ICC-ES Evaluation Report

ESR-3152

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Revised April 2025

Subject to renewal August 2025

This report also contains:

- **CA Supplement**

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION Section: 07 41 13—Metal Roof Panels Section: 07 42 13—Metal Wall Panels	REPORT HOLDER: STRUCTALL BUILDING SYSTEMS, INC.	EVALUATION SUBJECT: SNAP-N-LOCK™ COMPOSITE PANEL	

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2024, 2021, 2018, 2015 and 2012 *International Building Code®* (IBC)
- 2024, 2021, 2018, 2015 and 2012 *International Residential Code®* (IRC)

Properties evaluated:

- Structural
- Fire resistance

1.2 Evaluation to the following green code and standards:

- 2022 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 *National Green Building Standard™* (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 3.1

2.0 USES

The Snap-N-Lock™ Composite Panels consist of structural insulated roof panels, and load-bearing or nonload-bearing wall panels for Type V-B construction.

When the panels are installed under the IRC, an engineered design is required in accordance with IRC Section R301.1.3.

3.0 DESCRIPTION

3.1 General:

The Snap-N-Lock™ Composite Panels are laminated sandwich panels consisting of steel facings adhered to both faces of an expanded polystyrene foam plastic core. The panels are available in nominal thicknesses of 4 and 6 inches, with weights of 2.03 and 2.20 psf (9.92 and 10.75 kg/m^2), respectively. The panels are 48 inches (1220 mm) wide and up to 23 feet (7015 mm) long. The longitudinal edges of the panels are designed to allow adjacent panels to interlock.

The attributes of the patio-cover roof panel system have been verified as conforming to the provisions of (i) CALGreen Sections A4.404.3.3, A4.405.1.3 (prefinished materials) and A5.406.1.2 (reduced maintenance); and (ii) ICC 700 2020 Sections 601.7 and 11.601.7 and ICC 2015 and ICC 700-2012 Sections 601.7, 11.601.7,

and 12.1(A).601.7 (prefinished materials); and (iii) ICC 700-2008 Section 601.7 (prefinished materials). Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

The Snap-N- Lock™ Composite Panels also include a variant designated as High Performance Seismic Shear Wall Panel, to be used as a shear wall in Seismic Design Categories A through F.

3.2 Material:

3.2.1 Panel Core: The core material is 1.0 pcf 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.

3.2.2 Panel Facings: The facing material on both sides of the panels is No. 26 gage steel [base metal thickness of 0.019 inch (0.48 mm)] or No 24 gage steel [base metal thickness of 0.0239 inch (0.61 mm)] for the High Performance Seismic Shear Wall Panel, conforming to ASTM A653 CS Type B, having a hot-dip galvanized G90 coating. The material has minimum yield and tensile strengths of 42 ksi and 52.5 ksi (290 to 362 MPa), respectively, and a minimum elongation of 20 percent.

3.2.3 Panel Adhesive: The adhesive 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).

3.2.4 Base Channel and Wall Cap: Base channel and wall cap sections are extrusions made from 6063 T5 extruded aluminum, with a 0.055-inch (1.40 mm) wall thickness. The maximum slope of the wall cap is 5:12 (22.6 degrees). See Figures 3 and 4.

3.2.5 Hat Channel: Hat channel sections are 25 gage [base-metal thickness 0.021 inch (0.53 mm)], zinc-coated commercial steel conforming to ASTM A525, with a minimum yield point of 33 ksi (227.5 MPa). The hat channel section has a height of $1^1/_2$ inches (38 mm) and an overall width of $2^{11}/_{16}$ inches (68 mm).

3.2.6 Internal Stud: High Performance Seismic Shear Wall Panel includes an 18 gage steel C internal stud [base metal thickness of 0.0482 inch (1.22 mm)] conforming to ASTM A653 CS Type B, having a hot-dip galvanized G90 coating.

3.2.7 Hold-Downs and Anchorage: For High Performance Seismic Shear Wall panels, See Figure 6 for minimum requirements.

4.0 DESIGN AND INSTALLATION

4.1 Design:

The allowable uniform transverse load, uniform axial compression load and in plane shear load for panels used as bearing walls and shear wall loads are as shown in Tables 1 through 4. Unless noted otherwise, the allowable uniform transverse loads are for panels installed under simply supported, single span conditions. Where loading conditions result in the panels resisting combined stresses, the sum of the ratios of applied loads over allowable loads must be less than 1.0.

