



CERTIFICATION



Technical Evaluation Report™

TER 1808-05

OX ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD, & ISO RED MAX® HD Foam Plastic Insulating Sheathing – Limit States – Canada

OX Engineered Products, LLC

Product:
ISO RED Polyiso Foam Insulated Sheathing Products

Issue Date:
November 19, 2018

Revision Date:
September 6, 2023

Subject to Renewal:
October 1, 2024



Use the QR code to access the most recent version or a sealed copy of this Technical Evaluation Report (TER) at drjcertification.org.



COMPANY
INFORMATION:

ADDITIONAL
LISTEES:

OX Engineered Products, LLC
22260 Haggerty Rd Ste 365
Northville, MI 48167-8970

OX Engineered Products, LLC
1255 N 5th St
Charleston, IL 61920-1175

P: 989-798-5923

P: 269-435-2425

oxengineeredproducts.com

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION SECTION: 07 22 00 - Roof and Deck Insulation

SECTION: 07 20 00 - Thermal Protection

SECTION: 07 25 00 - Water-Resistive Barriers/Weather Barriers

SECTION: 07 21 00 - Thermal Insulation

SECTION: 07 27 00 - Air Barriers

1 Innovative Products Evaluated¹

- 1.1 ISO RED Polyiso Foam Insulated Sheathing Products
 - 1.1.1 ISO RED CI® Polyiso Foam Insulated Sheathing
 - 1.1.2 ISO RED CI® XS Polyiso Foam Insulated Sheathing
 - 1.1.3 ISO RED MAX® Polyiso Foam Insulated Sheathing
 - 1.1.4 ISO RED MAX® WF Polyiso Foam Insulated Sheathing
 - 1.1.5 ISO RED MAX® GF Polyiso Foam Insulated Sheathing
 - 1.1.6 ISO RED MAX® LD Polyiso Foam Insulated Sheathing
 - 1.1.7 ISO RED MAX® HD Polyiso Foam Insulated Sheathing

2 Applicable Codes and Standards²

- 2.1 Codes
 - 2.1.1 *NBC—10, 15, 20: National Building Code of Canada*
 - 2.1.2 *NECB—17, 20: National Energy Code of Canada for Buildings*
- 2.2 Standards and Referenced Documents
 - 2.2.1 *AAMA 711: Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products*
 - 2.2.2 *ANSI ABTG/FS 100: Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies*
 - 2.2.3 *ASTM C203: Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation*
 - 2.2.4 *ASTM C209: Standard Test Methods for Cellulosic Fiber Insulating Board*
 - 2.2.5 *ASTM C518: Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

¹ For more information, visit drjcertification.org or call us at 608-310-6748.

² Unless otherwise noted, all references in this TER are from the 2020 version of the NBC. This alternative solution is also approved for use with the 2010 and 2015 NBC and the standards referenced therein.

- 2.2.6 *ASTM C1289: Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*
- 2.2.7 *ASTM D2126: Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging*
- 2.2.8 *ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials*
- 2.2.9 *ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials*
- 2.2.10 *ASTM E330: Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.2.11 *ASTM E331: Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.2.12 *ASTM E1354: Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*
- 2.2.13 *ASTM E2178: Standard Test Method for Air Permeance of Building Materials*
- 2.2.14 *CAN/ULC-S102: Standard Method of Test for Surface Burning Characteristics of building Materials and Assemblies*
- 2.2.15 *CSA O86: Engineering Design in Wood*
- 2.2.16 *CWC: Engineering Guide for Wood Frame Construction*

