



ICC Evaluation Service, Inc.  
www.icc-es.org

**Business/Regional Office** ■ 5360 Workman Mill Road, Whittier, California 90601 ■ (562) 699-0543  
**Regional Office** ■ 900 Montclair Road, Suite A, Birmingham, Alabama 35213 ■ (205) 599-9800  
**Regional Office** ■ 4051 West Flossmoor Road, Country Club Hills, Illinois 60478 ■ (708) 799-2305

Legacy report on the 2000 *International Building Code*®, the BOCA® *National Building Code/1999*, the 1999 *Standard Building Code*®, the 1997 *Uniform Building Code*™, the 2000 *International Residential Code*® the 2002 *Accumulative Supplement to the International Codes*™ and the 1998 *International One and Two Family Dwelling Code*®

### DIVISION 07—THERMAL AND MOISTURE PROTECTION Section 07410—Metal Roof and Wall Panels

**ELITE ALUMINUM CORPORATION**  
1801 N.W. 64<sup>TH</sup> STREET  
FT. LAUDERDALE, FLORIDA 33309  
[www.Elite-2000.com](http://www.Elite-2000.com)  
e-mail: [elitealum@aol.com](mailto:elitealum@aol.com)

#### 1.0 SUBJECT

Elite Composite Structural Panels

#### 2.0 PROPERTIES FOR WHICH EVALUATION IS SOUGHT

- 2.1 Structural
- 2.2 Weather Resistance

#### 3.0 DESCRIPTION

##### 3.1 General

Elite Composite Structural Panels are sandwich panels comprised of painted aluminum facings with expanded polystyrene foam plastic cores. The Panels are intended for bearing wall applications and roof panels. Panel dimensions are 3, 4, and 6 inches (76.2, 101.6 and 152.4 mm) thick, 48 inches (1219.2 mm) wide end up to 40 feet (12 m) long.

##### 3.2 Materials

**3.2.1 Aluminum Facings:** Facings are 0.024 inch (0.610 mm) thick and comply with ASTM B209 requirements for Alloy 3105-H15 or 3105-H16, with 10 mil thick polyester dry film base coat and a surface coating of baked acrylic enamel. The flame spread index (FSI) is 25 or less and the smoke density index (SDI) is no greater than 450, in accordance with tests specified in ASTM E84.

**3.2.2 Foam Plastics:** The foam plastic is an expanded polystyrene with a nominal density of 2 pounds per cubic foot (32.04 kg/m<sup>3</sup>) and is produced by Imperial Foam. The flame spread index (FSI) is 25 or less and the smoke density index (SDI) is no greater than 450, in accordance with tests specified in ASTM E84.

**3.2.3 Adhesive:** The adhesive is ISOGRIP SP 2020D produced by Ashland Specialty Chemical Company Division

of Ashland Inc.

**3.2.4 Extrusions:** The aluminum extrusions include a thermal break manufactured from polyurethane. Aluminum extrusions are formed from 6063 alloy aluminum complying with ASTM B221 of various thicknesses, and include H elements, bases, channels, caps, clips and fascias.

#### 3.3 Allowable Loads

Allowable transverse loads are noted in **Table 1**. The allowable axial load for wall panels measuring at least 3 inches (76.2 mm) thick and up to 8 feet (2.4 mm) high is 1,120 pounds per lineal foot (16,345.17N/m). The interaction between axial and transverse loads must satisfy the following equation:

$$\frac{W_{ap}}{W} + \frac{P_{ap}}{1120\text{lbs}} \leq 1$$

Where:

- $W_{ap}$  = Applied Transverse Load, psf
- $W$  = Allowable transverse load from **Table 1**, psf
- $P_{ap}$  = Applied axial load, pounds

The wind uplift resistance of an overhanging roof to wall is 150 pounds per lineal foot (2189.09 N/m) when constructed according to **Figure 1** using minimum 3 inch (76.2 mm) thick panels. Use of wall and roof panels as bracing against lateral wind or earthquake forces is beyond the scope of this evaluation report.

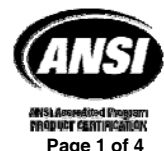
#### 4.0 INSTALLATION

##### 4.1 General

Installation is according to the Elite Assembly Instructions dated January 2002. Base channels are attached to structural supports using fasteners recognized for use with the receiving materials.

