

TEST REPORT

Report No.: B4876.03-109-44

Rendered to:

ALTECH PANEL SYSTEMS, LLC
Cartersville, Georgia

PRODUCT TYPE: Metal Composite Panel System
SERIES/MODEL: Altech Accu-Trac DS Wall Panel System
Utilizing Mitsubishi Chemical's Alpollic Material

Title	Summary of Results
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration at 1.57 psf (25 mph)	0.1 L/s/m ² (0.01 cfm/ft ²)
Air Infiltration 6.24 psf (50 mph)	0.2 L/s/m ² (0.03 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)
Uniform Load Structural Test Pressure	±3600 Pa (±75.19 psf)

This report contains in its entirety:

Cover Page: 1 page
Report Body: 5 pages
Drawings: 6 pages

Reference must be made to Report No. B4876.03-109-44, dated 03/06/12 for complete test specimen description and detailed test results.



1.0 Report Issued To: Altech Panel Systems, LLC
1 Johnson Street, Suite 118
Cartersville, Georgia 30120

2.0 Test Laboratory: Architectural Testing, Inc.
130 Derry Court
York, Pennsylvania 17406-8405
717-764-7700

3.0 Project Summary:

3.1 Product Type: Metal Composite Panel System

3.2 Series/Model: Altech Accu-Trac DS Wall Panel System Utilizing Mitsubishi Chemical's Alpolic Material

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). Test specimen description and results are reported herein.

3.4 Test Dates: 11/28/2011 - 11/30/2011

3.5 Test Record Retention End Date: All test records for this report will be retained until November 30, 2015.

3.6 Test Location: Architectural Testing, Inc. test facility in York, Pennsylvania.

3.7 Test Sample Source: The test specimens were provided by the client. Representative samples of the test specimen(s) will be retained by Architectural Testing for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix A. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Bill Yannetti	Mitsubishi Plastics Composite America
Seth Zuehl	Seco Architectural Systems, Inc.
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Aaron M. Shultz	Architectural Testing, Inc.

**4.0 Test Method(s):**

ASTM E 283-04, *Test Method for Determining Rate of Airflow Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.*

ASTM E 330-02, *Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.*

ASTM E 331-00, *Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.*

5.0 Test Specimen Description:**5.1 Product Sizes:**

Overall Area: 10.8 m ² (116.7 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	3899	153-1/2	2781	109-1/2
Upper horizontal panel	3048	120	1219	48
Lower horizontal panel	3048	120	1524	60
Vertical panel	813	32	2781	109-1/2

5.2 Base Wall Construction: The test wall was fabricated with 16 gauge, 6" galvanized steel studs spaced 16" on center. An additional stud was utilized at the vertical panel joint location, located 33" from the left edge of the base wall, forming a double stud at the vertical panel joint. The studs were secured to a 16 gauge steel track with #12 x 1-1/2" self-tapping screws. The base wall was sheathed with 5/8" thick moisture resistant exterior gypsum sheathing, secured to the studs using #10 x 1-1/4" self-tapping flat head screws, spaced 16" on center. A peel and stick air and water barrier was applied over the exterior of the sheathing. A 2x12 wood wrap was then installed around the base wall utilizing #10 x 1" hex head screws.

5.3 Panel Construction: The wall system consisted of three composite panels that measured 4.0 mm (0.157") thick. The panels were constructed with a 0.118" thick thermoplastic core and 0.020" thick aluminum interior and exterior skins, adhered to the thermoplastic core. A 90° bend was utilized on all four sides of the panel resulting in a 1" return leg. The panel corners were mitered and secured with silicone.

Aluminum extrusions were utilized to secure the panels to the base wall. The perimeter of the panels used extrusion ALTP-3 that was secured to the panel with 1/8" diameter pop rivets, spaced 16" on center.