When used as shear walls under the IBC or IRC, the panels are limited to use in Seismic Design Categories A, B, and C.

The Snap-N- Lock™ High Performance Seismic Shear Wall Panel can be used in Seismic Design Categories A through F.

For High Performance Seismic Shear Wall Panels, the allowable uniform transverse load and uniform axial compression load shown on Tables 1 through 3 respectively, can be used. Allowable ASD in-plane shear and drift values provided in Table 5 are applicable to ASD load combinations in IBC.

The Snap-N- Lock™ High Performance Seismic Shear Wall Panel can be used as a component within a seismic-force resisting system consisting of light framed load-bearing walls, provided the seismic design coefficients and factors used in design conform to the following values:

SEISMIC FACTOR OR COEFFICENT	IBC
Response Modification Factor	$R = 6\ ½$
System Over-strength Factor	$\Omega_o = 3^1$
Deflection Amplification Factor	$C_d = 4$

[1] Where shear panels are installed in structures with flexible diaphragms, as determined in accordance with Section 12.3.1 of ASCE/SEI 7, the tabulated value of Ω_o, may be reduced in accordance with Footnote b, Table 12.2-1 of ASCE/SEI 7.

The bottom channel and wall cap and connections must be designed to resist the applied forces.

4.2 Installation:

4.2.1 General: 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. The panels used as wall panels are installed with base channels and wall caps. Hat channels, jobsite-attached to the panel facings, are used to attach the interior finish to the wall and roof panels.

The panels are connected to each other along their edges using the Structall SNAP-N-LOCK™ fastening system. Wall and roof panels must be installed with a continuous bearing support at each end of the panel span, with the supports providing a minimum bearing width of 1 inch (25.4 mm). As an alternative to restraining the roof panels subjected to uplift wind loads, the panels must be fastened with minimum No. 10 sheet metal screws with a 1.5-inch-diameter (38 mm) plate washer spaced no more than 12 inches (305 mm) on center. The fastener must be at least 1 inch (25.4 mm) longer than the laminated roof panel thickness. Unless noted otherwise in this report, the steel facings of the wall panels must be attached to the top and bottom channels as shown in Figures 1 and 2. When used as shear walls, the panels require additional fasteners along the base and top tracks, as well as the vertical seams. See the fastening schedule in Figure 5 and Figure 6.

Wall openings must be framed with conventional materials and must be designed to the satisfaction of the code official.

When used as bearing walls, the wall panels must be installed in the manner described in the footnotes to Table 3.

4.2.2 Thermal Barrier:

4.2.2.1 Wall and Roof: One-half-inch-thick (12.7 mm) regular gypsum wallboard, complying with ASTM C36 or ASTM C1396, must be installed on the interior surface of wall and roof panels. The hat sections are spaced 24 inches (610 mm) on center and are fastened to the panel facings with No. 10 by $^3/_4$-inch-long (19.1 mm) self-tapping screws spaced at 12 inches (305 mm) on center. The gypsum wallboard is fastened to steel hat section channels described in Section 3.2.5, with minimum 1.0-inch-long (25.4 mm), No. 6, Type S drywall screws spaced in accordance with ASTM C840 for use under the IBC, or Table R702.3.5 of the IRC, using 24-inch-on-center (406 mm) framing spacing guidelines.

4.2.3 Panel Cladding:

4.2.3.1 Roof Covering: A roof covering complying with Chapter 15 of the IBC, or Section R901 of the IRC, as applicable, must be installed on the exterior side of the roof panels. Roofs with hot-asphalt or hot-coal tar pitch are prohibited. Underlayment and flashing must be installed in accordance with the applicable code. The roof covering must be installed to resist the applicable forces, to the satisfaction of the code official. The roof covering must be installed in accordance with Structall's recommendations. Where required by the code official, the attachment of the roofing material to the roof panel must be designed by a registered design professional.

4.2.3.2 Exterior Wall Covering: For the installation of wall panels without a water-resistive barrier, a $^1/_4$-inch (6.4 mm) bead of sealant must be applied to the panel joints prior to the panel's being engaged. Panels must be firmly interlocked to make continuous contact with the sealant. Erection proceeds along the wall elevation, with installation of successive panels in accordance with Structall's published installation instructions. Provided the sealants and application of the sealants are satisfactory to the code official, panels exposed to weather do not require a water-resistive barrier complying with 2024, 2021 and 2018 IBC Section 1403.2 (2015 and 2012 IBC Section 1404.2) when panels are installed with sealant as specified in this section (Section 4.2.3.2) and are flashed. Flashing must be placed in accordance with 2024, 2021 and 2018 IBC Section 1404.4 (2015 and 2012 Section 1405.4) on both ends of the panels when installation is at the building's base, and at eaves, openings, and horizontal and vertical corners. The flashing and trim are attached to the panels using $^1/_4$-14 self-tapping screws or No. 10 by $^3/_4$-inch (19 mm) self-tapping or self-drilling screws, or pop rivets in accordance with Structall's installation instructions.

