF**

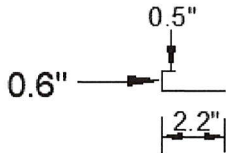
PROJECT # _____

PRODUCTION DRAWING
RELEASED DATE: 11-12-10
RELEASED BY: <i>Debra L. Long</i>
DESTROY ALL PREVIOUS COPIES

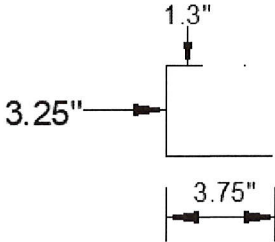
DIE NO. 052212

DATE _____
SYMBOL _____
REVISION _____
BY _____

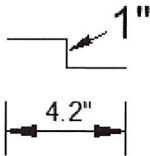
ADDITIONAL SUPPORT AND TRIM EXTRUSIONS



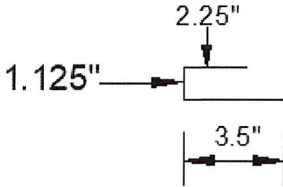
0.080" ALUM.
STARTER CLIP



0.080" ALUM. "J" FACE TRIM
(TESTING PURPOSES ONLY)



16 GA. ZEE SUPPORT



16 GA. "J" LOWER TRIM
(TESTING PURPOSES ONLY)

Spectrochemical Laboratories-Material Evaluation, Inc.

155 Prominence Drive, New Kensington, PA. 15068

Phone: (724) 334-4140 Fax: (724) 334-4143

Date: 05-Nov-21

Page No.: 1 of 1

Report of Tensile Testing

Client: Farabaugh Engineering & Testing (PO #: Verbal - Pat Farabaugh)

PIN #	Dimensions (in.) Width x Thickness	Area (sq. - in.)	Yield Point (lb.)	Tensile Strength (lb.)	Yield Strength (psi.)	Tensile Strength (psi.)	Elongation (% in 2 in.)	Fracture location
PAC 0.050"	0.4959 x 0.0475	0.0236	461	500	19600	21200	7.6	M/2 Break

Test Method: Q2300.04 rev.14 (ASTM A370-20, E8-21, or E646-16 ; Yld. by 0.2% offset, Elong. after fracture)

Equipment Used: Instron 5900R60HVL (s/n: 1602) w/ Extensometer (s/n: E93054)

Performed By: T. Ault

This test report shall not be reproduced except in full, without the written approval of the laboratory

The recording of false, fictitious, or fraudulent statements or entries on this report may be punished as a felony under federal law.

Please send your comments and concerns to us at feedback@spectrochemicalme.com

For more information call: 724-334-4140

Respectfully submitted,



Todd A. Ault

Laboratory Manager