Calculations demonstrating the fastener capacity for the allowable loads in question shall be furnished to the building official for approval. The fastener spacing for the channel to panel connection is 6 inches (152.4 mm) on center. The anchorage to concrete spacing is 12 inches (304.8 mm) on center. Wall panels are supported by foundations designed and constructed according to the applicable building code.

ICC-ES legacy reports are not to be construed as representing aesthetics or any other attributes not specifically addressed, nor are they to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by ICC Evaluation Service, Inc., express or implied, as to any finding or other matter in this report, or as to any product covered by the report.



The wall and roof panels are interlocked as described in Figure 2. Wall panels are available with channels and mullions to support doors and windows. These panels shall also be designed to support adjacent doors and windows. Gypsum wall board thermal barriers are then attached to the wall and roof panels using 1/4 inch (6.35 mm) beads of Liquid Nails by Maco Adhesives. The adhesive is applied to the gypsum board in a zigzag pattern in rows 24 inches (609.6 mm) on center and 1 inch (25.4 mm) from edges. The gypsum board is then fastened onto the aluminum facing with No. 6 by 1 inch (25.4 mm) long screws spaced 12 inches (304.8 mm) on center along the perimeter of each gypsum wallboard panel.

Section 7.5 describes conditions permitting elimination of the thermal barrier on roof panels.

#### 4.2 Roof Classification

The minimum 3 inch (76.2 mm) thick panels are classified B according to ASTM E108. The 3 inch (76.2 mm) thick panels are classified for ceiling construction according to UL 1715 (UBC 17-5), see Section 7.5.

#### 5.0 IDENTIFICATION

The panels are packaged with labels noting the manufacturer's name and address, product name, the name of the quality control agency, Professional Service Industries, Inc., Pittsburgh Testing Laboratory Division, and this evaluation report number NER-501 for field identification.

#### 6.0 EVIDENCE SUBMITTED

- 6.1 Report of tests according to UBC 17-3, Southwest Research Institute, Report 01-526-311, issued May 5, 1993.
- 6.2 Report of transverse load tests conducted at Elite Aluminum Corporation facilities, May 13, 1997.
- 6.3 Report witnessing transverse and axial load tests by Professional Services Industries, Inc., Pittsburgh Testing Laboratory Division, Report No. 225-60063-1 through -32, dated November 6, 1996 through May 13, 1997.
- 6.4 Manufacturing details and quality control procedures, prepared by Elite Aluminum Corporation and Professional Services Industries, Inc., Pittsburgh Testing Laboratory Division, revised 03/09/98.
- 6.5 Installation Instructions by Elite Aluminum Corporation issued January 2002.
- 6.6 Structural calculations by Simon Diskin, P.E., dated October 1993, May 23 and May 31, 1994. Letter report on testing with new adhesive, June 23, 1997, signed and sealed.
- 6.7 Report on surface burning characteristics under ASTM E84, Southwest Research Institute, Report 717A-3-114, May 31, 1961.
- 6.8 Test report on tension test under ASTM C297, Southwest Research Institute, SwRI Project 06-8383-191, Test Report 06-8383-191a June 1997, signed by John Strybos, P.E., George K. Wolfe, P.E., and Edward M. Briggs.
- 6.9 Report on roof fire classification under ASTM E108, Southwest Research Institute, Report 01-6005-020, May 20, 1994.
- 6.10 Data on Imperial foam Expanded Polystyrene boards, Listing 1226 by RADCO May 1993.
- 6.11 Report on wind uplift tests, Southwest Research Institute, Report 07-6434-001, May 1994.
- 6.12 Report on tests according to UL 1715, Underwriters Laboratories Inc., File R15413, Project 94NK17317, July 20, 1994.
- 6.13 Test report on concentrated loads under ASTM E661, Southwest Research Institute, SwRI Project 06-8383-191, Test Report 06-8383-191c June 1997, signed by John W. Strybos, P.E., George K. Wolfe, P.E. and Edward M. Briggs.

