



CODE EVALUATION REPORT

CERUs-1067

PUBLISHED: July 2026
REVISED: July 2026
EXPIRATION: July 2029

PRODUCT(s): THERMAFLOW

REPORT HOLDER: The Ensoltis Corporation

CONTACT DETAILS: 15205 Road 28 ½
Madera, California
93638 USA

CSI DIVISIONS: 07 00 00 – Thermal and Moisture Protection

CSI SECTION: 07 21 00 – Thermal Insulation
07 22 00 – Roof and Deck Insulation

APPLICABLE CODES: 2024, 2021, 2018, 2015 International Building Code (IBC)
2024, 2021, 2018, 2015 International Residential Code (IRC)
2023 Florida Building Code (FBC)
2025 California Building Code (CBC)
2023 Los Angeles Building Code (LABC)

EVALUATED: Physical Properties
Surface-Burning Characteristics
Roof-Fire Classification
Wind Uplift



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1.0 APPROVED FOR FOLLOWING:

APPROVED TYPES OF CONSTRUCTION:	Types I-V/AB
APPROVED USES:	Above-deck roof insulation panels as nailable substrate over code compliant roof sheathing.
APPROVED INSTALLATIONS:	New and existing (re-roofing) applications, including use in roof-fire classified A, B and C assemblies.

2.0 DESCRIPTION:

2.1 General:

THERMAFLOW is an above-deck nail-base insulation panel intended for use in new and existing steep-slope roof assemblies in areas governed by the IBC and IRC. THERMAFLOW consists of an expanded polystyrene (EPS) foam core with integrally formed ventilation channels and a factory-laminated oriented strand board (OSB). THERMAFLOW panels are manufactured in nominal dimensions of 48 inches (1219 mm) by 96 inches (2438 mm) with a nominal thickness of 2.75 inches (70 mm).

THERMAFLOW panels comply as roof insulation in accordance with Section 1508.2 of the 2024 / 2021 / 2018 / 2015 IBC and Section R906 of the 2024 / 2021 / 2018 / 2015 IRC. Installation is to comply with the applicable code, with THERMAFLOW installed over code-complying roof sheathing and a first layer underlayment.

THERMAFLOW roof insulation panels comply with Section 1508.2 of the 2023 FBC for use as roof insulation panels, including use in roof classified assemblies per Section 1505.1 of the 2023 FBC. THERMAFLOW is limited to use in areas not designated as High Velocity Hurricane Zones. See Section 10.1 of this report for additional details.

THERMAFLOW roof insulation panels comply with Section 1508.2 of the 2025 CBC for use as roof insulation panels, including use in roof classified assemblies per Section 1505.1 of the 2025 CBC. See Section 10.2 for additional details.

THERMAFLOW roof insulation panels comply with Section 504.2 of the 2025 CWUIC for use in areas identified by the state as a Fire Hazard Severity Zone or any Wildland-Urban Interface when used as a component of Class A roof-fire classified assemblies as outlined in Sections 4.4 and 8.2 Table 2 of this report. See Section 10.3 for additional details.

THERMAFLOW roof insulation panels comply with Section 1508.2 of the 2023 LABC for use as roof insulation panels, including use in roof classified assemblies per Section 1505.1 of the 2023 LABC. See Section 10.4 for additional details.

2.2 PRODUCT COMPONENTS:

2.2.1 EPS Foam:

THERMAFLOW includes an expanded polystyrene (EPS) foam insulation which has a minimum thickness of 2 ¼ in (57 mm). THERMAFLOW EPS meets Type II classifications per ASTM C578. THERMAFLOW EPS has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E84. THERMAFLOW EPS is listed by an *Approved Agency*.



The EPS foam complies with Section 2603.2 of the 2024 / 2021 / 2018 / 2015 IBC Section R316.2 of the 2024 / 2021 / 2018 / 2015 IRC.

2.2.2 Oriented Strand Board (OSB):

THERMAFLOW incorporates a factory-adhered 7/16-inch (11 mm) Exposure 1 rated OSB facer bearing labeling of compliance to PS-2 in accordance with Section 2303.1.5 of the 2024 / 2021 / 2018 / 2015 IBC, and Section R803.2 of the 2024 / 2021 / 2018 / 2015 IRC.