5.0 Test Specimen Description: (Continued)

5.4 Reinforcement: No panel reinforcement, (stiffeners) were utilized.

5.5 Test Specimen Assembly: The panels were installed in a bottom to top and right to left order. The panels were attached to the stud wall using the aluminum extrusions on the panels and aluminum clip extrusions. The bottom edge of the bottom panels were interlocked with ALTP-1 clip extrusions, measuring 4" long (Reference Drawing #4, Detail 1). The perimeter of the panels were slid into ALTP-5 clip extrusions, measuring 4" long at the top, left and right edges of the specimen (Reference Drawing #4, Details 4 and 5). The panel joints utilized ALTP-2 clip extrusions, measuring 4" long (Reference Drawing #4, Details 2 and 3). All clips were spaced 16" on center and were secured to the stud wall with one #12 x 1-1/2" hex head self-tapping screw per clip. All panel joints were 1/2" wide and utilized a single spline, without any caulking in the joints.

6.0 Test Results: The temperature during testing was 19°C (67°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Air Leakage, per ASTM E 283 at 75 Pa (1.6 psf)	0.1 L/s/m ² (0.01 cfm/ft ²)	Report Only	
Air Leakage, per ASTM E 283 at 300 Pa (6.2 psf)	0.2 L/s/m ² (0.03 cfm/ft ²)	Report Only	
Water Penetration, per ASTM E 331 at 360 Pa (7.52 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 taken at the horizontal joint +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	4.6 mm (0.18") 8.1 mm (0.12")	Report Only	1, 2
Uniform Load Deflection, per ASTM E 330 taken at the vertical joint +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	3.0 mm (0.12") 3.8 mm (0.15")	Report Only	1, 2



6.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Uniform Load Structural, per ASTM E 330 taken at the horizontal joint +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	1.5 mm (0.06") 1.8 mm (0.07")	Report Only	1, 2
Uniform Load Structural, per ASTM E 330 taken at the vertical joint +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	0.3 mm (0.01") 0.5 mm (0.02")	Report Only	1, 2

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

Note 1: Loads were held for 30 seconds.

Note 2: Tape and film were not used to seal against air leakage during structural testing.



Architectural Testing will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Architectural Testing, Inc. for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.

Aaron M. Shultz
Technician

Michael D. Stremmel, P.E.
Senior Project Engineer

AMS:dem

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Drawings (6)



Architectural Testing

Test Report No.: B4876.03-109-44

Report Date: 03/06/12

Appendix A

Drawings

ALPOLIC FR MATERIAL USING ACCU-TRAC SYSTEM BY ALTECH Panel Systems, L.L.C.

GENERAL NOTES

1. THESE ALPOLIC and ALPOLIC/FR COMPOSITE PANELS SHALL BE USED FOR WALL CONSTRUCTION ONLY. EACH ACTUAL WALL PROJECT SHALL BE CONSTRUCTED USING THE DETAILS SHOWN ON THESE DRAWINGS AS MINIMUM REQUIRED SPECIFICATIONS.

2. THE WALL DESIGN ALLOWABLE PRESSURES FOR THESE WALL PANEL SYSTEMS ARE +50.0 PSF / -50.0 PSF.

3. THESE ALPOLIC/FR COMPOSITE WALL PANEL SYSTEMS ARE TESTED IN ACCORDANCE WITH THE FOLLOWING PROTOCOLS:

- TAS-201-94: IMPACT TEST PROCEDURES, DADE COUNTY BUILDING COMPLIANCE OFFICE
 TAS-202-94: CRITERIA FOR TESTING IMPACT AND NON-IMPACT RESISTANT BUILDING ENVELOPE COMPONENTS USING UNIFORM STATIC AIR PRESSURE, DADE COUNTY BUILDING CODE COMPLIANCE OFFICE.
 TAS-203-94: CRITERIA FOR TESTING PRODUCTS SUBJECTED TO CYCLIC WIND PRESSURES SUBJECT TO CYCLIC WIND PRESSURE LOADING.
 ASTM E283-04: TEST METHOD FOR DETERMINING THE RATE OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS, CURTAIN WALLS AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE SPECIMEN.
 ASTM E330: TEST METHOD FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS AND DOORS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE.
 ASTM E331-00: TEST METHOD FOR WATER PENETRATION OF EXTERIOR WINDOWS, CURTAIN WALLS AND DOORS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE.
 ASTM E1996-03: PERFORMANCE OF EXTERIOR WINDOWS, GLAZED CURTAIN WALLS, DOORS AND STORM SHUTTERS IMPACTED BY WINDBORNE DEBRIS IN HURRICANES.
 ASTM E1886-02: PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, DOORS AND STORM SHUTTERS IMPACTED BY MISSILES AND EXPOSED TO CYCLIC PRESSURE DIFFERENTIALS.
 ASTM E1233-00: STRUCTURAL PERFORMANCE TEST.
 AAMA 501.1-05: WATER PENETRATION TEST USING DYNAMIC PRESSURE.
 AAMA 508-07: PRESSURE EQUALIZED RAIN SCREEN WALL CLADDING SYSTEM TEST.
 AAMA 509-09: DRAINED AND BACK VENTILATED RAIN SCREEN WALL CLADDING TEST AND CLASSIFICATION.