3 Performance Evaluation

- 3.1 Testing and related engineering evaluations are defined as intellectual property and/or trade secrets.³
- 3.2 Engineering evaluations are conducted within DrJ's ANAB accredited ICS code scope, which are also its areas of professional engineering competence.⁴
- 3.3 ISO RED CI® and ISO RED CI® XS have been evaluated to determine:
 - 3.3.1 Wind-pressure resistance performance for use as part of an exterior wall covering assembly in accordance with NBC Division B Subsection 4.1.7 and ANSI/FS 100
 - 3.3.2 Performance in accordance with the foamed plastic requirements of NBC Division B Article 3.1.5.15
 - 3.3.3 Performance for use as continuous insulating sheathing in accordance with NBC Division B Part 5 and Article 9.36.2.5 and 9.36.2.6
 - 3.3.4 Performance for use as a water-resistive barrier (WRB) in accordance with NBC Division B Note A-5.6.2.1
 - 3.3.5 Performance for use as a vapor retarder in accordance with NBC Division B Subsection 9.25.4
 - 3.3.6 Performance for use as an air barrier in accordance with NBC Division B Section 5.4 and Subsection 9.25.3
 - 3.3.7 Performance for surface burning characteristics in accordance with NBC Division B Subsection 3.1.12 and 9.10.3.2
 - 3.3.8 Performance of ISO RED CI® and ISO RED CI® XS for vertical and lateral fire propagation is outside the scope of this TER

³ 18 U.S. Code § 1831 - Economic espionage - Whoever, intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly steals, or without authorization appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains a trade secret shall be fined not more than \$5,000,000 or imprisoned not more than 15 years, or both. Any organization that commits any offense described shall be fined not more than the greater of \$10,000,000 or 3 times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided.
<https://www.law.cornell.edu/uscode/text/18/part-II/chapter-90>.

⁴ ANAB is part of the [USMCA](#) and [IAF MLA](#), where the purpose of these agreements are to ensure mutual recognition of accredited certification and validation/verification statements between agreement signatories, and subsequent acceptance of ANAB accredited certification and validation/verification statements by professional engineers based upon having one universal approval process for the timely approval of innovative materials, products, designs, services, assemblies and/or methods of construction.

- 3.4 ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD have been evaluated to determine:
- 3.4.1 Performance in accordance with the foamed plastic requirements of NBC Division B Article 3.1.5.15
 - 3.4.2 Performance for use as continuous insulating sheathing in accordance with NBC Division B Part 5 and Article 9.36.2.5 and 9.36.2.6
 - 3.4.3 Performance for use as a vapor retarder in accordance with NBC Division B Subsection 9.25.4
 - 3.4.4 Performance for use as an air barrier in accordance with NBC Division B Section 5.4 and Subsection 9.25.3
 - 3.4.5 Performance for surface burning characteristics in accordance with NBC Division B Subsection 3.1.12 and 9.10.3.2
 - 3.4.6 Performance for vertical and lateral fire propagation is outside the scope of this TER
 - 3.4.7 Performance of for wind-pressure resistance and for use as a WRB is outside the scope of this TER
- 3.5 This TER does not address wind-pressure resistance requirements for ISO RED CI® and ISO RED CI® XS used as part of an Exterior Insulation Finish System (EIFS). Refer to the EIFS manufacturer installation instructions for building-code compliance.
- 3.6 These products shall comply with the material standards listed in Section 2 and shall be applied to exterior wall construction in accordance with the general requirements of Section 6. ISO RED CI® and ISO RED CI® XS shall also comply with the prescriptive wind-pressure resistance requirements of Section 5.5.
- 3.7 ISO RED CI® and ISO RED CI® XS used in accordance with this TER that is required to resist wind pressure in exterior wall covering assemblies shall also comply with the product marking requirements of Section 10, and the conditions of use listed in Section 9.
- 3.8 Any regulation specific issues not addressed in this section are outside the scope of this TER.

4 Product Description and Materials

- 4.1 *ISO RED CI® and ISO RED CI® XS*
- 4.1.1 ISO RED CI® and ISO RED CI® XS are Type 1, Class 1 Dual Faced Rigid Cellular Polyisocyanurate Insulation Board products as defined in ASTM C1289.
 - 4.1.2 ISO RED CI® and ISO RED CI® XS consist of a proprietary polyisocyanurate rigid board, with facers on both sides. The facers are designed with a base foil layer, with which layers of other material(s) are combined.
- 4.2 *ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD, ISO RED MAX® HD*
- 4.2.1 These products are Type 1, Class 2 Dual Faced Rigid Cellular Polyisocyanurate Insulation Board products as defined in ASTM C1289.
 - 4.2.2 These products consist of a proprietary polyisocyanurate rigid board, with facers on both sides. The facers are designed with a base foil layer. Facer material thicknesses vary by product.