2.2.3 Bonding System:

THERMAFLOW panels include an approved bonding system used to laminate the 7/16-inch (11 mm) OSB wood-structural panel to the EPS. Details of the approved bonding system are maintained in approved quality control documentation.

2.2.4 Fasteners:

The evaluated THERMAFLOW assembly used exterior-grade, corrosion-resistant #10 coarse-thread structural wood screws of minimum 5-inches (127 mm) in length for jurisdictions governed by the IRC, or of length sufficient to penetrate underlying framing as required by the applicable design for structures governed by the IBC.

3.0 DESIGN:

THERMAFLOW panels are above-deck roof insulation panels intended for installation over code-compliant wood structural panel roof sheathing and underlayment, for use with code-compliant underlayment and roof coverings.

Where used on structures governed by the IRC, THERMAFLOW does not require professional design when installed in accordance with Sections 4.1 to 4.4 of this report. Where used on structures governed by the IBC, installation is to be limited to use on structures subjected to maximum wind uplift pressures as outlined in Section 8.1 Table 1 of this report. Maximum positive loading is governed by the underlying code-complying roof sheathing.

When used in applications requiring roof fire classified assemblies, installation shall be in accordance with Section 4.4 and Section 8.2 Table 2 of this report.

Use in applications outside those described in this report requires approval by the authority having jurisdiction.

4.0 INSTALLATIONS:

4.1 General:

Installation of THERMAFLOW is to 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. Where differences occur, the applicable code and this report are to be followed.



4.2 New Construction:

THERMAFLOW panels are installed over a code-compliant structural wood panel roof sheathing materials and installation complying with the applicable code. A first layer underlayment is required over the wood structural roof sheathing with underlayment type and installation complying with the applicable code and the manufacturer's installation instructions for intended use, prior to installation of THERMAFLOW. THERMAFLOW panels are installed horizontally with staggered joints and fastened through the underlying roof deck or sheathing into roof framing elements spaced at maximum 24-inches (610 mm) on center. Fasteners shall be of sufficient length to pass through THERMAFLOW and the full roof-deck or sheathing thickness and achieve a minimum 3/4-inch (19 mm) penetration into the underlying rafter or framing for maintaining wind uplift resistance noted in Table 1 found in Section 8.1 of this report. After installation, THERMAFLOW is to be covered with a second layer code-complying underlayment installed in accordance with the applicable code, and the underlayment manufacturer's installation instructions for weather protection of THERMAFLOW. Following, an approved roof covering is to be installed in accordance with the applicable code.

Where used in roof-fire classified assemblies the installation of the roof covering, the secondary underlayment over THERMAFLOW, and installation of THERMAFLOW are to be in accordance with Section 4.4 and Section 8.2 Table 2 of this report.

4.3 Reroofing Applications:

Where installed in reroofing applications, the existing roof covering and underlayment are to be removed and the roof deck or sheathing inspected to confirm that it is structurally sound, properly supported, adequately attached, and free of rot, debris, and deficiencies. Where deficiencies exist, they are to be corrected prior to re-roofing. Following, THERMAFLOW is to be installed in accordance with Section 4.2 of this report over the code-compliant roof deck or sheathing and first layer of code-complying underlayment.

Reroofing applications must comply with Section 1512 of the 2024 / 2021 IBC, Section 1511 of the 2018 / 2015 IBC, or R908 of the 2024 / 2021 / 2018 / 2015 IRC as appropriate.

4.4 Roof Fire Classified Assemblies:

THERMAFLOW can be used as an approved component of Class A, B, and C roof-fire classified assemblies, where the roof covering is approved for use over a code-compliant OSB wood structural panel. Original roof covering listing applies to installation over THERMAFLOW, where THERMAFLOW is considered the underlying combustible 7/16" (11 mm) thickness OSB substrate component of the roof covering ASTM E108 certified assembly. See Table 2 Section 8.2 for additional details.