AND THEY SHALL BE INSTALLED AS SHOWN IN THESE APPROVED DRAWINGS



File number:
Deviations:

34876.01

Date: 12/14/11 Tel: AS

MATERIAL SPECIFICATIONS

COMPOSITE PANEL

- ALPOLIC ALUMINUM COMPOSITE METAL PANEL 4MM THICK (0.157") AND 6MM THICK (0.236") AS MANUFACTURED BY MITSUBISHI CHEMICAL AMERICA, INC., CHESAPEAKE, VA.
- ALPOLIC/FR AS MANUFACTURED BY MITSUBISHI CHEMICAL FUNCTIONAL PRODUCTS, INC., UEDA, JAPAN.
- CORE: THERMOPLASTIC MATERIAL WHICH IN COMPOSITE ASSEMBLY MEETS PERFORMANCE CHARACTERISTICS SPECIFIED.
- FACE SHEET: C 020" ALUMINUM 3105-H14 ALLOY
- FINISH: LUMIFLON-BASE FLUOROPOLYMER RESIN COATING.
- MAXIMUM DIMENSIONS: 62" WIDE X 288" LONG.
- TECHNICAL DATA

DESCRIPTION	TEST	4MM ALPOLIC	4MM ALPOLIC/FR	6MM ALPOLIC
SPECIFIC GRAVITY		1.38	1.90	1.23
WEIGHT		1.12 LB/SQ. FT	1.56 LB/SQ. FT	1.50 LB/SQ. FT
TENSILE STRENGTH	ASTM E-8	7452 PSI	5693 PSI	5399 PSI
YIELD STRENGTH	ASTM E-8	NDY	8%	NDY
ELONGATION	ASTM E-8	16%	8%	13%
PUNCHING SHEAR RESISTANCE (1" DIA.)	ASTM D-732	4025 PSI	4637 PSI	2916 PSI
PUNCHING SHEAR MAX LOAD	ASTM D-732	1920 PSI	2259 PSI	2121 PSI
EDGE INTEGRITY VERTICAL PULL	ASTM C-297	1806 PSI	427 PSI	1664 PSI
DRUM PEEL	ASTM D-1781-76	33.6 IN-LB/IN	27.6 IN-LB/IN	33.6 IN-LB/IN
FLATWISE SHEAR	ASTM C-273	1225 PSI	949 PSI	1195 PSI
RATE OF BURNING	ASTM D-535	CC1	---	---
FLAME SPREAD INDEX	ASTM E-84	00	00	00
SMOKE DEVELOPED INDEX	ASTM E-84	00	10	10
SELF IGNITION TEMPERATURE	ASTM D-1929	752°F	837°F	752°F
FLASH IGNITION TEMPERATURE	ASTM D-1929	718°F	811°F	718°F
SURFACE FLAMMABILITY	ASTM E-108-88	PASSED	PASSED	PASSED
SOUND TRANSMISSION	ASTM E-413	STC-26	---	STC-26

ALUMINUM EXTRUSIONS

- MATERIAL: ALTP-1, ALTP-2, ALTP-3, AND ALTP-5 ARE EXTRUDED ALUMINUM ALLOY 6063 WITH A T5 TEMPER (BY ALTECH PANEL SYSTEMS, L.L.C.)
- FINISH: MILL FINISH

