

ICC-ES Evaluation Report


ESR-1403

Reissued March 2025

Subject to renewal March 2026

ICC-ES Evaluation 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, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

Copyright © 2025 ICC Evaluation Service, LLC. All rights reserved.

DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES Section: 06 12 00— Structural Panels	REPORT HOLDER: TEMO, INC.	EVALUATION SUBJECT: TEMO, INC., STRUCTURAL THERMAL PANELS	
---	--	--	---

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2012, 2009 and 2006 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Structural
- Thermal barrier

1.2 Evaluation to the following green code(s) and/or 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 ICC700-2008)

Properties evaluated:

- See Section 3.1

2.0 USES

Temo, Inc., Structural Thermal Panels are used as structural insulated load-bearing wall, floor and roof panels only in one- and two-family dwellings. An engineered designed is required in accordance with IRC Section R301.1.1.3. Use of the panels under the 2012 and 2009 IRC Section R613 is outside of the scope of this evaluation report.

3.0 DESCRIPTION

3.1 General:

Temo, Inc., Structural Thermal Panels are factory-assembled sandwich panels consisting of oriented strand board (OSB) facings with an expanded polystyrene (EPS) foam plastic core material. The panels vary in size from 4 feet by 8 feet to 4 feet by 24 feet (1.2 m by 2.4 m to 1.2 m by 7.2 m). Panel thicknesses are 4¹/₂ inches or 6¹/₂ inches (114.3 mm and 165 mm). The 4¹/₂-inch-thick (114.3 mm) panels are used for wall panels, roof panels, or floor panels, while the 6¹/₂-inch-thick (165 mm) panels are used for the roof or floor panels. The 6¹/₂-inch-thick (165 mm) panels are permitted for use as wall panels provided their allowable spans are limited to those indicated for the 4¹/₂-inch-thick (114.3 mm) panels.

The attributes of the panels have been verified as conforming to the provisions of (i) CALGreen Section A4.404.3.3 and (ii) ICC 700-2020, ICC 700-2015 and ICC 700-2012 Section 601.5 and 11.601.5; and (iii) and ICC 700-2008 Section 601.5 for prefabricated structural components. 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.

3.2 Materials:

3.2.1 Expanded Polystyrene: The EPS core thickness is $3\frac{5}{8}$ or $5\frac{5}{8}$ inches (92 or 137 mm). The core material is a nominal 1.0-pound-per-cubic-foot (16 kg/m^3), Type I, expanded polystyrene board complying with ASTM C578 and listed in the manufacturer's quality control manual.

3.2.2 Facings: The facing material of the panels is $\frac{7}{16}$ -inch-thick (11 mm), oriented strand board (OSB) rated sheathing classified as Exposure 1, having a span rating of 24/16 and complying with US DOC PS 2.

3.2.3 Adhesive: The facing material is factory-bonded to the EPS core material with the adhesive specified in the Temo, Inc., quality-control manual: ISOGrip SP 3030D, manufactured by Ashland Specialty Chemical Company and evaluated in evaluation report [ESR-1140](#).

3.2.4 Splines: Splines shall be minimum spruce-pine-fir No. 2 grade with a minimum specific gravity of 0.42. The splines shall be of nominally 2-by-4 or 2-by-6 lumber for, respectively, $4\frac{1}{2}$ -inch-thick (114.2 mm) and $6\frac{1}{2}$ -inch-thick (165 mm) panels.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Allowable Loads: Temo, Inc., Structural Thermal Panels shall be limited to the properties and loading conditions indicated in [Tables 1](#) through [3](#) of this report. Allowable loads shall be permitted to be used for shorter spans or heights. Extrapolation is not permitted. The allowable loads shown in these tables shall be for the Temo, Inc., Structural Thermal Panels only and do not take into consideration the fasteners and the supporting elements for these panels. These components of the assembly shall conform to the requirements of the applicable code for these items.

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

4.2 Installation:

4.2.1 General: Temo, Inc., Structural Thermal Panels shall be connected to each other along the panel edges by insertion of the lumber splines described in Section 3.2.4. The lumber shall be secured between the panels with $2\frac{3}{8}$ -inch-long (60 mm), 8d, common full round head nails spaced 6 inches (152.4 mm) on center at the panel edges. The panels shall be attached to top and bottom plates of nominally 2-by-4 or 2-by-6 lumber (depending on panel thickness) using $2\frac{3}{8}$ -inch-long (60 mm), 8d, common full round head nails spaced 6 inches (152.4 mm) on center.

