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Product Approval
USER: Public User

Product Approval Menu > Application Detail

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FL # FL7621-R6
Application Type Revision
Code Version 2023
Application Status Approved

Comments Archived

Product Manufacturer Elite Aluminum Corporation
Address/Phone/Email 4650 Lyons Technology Parkway

Coconut Creek, FL 33073

(954) 949-3200

bpeacock@elitealuminum.com

Authorized Signature Frank Bennardo P.E.

frank@engineeringexpress.com

Technical Representative Bruce Peacock

Address/Phone/Email 4650 Lyons Technology Parkway

Coconut Creek, FL 33073

(954) 949-3200

bpeacock@elitealuminum.com

Quality Assurance Representative

Address/Phone/Email

Category Roofing

Subcategory Products Introduced as a Result of New Technolog¹

Compliance Method Evaluation Report from a Florida Registered Archite

Professional Engineer

Frank L. Bennardo, P.E.

Evaluation Report - Hardcopy Received

Florida Engineer or Architect Name who developed the

Evaluation Report

Florida License PE-0046549

Quality Assurance Entity QAI Laboratories

Quality Assurance Contract Expiration Date 12/31/2025

Validated By John Henry Kampmann Jr.

Validation Checklist - Hardcopy Received

Certificate of Independence FL7621 R6 COI INDEP.pdf

Referenced Standard and Year (of Standard)

Equivalence of Product Standards Certified By

Sections from the Code

104.11.2 1708.3

Product Approval Method Method 2 Option B

Date Submitted 08/21/2023
Date Validated 08/21/2023
Date Pending FBC Approval 08/29/2023
Date Approved 10/17/2023

Summary of Products

FL#	Model, Number or Name	Description
7621.1	OSB / Aluminum Skin	EPS Foam Core Composite Roof Panels
Impact Resistar Design Pressure Other: For outdoor	e outside HVHZ: Yes nt: No	Installation Instructions FL7621 R6 II DOC.pdf Verified By: Frank L. Bennardo, P.E. Pf Created by Independent Third Party: \(\) Evaluation Reports FL7621 R6 AE 4in Test Reports.pdf FL7621 R6 AE 6in Test Reports.pdf FL7621 R6 AE EVAL.pdf Created by Independent Third Party: \(\)



Contact Us:: 2601 Blair Stone Road, Tallahassee FL 32399 Phone: 850-487-1824

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Product Approval Accepts:





August 16, 2023

Product Approval Administrator DBPR Codes and Standards 2601 Blair Stone Road Tallahassee, FL 32399

Regarding: Elite Aluminum Corporation

EPS Foam Core Composite Roof Panels - FL #7621.1 - EX # 23-59945

To Whom It May Concern:

Please be advised that the below-signed engineer does not have nor will acquire a financial interest in the company manufacturing or distributing the product(s) for which an evaluation report or validation certification has been prepared, as referenced above. This engineer is not owned, operated, nor controlled by the manufacturer or distributor noted above and does not have any financial interest in any other entity involved in the approval process of the above-noted product(s).

Note: "EX #" where used above is an abbreviation for "Engineering Express (EX) Project Number".

Respectfully,

Digitally signed by Frank Bennardo

Date: 2023.08.21

13:01:49 -04'00'

Frank Bennardo, P.E. **ENGINEERING** *EXPRESS*®

#PE0046549 | Cert. Auth. 9885

ELITE ALUMINUM CORPORATION

EPS FOAM CORE COMPOSITE ROOF PANELS OSB / ALUMINUM SKIN

NOT RATED FOR IMPACT RESISTANCE

VALID FOR USE OUTSIDE THE HVHZ ONLY (SEE LIMITATIONS HEREIN)

NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION. A DESIGN PROFESSIONAL SHALL BE RESPONSIBLE FOR CERTIFYING THE APPLICATION OF THIS INFORMATION TO ANY SITE-SPECIFIC LOCATION.

DESIGN NOTES:

POSITIVE AND NEGATIVE DESIGN PRESSURES CALCULATED FOR USE WITH THIS SYSTEM SHALL BE DETERMINED BY OTHERS ON A JOB-SPECIFIC BASIS IN ACCORDANCE WITH THE STRUCTURAL REQUIREMENTS OF THE FLORIDA BUILDING CODE EIGHTH EDITION (2023) AND ASCE 7.

2. SITE-SPECIFIC PRESSURE REQUIREMENTS AS DETERMINED IN ACCORDANCE WITH

THE GOVERNING CODE SHALL BE LESS THAN OR EQUAL TO THE POSITIVE OR NEGATIVE DESIGN PRESSURE CAPACITY VALUES LISTED HEREIN FOR ANY ASSEMBLY AS SHOWN, WHICH HAVE BEEN CALCULATED PER ALLOWABLE STRESS DESIGN

METHODOLOGY.

EPS CORE COMPOSITE PANELS SHALL BE CONSTRUCTED USING TYPE 3105-H154 ALUMINUM & 1/2" ORIENTED STRAND BOARD (OSB) FACINGS, 1.0 PCF EPS. THE EPS FOAM SHALL BE ADHERED TO THE FACINGS WITH ISOGRIP SP 2020 ADHESIVE (BY ASHLAND SPECIALTY). FABRICATION SHALL BE IN ACCORDANCE WITH APPROVED FABRICATION METHODS BY MANUFACTURER FOR ALL PANELS.

PANEL DEAD LOADS (EXCLUSIVE OF WEATHER-RESISTANT ROOFING MATERIALS) HAVE BEEN FACTORED INTO CALCULATIONS FOR GRAVITY LOADS AS WELL AS CALCULATIONS FOR PANEL PROPERTIES. FOR UPLIFT CALCULATIONS, USE ONLINE TOOL FOUND BY SCANNING THE QR CODE BELOW OR BY VISITING THE URL.

GENERAL NOTES:

CONTRACTOR SHALL INVESTIGATE AND CONFORM TO ALL LOCAL BUILDING CODE AMENDMENTS WHICH MAY APPLY. DESIGN CRITERIA BEYOND AS STATED HEREIN MAY REQUIRE ADDITIONAL SITE-SPECIFIC SEALED ENGINEERING.

THIS DOCUMENT IS ONLY VALID WITH ORIGINAL SIGNATURE AND SEAL OF A P.E. OF THIS FIRM AND, IF PRINTED, WITH A RED 'ELITE' STAMP ACROSS THE DOCUMENT FACE.

THE ARCHITECT/ENGINEER OF RECORD FOR THE PROJECT SUPERSTRUCTURE WITH WHICH THIS DESIGN IS USED SHALL BE RESPONSIBLE FOR THE INTEGRITY OF ALL SUPPORTING SURFACES TO THIS DESIGN WHICH SHALL BE COORDINATED BY THE

PERMITTING CONTRACTOR.