FRAMING & ACCESSORIES

- STEEL STUDS AND TRACKS: 16GA. MIN. GALVANIZED STEEL WITH MIN. PROPERTIES OF 50 KSI YIELD, 65 KSI ULTIMATE.
- STUD & TRACK FASTENERS: #12 x 1 1/2" HWH TEK 3 SCREWS.
- PANEL FASTENERS:
- THE STRUCTURAL ADEQUACY OF THE 16 GA. GALVANIZED STEEL STUDS AND THE REST OF THE STRUCTURAL FRAMING SUPPORTING THE METAL PANELS IS NOT PART OF THIS PRODUCT CONTROL APPROVAL AND IT SHALL BE REVIEWED BY THE STRUCTURAL PLANS EXAMINER OF THE CORRESPONDING BUILDING DEPARTMENT.

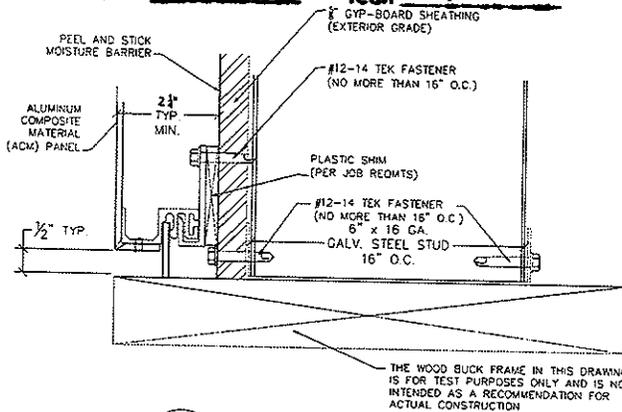
SIGNATURE	DATE	ALPOLIC fr USING ACCU-TRAC SYSTEM BY ALTECH Panel Systems, L.L.C.
DRAWN BY CW	11-1-1	
CHECKED BY		
DEPT. MGR.		
PROJ. MGR./TR.		
DRAWINGS MARKED "APPROVED" OR "APPROVED AS NOTED" SHALL BE INTERPRETED AS AUTHORIZATION FOR FABRICATION		SIZE: D JOB NO: N/A DWG. NO: 1 REV: REV Scale: N/A DO NOT SCALE DRAWING Sheet: 1 of 6

Test sample complies with these details.
Deviations are noted.