4.3 The innovative products evaluated in this TER are shown in Figure 1 and Figure 2.



Figure 1. ISO RED CI® (Left) and ISO RED MAX® (Right)



Figure 2. ISO RED CI® XS

4.4 Material Availability

4.4.1 Thicknesses:

4.4.1.1 ISO RED CI® and ISO RED CI® XS – range from 12.7 mm (0.5") up to 50.8 mm (2.0")

4.4.1.2 ISO RED MAX® (including WF, GF, LD, and HD) – up to 102 mm (4.0")

4.4.2 Standard product width: 1219 mm (48").

4.4.3 Standard lengths: 2438, 2743 and 3048 mm (96", 108", and 120").

5 Applications

- 5.1 ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD are used in buildings constructed in accordance with NBC Division B Section 9.2.3 for wood frame construction.
- 5.2 ISO RED CI® and ISO RED CI® XS are foamed plastic insulation used as wall sheathing in accordance with NBC Division B Articles 3.1.5.15 and 9.10.17.10.
- 5.3 ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD are foamed plastic insulation used as wall sheathing in accordance with NBC Division B Articles 3.1.5.15 and 9.10.17.10.
- 5.4 ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD must be used with full protection from the interior of the building by an approved thermal barrier in accordance with NBC Division B Note A-3.1.4.2.(1)(c), and Sentence 3.1.5.15.(2) and Clause 9.10.17.10(1)(c).

5.5 Transverse Loads

- 5.5.1 ISO RED CI® and ISO RED CI® XS may be used to resist wind loads transverse to the face of the wall, as shown in Table 1.
- 5.5.2 Required component-and-cladding loads to be resisted are found in in NBC Division B Subsection 4.1.7 (see Sentence 4.1.7.1.(5)).
- 5.5.3 As stated in Section 3.4.7, performance of ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD for wind-pressure resistance is outside the scope of this TER.

Table 1. Summary of Specified Pressures for ISO RED CI® and ISO RED CI® XS Resisting Transverse Wind Loads

ISO RED CI® and ISO RED CI® XS Nominal Thickness mm (in)	Hourly 1-in-50 Wind Pressure ¹ kPa (psf)
25.4 (1)	2.0 (42)
38.1 (1½)	3.5 (73)
SI: 25.4 mm = 1 in, 1 MPa = 145 psi 1. Hourly Wind Pressure (1-in-50) for selected locations are listed in NBC Division B, Appendix C, Table C-2.	

5.6 Thermal Resistance

- 5.6.1 ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD are used as foamed plastic insulation in wall, roof and ceiling assemblies.
- 5.6.2 These products meet the continuous insulating sheathing requirements complying with the provisions of NBC Division B Part 5 and Articles 9.36.2.5 and 9.36.2.6.

5.6.3 These products have the thermal properties shown in Table 2.

Table 2. ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD Thermal Resistance Properties

Product	Thickness mm (in)	RSI (R) Values ¹ m ² *°K/W (h*ft ² *°F/Btu)
ISO RED CI® and ISO RED CI® XS	50.8 (2.0)	2.3 (13.0)
	39.4 (1.55)	1.8 (10.0)
	25.4 (1.0)	1.1 (6.5)
	19.1 (0.75)	0.9 (5.0)
	12.7 (0.5)	0.6 (3.3)
ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD, and ISO RED MAX® HD	101.6 (4.0)	4.4 (25.2)
	88.9 (3.5)	3.9 (22.1)
	76.2 (3.0)	3.3 (19.0)
	63.5 (2.5)	2.8 (16.0)
	50.8 (2.0)	2.3 (13.0)
	39.4 (1.55)	1.8 (10.0)
	25.4 (1.0)	1.1 (6.5)
	19.1 (0.75)	0.9 (5.0)
	12.7 (0.5)	0.6 (3.3)
SI: 25.4 mm = 1 in 1. Thermal values are determined using the ASTM C518 test method at 23.9°C (75°F) mean temperature on material conditioned according to ASTM C1289 Section 11.1 (Degrees F.ft ² .h/Btu).		