SEPARATE 'SITE-SPECIFIC' SEALED ENGINEERING SHALL BE REQUIRED IN ORDER TO DEVIATE FROM LOADS, DEFLECTIONS, OR SPANS CONTAINED HEREIN. LINEAR INTERPOLATION OF THE ALLOWABLE SPAN TABLES LISTED HEREIN SHALL NOT BE DEPMITTED. CONTACT THIS DESCRIPTION OF THE ALLOWABLE SPAN TABLES LISTED HEREIN SHALL NOT BE DEPMITTED. PERMITTED. CONTACT THIS ENGINEER FOR ALTERNATE SPAN CALCULATIONS AS MAY

THE CONTRACTOR SHALL CAREFULLY CONSIDER POSSIBLE IMPOSING LOADS ON ROOF, INCLUDING BUT NOT LIMITED TO ANY CONCENTRATED LOADS WHICH MAY JUSTIFY GREATER DESIGN CRITERIA. THIS ADDITIONAL ROOF LOAD CRITERIA SHALL BE PROPERLY ANALYZED BY A LICENSED ENGINEER OR REGISTERED

6. THE CONTRACTOR IS RESPONSIBLE TO INSULATE OR PROTECT ALL MEMBERS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYSIS.

THE SYSTEM DETAILED HEREIN IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR A SPECIFIC SITE. FOR SITE CONDITIONS DIFFERENT FROM THE CONDITIONS DETAILED HEREIN, A LICENSED ENGINEER OR REGISTERED ARCHITECT SHALL PREPARE SITE SPECIFIC DOCUMENTS FOR USE IN CONJUNCTION WITH THIS

DOCUMENT.
ENGINEER SEAL AFFIXED HERE TO VALIDATES STRUCTURAL DESIGN AS SHOWN ONLY. USE OF THIS SPECIFICATION BY CONTRACTOR, et. al. INDEMNIFIES & SAVES HARMLESS THIS ENGINEER FOR ALL COST & DAMAGES INCLUDING LEGAL FEES & APPELLATE FEES RESULTING FROM MATERIAL FABRICATION, SYSTEM ERECTION, & CONSTRUCTION PRACTICES BEYOND THAT WHICH IS CALLED FOR BY LOCAL, STATE, & FEDERAL CODES & FROM DEVIATIONS OF THIS PLAN.
EXCEPT AS EXPRESSLY PROVIDED HEREIN, NO ADDITIONAL CERTIFICATIONS OR AFFIRMATIONS ARE INTENDED.

AFFIRMATIONS ARE INTENDED.

10. ALTERATIONS, ADDITIONS, OR OTHER MARKINGS TO THIS DOCUMENT ARE NOT PERMITTED AND INVALIDATE THIS CERTIFICATION.

11. PRESSURE VALUES ON THIS APPROVAL ARE (ASD) ALLOWABLE DESIGN PRESSURES.

FASTENERS SHALL BE CADMIUM-PLATED OR OTHERWISE CORROSION-RESISTANT MATERIAL AND SHALL COMPLY WITH "SPECIFICATIONS FOR ALUMINUM STRUCTURES" SECTION J.3.7.2 BY THE ALUMINUM ASSOCIATION IN.C, AND ANY

APPLICABLE FEDERAL, STATE AND OR LOCAL CODES.

13. REFER TO FASTENER MANUFACTURER'S PUBLISHED DATA SHEETS AND RECOMMENDATIONS FOR FASTENER INSTALLATION INSTRUCTIONS.

SHEE	T INDEX
# SHEET	DESCRIPTION
1	COVER SHEET
2	DESIGN DETAILS & SECTIONS

TERMINOLOGY:

THE FOLLOWING ABBREVIATIONS APPEAR IN THIS APPROVAL: "EPS" FOR "EXPANDED POLYSTYRENE", "U.N.O." FOR "UNLESS NOTED OTHERWISE", "FBC" FOR "FLORIDA BUILDING CODE", "CORP." FOR "CORPORATION", "ALUM" FOR "ALUMINUM, "ASD" FOR "ALLOWABLE STRESS DESIGN", "ASTM" FOR "AMERICAN SOCIETY FOR TESTING AND MATERIALS", "CS" FOR "CARBON STEEL", "CONN" FOR "CONNECTION", "EMBED" FOR "EMBEDMENT", "DIST." FOR "DISTANCE", "GA" FOR "GAUGE", "HVHZ" FOR "HIGH-VELOCITY HURRICANE ZONE", "LB" FOR "POUND", "MAX" FOR "MAXIMUM, "N.T.S." FOR "NOT TO SCALE", "PSF" FOR "POUNDS PER SQUARE FOOT (lb/ft2)", "KSI" FOR "KILOPOUNDS PER SQUARE INCH (klb/in2), "SPECS" FOR "SPECIFICATIONS", "&" FOR "AND", "MAX" FOR "MAXIMUM", "W/" FOR "WITH", "EXIST." FOR "EXISTING, "STRUCT." FOR "STRUCTURE", "SHT" FOR "SHEET", "REF" FOR "REFERENCE". CONTACT ENGINEERING EXPRESS FOR ADDITIONAL ABBREVIATION/TERMINOLOGY CLARIFICATIONS.

NOTE REGARDING USE OF THIS DOCUMENT & USE OUTSIDE FLORIDA: NON-SITE-SPECIFIC STRUCTURAL PERFORMANCE EVALUATION THIS PRODUCT EVALUATION IS VALID FOR USE IN FLORIDA

FRANK BENNARDO, P.E.

PE# 0046549 CA# 9885

ONLY. USE OF THIS EVALUATION REQUIRES A REVIEW & CERTIFICATION BY A LOCAL DESIGN PROFESSIONAL WHO SHALL BE RESPONSIBLE FOR THE PROPER ADAPTATION OF THIS GENERAL PERFORMANCE EVALUATION TO ANY SITE-SPECIFIC PROJECT. CONTACT THIS OFFICE AT ENGINEERINGEXPRESS.COM/QUOTE FOR ASSISTANCE WITH YOUR PROJECT-SPECIFIC NEEDS & FOR ADAPTATION & CERTIFICATION OF THIS DOCUMENT OUTSIDE OF FLORIDA. FL 7621.1

FL

AUGUST 21, 2023

219

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Elite Aluminum
Corporation
4650 Lyons Technology Parkway
Coconut Creek, FL 33073

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23-59945 SCALE: NTS UNLESS NOTE

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FOR SITE-SPECIFIC DEVIATIONS & MORE INFORMATION ABOUT THIS DOCUMENT OR SCAN THIS QR CODE

VISIT ENGINEERINGEXPRESS.COM/STORE FOR ADDITIONAL PLANS, REPORTS & RESOURCES

MAXIMUM ALLOWABLE CLEAR SPAN TABLES:

		4" Panel	s (Depth)	6" Panel	s (Depth)
	Deflection	OSB /	OSB /	OSB /	OSB /
Total	Limit	0.024"	0.030"	0.024"	0.030"
Load*	(L/)	Alum Skin	Alum Skin	Alum Skin	Alum Skin
1		1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS
	80	18'-0"	20'-0"	22'-0"	24'-0''
40 DOE	120	17'-5"	18'-11"	22'-0"	24'-0''
10 PSF	180	15'-3"	16'-6''	19'-9"	21'-3"
	240	13'-10''	15'-0''	17'-11"	19'-4"
	80	17'-5"	18'-11"	22'-0"	24'-0''
45 DOE	120	15'-3"	16'-6''	19'-9"	21'-3"
15 PSF	180	13'-3"	14'-5"	17'-3"	18'-7"
	240	12'-1"	13'-1"	15'-8"	16'-10''
	80	15'-10''	17'-2"	20'-6"	22'-1''
00 005	120	13'-10''	15'-0''	17'-11"	19'-4"
20 PSF	180	12'-1"	13'-1"	15'-8"	16'-10''
	240	10'-12''	11'-11"	14'-3"	15'-4"
	80	14'-8"	15'-11"	19'-0"	20'-6"
05 005	120	12'-10''	13'-11"	16'-7"	17'-11"
25 PSF	180	11'-3"	12'-2"	14'-6"	15'-8"
	240	10'-2"	11'-1"	13'-2"	14'-3"
	80	13'-10''	15'-0''	17'-11"	19'-4"
20 DOE	120	12'-1"	13'-1"	15'-8"	16'-10''
30 PSF	180	10'-7"	11'-5''	13'-8"	14'-9"
	240	9'-7"	10'-5''	12'-5"	13'-5"
	80	13'-2"	14'-3"	17'-0"	18'-4"
05 005	120	11'-6"	12'-5"	14'-10"	16'-0"
35 PSF	180	10'-0"	10'-11"	12'-12"	13'-12"
	240	9'-1"	9'-11"	11'-10"	12'-9"
	80	12'-7"	13'-8''	16'-3"	17'-6"
40 DOE	120	10'-12"	11'-11"	14'-3"	15'-4"
40 PSF	180	9'-7"	10'-5"	12'-5"	13'-5"
	240	8'-8"	9'-5"	11'-3"	12'-2"
	80	12'-1"	13'-1"	15'-8"	16'-10''
45 DOE	120	10'-7"	11'-5"	13'-8"	14'-9"
45 PSF	180	9'-3"	10'-0''	11'-11"	12'-10''
	240	8'-4"	9'-1"	10'-10"	11'-8"

		4" Panels	s (Depth)	6" Panels	s (Depth)	
Total	Deflection	OSB /	OSB /	OSB /	OSB/	
Load*	Limit	0.024"	0.030"	0.024"	0.030"	
Loud	(L/)	Alum Skin	Alum Skin	Alum Skin	Alum Skin	
		1-LB EPS	1-LB EPS	1-LB EPS	1-LB EPS	
,	80	11'-8"	12'-8"	15'-1''	16'-3"	
50 PSF	120	10'-2"	11'-1"	13'-2"	14'-3"	
30 F 3F	180	8'-11"	9'-8''	11'-6"	12'-5"	
	240	8'-1"	8'-9''	10'-6''	11'-3"	
	80	11'-4"	12'-3"	14'-8''	15'-9"	
55 PSF	120	9'-10''	10'-9"	12'-9"	13'-9"	
55 PSF	180	8'-7"	9'-4''	11'-2"	12'-0"	
	240	7'-10"	8'-6''	10'-2"	10'-11"	
	80	10'-10"	11'-6"	14'-3"	15'-4"	
00 005	120	9'-7"	10'-5"	12'-5''	13'-5"	
60 PSF	180	8'-4"	9'-1''	10'-10"	11'-8"	
	240	7'-7"	8'-3''	9'-10"	10'-7"	
	80	10'-0"	10'-7"	13'-10"	14'-11"	
05 005	120	9'-4"	10'-2"	12'-1''	13'-0"	
65 PSF	180	8'-2"	8'-10"	10'-7''	11'-5"	
	240	7'-5"	8'-1''	9'-7"	10'-4"	
////	80	9'-4"	9'-10"	13'-5"	14'-0"	
70 000	120	9'-1"	9'-10"	11'-10"	12'-9"	
70 PSF	180	7'-11"	8'-8''	10'-4''	11'-1"	
3	240	7'-3"	7'-10"	9'-4''	10'-1"	
	80	8'-8"	9'-2''	12'-11"	13'-1"	
	120	8'-8"	9'-2''	11'-6''	12'-5"	
75 PSF	180	7'-9"	8'-5''	10'-1''	10'-10"	
	240	7'-1"	7'-8''	9'-2"	9'-10"	
	80	8'-2"	8'-7''	12'-6''	12'-3"	
	120	8'-2"	8'-7''	11'-3"	12'-2"	
80 PSF	180	7'-7"	8'-3"	9'-10"	10'-7"	
S	240	6'-11"	7'-6''	8'-11"	9'-8"	
		-	, ,	•		

AS NOTED IN CLEAR

SPAN TABLES

MAXIMUM ALLOWABLE

DESIGN PRESSURES (ASD):

ROOFING MATERIALS SHALL BE CONSIDERED IN ADDITION TO LOADS SHOWN ABOVE WHEN

USING SPAN TABLES WHICH EQUALS THE TOTAL LOAD*.

CLEAR SPAN TABLES DIRECTIVE:

- FIND ALLOWABLE COMPOSITE PANEL CLEAR SPAN IN TABLE FOR APPROPRIATE PANEL DEPTH, FACING THICKNESS, AND EPS CORE
- ANCHOR COMPOSITE PANELS TO EXISTING HOST STRUCTURE AND EXISTING SUPPORTING MEMBERS PER SEPARATE CERTIFICATION.

*TOTAL LOAD = SUM OF ALL LOADS (WIND, LIVE, DEAD, ETC.) ACTING IN THE WORST CASÉ LOAD COMBINATION AS DETERMINED PER SEPARATE CERTIFICATION

ADD (2) 1/4" CONTINUOUS ADHESIVE LINES DIRECTLY ON -SEAL JOINT **EPS ROOF PANEL SPAN DETAIL:** EPS, (1) 1" FROM OSB EDGE, CONTINUOUS CAULKING (1) ¾6" FROM OSB EDGE 4' MAX WIDTH PER INTERLOCKING PANEL r½" OSB PANEL (2" PER FOOT MIN SLOPE) DEPTH EPS CORE (1.0 PCF) OPTIONAL GUTTER L0.024" OR 0.030" ALUM OR DRIP CAP CLEAR SPAN (L) INSIDE TO INSIDE 0.024"-0.030" ALUMINUM -OVERHANG-36" MAX O/H AT FRONT & 25% NOTE: SHINGLES AND/OR OTHER APPROVED WEATHER MEMBRANE SHALL BE AFFIXED TO THE OSB TOP PER MFR. SPECIFICATIONS. WHEN APPLICABLE, DEAD LOADS DUE TO THESE OF LAST PANEL WIDTH AT SIDES

(UP TO 12" MAX O/H AT SIDES)

FL 7621.1

AUGUST 21, 2023

POSTAL ADDRESS:
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DELRAY BEACH, FL 3344
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Elite Aluminum
Corporation
4650 Lyons Technology Parkway
Coconut Creek, FL 33073

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23-59945

SCALE: NTS UNLESS NOTE



HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load-Horizontal Specimen & Concentrated Load Test

December 15, 2005

REPORT NUMBER:

HETI-05-2035

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

4" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 80" long x 4" deep, and ½" OSB TOP and 0.024" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-001 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.024" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T502)

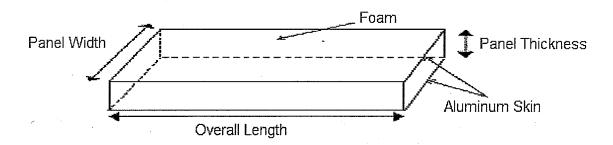
TEST WITNESSED BY:

Syed Waqar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.3125 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

Actual panel width:

48"

• Nominal panel width

48"

• Span:

76"

• Panel length

80"

Panel depth

4"

• Top or Upper Facing:

½" ADVANTECH OSB by HUBER

• Bottom or Lower Facing:

0.024" nominal (0.0214" actual without paint and embossed)

baked enamel finish 3105H154 Aluminum

Core density:

0.91 lbs/ft³

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

3.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

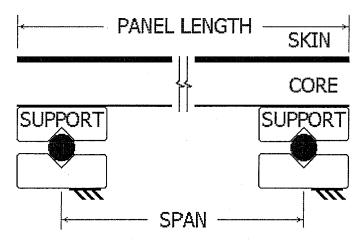
none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were <u>supported by rollers</u> as per diagram below:



Long side profile

• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

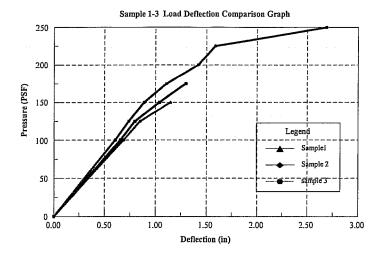
		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.61	0.000	100	300
Load	125	0.74	0.000	100	300
Load	150	0.89	0.012	99	300
Load	175	1.11	0.035	97	300
Load	200	1.42	0.139	90	300
Load	225	1.59	0.185	88	300
Load	250	2.69	0.659	76	300
Failure Load		Test stopped at	fter recovery was	less than 80%.	

Sample II

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)		
Starting Load	0.0	0.00	0.000	100	300		
Load	100	0.66	0.00	100	300		
Load	125	0.80	0.00	100	300		
Load	150	1.04	0.046	96	300		
Load	175	1.30	0.081	94	300		
Failure Load		Failed at 197 PSF, right end shear failure					

Sample III

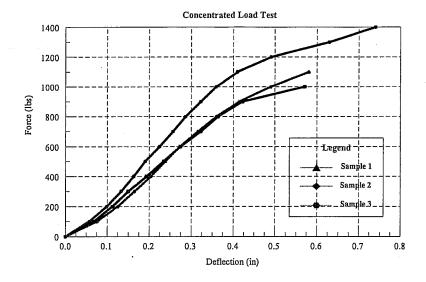
		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.69	0.000	100	300
Load	125	0.85	0.023	97	300
Load	150	1.15	0.092	92	300
Failure Load	Failed at 168 PSF, left end shear failure				



Concentrated Load Test

Force	Sample 1	Sample 2	Sample 3	Duration
(lbs)	Deflection (in)	Deflection (in)	Deflection (in)	(Sec)
0.0	0.000	0.0	0.0	0
100	0.057	0.067	0.076	60
200	0.099	0.112	0.125	60
300	0.133	0.150	0.165	60
400	0.163	0.194	0.204	60
500	0.191	0.235	0.239	60
600	0.225	0.274	0.273	60
700	0.257	0.323	0.316	60
800	0.287	0.364	0.360	60
900	0.323	0.422	0.415	60
1000	0.359	0.571	0.490	60
1100	0.410	-	0.581	60
1200	0.491	-	-	60
1300	0.629	. .	-	60
1400	0.740	-	-	60
Failure Load	Failed at 1480	Failed at 1098	Failed at 1198	

Note: Failed status indicates that 1" diameter round bar used to apply concentrated load ruptured and penetrated the OSB board. Reference Group 05-2061.



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.

Dr. Nasreen K. Ali

Vice President

Ivonne Ghia, P.E.

Resident Engineer

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load Test – Horizontal Specimen

December 15, 2005

REPORT NUMBER:

HETI-05-2028

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

4" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 222" long x 4" deep, and ½" OSB TOP and 0.024" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-002 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.024" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T502)

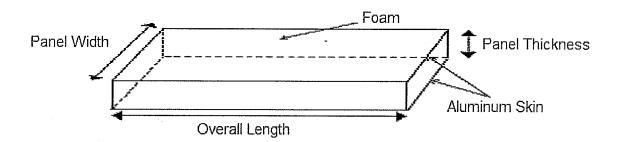
TEST WITNESSED BY:

Syed Wagar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER: Mrs. Ivonne (

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.3125 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

Actual panel width:

48"

• Nominal panel width

48"

Span:

218"

• Panel length

222"

· Panel depth

4"

• Top or Upper Facing:

1/2" ADVANTECH OSB by HUBER

• Bottom or Lower Facing: 0.024" nominal (0.0214" actual without paint and embossed) baked enamel finish 3105H154 Aluminum

Core density:

0.91 lbs/ft³

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

3.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

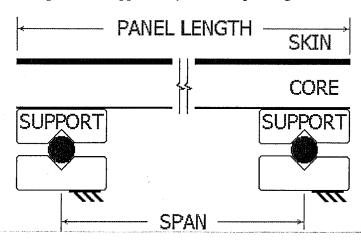
none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were <u>supported by rollers</u> as per diagram below:



Long side profile

• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

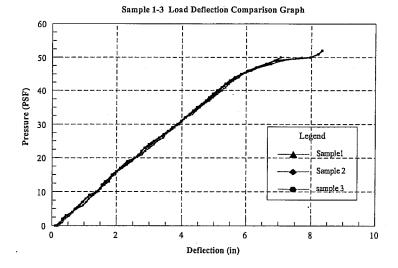
	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.16	0.000	100	300
Load	20	2.29	0.000	100	300
Load	30	3.83	0.092	98	300
Load	40	5.27	0.197	96	300
Failure Load	Failed at 50 PSF, left end shear failure				

Sample II

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.37	0.023	98	300
Load	20	2.37	0.035	99	300
Load	30	3.78	0.139	96	300
Load	40	5.73	0.601	90	300
Load	50	8.30	1.977	76	
Failure Load		Test stopped after	r recovery reache	ed less than 80%.	

Sample III

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)					
Starting Load	0.0	0.00	0.000	100	300					
Load	10	1.31	0.023	98	300					
Load	20	2.45	0.035	99	300					
Load	30	3.74	0.116	97	300					
Load	40	5.75	0.566	90						
Load	50	8.19	1.826	78						
Failure Load		Test stopped after	r recovery reache	ed less than 80%.	Test stopped after recovery reached less than 80%.					



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.

Dr. Nasreen K. Ali

Vice President

Ivonne Ghia, P.E. Resident Engineer

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load-Horizontal Specimen & Concentrated Load Test

December 15, 2005

REPORT NUMBER:

HETI-05-2034

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

4" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 80" long x 4" deep, and ½" OSB TOP and 0.030" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-005 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.030" aluminum skin on both sides

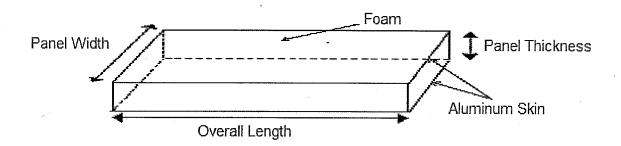
(Reference Material Tensile Test Report No. HETI-06-T516)

TEST WITNESSED BY:

Syed Waqar Ali, Ph. D. (HETI) Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.408 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

Actual panel width:

48"

• Nominal panel width

48"

Span:

76**"**

Panel length

80"

· Panel depth

4"

• Top or Upper Facing:

1/2" ADVANTECH OSB by HUBER

• Bottom or Lower Facing: 0.032" nominal (0.027" actual without paint and embossed) baked enamel finish 3105H154 Aluminum

Core density:

0.91 lbs/ft³

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

3.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

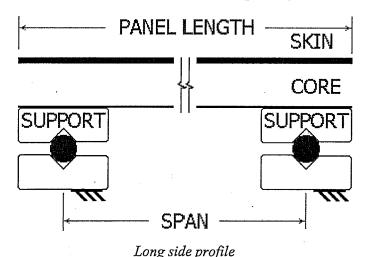
none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were supported by rollers as per diagram below:



• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)	
Starting Load	0.0	0.00	0.000	100	300	
Load	100	0.56	0.000	100	300	
Load	125	0.62	0.000	100	300	
Load	150	0.76	0.000	100	300	
Load	175	0.97	0.035	96.4	300	
Load	200	1.18	0.081	93.1	300	
Failure Load		Failed at 224 PSF, Edge Shear failure.				