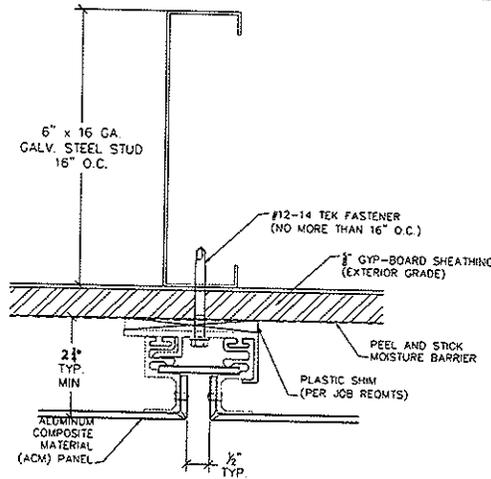
Report# B4876.01

Date 12/14/11

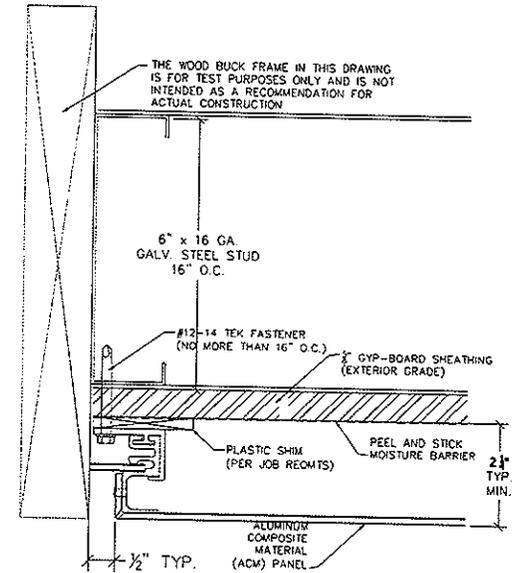
Tech AS



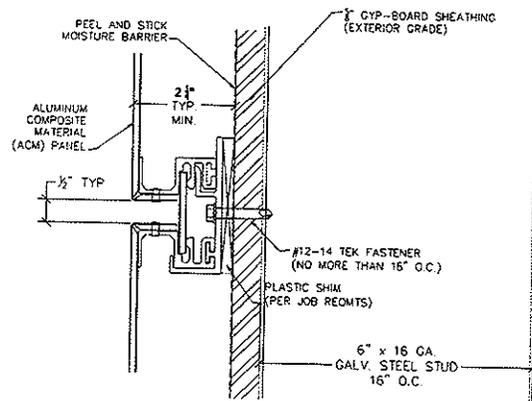
1 SILL TERMINATION (ACCU-TRAC™ ES)
SCALE: NONE



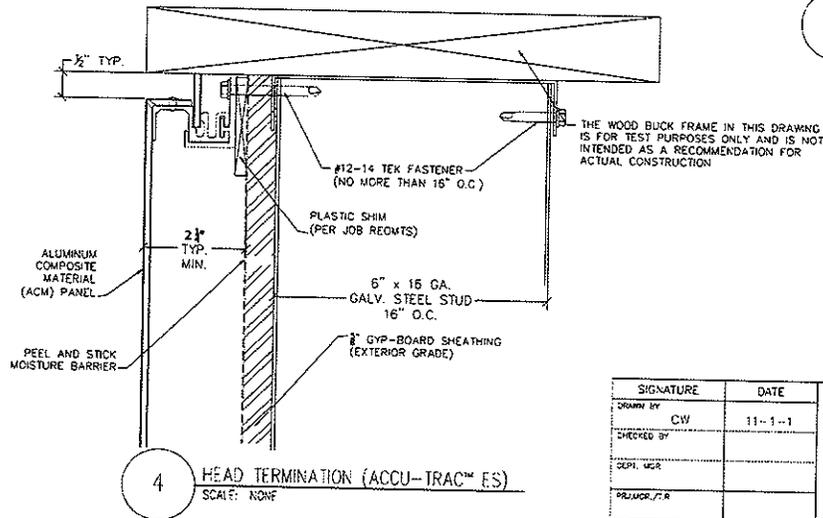
3 TYP. VERTICAL JT. (ACCU-TRAC™ ES)
SCALE: NONE