#### 7.0 CONDITIONS OF USE

The National Evaluation Service Committee finds that the Elite Composite Structural Panels as described in this report complies with or are suitable alternates to that specified in the 2000 *International Building Code*<sup>®</sup>, the BOCA<sup>®</sup> *National Building Code/1999*, the 1999 *Standard Building Code*<sup>®</sup>, the 1997 *Uniform Building Code*<sup>™</sup>, the 2000 *International Residential Code*<sup>®</sup> the 2002 *Accumulative Supplement to the International Codes*<sup>™</sup> and the 1998 *International One and Two Family Dwelling Code*<sup>®</sup> subject to the following conditions:

- 7.1 Panels are fabricated and erected in compliance with this report.
- 7.2 Panels are manufactured at 1801 N.W. 64th Street, Fort Lauderdale, Florida, with quality control inspections by Professional Services Industries, Inc., Pittsburgh Testing Laboratory Division, NER-QA231.
- 7.3 Panels with field formed openings are beyond the scope of this report.
- 7.4 Wall panels are separated from the building interior by a thermal barrier, such as minimum 1/2 inch (12.7 mm) thick gypsum wallboard or other approved material according to Section 4.1.
- 7.5 The 3 inch (76.2 mm) roof panels are permitted without a thermal barrier under the *BOCA National Building Code*, *Uniform Building Code*, *International Building Code*, *International Residential Code*, and the *International One and Two Family Dwelling Code*. Under the *Standard Building Code*, these roof panels are permitted without thermal barriers only when used in patio or carport structures.
- 7.6 Panels are used only in buildings where combustible construction is permitted.
- 7.7 Structural calculations are furnished to the code official for approval. The individual preparing such documents shall possess the necessary credentials regarding competency and qualifications as required by the applicable code and the professional registration laws of the state where the construction is undertaken.
- 7.8 In jurisdictions that have adopted the *Standard Building Code*, *International Residential Code*, and *International One and Two Family Dwelling Code*, when the panels are used in areas of very heavy termite infestation, the bottom of the panels shall not be less than 6 inches (152.4 mm) above finish grade and the panels shall not be installed below grade or in contact with earth, see Section 2301.4 of the *Standard Building Code*, Section R324.4 of the *International Residential Code*, and Section 323.4 of the *International One and Two Family Dwelling Code*.
- 7.9 This report is subject to periodic re-examination. For information on the current status of this report, contact the ICC-ES.