For the installation of wall panels with a water-resistive barrier, the exterior face of the wall panels is required to be covered with a wall covering complying with the applicable code or recognized in a current ICC-ES evaluation report. Flashing in accordance with 2024, 2021 and 2018 IBC Section 1404.4 (2015 and 2012 IBC Section 1405.4 or 2024, 2021, 2018 and 2015 IRC Section R703.4 (2012 IRC Section R703.8), as applicable, must be installed. The water-resistive barrier must be provided in accordance with 2024, 2021 and 2018 IBC Section 1403.2 (2015 and 2012 IBC Section 1404.2). The wall covering must be installed to resist the applicable forces, to the satisfaction of the code official. Where required by the code official, the attachment of the exterior cladding to the wall panel must be designed by a registered design professional.

4.3 Special Inspections: For Snap-N- Lock™ High Performance Seismic Shear Wall Panel used as shear walls in Seismic Design Categories C, D, E and F or Seismic Design Categories C, D_0, D_1, D_2 and E under the

IRC, periodic inspections of the fastening and anchoring of the shear wall assembly within the seismic-force-resisting system must be provided. Special inspections must include connections of the assembly to drag struts and hold-downs, in accordance with 2024 and 2021 IBC Section 1705.13, 2018 and 2015 IBC Section 1705.12 or 2012 IBC Section 1705.11.

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 codes listed 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, the more restrictive governs.

5.2 Design loads must be determined in accordance with the applicable code, and must be equal to, or less than, the values given in Tables 1 through 5 of this report.

5.3 All construction documents specifying the building panels must comply with the design limitations of this report. Design calculations and details for the specific applications must be furnished to the code official verifying compliance with this report and applicable codes. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.4 All wall-to-floor and roof-to-wall details must be designed such that gravity loads are applied to the wall panels as described in the footnotes to Table 3.

5.5 Connection and attachments of the panel to the foundation or supporting structure and to other panels are outside the scope of this report and must be addressed in the design calculations and details.

5.6 When used as shear walls under the IBC or IRC, panels other than High Performance Seismic Shear Wall Panel, are limited to use in Seismic Design Categories A, B and C. High Performance Seismic Shear Wall Panel can be used in Seismic Design Categories A through F.

5.7 The foam plastic insulation of the panels must be separated from the interior of the building with a thermal barrier, installed in accordance with Section 4.2.2 of this report.

5.8 Use of the panels is limited to Type V-B construction.

5.9 Use of the foam plastic in areas subject to damage from termites must be in accordance with 2024, 2021, 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) or 2024 IRC Section R305.4 (2021, 2018, 2015 and 2012 IRC Section R318.4), as applicable.

5.10 The concrete slab or foundation must be designed by a registered engineer in accordance with applicable codes for the imposed loads.

5.11 The sum of the ratio of actual load over allowable axial compressive load and in plane shear load must not exceed one.

5.12 Use of roof panels as horizontal diaphragms is outside the scope of this report.

5.13 For the roof panels, justification must be submitted to the code official demonstrating that the panels with the roof covering comply as a Class A, B, or C roof assembly, as required by IBC Section 2603.6 or IRC Section R902.1, with the classification complying with the minimum classification required for the building.

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

5.15 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 June 2019 (Editorially revised August 2024).

6.2 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (Editorially revised June 2024).

6.3 Room corner fire test data in accordance with UL 1715.

6.4 Cyclic shear wall testing in accordance with ASTM E2126, including engineer analysis.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3152) along with the name (Structall Building Systems, Inc.), registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, each Snap-N-Lock™ Composite Panel is identified by a label bearing the address, the product name and the panel dimensions. The bottom channel, wall cap, and hat channel are packaged separately and identified by a label bearing the evaluation report number (ESR-3152) and the company name (Structall Building Systems, Inc.).