5.0 LIMITATIONS:

- Installation must comply with this report, the manufacturer's published installation instructions, and the applicable code. In the event of a conflict between the manufacturer's instructions, the applicable code or this report, this report and the applicable code are to be followed.
- THERMAFLOW is intended for installation over code-complying structural wood panel sheathing and underlayment weather protection. Installation of the code-complying structural wood panel and first layer underlayment are outside the scope of this report and are to be in accordance with the applicable code for resisting intended service loads.
- THERMAFLOW panels are approved for use on structures governed by the IRC, and for structures limited to maximum uplift pressures noted in Section 8.1 Table 1 of this report. Use in applications greater than those stated are outside the scope of this report and require approval by the authority having jurisdiction.
- Where THERMAFLOW panels are installed in Class A, B, or C roof-fire classified assemblies, installation is to be installed in accordance with Sections 4.4 and 8.2 Table 2 of this report and in accordance with the roof-fire classified assembly certification listing.
- THERMAFLOW is intended for use with code compliant roof coverings and a secondary underlayment layer. Installation of these layers is to comply with the applicable code and are outside the scope of this report.
- THERMAFLOW panels are produced in Madera, CA, with inspections by QAI Laboratories

6.0 SUPPORTING INFORMATION:

The following data has been evaluated for THERMAFLOW:

- Data outlining compliance with physical property requirements of rigid cellular polystyrene insulation determined in accordance with ASTM C578.
- Data outlining compliance for surface burning characteristics evaluated to ASTM E84.
- Data for use in roof fire classified assemblies determined in accordance with ASTM E108.
- Data for wind uplift resistance evaluated in accordance with UL 1897.
- Data for load resistance and impact performance of roof panel systems evaluated in accordance with ASTM E661.

7.0 MARKINGS:

THERMAFLOW panels include the following information on the product label:

- Product Name.
- Manufacturer.
- Country of Manufacture.
- QAI CERus-1067.
- QAI Certification Mark shown below:





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8.0 RATINGS

8.1 Wind Uplift Resistance:

Table 1 – Maximum Allowable Wind Uplift Pressures

Roof Deck ^{1,2}	First Layer Underlayment ³	Insulated Roofing Panel ⁴	Roof Covering ^{5,6}	Allowable Wind Uplift ⁷ (psf) kPa)
Dimensional Lumber Framing with Code Compliant Wood Panel Sheathing	Underlayment installed in accordance with the applicable code and manufacturer's published installation instructions.	THERMAFLOW	Code compliant roof covering over second layer of underlayment. Roof covering and underlayment to be installed in accordance with applicable code to resist expected service loads.	98 (4.3)

1. Framing element type and anchoring to structure is to be in accordance with the applicable code and sufficient to resist service loads.
2. Wood structural panel sheathing type and attachment to underlying framing elements are to be in accordance for the applicable code for resisting intended service loads.
3. First layer underlayment type and installation shall be installed in accordance with the applicable code and the manufacturer's published installation instructions for intended use.
4. THERMAFLOW must be installed in accordance with Sections 4.1 to 4.4 of this report, and in accordance with the applicable code
5. Roof coverings are to be installed over the THERMAFLOW panels in accordance with the applicable code to resist expected service loads. Anchoring of the roof coverings is to be in accordance with the roof covering published installation instructions for wind uplift resistance required.
6. Second layer underlayment is to be installed in accordance with the applicable code and manufacturer's installation instructions for intended use.
7. Maximum uplift pressure was determined in accordance with UL 1897 with a factor of safety of 2 applied.

8.2 Roof Fire Classified Assemblies:

Table 2 – Roof Fire Classified Assemblies

Roof Deck ^{1,2}	First Layer Underlayment ³	Insulated Roof Panel ⁴	Roof Covering System ^{5,6}
Code complying elements with code compliant wood structural panel.	Underlayment installed in accordance with the applicable code and manufacturer's published installation instructions.	THERMAFLOW	Listed Class A, B or C roof-fire classified assembly, where approved over OSB sheathing. THERMAFLOW is the OSB sheathing component, maintaining the roof-fire classification.