5.7 Air Barrier

- 5.7.1 Wall and ceiling assemblies constructed with ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD are used to meet air-barrier requirements in accordance with NECC Division B Part 3.
- 5.7.2 All penetrations shall be flashed and sealed in accordance with the flashing manufacturer installation instructions. Self-adhered flashing tape shall meet AAMA 711 (FortiFlash® Butyl or equivalent).
- 5.7.3 These products are defined as air-barrier materials having an air permeance of less than 0.05 L/s*m² which meets Performance Class 1 in accordance with NBC Division B Article 5.4.1.2.

5.8 Water-Resistive Barrier

- 5.8.1 ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD are approved as the second plane of protection, in accordance with NBC Division B Article 9.27.3.4 when installed with 73.025mm (2⁷/₈") OX Commercial SeamTape®, 73.025mm (2⁷/₈") ISO RED® WF Seam Tape, or 73.025mm (2⁷/₈") ISO RED® GF Seam Tape. Flashing tape with release liner may be required for effective taping of inside and outside corners. See the manufacturer product information for further details.
- 5.8.2 ISO RED CI® and ISO RED CI® XS shall be installed with board joints placed directly over exterior framing spaced a maximum of 610 mm (24") o.c. The fasteners used to attach the board shall be installed in accordance with Section 6.

- 5.8.3 A separate sheathing membrane may also be provided. If a separate sheathing membrane method is used, taping of the sheathing joints is not required.
- 5.8.4 Flashing of penetrations shall comply with the applicable code and must be installed at all sheathing penetrations. Use qualified flashing tape such as Arctic-Flash® Synthetic Flashing, HomeGuard® Flexible Butyl Flashing, or HomeGuard RA-plus® Flashing. See Figure 3, Figure 4, and Figure 5 for typical penetration flashing details.
- 5.8.5 Flashing Details – Typical Flanged and Unflanged Penetration and Flanged Window