5 JAMB CONDITION (ACCU-TRAC™ ES)
SCALE: NONE



2 TYP. HORIZONTAL JT. (ACCU-TRAC™ ES)
SCALE: NONE



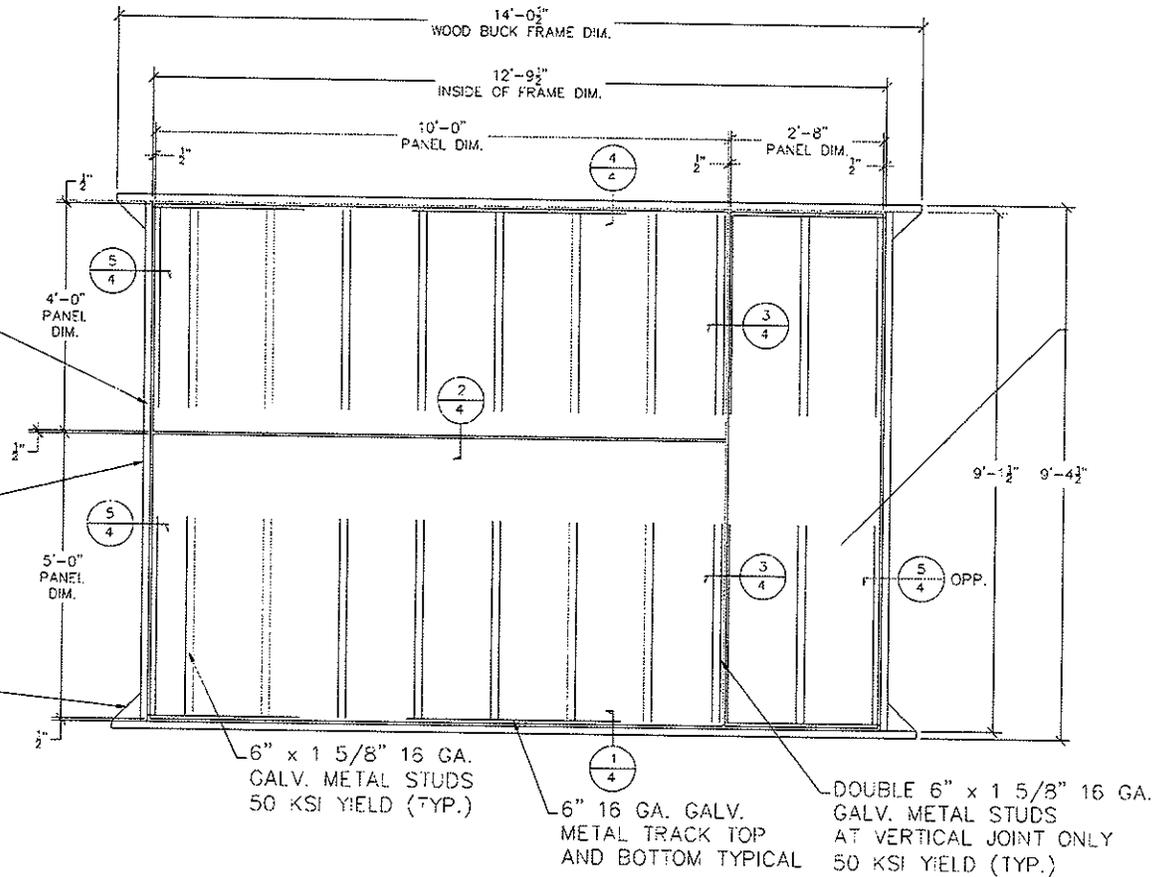
4 HEAD TERMINATION (ACCU-TRAC™ ES)
SCALE: NONE

SIGNATURE	DATE				
DRAWN BY CW	11-1-1	1 ALPOLIC for USING ACCU-TRAC SYSTEM BY ALTECH Panel Systems, L.L.C.			
CHECKED BY		SER	JOB NO	DWG NO	REV
SOPI, MGR		D	N/A	4	
PREPARED BY		Scale	N/A	DO NOT SCALE DRAWING	Sheet 4 of 6
DRAWINGS MARKED "APPROVED" OR "APPROVED AS NOTED" SHALL BE INTERPRETED AS AUTHORIZATION FOR FABRICATION					

THE WOOD BUCK FRAME IN THIS DRAWING IS FOR TEST PURPOSES ONLY AND IS NOT INTENDED AS A RECOMMENDATION FOR ACTUAL CONSTRUCTION

2 x 12 WOOD BUCK FRAME AROUND OUTSIDE PERIMETER

WOOD GUSSET (TYP.)



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# B4876-01

Date 12/14/11 Tech AS

1
3 ALUMINUM COMPOSITE PANEL ELEVATION
SCALE: NONE

SIGNATURE	DATE		
DRAWN BY CW	11-1-1	ALPOLIC for USING ACCU-TRAC SYSTEM BY ALTECH Panel Systems, L.L.C.	
CHECKED BY			
DATE			
PREPARED BY			
DRAWINGS MARKED "APPROVED" OR "APPROVED AS NOTED" SHALL BE INTERPRETED AS AUTHORIZATION FOR FABRICATION		SIZE D	JOB NO. N/A
		DWG NO. 3	REV
		Scale N/A	Sheet 3 of 6



Architectural Testing

Test sample complies with these details.
Deviations are noted.