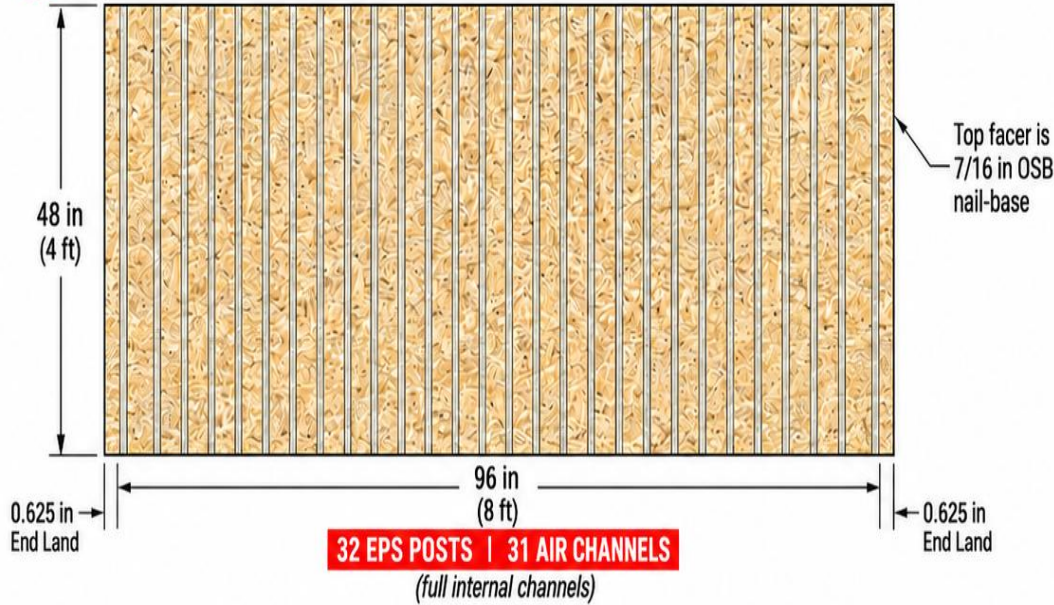
1. Framing element type and anchoring to structure is to be in accordance with the applicable code and sufficient to resist service loads.
2. Wood structural panel sheathing type and attachment to underlying framing elements are to be in accordance for the applicable code for resisting intended service loads.
3. First layer underlayment type and installation shall be installed in accordance with the applicable code and the manufacturer's published installation instructions for intended use.
4. THERMAFLOW component acts as the OSB sheathing substrate. THERMAFLOW must be installed in accordance with Sections 4.1 to 4.4 of this report, and in accordance with the applicable code
5. Roof coverings and underlayment are to be installed in accordance with the approved certification listing for maintaining roof-fire classification compliance.
6. Listed assembly is certification provided by an ISO 17065 accredited certification body, or a roof-fire classified assembly approved by the authority having jurisdiction

9.0 PRODUCT DETAILS:

9.1 Profile Drawing

THERMAFLOW - PANEL PROFILE DRAWING

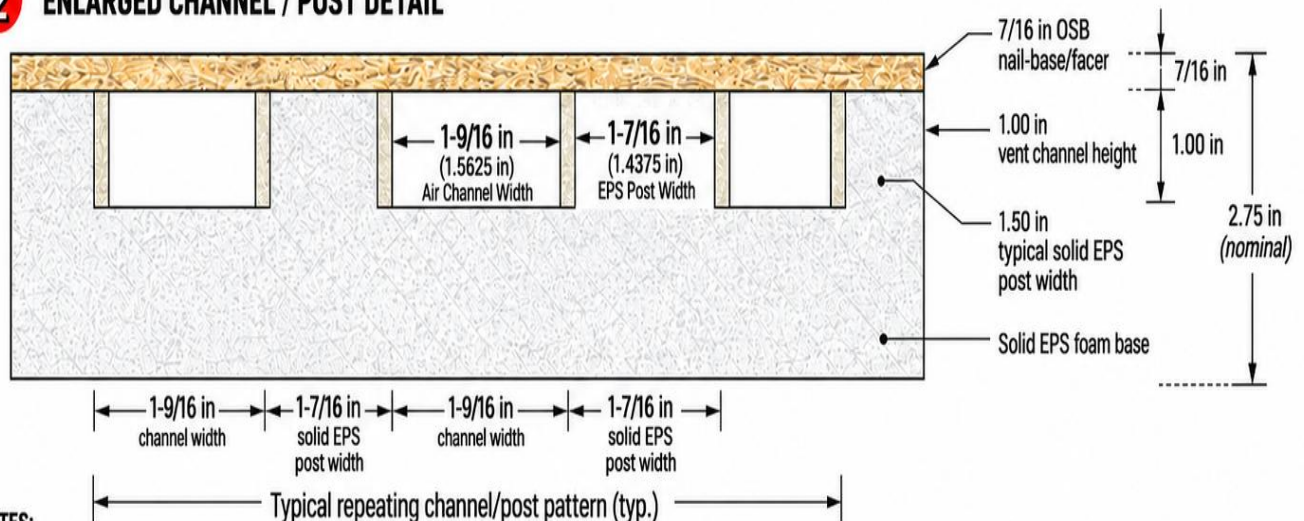
1 OVERALL PANEL VIEW



NOTE:

Edge lands may be adjusted so adjacent panels align when butted together.