7.3 The report holder's contact information is the following:

STRUCTALL BUILDING SYSTEMS, INC.
350 BURBANK ROAD
OLDSMAR, FLORIDA 34677
(800) 969-3706
www.structall.com

TABLE 1—ALLOWABLE UNIFORM TRANSVERSE LOADS FOR 4-INCH-THICK WALL PANELS (psf)[1,2,3]

WALL HEIGHT (ft)	ALLOWABLE UNIFORM APPLIED LOAD	
	Deflection Limit	Wind Load (psf)
8	L/120 L/180 L/240	43 43 37
9	L/120 L/180 L/240	34 34 32
10	L/120 L/180 L/240	27 27 27
11	L/120 L/180 L/240	23 23 23
12	L/120 L/180 L/240	19 19 19
13	L/120 L/180 L/240	16 16 16
14	L/120 L/180 L/240	14 14 14
15	L/120 L/180 L/240	12 12 12
16	L/120 L/180 L/240	11 11 11

For **SI:** 1 ft= 0.305 m; 1 psf= 47.9 Pa.

[1]Allowable load values are based on simply supported spans with loads uniformly distributed. Where non-uniform loads are applied to the panel, an equivalent uniform load must be determined for comparison with the values within this table.
[2]Deflection limitations are based on Table 1604.3 of the IBC.
[3]Panels must be installed in accordance with Section 4.2 of this report.

TABLE 2—ALLOWABLE UNIFORM TRANSVERSE LOADS FOR 6-INCH-THICK ROOF PANELS (psf)[1,2,3,4,5,6,7]

PANEL SPAN (ft)	ALLOWABLE UNIFORM APPLIED LOAD (psf)			
	Gravity Loads			Wind Uplift Load
	Deflection Limit	Allowable Roof Live Load	Allowable Roof Snow Load	
8	L/180 L/240 L/360	63 49 32	39 29 20	66 53 35
9	L/180 L/240 L/360	49 43 28	35 26 17	53 46 31
10	L/180 L/240 L/360	39 38 24	31 23 16	43 41 28
11	L/180 L/240 L/360	32 32 22	28 21 14	36 36 25
12	L/180 L/240	27 27	25 19	30 30
12.5	L/180 L/240	24 24	24 18	28 28
13	L/180 L/240	22 22	22 17	26 26
13.5	L/180 L/240	21 21	21 17	24 24
13.9	L/180 L/240	20 20	20 16	23 23

For **SI:** 1 foot= 0.305 m; 1 psf= 47.9 Pa.

[1]Allowable load values are based on simply supported spans with the loads uniformly distributed. Where non-uniform loads are applied to the panel, an equivalent uniform load must be determined for comparison with the values within this table.
[2]Deflection limitations are based on Table 1604.3 of the IBC with the exception that creep of the foam core has been considered when panels are subjected to long term snow loads.
[3]Allowable loads are based on panel strength. Panels must be installed with a continuous width support of 1 inch (25.4 mm) at each end of the panel span. Capacity of end conditions must be evaluated on a site specific basis.
[4]Deflections for allowable roof live loads do not include creep. Site-specific engineering must consider the effects of creep, if applicable.
[5]Panels must be installed in accordance with Section 4.2 of this report.
[6]The roof maintenance worker live load is included in the above spans. A maximum superimposed dead load of 5 psf may be applied to the roof panels.
[7]Where a load combination includes more than one load type [roof live load, snow Load, and/or wind load], the minimum allowable load for all load types within the load combination must be used. As an example, for a 6-inch roof panel with a span of 10 feet and a deflection limit of L/240, the allowable applied load for a load combination which includes roof live load and snow load is 23 psf (the lesser of 38 psf for roof live load and 23 psf for snow load).

TABLE 3—ALLOWABLE UNIFORM AXIAL LOADS FOR 4-INCH-THICK WALL PANELS

MAXIMUM PANEL UNSUPPORTED HEIGHT (ft)	ALLOWABLE AXIAL LOAD (plf)
16	614

For **SI:** 1 foot=0.305 m; 1 plf=14.6 N/m.

[1]A base channel as shown in Figure 3 of this report shall be installed fully supported on a rigid foundation. A wall cap as shown in Figure 4 of this report must be used to attach the top of the wall panel.
[2]Allowable axial load is assumed to be uniformly distributed at the top of the wall panel centered on the panel thickness.

TABLE 4—ALLOWABLE IN PLANE SHEAR LOADS FOR 4-INCH-THICK WALL PANELS

PANEL DIMENSIONS	ALLOWABLE SHEAR LOAD (plf)
8 feet high by 8 feet wide	173

For **SI:** 1 foot=0.305 m; 1 plf=14.6 N/m.