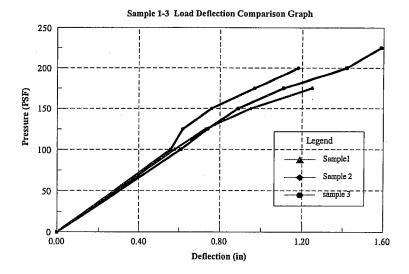
Sample II

		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.61	0.000	100	300
Load	125	0.74	0.000	100	300
Load	150	0.89	0.000	100	300
Load	175	1.11	0.000	100	300
Load	200	1.42	0.000	100	300
Load	225	1.59	0.185	88.4	300
Failure Load	Tes	t stopped after ex	ceeding 1.5*(L/80	0) deflection crite	ria.

Sample III

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)	
Starting Load	0.0	0.00	0.000	100	300	
Load	100	0.58	0.000	100	300	
Load	125	0.73	0.000	100	300	
Load	150	0.95	0.035	96.4	300	
Load	175	1.25	0.116	90.8	300	
Failure Load		Failed at 199 PSF, Edge Shear failure.				

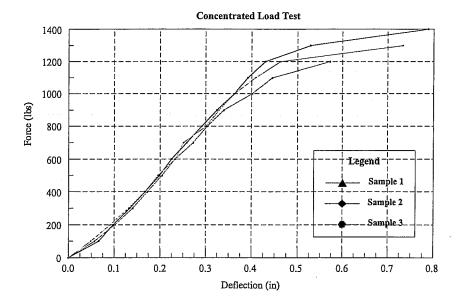




Concentrated Load Test

Force	Sample 1	Sample 2	Sample 3	Duration
(lbs)	Deflection (in)	Deflection (in)	Deflection (in)	(Sec)
0.0	0.000	0.0	0.0	0
100	0.057	0.067	0.049	60
200	0.101	0.098	0.092	60
300	0.140	0.135	0.132	60
400	0.172	0.168	0.168	60
500	0.205	0.200	0.196	60
600	0.232	0.225	0.233	60
700	0.272	0.259	0.252	60
800	0.303	0.292	0.301	60
900	0.339	0.325	0.330	60
1000	0.401	0.363	0.364	60
1100	0.444	0.392	0.408	60
1200	0.572	0.430	0.463	60
1300	-	0.529	0.734	60
1400	-	0.789	-	60
Failure Load	Failed at 1333	Failed at 1398	Failed at 1404	

Note: Failed status indicates that 1" diameter round bar used to apply concentrated load ruptured and penetrated the OSB board. Reference Group 05-2043.



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.

Dr. Nasreen K. Ali Vice President

Moure Tha 01/23/06 Ivonne Ghia, P.E.

Resident Engineer

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load Test – Horizontal Specimen

December 15, 2005

REPORT NUMBER:

HETI-05-2027

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

4" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 246" long x 4" deep, and ½" OSB TOP and 0.030" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-006 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.030" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T516)

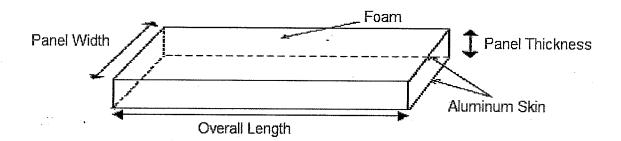
TEST WITNESSED BY:

Syed Waqar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.408 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

• Actual panel width:

48"

• Nominal panel width

48"

Span:

242"

Panel length

246"

Panel depth

4"

• Top or Upper Facing:

½" ADVANTECH OSB by HUBER

• Bottom or Lower Facing: 0.032" nominal (0.027" actual without paint and embossed) baked enamel finish 3105H154 Aluminum

• Core density:

 $0.091 \, \text{lbs/ft}^3$

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

3.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

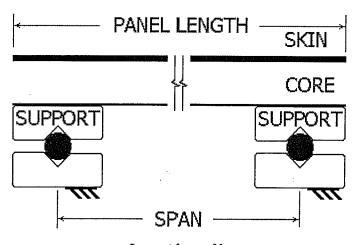
none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were supported by rollers as per diagram below:



Long side profile

• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

	Pressure	AVG Center Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.42	0.00	100	300
Load	20	3.03	0.023	99.2	300
Load	30	4.67	0.127	97.3	300
Load	40	6.25	0.312	95.0	300
Load	50	7.61	0.659	91.3	300
Failure Load	Test sto	pped after deflecti	on exceeded 1.5*	(L/80) deflection	criteria

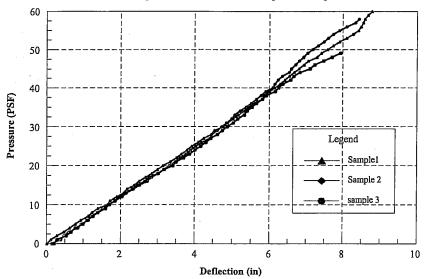
Sample II

		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.41	0.000	100	300
Load	20	2.94	0.058	98.3	300
Load	30	4.67	0.069	98.5	300
Load	40	6.48	0.381	93.9	300
Load	50	7.48	0.289	96.1	300
Load	60	8.07	0.486	94.0	300
Failure Load	Test sto	pped after deflect	ion exceeded 1.5	*(L/80) deflection	criteria

Sample III

		AVG Center			
·	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.46	0.023	98.4	300
Load	20	3.23	0.069	97.9	300
Load	30	4.69	0.162	96.6	300
Load	40	6.37	0.381	94.0	300
Load	50	8.44	1.006	88.1	300
Load	60	9.06	1.029	88.6	300
Failure Load	Test stop	oped after deflecti	ion exceeded 1.5*	(L/80) deflection	criteria

Sample 1-3 Load Deflection Comparison Graph



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.

Dr. Nasreen K. Ali Vice President None Thia

Ivonne Ghia, P.E. 01/23/06

Resident Engineer

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load Test – Horizontal Specimen

December 15, 2005

REPORT NUMBER:

HETI-05-2032

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

6" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 80" long x 6" deep, and ½" OSB TOP and 0.024" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-003 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.024" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T502)

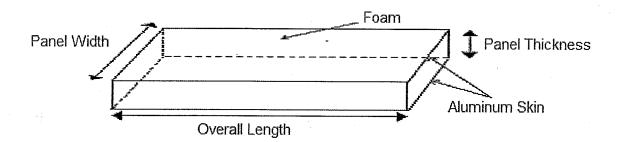
TEST WITNESSED BY:

Syed Waqar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

Each sample consisted of an upper layer of 1/2" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.3125 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

Actual panel width:

48"

Nominal panel width

48"

Span:

76"

Panel length

80"

Panel depth

6"

Top or Upper Facing:

½" ADVANTECH OSB by HUBER

Bottom or Lower Facing: 0.024" nominal (0.0214" actual without paint and embossed) baked enamel finish 3105H154 Aluminum

Core density:

0.91 lbs/ft³

Core composition

Expanded Polystyrene (EPS).