When the axial loading along the top of the panel used as a bearing wall is uniform, a single-top plate is required. Axial loads are to be applied to the full panel thickness. Typical methods for framing a roof system into the wall panels are shown in [Figures 1](#) through [3](#). Specific methods for panel connections to each other and to the supporting construction shall be included in the design calculations and details submitted to the code official as noted in Section 5.4 of this report.

Wall openings for doors and windows shall be framed with conventional materials, designed in accordance with the applicable code to the satisfaction of the code official.

4.2.2 Thermal Barriers:

4.2.2.1 Wall, Ceiling, and Roof Panels: Minimum $\frac{5}{8}$ -inch-thick (15.88 mm), Type X gypsum wallboard shall separate the Temo, Inc., Structural Thermal Panels from the interior of the building. The thermal barrier shall be attached to the OSB facings using minimum $1\frac{1}{4}$ -inch (32 mm) drywall screws spaced 8 inches (203 mm) on center on the perimeter and in the field of wallboard, with the fastener rows spaced 24 inches (610 mm) on center. Wallboard joints shall be taped and covered with gypsum compound, and all screw heads shall be covered with two coats of compound.

4.2.2.2 Floor Panels: An approved thermal barrier, such as $\frac{3}{4}$ -inch-thick plywood shall separate the Temo, Inc., Structural Thermal Panels from the interior of the building. The thermal barrier shall be attached to the OSB facings in accordance with the applicable code.

4.2.3 Panel Cladding:

4.2.3.1 Roof Covering: The roof covering shall comply with the applicable code. Underlayment and flashing shall be installed in accordance with the applicable code. Roofs with hot-asphalt or hot-coal tar pitch are prohibited.

4.2.3.2 Exterior Wall Covering: Panels, at the time of their erection and placement, shall be covered on the exterior by a water-resistive barrier in accordance with the requirements of the applicable code. Under Section 2510.6 of the IBC, when exterior plaster is applied over wood-based sheathing, the water-resistive barrier shall be two layers of Grade D paper. Installation methods shall be in accordance with the water-resistive barrier manufacturer's recommendations, subject to approval by the code official. The exterior of the wall panels shall be covered with an approved exterior wall covering complying with the requirements of the applicable code. Flashing shall be installed in accordance with the applicable code.

4.2.3.3 Interior Finish: The thermal barrier required in Section 4.2.2 shall be covered with an approved interior finish material complying with the requirements of the applicable code.

5.0 CONDITIONS OF USE:

The Temo, Inc., Structural Thermal Panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Temo, Inc., Structural Thermal Panels are fabricated, identified and erected in accordance with this report and the manufacturer's published installation instructions.
- 5.2** The panels require a thermal barrier as noted in Section 4.2.2 of this report.
- 5.3** Design loads to be resisted by the panels shall be determined in accordance with the applicable code, and shall not exceed the allowable panel loads noted in this report.
- 5.4** Each structure built using Temo, Inc., Structural Thermal Panels shall be designed by a registered design professional. Construction documents, including engineering calculations and drawings providing floor plans, window details, door details, and connector details, shall be submitted to the code official when application is made for a permit, to verify compliance with this report and the applicable code. The design calculations and details shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.5** Temo, Inc., Structural Thermal Panels shall be installed a minimum of 6 inches (152 mm) above finish grade, and the panels shall not be installed below grade or in contact with earth.
- 5.6** The panels are limited to use in buildings of Type V-B construction and, when used as shear walls, to Seismic Design Categories A, B and C.
- 5.7** The panels and their attachments shall be subject to inspection by the code official prior to their being covered with an approved water-resistive barrier or roof covering.
- 5.8** The panels shall be fabricated in Clinton Township, Michigan, 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.
- 6.2** Test report on thermal barrier in accordance with UL 1715.

7.0 IDENTIFICATION

- 7.1** Each Temo, Inc., Structural Thermal Panel shall be identified by a stamp or label on the panel that includes the product panel number, the name and address of the manufacturer (Temo, Inc.), the evaluation report number (ESR-1403), and the wording "For Use in One- and Two-Family Dwellings Only."
- 7.2** The report holder's contact information is the following:

TEMO, INC.
20400 HALL ROAD
CLINTON TOWNSHIP, MICHIGAN 48038
(586) 286-0410
www.temosunrooms.com

TABLE 1—ALLOWABLE IN-PLANE RACKING SHEAR LOADS

PANEL PARAMETERS	4 ¹ / ₂ -INCH-THICK PANEL ^{1,2}
Maximum panel height	8 feet
Minimum wall length—shearwall strength	8 feet
Allowable racking load	145 plf

For **SI**: 1 in. = 25.4 mm, 1 plf = 14.594 N/m.