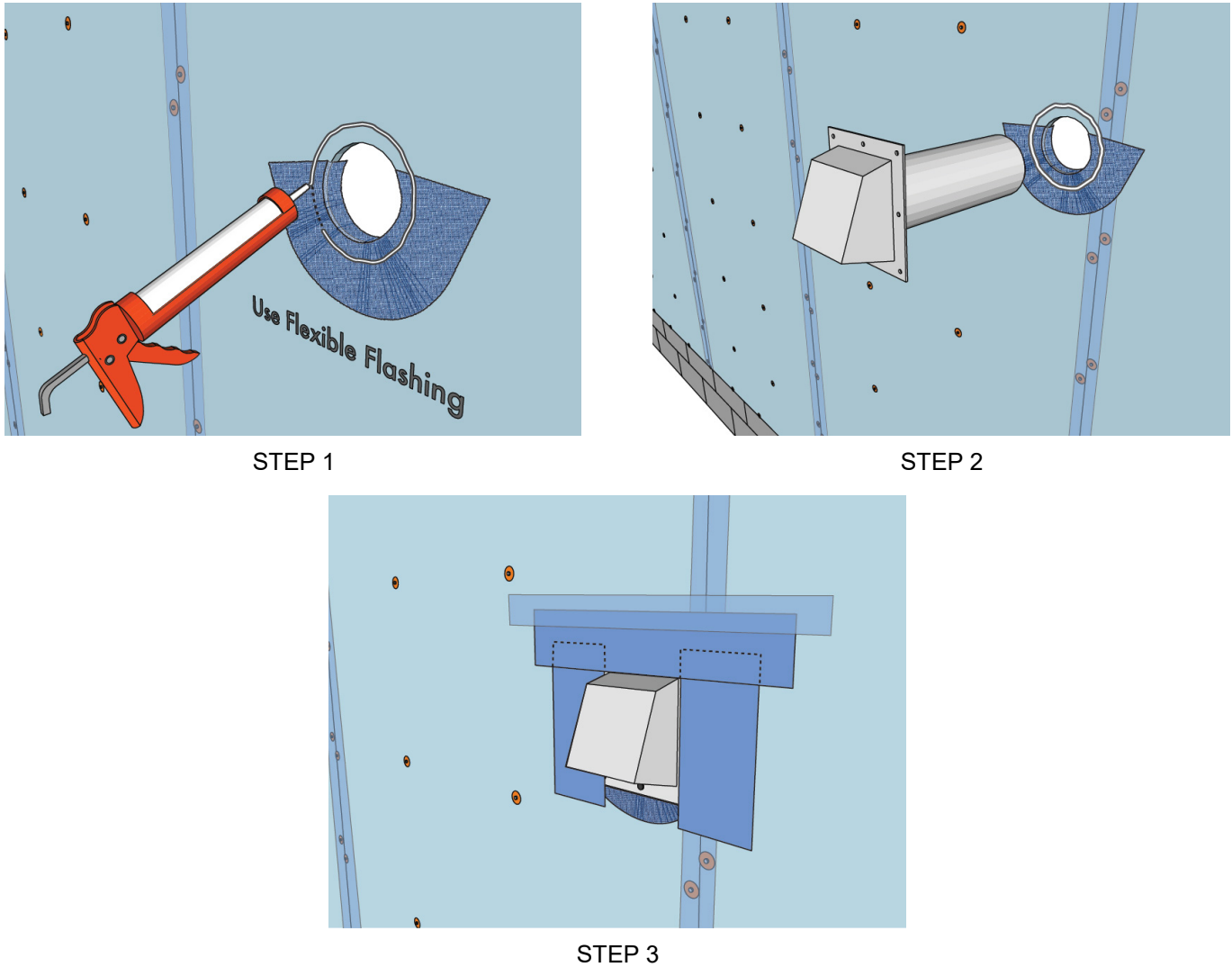


Figure 3. Typical Penetration Flashing Detail – Flanged

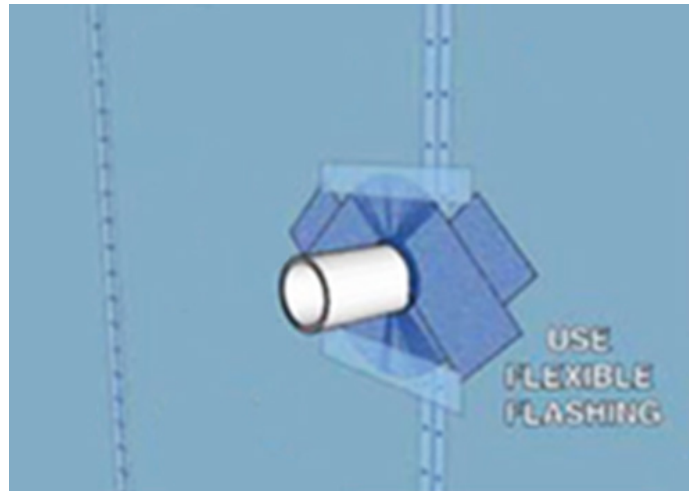
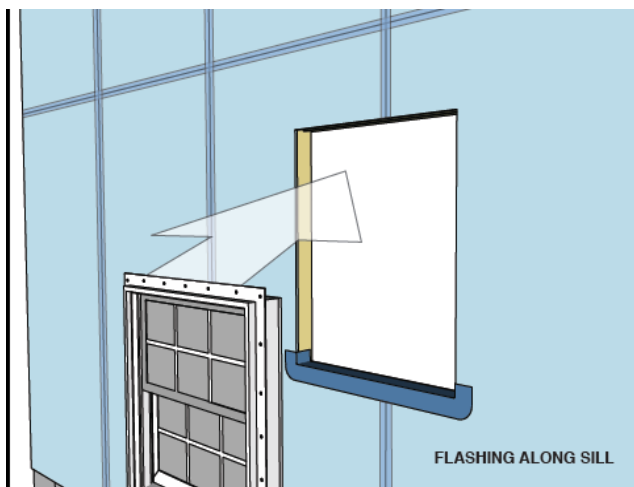
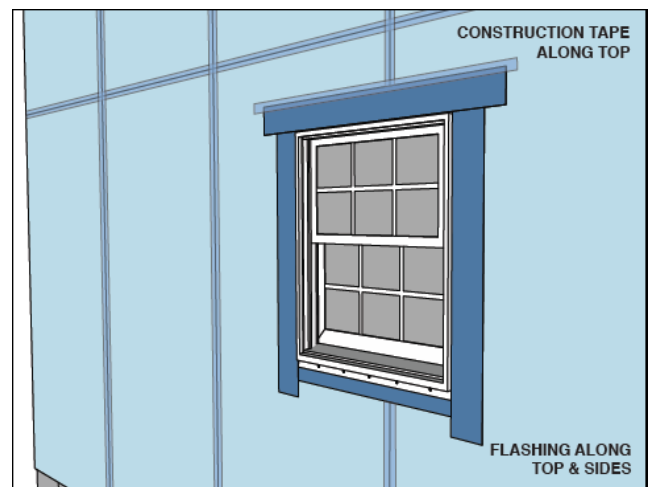