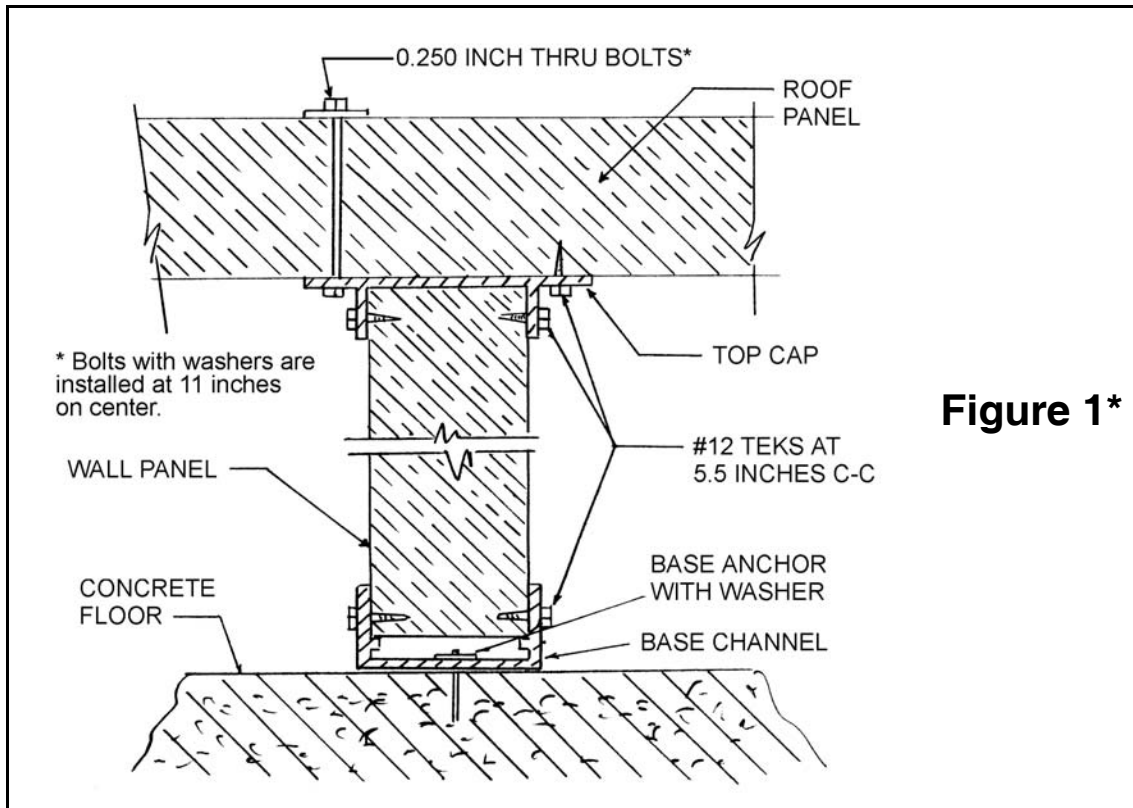
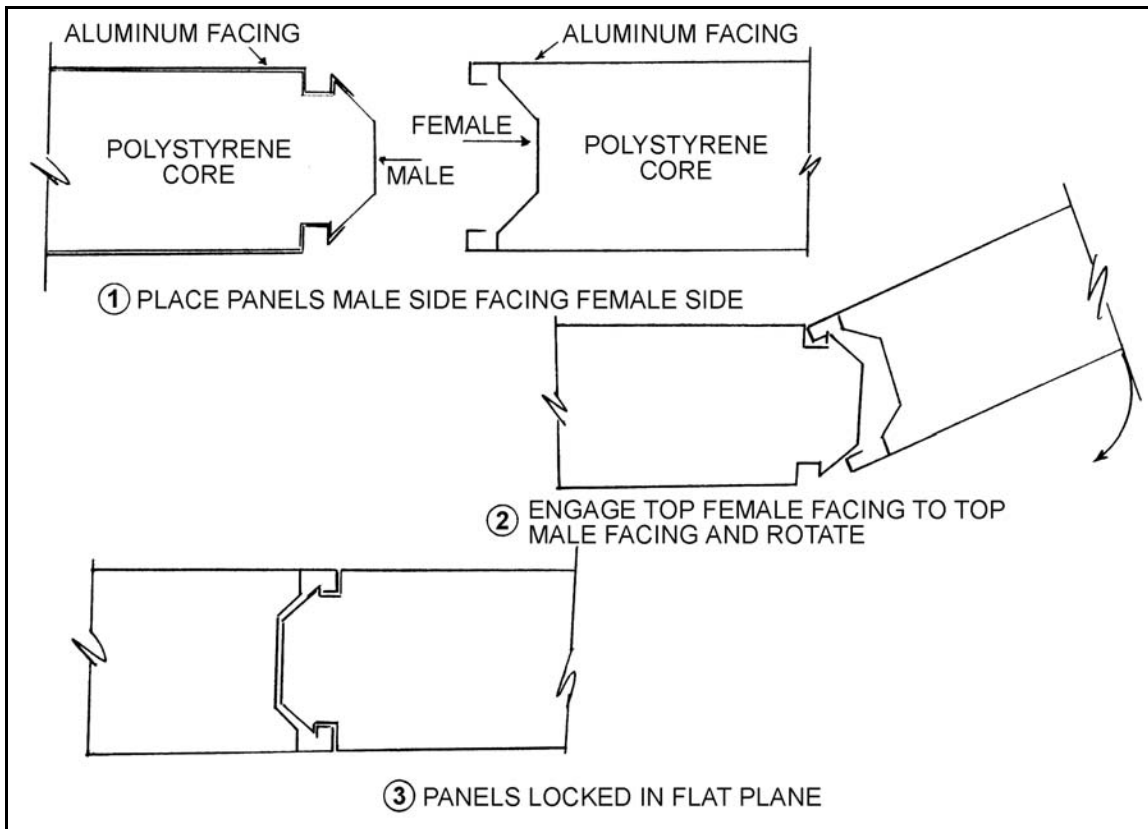
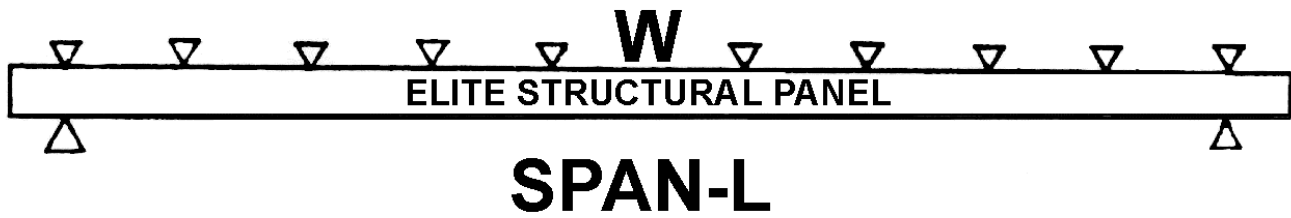