¹Fasteners shall be 2 ³/₈-inch-long, 8d, common full round head nails, spaced at 6 inches on center, on the perimeter and at panel joints.

²Panels thicker than 4¹/₂ inches are permitted to be used for racking loads provided their allowable loads are limited to those indicated for 4¹/₂-inch-thick panels.

TABLE 2—ALLOWABLE AXIAL LOADS

PANEL PARAMETERS	4 ¹ / ₂ -INCH-THICK PANEL ^{1,2}
Height	8 feet
Width	4 feet
Allowable axial load	2,232 plf

For **SI**: 1 in. = 25.4 mm, 1 plf = 14.594 N/m.

¹Fasteners shall be 2 ³/₈-inch-long, 8d, common full round head nails, spaced at 6 inches on center.

²Panels thicker than 4¹/₂ inches are permitted to be used for axial loads, provided their allowable loads are limited to those presented for 4¹/₂-inch-thick panels.

TABLE 3—ALLOWABLE UNIFORM TRANSVERSE APPLIED LOAD^{1,2}

PANEL SPAN (feet)	DEFLECTION LIMIT RATIO	ALLOWABLE TRANSVERSE LOAD (psf)	
		Panel Thickness	
		4 ¹ / ₂ inches	6 ¹ / ₂ inches
6	L/180	63	75
	L/240	63	75
	L/360	47	75
8	L/180	46	55
	L/240	46	55
	L/360	31	55
10	L/180	33	43
	L/240	36	43
	L/360	22	41
12	L/180	30	35
	L/240	23	35
	L/360	16	30
14	L/180	23	30
	L/240	17	30
	L/360	12	23
16	L/180	17	26
	L/240	13	26
	L/360	9	18
18	L/180	13	22
	L/240	10	21
	L/360	7	14

For **SI**: 1 in. = 25.4 mm, 1 psf (lbf/ft²) = 47.88 Pa.

¹Allowable loads are for “applied” loads. Self-weight of panel is not required to be included in the allowable loads shown.

²Based upon maximum panel width of 4 feet.