Core thickness:

5.50" (prior to fabrication)

Edge construction:

roll formed

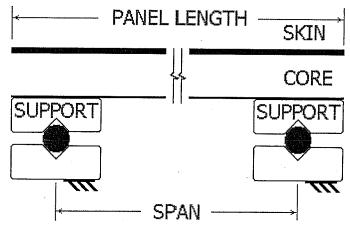
Additional reinforcement: none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 - 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were supported by rollers as per diagram below:



Long side profile

Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

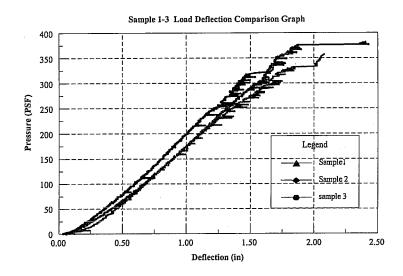
	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.45	0.00	100 .	300
Load	125	0.51	0.00	100	300
Load	150	0.58	0.00	100	300
Load	175	0.67	0.00	100	300
Load	200	0.80	0.046	94	300
Load	225	0.91	0.035	96	300
Load	250	1.05	0.069	93	300
Load	275	1.28	0.150	88	300
Load	300	1.54	0.281	85	300
Load	325	1.78	0.335	81	300
Load	350	2.08	0.428	79	300
Load	375	2.37	0.578	76	300
Failure Load		Test stopped afte	r recovery reache	ed less than 80%.	

Sample II

	Pressure	AVG Center Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.42	0.00	100	300
Load	125	0.49	0.00	100	300
Load	150	0.56	0.00	100	300
Load	175	0.64	0.00	100	300
Load	200	0.76	0.023	97	300
Load	225	0.90	0.058	94	300
Load	250	1.11	0.116	90	300
Load	275	1.36	0.185	86	300
Load	300	1.70	0.312	82	300
Load	325	1.95	0.416	79	300
Failure Load		Test stopped afte	r recovery reache	d less than 80%.	

Sample III

		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.42	0.000	100	300
Load	125	0.50	0.000	100	300
Load	150	0.60	0.000	100	300
Load	175	0.70	0.000	100	300
Load	200	0.81	0.035	96	300
Load	225	0.99	0.104	89	300
Load	250	1.18	0.150	87	300
Load	275	1.40	0.231	84	300
Load	300	1.66	0.301	82	300
Load	325	1.90	0.324	83	300
Load	350	2.52	0.798	68	300
Failure Load		Test stopped after	er recovery reache	ed less than 80%.	



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.

Dr. Nasreen K. Ali Vice President Ivonne Ghia, P.E.
Resident Engineer

Report No. HETI-05-2032. Page 4 of 4.

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load-Horizontal Specimen & Concentrated Load Test

December 15, 2005

REPORT NUMBER:

HETI-05-2026

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

6" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 270" long x 6" deep, and 1/2" OSB TOP and 0.024" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-004 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.024" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T502)

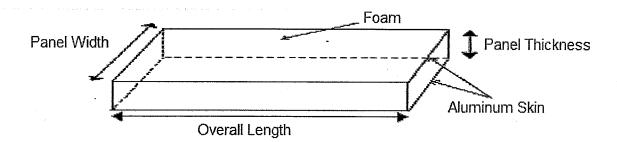
TEST WITNESSED BY:

Syed Wagar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.3125 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

• Actual panel width:

48"

• Nominal panel width

48"

• Span:

266"

Panel length

270"

· Panel depth

6"

• Top or Upper Facing:

· ½" ADVANTECH OSB by HUBER

Bottom or Lower Facing:

0.024" nominal (0.0214" actual without paint and embossed)

baked enamel finish 3105H154 Aluminum

• Core density:

 $0.91 \, \mathrm{lbs/ft^3}$

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

5.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

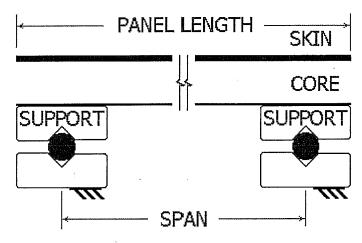
none.

• Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were supported by rollers as per diagram below:



Long side profile

• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

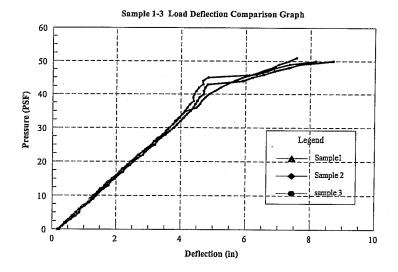
	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.16	0.012	99	300
Load	20	2.34	0.035	99	300
Load	30	3.66	0.092	97	300
Load	40	5.19	0.405	92	300
Load	50	8.07	1.965	76	300
Failure Load		Test stopped at	fter recovery was	less than 80%.	

Sample II

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.07	0.00	100	300
Load	20	2.42	0.035	99	300
Load	30	3.68	0.116	97	300
Load	40	4.84	0.277	94	300
Load	50	8.91	2.543	71	300
Failure Load	•	Test stopped after recovery was less than 80%.			

Sample III

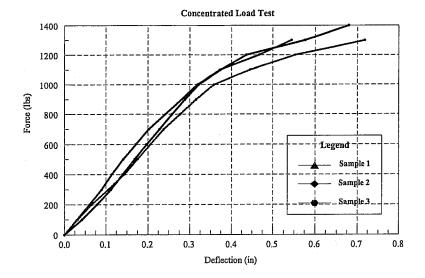
	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.07	0.012	- 99	300
Load	20	2.09	0.012	99	300
Load	30	3.41	0.069	98	300
Load	40	4.59	0.231	95	300
Load	50	8.29	2.219	73	300
Failure Load	Test stopped after recovery was less than 80%.				



Concentrated Load Test

Force	Sample 1	Sample 2	Sample 3	Duration
(lbs)	Deflection (in)	Deflection (in)	Deflection (in)	(Sec)
0.0	0.000	0.0	0.0	0
100	0.030	0.042	0.031	60
200	0.060	0.078	0.065	60
300	0.089	0.112	0.106	60
400	0.114	0.140	0.144	. 60
500	0.141	0.169	0.175	60
600	0.171	0.197	0.206	60
700	0.202	0.228	0.238	60
800	0.242	0.258	0.277	60
900	0.281	0.289	0.316	60
1000	0.319	0.322	0.358	60
1100	0.372	0.374	0.445	60
1200	0.467	0.436	0.553	60
1300	0.544	0.576	0.718	60
1400	-	0.679	-	60
Failure Load	Failed at 1298	Failed at 1400	Failed at 1380	

Note: Failed status indicates that 1" diameter round bar used to apply concentrated load ruptured and penetrated the OSB board. Reference Group 05-2049.



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

The Hurricane Engineering & Testing, Inc., does not have, nor does it intend to acquire or will acquire, a financial interest in any company manufacturing or distributing products tested or labeled by the Hurricane Engineering & Testing, Inc. Hurricane Engineering & Testing, Inc., is not owned, operated or controlled by any company manufacturing or distributing products it tests or labels.