Figure 4. Typical Penetration Flashing Detail – Unflanged



STEP 1



STEP 2

Figure 5. Typical Window Flashing Detail

5.9 Fire Safety Performance

5.9.1 Surface Burn Characteristics:

- 5.9.1.1 ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD, ISO RED MAX® HD and ISO RED MAX® STRONG-R have the flame-spread ratings as shown in Table 3, when tested in accordance with CAN/ULC-S102 per NBC Division B Subsection 3.1.12 and 9.10.3.2.

Table 3. Surface Burn Characteristics of ISO RED CI®, ISO RED CI® XS & ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD, and ISO RED MAX® HD

Product	Flame Spread	Smoke Developed
ISO RED CI® and ISO RED CI® XS ¹	60	35
ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD, ISO RED MAX® HD, and ISO RED MAX® STRONG-R ²	20	125
<p>1. Tested in accordance with CAN/ULC-S102, with maximum foam thickness of 2".</p> <p>2. Tested in accordance with CAN/ULC-S102, with maximum foam thickness of 4".</p>		

5.9.2 Thermal Barrier:

- 5.9.2.1 ISO RED CI®, ISO RED CI® XS, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD shall be fully protected from the interior of the building by an approved thermal barrier as required by NBC Division B Article 9.10.17.10.

- 5.10 Where the application falls outside of the performance evaluation, conditions of use and/or installation requirements set forth herein, alternative techniques shall be permitted in accordance with accepted engineering practice and experience. This includes but is not limited to the following areas of engineering: mechanics or materials, structural, building science and fire science.

6 Installation

- 6.1 Installation shall comply with the manufacturer installation instructions, this TER, the approved construction documents, and the applicable building code.
- 6.2 In the event of a conflict between the manufacturer installation instructions this TER and the applicable building code, the more restrictive shall govern.
- 6.3 See The Foam Sheathing Committee (FSC) [Best Practices Guide](#) for further details.

6.4 Installation Procedure

6.4.1 These products may be cut to size with a utility knife, handsaw, or power saw.

Table 4. Attachment Information

Application ¹	Stud Spacing ² mm (in)	Attachment Method	Fastener Spacing
Wood Framing	406 (16") or 610 (24")	Capped nails, capped staples or roofing nails (approximate 25 mm (1") framing embedment)	305 mm (12") Perimeter 305 mm (12") Field
Metal Framing	406 (16") or 610 (24")	Corrosion-resistant self-tapping screws with 25.4 mm (1") diameter cap or washer (approximate 25 mm (1") framing embedment)	305 mm (12") perimeter 305 mm (12") field
Interior Masonry or Concrete	N/A	Suitable construction adhesive or masonry fasteners with 25.4 mm (1") diameter cap or washer, or combination of adhesive & mechanical fasteners (approximate 25 mm (1") embedment into substrate)	Adhesive beads spaced 406 mm (16") horizontally & full-perimeter mechanical fasteners 305 mm (12") perimeter and 305 mm (12") field, spaced 406 mm (16") horizontally
Exterior Masonry or Concrete Below Grade	N/A	Granular water-draining fill	Only as required to ensure intimate contact to masonry surface or water-proofed surface
SI: 25.4 mm = 1 in 1. Butt panels tightly and seal all joints, where intrusion of bulk moisture or moisture vapor is undesirable, with sealant and/or approved tape. 2. Panels used to resist transverse wind pressure or used as a WRB shall be installed on studs spaced a maximum of 410 mm (16") o.c and all panel edges shall be located on framing or blocking.			