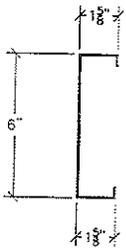
Report# B4876.01

Date 12/14/11 Tech AS

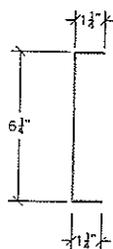
THE WOOD BUCK FRAME IN THIS DRAWING IS FOR TEST PURPOSES ONLY AND IS NOT INTENDED AS A RECOMMENDATION FOR ACTUAL CONSTRUCTION

2 x 12 WOOD BUCK FRAME AROUND OUTSIDE PERIMETER

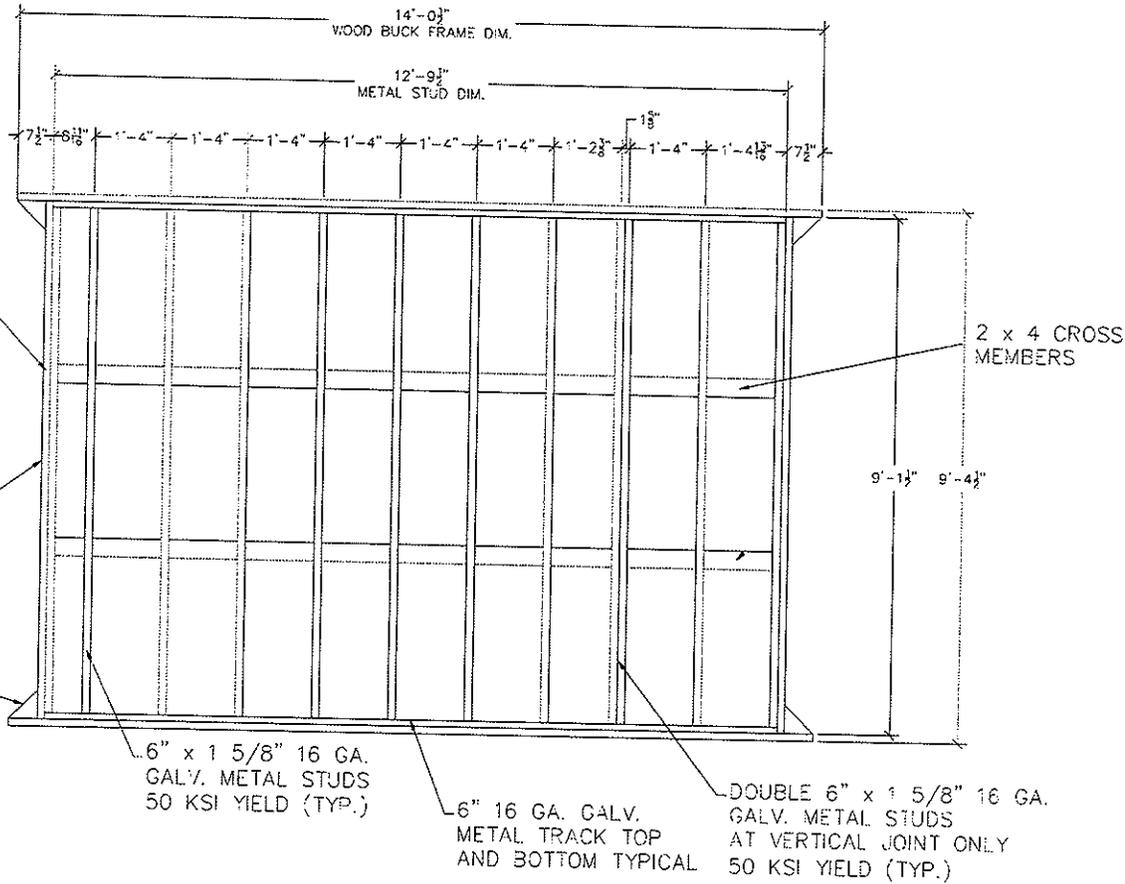
WOOD GUSSET (TYP.)



METAL STUD



METAL TRACK



1 STUD FRAMING ELEVATION
2 SCALE: NONE

SIGNATURE	DATE		
DRAWN BY CW	11-1-11	ALPOLIC fr	
CHECKED BY		USING ACCU-TRAC SYSTEM BY	
DEPT. MGR.		ALTECH Pane Systems, L.L.C.	
PRJ. MGR./R			
DRAWINGS MARKED "APPROVED" OR "APPROVED AS NOTED" SHALL BE INTERPRETED AS AUTHORIZATION FOR FABRICATION	SIZE	JOB NO.	DWG. NO.
	D	N/A	2
	Scale	N/A	DO NOT SCALE DRAWING
			Sheet 2 of 6

