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ICC-ES Report

ESR-2488

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Reissued 12/2016
This report is subject to renewal 12/2017.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 40 00—ROOFING AND SIDING PANELS

REPORT HOLDER:

STRUCTALL BUILDING SYSTEMS, INC.

**350 BURBANK ROAD
OLDSMAR, FLORIDA 34677**

EVALUATION SUBJECT:

SNAP-N-LOCK™ COMPOSITE PANEL



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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 40 00—Roofing and Siding Panels

REPORT HOLDER:

STRUCTALL BUILDING SYSTEMS, INC.
350 BURBANK ROAD
OLDSMAR, FLORIDA 34677
(813) 855-2627
www.structall.com

EVALUATION SUBJECT:

SNAP-N-LOCK™ COMPOSITE PANEL

1.0 EVALUATION SCOPE

Compliance with the following code:

2015 and 2012 *International Residential Code*® (IRC)

Properties evaluated:

- Structural
- Fire resistance

2.0 USES

The Snap-N-Lock™ Composite Panels are recognized for use as roof panels of patio covers complying with Appendix H of the IRC.

3.0 DESCRIPTION

3.1 General:

The Snap-N-Lock™ Composite Panels are laminated sandwich panels consisting of aluminum facings adhered at the factory to both faces of an expanded polystyrene foam plastic core. The panels are available in nominal thickness of 3, 4 or 6 inches (76, 102, or 152 mm), with weights of 0.96, 1.03 and 1.19 psf (46, 49, and 57 Pa), respectively. The panels are 48 inches (1220 mm) wide and up to 18 feet, 21 feet and 23 feet (5490, 6405 and 7015 mm) long, respectively. The longitudinal edges of the panels are designed to allow adjacent panels to interlock.

3.2 Material:

3.2.1 Panel Core: The core material is 1.0 pcf (16.0 kg/m³) nominal density, Type I, expanded polystyrene (EPS) foam plastic board complying with ASTM C578. The foam plastic has a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84. The EPS boards are supplied by the manufacturer identified in the approved quality control documentation.

3.2.2 Panel Facings: The facing material on both sides of the panels is 3105-H254 aluminum, conforming to ASTM B209, with a base-metal thickness of 0.022 inch (0.56 mm), a minimum yield strength of 20 ksi (138 MPa) and a minimum tensile strength of 23.5 ksi (162 MPa).

3.2.3 Panel Adhesive: The adhesive described in the approved quality control documentation, used to bond the facings to the core, is a Type II, Class 2, adhesive complying with the requirements of the ICC-ES Acceptance Criteria for Sandwich Panel Adhesives (AC05).

4.0 DESIGN AND INSTALLATION

4.1 Design:

The allowable spans based on transverse loading of the panels and fastener uplift capacity are given in Tables 1, 2 and 3. Design loads must be determined in accordance with IRC Section AH104. Spacing of fasteners for uplift resistance is based on an edge distance of 2½ inches (64 mm) and use of 1½-inch-diameter (38 mm), 0.40-inch-thick (10.2 mm), aluminum washers. Use of the panels to resist any other load conditions (such as axial compression or tension forces due to horizontal wind loads, or use as a roof diaphragm to resist seismic or wind loads) is outside the scope of this report.

4.2 Installation:

Installation of Snap-N-Lock™ Composite Panels must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

Panels must be installed as the roof of the patio cover with the panel length continuous in the direction of the roof slope, without transverse joints. Panels must be installed with minimum slopes as noted in Tables 1, 2 and 3. The roof panel longitudinal seam must be located a minimum of 43 inches (1092 mm) from the inside face of the wall parallel to the panel length. A thermal barrier as specified by the code is not required to be installed between the panels and the interior of the patio cover structure.

Where the panel is supported between the flanges of a channel attached to existing construction, the minimum bearing length must be 1 inch (25.4 mm), and the panel must be fastened to the channel as indicated in the manufacturer's published installation instructions. Where the panel is supported from below by the patio cover wall framing, the panel must fully bear on and be fastened to the supporting construction. Fastener spacing must be determined in accordance with Table 1, 2 or 3, as applicable.

5.0 CONDITIONS OF USE

The Snap-N-Lock™ Composite Panels described in this report comply with, or are suitable alternatives to what is specified in, the code indicated in Section 1.0 of this report, subject to the following conditions:

- 5.1 Panel fabrication, identification and installation must comply with this report and the manufacturer's published installation instructions. In the event of conflicts between this report and the manufacturer's published instructions, this report governs.
- 5.2 The panels are limited to use as the roof panels of patio covers regulated under Appendix H of the IRC.
- 5.3 Panel connections to the supporting structure must be designed in accordance with the applicable code.
- 5.4 The remaining portions of the structure are outside the scope of this report and must be designed and constructed in accordance with the applicable code.
- 5.5 Calculations and drawings demonstrating compliance with this report must be submitted to the code official at the time of permit application. The calculations and drawings must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.6 The foam plastic cores are manufactured in Ormond Beach, Florida, under a quality control program with inspections by ICC-ES.