Dr. Nasreen K. Ali

Vice President

Ivonne Ghia, P.E. Resident Engineer

Report No. HETI-05-2026. Page 5 of 5.

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05 <u>Strength Test of Panels for Building Construction</u> <u>Transverse Load Test – Horizontal Specimen</u>

December 15, 2005

REPORT NUMBER:

HETI-05-2033

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL, 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

6" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 80" long x 6" deep, and ½" OSB TOP and 0.030" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-007 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.030" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T516)

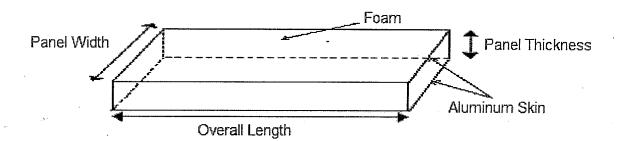
TEST WITNESSED BY:

Syed Waqar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.408 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

Actual panel width:

48"

• Nominal panel width

48"

Span:

76**"**

• Panel length

80"

• Panel depth

6"

• Top or Upper Facing:

½" ADVANTECH OSB by HUBER

• Bottom or Lower Facing: 0.032" nominal (0.027" actual without paint and embossed) baked enamel finish 3105H154 Aluminum

• Core density:

 $0.91 \, \mathrm{lbs/ft^3}$

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

5.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

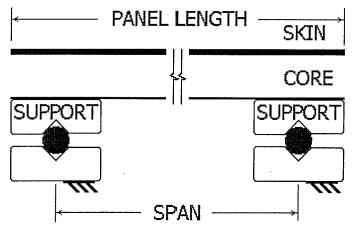
none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were <u>supported by rollers</u> as per diagram below:



Long side profile

• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.43	0.000	100	300
Load	125	0.47	0.000	100	300
Load	150	0.57	0.012	98	300
Load	175	0.66	0.012	98	300
Load	200	0.87	0.104	88	300
Load	225	0.97	0.069	93	300
Load	250	1.21	0.185	85	300
Load	275	1.49	0.289	81	300
Load	300	1.78	0.381	79	300
Failure Load		Test stopped at	fter recovery was	less than 80%.	

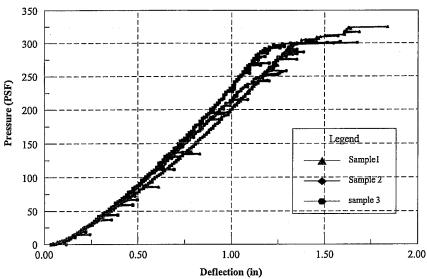
Sample II

	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery	Duration
G: T 1				(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.43	0.000	100	300
Load	125	0.48	0.000	100	300
Load	150	0.56	0.000	100	300
Load	175	0.66	0.023	97	300
Load	200	0.81	0.058	93	300
Load	225	0.97	0.116	88	300
Load	250	1.13	0.127	89	300
Load	275	1.38	0.243	82	300
Load	300	1.64	0.370	77	300
Failure Load		Test stopped at	ter recovery was	less than 80%.	

Sample III

Sterripte 111					
		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	100	0.41	0.000	100	300
Load	125	0.45	0.000	100	300
Load	150	0.53	0.000	100	300
Load	175	0.64	0.023	96	300
Load	200	0.76	0.046	94	300
Load	225	0.92	0.092	90	300
Load	250	1.10	0.139	87	300
Load	275	1.39	0.243	82	300
Load '	300	1.63	0.312	81	300
Load	325	1.92	0.486	75	300
Failure Load		Test stopped at	ter recovery was	less than 80%.	

Sample 1-3 Load Deflection Comparison Graph



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

STATEMENT OF INDEPENDENCE

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Dr. Nasreen K. Ali Vice President

Mance Fluia - 01/23/06 Ivonne Ghia, P.E.

Resident Engineer

HURRICANE ENGINEERING & TESTING, INC.

Computer Controlled Product Testing & Design,Wind Load Analysis

ASTM E 72-05

Strength Test of Panels for Building Construction Transverse Load-Horizontal Specimen & Concentrated Load Test

December 15, 2005

REPORT NUMBER:

HETI-05-2025

MANUFACTURER:

Elite Aluminum Corporation.

4650 Lyons Technology Parkway, Coconut Creek, FL. 33073.

TEST LOCATION:

Hurricane Engineering & Testing, Inc.

6120 NW 97th Avenue, Miami, Florida 33178

FBPE Certificate of Authorization Number: 6905

LAB. CERTIFICATION No.:

04-0816.01 (MIAMI-DADE COUNTY, FLORIDA)

FBC ORGANIZATION No:

TST1691

PRODUCT:

6" Thick Sandwich Aluminum-Foam Panel

PRODUCT SIZE:

48" wide x 288" long x 6" deep, and ½" OSB TOP and 0.030" thick

Aluminum bottom skin.

DRAWING TITLE:

PT-OSB/FM-008 by Elite Aluminum Corporation, dated 1/17/06.

PRODUCT DESCRIPTION:

Insulated Foam panel with 0.030" aluminum skin on both sides

(Reference Material Tensile Test Report No. HETI-06-T516)

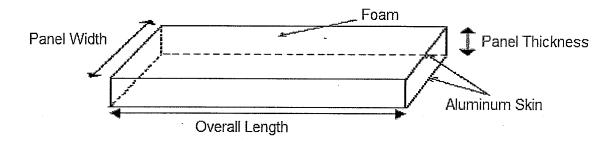
TEST WITNESSED BY:

Syed Waqar Ali, Ph. D. (HETI)

Dr. Nasreen K. Ali, E.I. (HETI)

WITNESSING ENGINEER:

Mrs. Ivonne Ghia, P.E. (HETI)



Product Description

• Each sample consisted of an upper layer of ½" Oriented Strand Board (OSB) and lower aluminum facing and a core. The aluminum weight was 0.408 lbs per squared foot. The measurement was performed with a 0.0125 lbs accuracy scale on a 1 squared foot sheet paint was removed. The paint thickness was 0.75 MIL.

Actual panel width:

48"

• Nominal panel width

48"

Span:

284"

Panel length

288"

Panel depth

6"

• Top or Upper Facing:

½" ADVANTECH OSB by HUBER

 Bottom or Lower Facing: 0.032" nomina baked enamel finish 3105H154 Aluminum

0.032" nominal (0.027" actual without paint and embossed)

• Core density:

0.91 lbs/ft³

• Core composition

Expanded Polystyrene (EPS).

Core thickness:

5.50" (prior to fabrication)

• Edge construction:

roll formed

• Additional reinforcement:

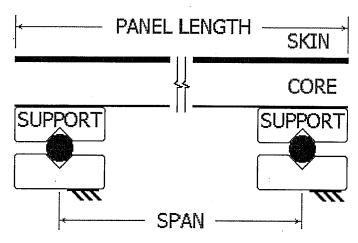
none.

Adhesive

ISOGRIP SP 2020 by Ashland Specialty

Test Procedure

- Symmetrical Assembly.
- Apparatus: Tested as per ASTM E 72 05 Section 11.3.1.1 Uniformly distributed loading by vacuum pump acting below the specimen, a 2 mil plastic sheathing above the specimen and an airtight chamber as per section 11.3.1.3 of ASTM E 72 05. The pressure was read with a water column manometer and a pressure transducer.
- Supports: The samples were supported by rollers as per diagram below:



Long side profile

• Deflection Gage: The deflection was measured using linear variable differential transformers (LVDT).