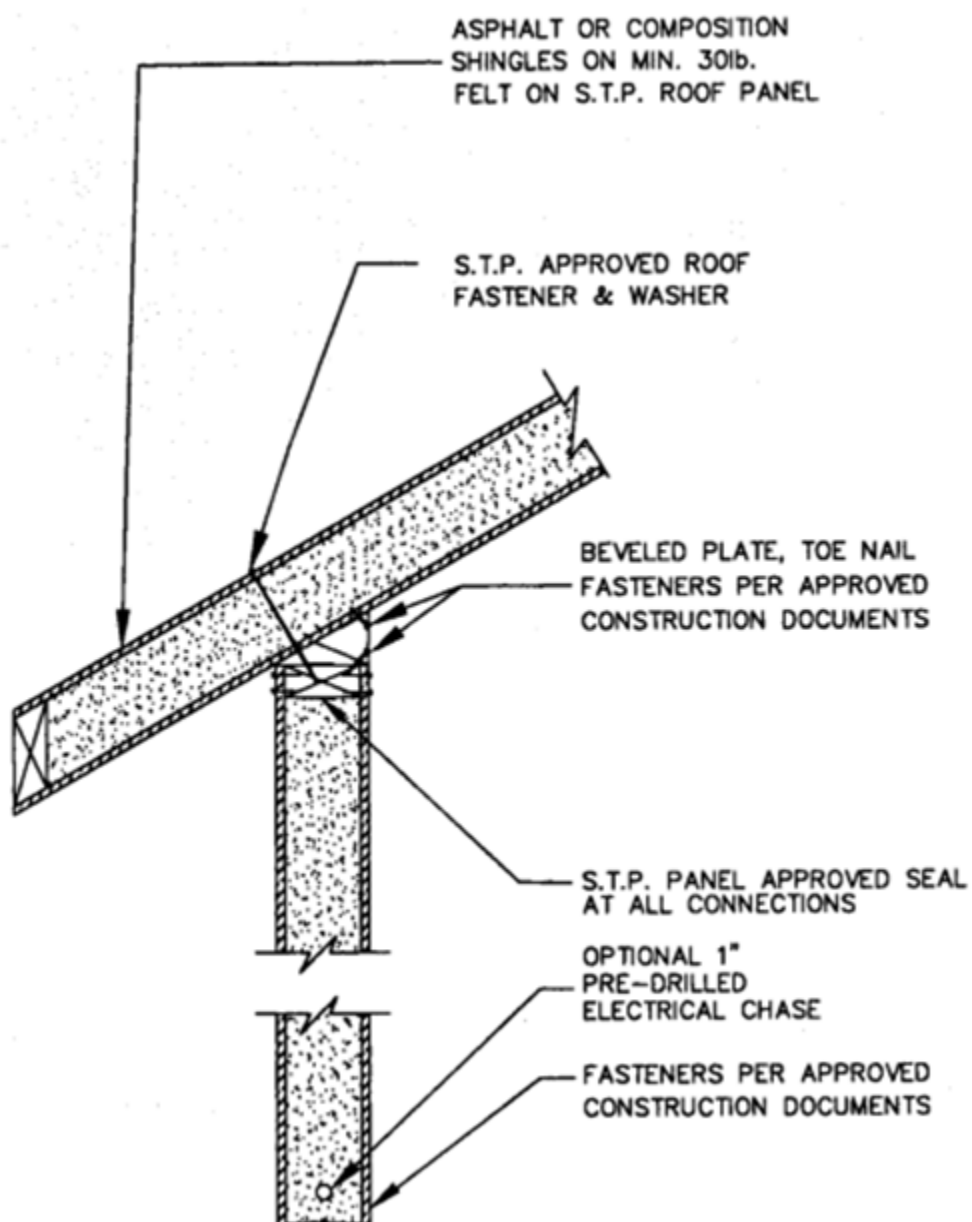


FIGURE 1—ROOF AND WALL CONNECTION

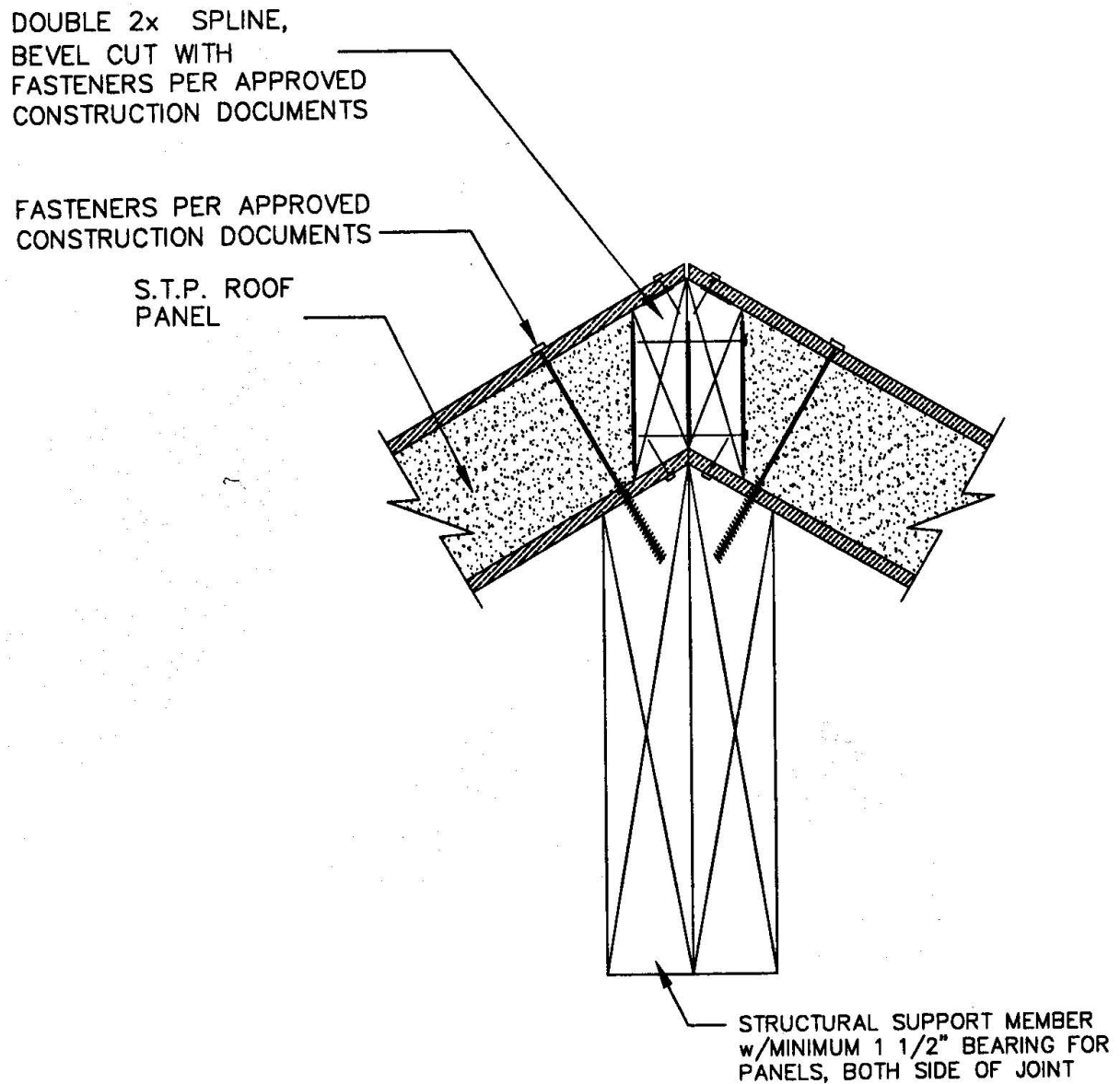