5.7 The panels are manufactured in Oldsmar, Florida, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Sandwich Panels (AC04), dated February 2012 (Editorially revised July 2015).

6.2 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (Editorially revised May 2016), including a report of a room corner fire test in accordance with UL 1715.

7.0 IDENTIFICATION

Each Snap-N-Lock™ Composite Panel is identified by a label bearing the company name (Structall Building Systems, Inc.) and address, the product name, the panel dimensions, the evaluation report number (ESR-2488), and a statement indicating "For Use in One- and Two-Family Dwellings Only."

TABLE 1—3-INCH PANEL ALLOWABLE SPANS AND REQUIRED FASTENER SPACING^{1,2,3}

LOAD TYPE	DESIGN PRESSURE (psf)										MINIMUM PANEL SLOPE	
	10	15	20	25	30	35	40	45	50	55		
Live	16'-2"	–	12'-0"	–	–	–	–	–	–	–	–	3/8 inch per foot
Wind Uplift	17'-2" ⁵	14'-5"	12'-5"	11'-1"	9'-5"	8'-1"	7'-0"	6'-3"	5'-7"	5'-1"	n/a	
Snow	–	–	10'-8"	9'-7"	8'-9"	7'-9"	6'-9"	6'-0"	5'-5"	4'-11"	3/8 inch per foot	
Maximum Allowable Fastener Spacing Based on Uplift Pressure ⁴	12"	11"	9"	8"	7"	7"	6"	6"	6"	5"		

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 psf = 47.88 Pa.

¹Span length is defined as the distance from centerline of bearing to centerline of bearing.

²Allowable spans are based on a single span installation with a maximum eave projection of 24 inches from centerline of bearing.

³The design pressures presented above are uniform in nature. Consideration must be given to non-uniform loads such as those due to drifted snow.

⁴Fasteners must be installed a minimum of 2 1/2 inches from the end of the panel, using 1 1/2-inch-diameter by 0.40-inch-thick (64 by 38 mm) aluminum washers.

⁵Live load governs.

TABLE 2—4-INCH PANEL ALLOWABLE SPANS AND REQUIRED FASTENER SPACING^{1,2,3}

LOAD TYPE	DESIGN PRESSURE (psf)										MINIMUM PANEL SLOPE	
	10	15	20	25	30	35	40	45	50	55		
Live	19'-2"	–	13'-10"	–	–	–	–	–	–	–	–	1/4 inch per foot
Wind	20'-9" ⁴	16'-9"	14'-5"	12'-11"	11'-6"	9'-10"	8'-7"	7'-7"	6'-10"	6'-2"		n/a
Snow	–	–	12'-5"	11'-2"	10'-3"	9'-4"	8'-3"	7'-4"	6'-7"	6'-0"		3/8 inch per foot
Maximum Allowable Fastener Spacing Based on Uplift Pressure ⁴	12"	10"	8"	7"	6"	6"	6"	5"	5"	5"		

For **SI**: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 psf = 47.88 Pa.

¹Span length is defined as the distance from centerline of bearing to centerline of bearing.

²Allowable spans are based on a single span installation with a maximum eave projection of 24 inches from centerline of bearing.

³The design pressures presented above are uniform in nature. Consideration must be given to non-uniform loads such as those due to drifted snow.

⁴Fasteners must be installed a minimum of 2 1/2 inches from the end of the panel, using 1 1/2-inch-diameter by 0.40-inch-thick (64 by 38 mm) aluminum washers.

⁵Live load governs.

TABLE 3—6-INCH PANEL ALLOWABLE SPANS AND REQUIRED FASTENER SPACING^{1,2,3}

LOAD TYPE	DESIGN PRESSURE (psf)										MINIMUM PANEL SLOPE	
	10	15	20	25	30	35	40	45	50	55		
Live	21'-0"	–	15'-3"	–	–	–	–	–	–	–	–	1/4 inch per foot
Wind	23'-0" ⁴	18'-7"	16'-0"	14'-3"	13'-0"	12'-0"	11'-2"	10'-7"	10'-0"	9'-5"		n/a
Snow	–	–	13'-8"	12'-3"	11'-3"	10'-5"	9'-9"	9'-3"	8'-9"	8'-4"		1/4 inch per foot
Maximum Allowable Fastener Spacing Based on Uplift Pressure ⁴	12"	9"	7"	6"	6"	5"	5"	4"	4"	4"		

For **SI**: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 psf = 47.88 Pa.

¹Span length is defined as the distance from centerline of bearing to centerline of bearing.

²Allowable spans are based on a single span installation with a maximum eave projection of 24 inches from centerline of bearing.

³The design pressures presented above are uniform in nature. Consideration must be given to non-uniform loads such as those due to drifted snow.

⁴Fasteners must be installed a minimum of 2 1/2 inches from the end of the panel, using 1 1/2-inch-diameter by 0.40-inch-thick (64 by 38 mm) aluminum washers.

⁵Live load governs.