2 ENLARGED CHANNEL / POST DETAIL



NOTES:

- Dimensions shown are nominal.
- Ventilation channels run the full 8 ft length of the panel.
- Edge lands may be adjusted so adjacent panels align when butted together.



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10.0 SUPPLEMENTAL CODES:

10.1 2023 Florida Building Code

THERMAFLOW panels as detailed in Sections 2.0 to 9.0 of this report comply with the 2023 FBC when installed in accordance with the applicable building codes and this report.

THERMAFLOW roof insulation panels comply with Section 1508.2 of the 2023 FBC for use as roof insulation panels, including use in roof classified assemblies per Section 1505.1 of the 2023 FBC. THERMAFLOW is limited to use in areas not designated as *High Velocity Hurricane Zones*.

10.2 2025 California Building Code

THERMAFLOW panels as detailed in Sections 2.0 to 9.0 of this report comply with the 2025 CBC when installed in accordance with the applicable building codes and this report.

Where used in areas identified by the state as a *Fire Hazard Severity Zone* or any *Wildland-Urban Interface (WUI)* designated by the enforcing agency, THERMAFLOW is approved for use in Class A rated assemblies evaluated in accordance with ASTM E108 when installed in accordance with the respective Class A assembly outlined in Table 2 Section 8.2 of this report.

10.3 2025 California Wildland-Urban Interface Code

THERMAFLOW roof insulation panels comply with Section 504.2 of the 2025 CWUIC for use in areas identified by the state as a *Fire Hazard Severity Zone* or any *Wildland-Urban Interface* when used as a component of Class A roof-fire classified assemblies when installed in accordance with Sections 4.4 and 8.2 Table 2 of this report.

10.4 2023 Los Angeles Building Code

THERMAFLOW panels as detailed in Sections 2.0 to 9.0 of this report comply with the 2023 LABC when installed in accordance with the applicable building codes and this report.

11.0 ELIGIBILITY OF REPORT

QAI's Code Evaluation Report complies with the 2024 IBC Section 104.2.3.6.1 *Evaluation reports* and the 2021 / 2018 / 2015 IBC Section 104.11.1 *Research Reports*. Supporting data has been evaluated by QAI for compliance of the noted materials and assemblies to the applicable code by QAI, and *approved* source as detailed below.

The attached report has been reviewed by a QAI Registered Professional Engineer approved by the specific state Board of Professional Engineers noted on the specific P.E. seal(s).

Per section 1703 of the IBC, QAI is an independent third-party testing, inspection and certification agency accredited by the International Accreditation Service, Inc. (IAS) for this specific scope (see IAS PCA-118). QAI can confirm that based on its IAS accreditation it meets IBC Section 1703.1 on Independence, Section 1703.1.2 on Equipment and Section 1703.1 on Personnel.

This Evaluation report has been designed to meet the performance requirements of IBC Section 1703.4 and contains the required information to show the product, material or assembly meets the applicable code requirements.

The product is labeled per section IBC 1703 and subject to follow-up inspection per IBC 1703.6 using QAI IAS accredited ISO/IEC 17020 inspection program (see IAS AA-723).

For more information regarding QAI Laboratories, please visit www.qai.org.



The above is an example of the QAI registered Listing mark. The Listing mark may only be used by the Report Holder per the QAI service agreement on products defined in this report. The 'us' indicator in the 4 o'clock position indicates the product complies with the properties evaluated with limitations outlined in this report for use in the US market.





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12.0 REFERENCED STANDARDS

ASTM E108 *Standard Test Methods for Fire Tests of Roof Coverings*

ASTM E84 *Standard Test Method for Surface Burning Characteristics of Building Materials*

ASTM C578 *Specification for Rigid, Cellular Polystyrene Thermal Insulation*

ASTM E661 *Standard Test Method for Performance of Wood and Wood-Based Floor and Roof Sheathing under Concentrated Static and Impact loads.*

UL 1897 *Standard for Safety Uplift Tests for Roof Coverings*