[1]A base channel as shown in Figure 3 of this report must be installed and fully supported on a rigid foundation.
[2]The maximum shearwall aspect (height-to-width) ratio is 1:1.

TABLE 5—ALLOWABLE IN PLANE SHEAR LOADS FOR HIGH PERFORMANCE SEISMIC SHEAR WALL PANEL[1,2,3,4]

PANEL DIMENSIONS	ALLOWABLE LOAD (plf)
8 feet high by 8 feet wide	481

For **SI:** 1 foot=0.305 m; 1 plf=14.6 N/m.

[1]A base channel as shown in Figure 3 of this report must be installed and fully supported on a rigid foundation.
[2]The maximum shearwall aspect (height-to-width) ratio is 1:1.
[3] Drift at allowable in plane shear is 0.14 inch.
[4] Allowable shear load applies to both nonbearing and bearing shear walls.

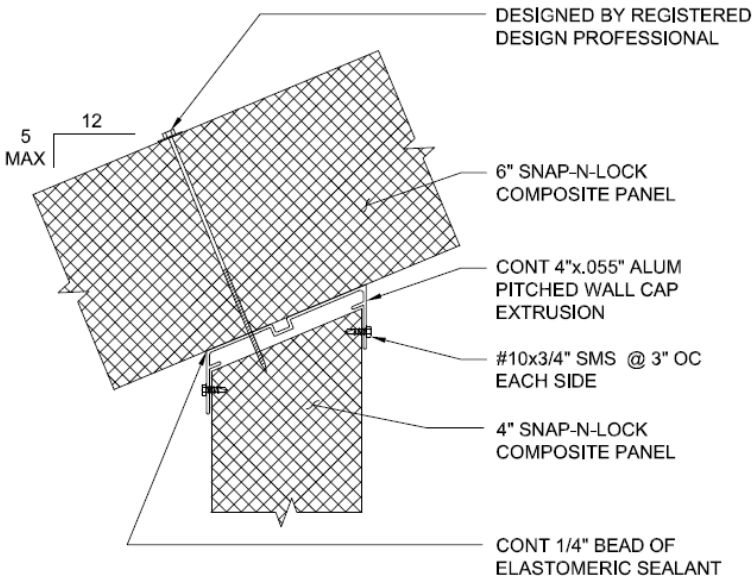

FIGURE 1—PANEL WALL TO PANEL ROOF