Test Results

Sample I

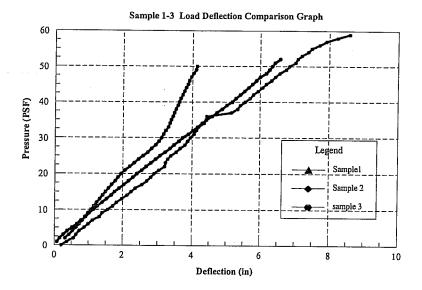
	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.26	0.000	100	300
Load	20	2.36	0.032	99	300
Load	30	3.07	0.029	99	300
Load	40	3.55	0.035	99	300
Load	50	4.12	0.447	89	300
Failure Load	Failed at 50 psf, Left end shear failure				

Sample II

		AVG Center			
	Pressure	Deflection	Set	Recovery	Duration
	(psf)	(inches)	(inches)	(%)	(seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.22	0.026	98	300
Load	20	2.50	0.052	98	300
Load	30	3.88	0.101	97	300
Load	40	5.16	0.305	94	300
Load	50	6.32	0.61	90	300
Load	60	9.00	3.000	66	300
Failure Load	Test stopped after recovery was less than 80%.				

Sample III

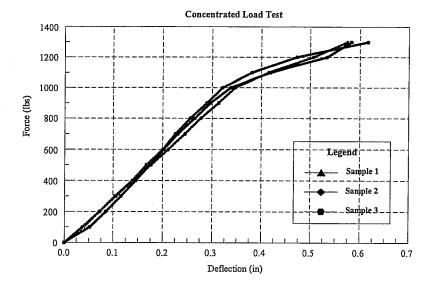
Sumple III					
	Pressure (psf)	AVG Center Deflection (inches)	Set (inches)	Recovery (%)	Duration (seconds)
Starting Load	0.0	0.00	0.000	100	300
Load	10	1.28	0.023	98	300
Load	20	2.63	0.046	98	300
Load	30	4.01	0.069	98	300
Load	40	4.95	0.150	97	300
Load	50	7.62	0.950	87	300
Load	60	9.02	1.410	84	300
Failure Load	Test stopped after exceeding 1.5* (L/80) Deflection Criteria				



Concentrated Load Test

Force	Sample 1	Sample 2	Sample 3	Duration
(lbs)	Deflection (in)	Deflection (in)	Deflection (in)	(Sec)
0.0	0.000	0.000	0.000	0
100	0.039	0.052	0.037	60
200	0.072	0.085	0.072	60
300	0.104	0.0116	0.106	60
400	0.139	0.146	0.140	60
500	0.167	0.174	0.177	60
600	0.200	0.202	0.211	60
700	0.226	0.231	0.245	60
800	0.256	0.265	0.277	60
900	0.289	0.297	0.313	60
1000	0.321	0.338	0.347	60
1100	0.381	0.419	0.415	60
1200	0.472	0.534	0.506	60
1300	0.616	0.583	0.575	60
Failure Load	Failed at 1298	Failed at 1290	Failed at 1300	

Note: Failed status indicates that 1" diameter round bar used to apply concentrated load ruptured and penetrated the OSB board. Reference Group 05-2050.



Conclusion

The samples were tested as in accordance with ASTM E 72-05. The Comparison Graph reflects the last test run where failure occurred for each sample.

NOTE: The above results were obtained using the designated test methods, which indicates compliance with the performance requirements of the referenced specifications. This report does not constitute certification of the specimens tested.

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Dr. Nasreen K. Ali

Vice President

Ivonne Ghia, P.E.
Resident Engineer



ENGINEERING EXPRESS® (EX) PRODUCT EVALUATION REPORT

August 16, 2023

Application Number: FL 7621.1 EX Project Number: 23-59945

Product Manufacturer: Elite Aluminum Corporation
Manufacturer Address: 4650 Lyons Technology Parkway

Coconut Creek, FL 33073

Product Name & Description: EPS Foam Core Composite Roof Panels

OBS / Aluminum Skin

Scope of Evaluation:

This Product Evaluation Report is being issued in accordance with the requirements of the Florida Department of Business and Professional Regulation (Florida Building Commission) Rule Chapter 61G20-3.005, F.A.C., for statewide acceptance per Method 2 (b). The product noted above has been tested and/or evaluated as summarized herein to show compliance with standard ASCE 7-22 (ASD) and the Florida Building Code Eighth Edition (2023) and is, for the purpose intended, at least equivalent to that required by the Standard and Code. Re-evaluation of this product shall be required following pertinent Florida Building Code or ASCE Standard modifications or revisions.

Substantiating Data:

• PRODUCT EVALUATION DOCUMENTS

EX Performance Evaluation document # 23-59945 titled "EPS Foam Core Composite Roof Panels", prepared by Engineering Express, Inc., signed & sealed by Frank Bennardo, P.E. is an integral part of this Evaluation Report, pages 1 through 2.

TEST REPORTS

The product has been tested per the following:

Uniform static structural performance has been tested in accordance with the above-referenced Florida Building Code per test standard ASTM E72-05 as evidenced in test report(s) #HETI -05-2035, #HETI -05-2028, #HETI -05-2034, #HETI -05-2027, #HETI -05-2032, #HETI -05-2026, #HETI -05-2033, #HETI -05-2025 by Hurricane Engineering & Testing, Inc. (HETI) (signed by Ivonne Ghia, P.E.).

Metal tensile capacity has been determined in accordance with ASTM E8-01 test standard per test report(s) #HETI-05-T337 & #HETI-05-T338 by Hurricane Engineering & Testing, Inc. (HETI) (signed by Ivonne Ghia, P.E.).



Elite Aluminum Corporation – EPS Foam Core Composite Roof Panels

STRUCTURAL ENGINEERING CALCULATIONS

Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

1. Maximum Allowable Size/Pressure Combinations.

Impact Resistance:

Large & Small Missile Impact Resistance has NOT been demonstrated as evidenced in previously listed test reports, and is accounted for in the engineering design of this product.

Wind Load Resistance:

This product has been designed to resist wind loads as indicated on its respective Performance Evaluation document (i.e. engineering document).

Installation:

The product listed above shall be installed in strict compliance with the Performance Evaluation document (i.e. engineering document), along with all components noted therein.

The product components shall be of the material specified in the Performance Evaluation document (i.e. engineering document).

Limitations & Conditions of Use:

Use of each product shall be in strict accordance with its respective Performance Evaluation document (i.e. engineering document) as noted herein.

All supporting host structures shall be designed to resist all superimposed loads and shall be of a material listed in each product's respective anchor schedule. Host structure conditions which are not accounted for in each product's respective anchor schedule shall be designed for on a site-specific basis by a registered professional engineer.

All components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. Any alteration to the respective Performance Evaluation document will invalidate it. This product has NOT been designed for use within the High Velocity Hurricane Zone (HVHZ), only outside the HVHZ.

Respectfully,

Frank Bennardo, P.E. ENGINEERING EXPRESS®

#PE0046549 | Cert. Auth. 9885

Digitally signed by Frank Bennardo

Date: 2023.08.21

13:01:29 -04'00'