6.4.2 Windows and doors shall be installed in accordance with the manufacturer installation instructions.

6.4.3 Windows, door openings and other penetrations shall be flashed in accordance with NBC Division B Article 9.7.6.2.

6.4.4 Follow the manufacturer instructions for installation of claddings and rain screens over these products.

7 Substantiating Data

7.1 Testing has been performed under the supervision of a professional engineer and/or under the requirements of ISO/IEC 17025 as follows:

7.1.1 Thermal properties testing in accordance with ASTM C518

7.1.2 Material properties testing in accordance with ASTM C1289

7.1.3 Fire-resistance testing in accordance with ASTM E119

7.1.4 Transverse wind pressure testing in accordance with ASTM E330

7.1.5 Water penetration testing in accordance with ASTM E331

7.1.6 Air permeance testing in accordance with ASTM E2178

7.1.7 Surface burning characteristics testing in accordance with CAN/ULC S102

7.2 ISO RED CI® and ISO RED CI® XS Quality Control Manuals in accordance with a third-party quality control program with inspections conducted by an approved agency.

- 7.3 Information contained herein is the result of testing and/or data analysis by sources that conform to the evaluation requirements of NBC Volume 1 Relationship of the NBC to Standards Development and Conformity Assessment and/or professional engineering regulations. DrJ relies upon accurate data to perform its ISO/IEC 17065 evaluations.
- 7.4 Where appropriate, DrJ's analysis is based on provisions that have been codified into law through provincial, territorial, or local adoption of codes and standards. The developers of these codes and standards are responsible for the reliability of published content. DrJ analysis may use code-adopted provisions as a control sample. A control sample versus a test sample establishes a innovative products as being equivalent to that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.
- 7.5 The accuracy of the provisions provided herein may be reliant upon the published properties of raw materials, which are defined by the grade mark, grade stamp, mill certificate, Listings, certified reports, duly authenticated reports from approved agencies, and research reports prepared by approved agencies and/or approved sources provided by the suppliers of products, materials, designs, assemblies and/or methods of construction. These are presumed to be minimum properties and relied upon to be accurate. The reliability of DrJ's engineering practice, as contained in this TER, may be dependent upon published design properties by others.
- 7.6 Testing and engineering analysis: The strength, rigidity and/or general performance of component parts and/or the integrated structure are determined by suitable tests that simulate the actual conditions of application that occur and/or by accepted engineering practice and experience.
- 7.7 Where additional condition of use and/or code compliance information is required, please search for ISO RED Polyiso Foam Insulated Sheathing Products on the DrJ Certification website.

8 Findings

- 8.1 As delineated in Section 3, ISO RED Polyiso Foam Insulated Sheathing Products have performance characteristics that were tested and/or meet pertinent standards and is suitable for use pursuant to its specified purpose.
- 8.2 When used and installed in accordance with this TER and the manufacturer installation instructions, ISO RED Polyiso Foam Insulated Sheathing Products shall be approved for the following applications:
 - 8.2.1 Wind-pressure resistance performance for use as part of an exterior wall covering assembly in accordance with in accordance with NBC Division B Subsection 9.23.13 and ANSI/FS100
 - 8.2.2 Performance in accordance with the foamed plastic requirements NBC Division B Article 3.1.5.15
 - 8.2.3 Performance for use as continuous insulating sheathing in accordance with NBC Division B Part 5 and Article 9.36.2.5
 - 8.2.4 Performance for use as a WRB in accordance with NBC Division B Note A-5.6.2.1
 - 8.2.5 Performance for use as a vapor retarder in accordance with NBC Division B Subsection 9.25.4
 - 8.2.6 Performance for use as an air barrier in accordance with NBC Division B Section 5.4 and Subsection 9.25.3
 - 8.2.7 Surface burning characteristics in accordance with NBC Division B Subsection 3.1.12 and 9.10.3.2