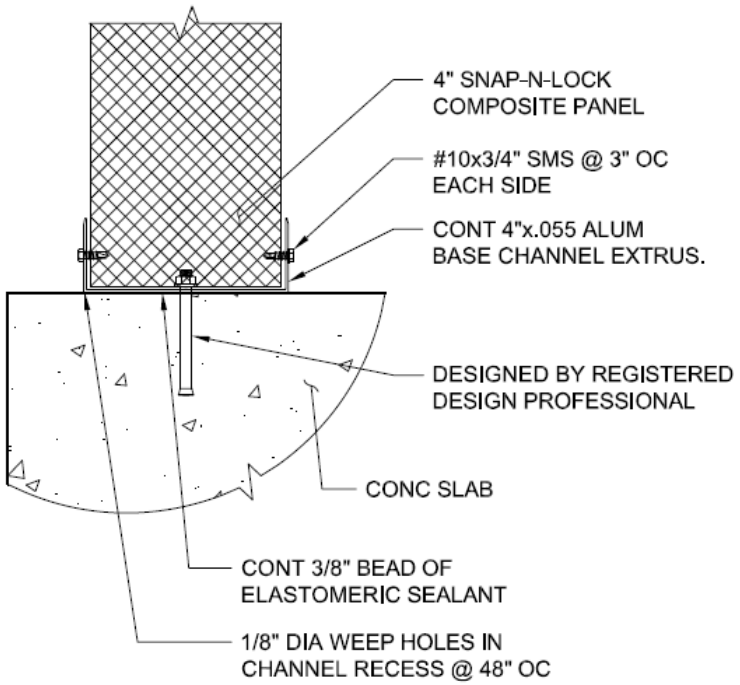

FIGURE 2—PANEL WALL TO SLAB

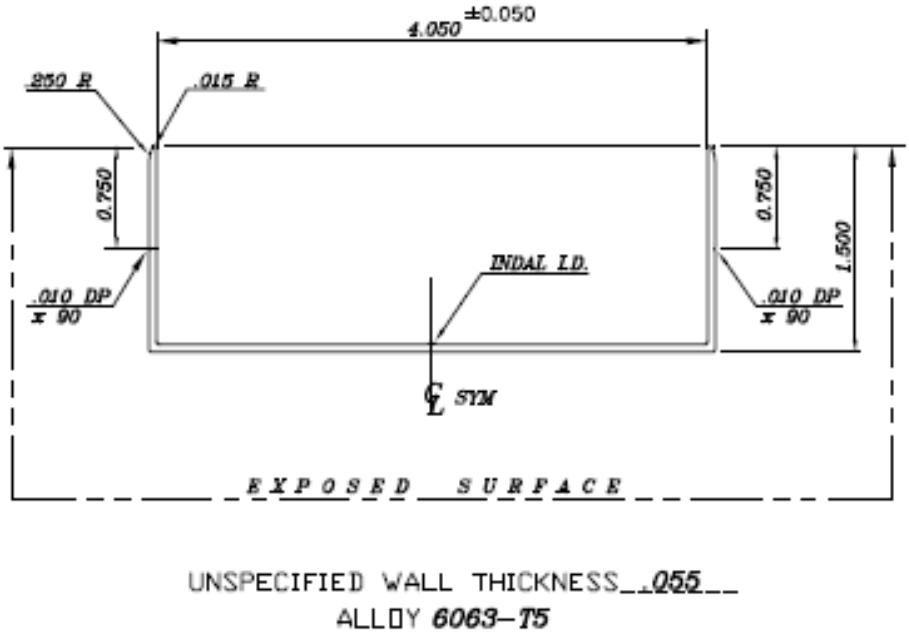

FIGURE 3—BASE CHANNEL

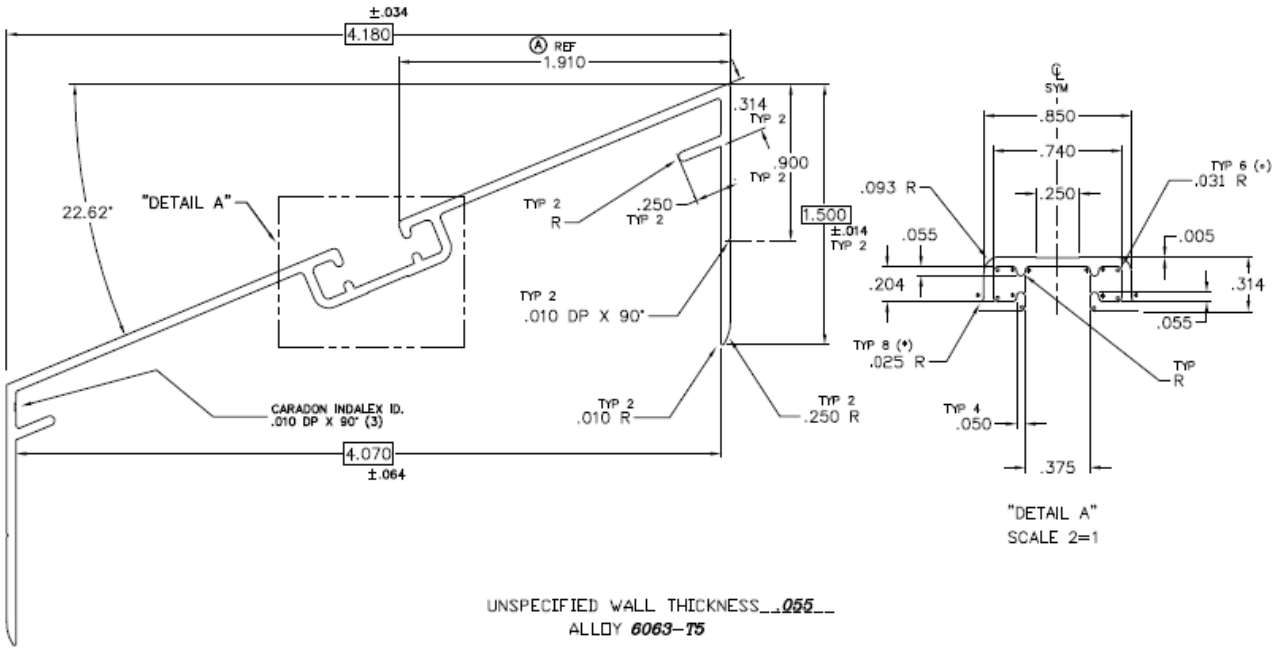

FIGURE 4—WALL CAP

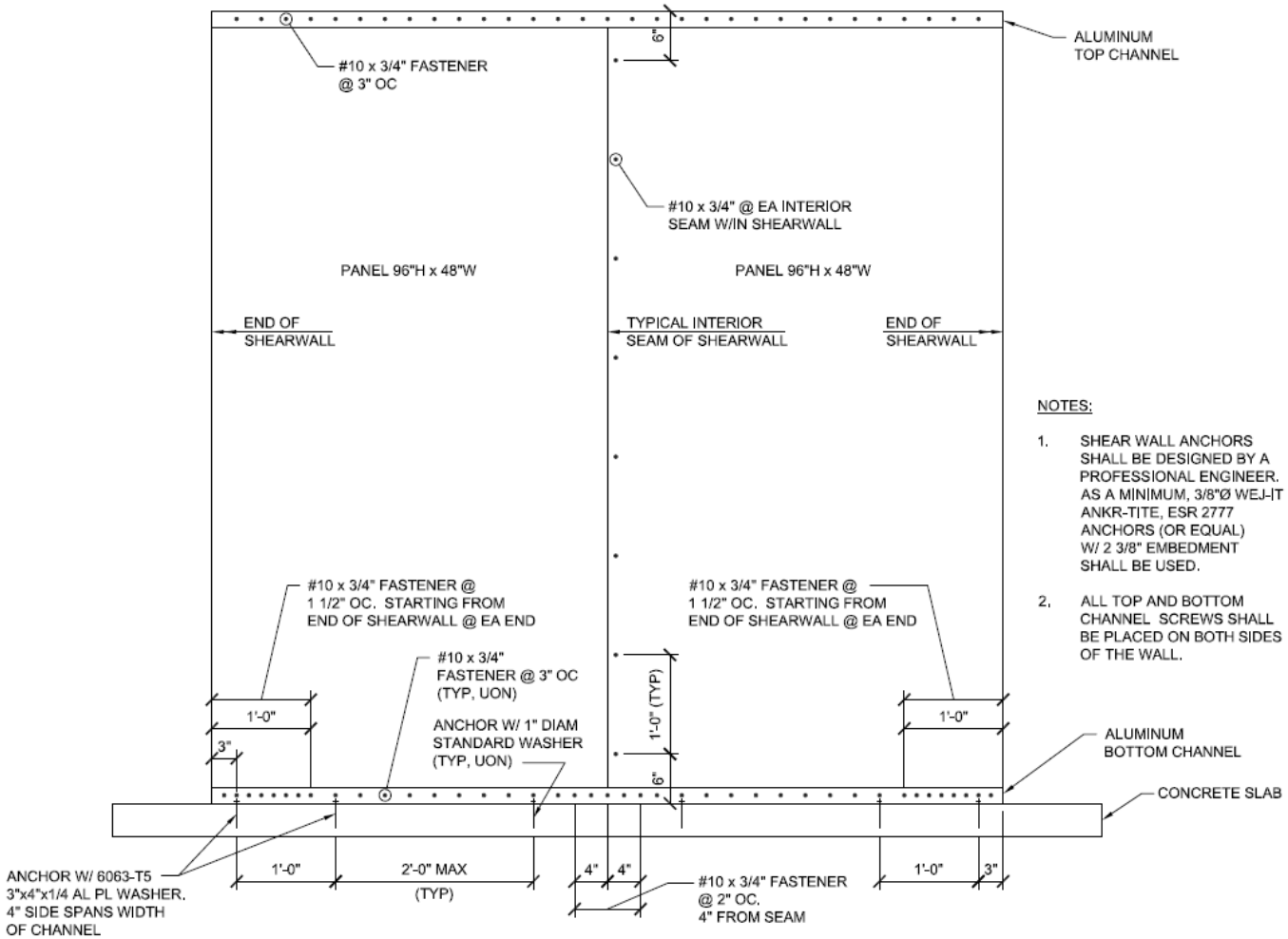

FIGURE 5—SHEAR WALL FASTENING SCHEDULE

High Performance Seismic Shear Wall Fastening Schedule

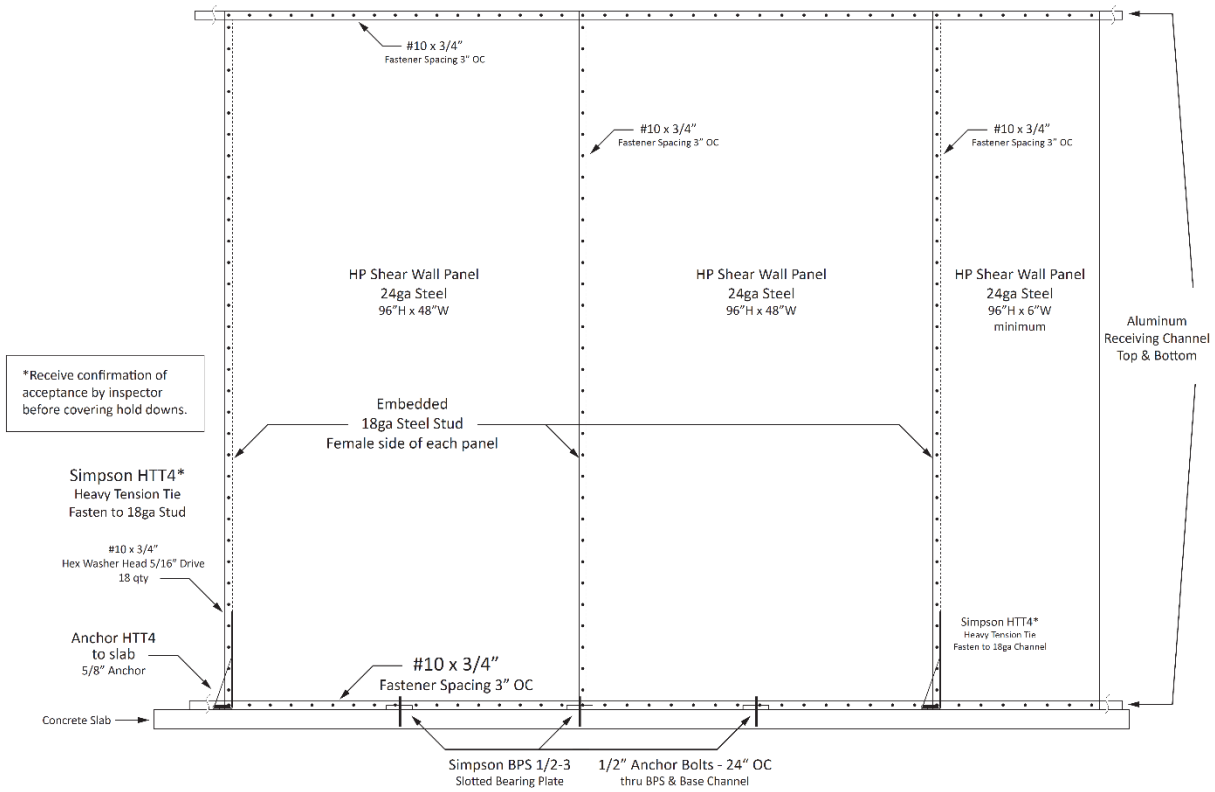

FIGURE 6—HIGH PERFORMANCE SEISMIC SHEAR WALL FASTENING SCHEDULE

ICC-ES Evaluation Report

ESR-3152 CA Supplement

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 41 13—Metal Roof Panels
Section: 07 42 13—Metal Wall Panels

REPORT HOLDER:

STRUCTALL BUILDING SYSTEMS, INC.

EVALUATION SUBJECT:

SNAP-N-LOCK™ COMPOSITE PANEL

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Snap-N-Lock™ Composite Panels, described in ICC-ES evaluation report ESR-3152, have also been evaluated for compliance with the codes noted below.

Applicable codes:

- 2022 *California Building Code*® (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) AKA: California Department of Health Care Access and Information (HCAI) and the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 *California Residential Code*® (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The Snap-N-Lock™ Composite Panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-3152, comply with 2022 CBC Chapters 8, 14, 15, 22, and 26, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions, respectively, noted in the evaluation report ESR-3152 and the additional requirements of the CBC Chapters 15, 16, 17, and 26, as applicable.

2.1.1 OSHPD: The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA: The applicable DSA Sections of the and Chapters CBC are beyond the scope of this supplement.

2.2 CRC:

The Snap-N-Lock™ Composite Panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-3152, comply with 2022 CRC Chapters 3, 6, 7, and 9, provided the design and installation are in accordance with the 2021 *International Residential Code*® (IRC) provisions, respectively, noted in the evaluation report ESR-3152 and the additional requirements of the CRC Chapters 3, 6, 7, and 9, as applicable.

This supplement expires concurrently with the evaluation report ESR-3152, reissued August 2024 and revised April 2025.

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