FIGURE 2—ROOF RIDGE PLUMB CUT

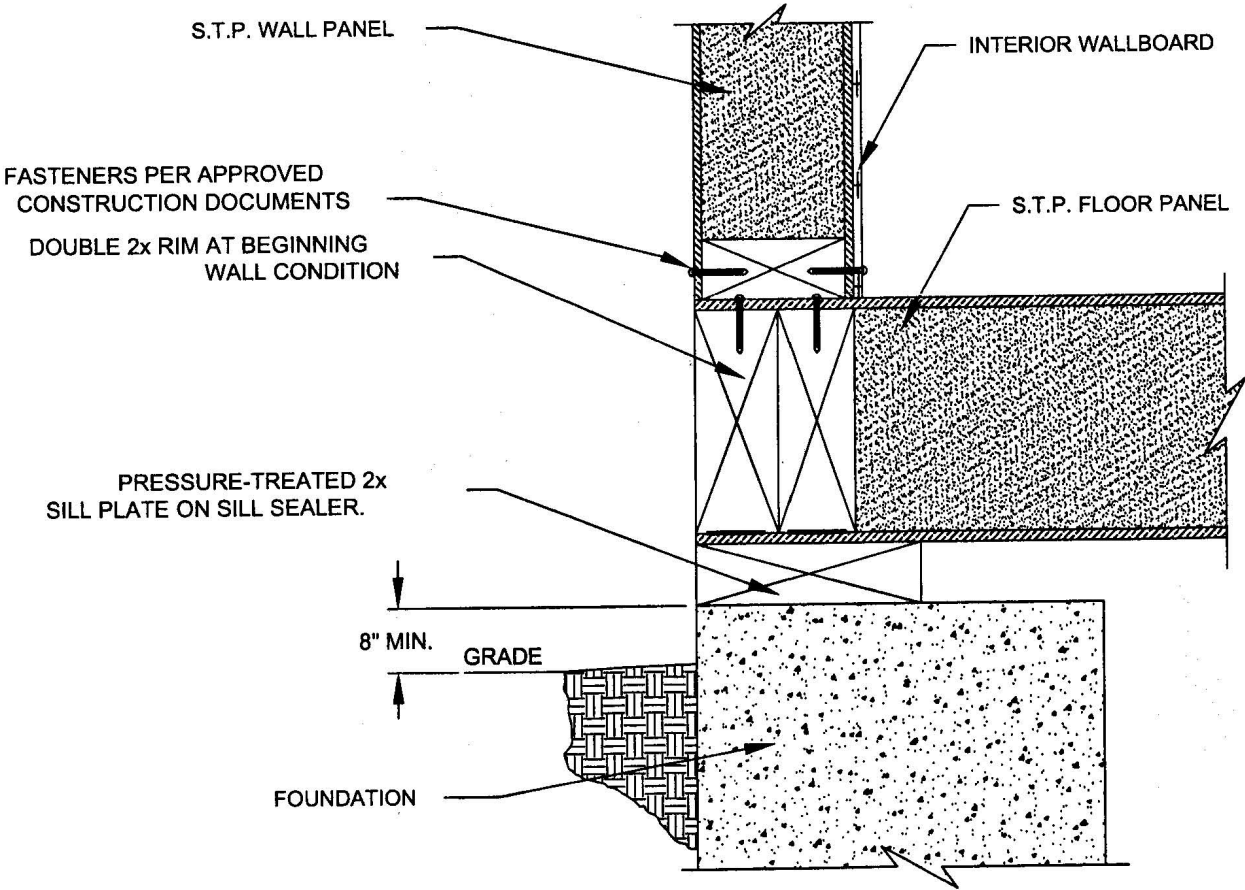


FIGURE 3—FOUNDATION AND WALL CONNECTIONS