Figure 1\*



S1 Units Conversions for Tables and Figures:  
1 in. = 25.4 mm, 1 ft. = 0.3m, 1 psf = 48 pa



**TABLE 1**  
**SPAN LENGTHS OF SANDWICH PANELS IN FLATWISE BENDING. PANELS ARE SIMPLY SUPPORTED.**  
**W OR WL IS APPLIED DESIGN UNIFORM LOADING, PSF (POUNDS PER SQUARE FOOT)**

d Panel inch	WD PSF	t SKIN INCH	L				L				L			
			Deflection = L/120				Deflection = L/180				Deflection = L/240			
			WL				WL				WL			
			10	20	30	40	10	20	30	40	10	20	30	40
3"	1.2	.024	18' - 0"	12' - 9"	10' - 9"	9' - 3"	14' - 9"	11' - 4"	9' - 7"	8' - 6"	13' - 3"	10' - 0"	8' - 6"	7' - 8"
		.032	ND	14' - 5"	12' - 4"	10' - 7"	16' - 0"	12' - 4"	10' - 4"	9' - 2"	14' - 6"	10' - 11"	9' - 7"	8' - 0"
3-1/2"	1.3	.024	ND	ND	11' - 6"	10' - 0"	ND	12' - 6"	10' - 8"	9' - 6"	ND	11' - 7"	9' - 6"	8' - 7"
		.032	ND	ND	13' - 4"	11' - 6"	ND	13' - 9"	12' - 5"	10' - 8"	ND	12' - 4"	10' - 3"	9' - 0"
4"	1.4	.024	21' - 4"	15' - 1"	12' - 4"	10' - 8"	17' - 10"	13' - 10"	11' - 9"	10' - 6"	16' - 0"	12' - 4"	10' - 4"	9' - 6"
		.032	22' - 0"	17' - 4"	14' - 3"	12' - 3"	19' - 6"	15' - 0"	12' - 10"	11' - 3"	17' - 4"	13' - 4"	11' - 3"	9' - 11"
6"	1.7	.024	24' - 0"	18' - 6"	14' - 2"	13' - 1"	23' - 6"	18' - 7"	15' - 11"	14' - 1"	21' - 6"	16' - 9"	14' - 2"	12' - 6"
		.032	25' - 0"	21' - 4"	17' - 6"	15' - 1"	24' - 0"	20' - 0"	17' - 0"	15' - 1"	22' - 6"	18' - 0"	15' - 8"	13' - 4"

SPAN LENGTH VALUES TO THE RIGHT OF THE BOLD VERTICAL LINE ARE GOVERNED BY DEFLECTION L/180 OR L/240. VALUES TO THE LEFT OF THE BOLD LINE ARE LIMITED BY ALLOWABLE BENDING STRESS  $F_b = 6,000$ PSI. THE VALUES GOVERNED BY DEFLECTION ARE CLEAR SPAN LENGTHS BASED ON THE APPLIED LIVE LOAD LISTED AS WL, PSF. ADD APPROXIMATELY 2 INCHES TO THESE VALUES TO OBTAIN SPAN LENGTHS C TO C OF BEARINGS, THE VALUES LIMITED BY STRESS (LISTED UNDER COLUMN L/120) ARE SPAN LENGTHS C TO C OF BEARINGS. THEY ARE BASED ON THE SUM OF LIVE LOAD WL AND PANEL WEIGHT WD, LISTED AS W ( $W = WL + WD$ ). SUBTRACT WD FROM W TO OBTAIN THE DESIGN LIVE LOAD WL. SPAN LENGTHS FOR W OR WL LOADINGS OTHER THAN LISTED ABOVE MAY BE OBTAINED BY STRAIGHT-LINE INTERPOLATION. ND = NOT DETERMINED.

SI Units Conversions for Tables and Figures:  
 1 in = 25.4 mm, 1ft = 0.3 m, 1 psf = 48 Pa

\*THESE DRAWINGS ARE FOR ILLUSTRATION PURPOSES ONLY. THEY ARE NOT INTENDED FOR USE AS CONSTRUCTION DOCUMENTS FOR THE PURPOSE OF DESIGN, FABRICATION OR ERECTION.