- 8.3 When installed in accordance with the manufacturer installation instructions and this TER, ISO RED MAX®, ISO RED MAX® WF, ISO RED MAX® GF, ISO RED MAX® LD and ISO RED MAX® HD comply with, or are a suitable alternative to, the applicable sections of the codes listed in Section 2 for the following applications:
- 8.3.1 Performance in accordance with the foamed plastic requirements of NBC Division B Article 3.1.5.15
 - 8.3.2 Performance for use as continuous insulating sheathing in accordance with NBC Division B Part 5 and Article 9.36.2.5
 - 8.3.3 Performance for use as a vapor retarder in accordance with NBC Division B Subsection 9.25.4
 - 8.3.4 Performance for use as an air barrier in accordance with NBC Division B Section 5.4 and Subsection 9.25.3
 - 8.3.5 Surface burning characteristics in accordance with NBC Division B Subsection 3.1.12 and 9.10.3.2
- 8.4 Any application specific issues not addressed herein can be engineered by an RDP. Assistance with engineering is available from OX Engineered Products, LLC.
- 8.5 These innovative products have been evaluated in the context of the codes listed in Section 2 and are compliant with all known provincial, territorial, and local building codes. Where there are known variations in provincial, territorial, or local codes applicable to this TER, they are listed here.
- 8.5.1 No known variations
- 8.6 NBC Volume 1 Relationship of the NBC to Standards Development and Conformity Assessment:

Certification

Certification is the confirmation by an independent organization that a product, service, or system meets a requirement...Certification bodies publish lists of certified products and companies...Several organizations, including the Canadian Construction Materials Centre (CCMC), offer such evaluation services.

Evaluation

An evaluation is a written opinion by an independent professional organization that a product will perform its intended function. An evaluation is very often done to determine the ability of an innovative product, for which no standards exist, to satisfy the intent of the Code requirement...

- 8.7 ISO/IEC 17065 accredited third-party certification bodies,⁵ including but not limited to, Standards Council of Canada (SCC)⁶ and ANSI National Accreditation Board (ANAB),⁷ confirm that product certification bodies have the expertise to provide technical evaluation services within their scope of accreditation. All SCC and ANAB product certification bodies meet NBC requirements to offer evaluation services for alternative solutions.⁸
- 8.7.1 DrJ is an ISO/IEC 17065 ANAB-Accredited Product Certification Body – Accreditation #1131⁹ and employs professional engineers.¹⁰

⁵ <https://anabpd.ansi.org/Accreditation/product-certification/DirectoryListingAccredited?menuID=1&prgID=1>

⁶ https://iaf.nu/en/member-details/?member_id=91

⁷ https://iaf.nu/en/member-details/?member_id=14

⁸ NBC Division A Clause A-1.2.1.1.(1)(b) provides information on code compliance via alternative solutions and defines alternative solutions as "...achiev[ing] at least the minimum level of performance required by Division B." NBC Division C Section 2.3 includes additional guidance for documentation of alternative solutions.

⁹ <https://anabpd.ansi.org/Accreditation/product-certification/AllDirectoryDetails?&prgID=1&OrgId=2125&statusID=4>

¹⁰ Through ANAB accreditation and the IAF MLA, DrJ certification can be used to obtain material, product, design, or method of construction approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – "certified once, accepted everywhere".

- 8.8 Through ANAB accreditation and the IAF Multilateral Agreements, this TER can be used to obtain innovative products approval in any jurisdiction or country that has IAF MLA Members & Signatories to meet the Purpose of the MLA – “*certified once, accepted everywhere.*” IAF specifically says, “*Once an accreditation body is a signatory of the IAF MLA, it is required to recognise certificates and validation and verification statements issued by conformity assessment bodies accredited by all other signatories of the IAF MLA, with the appropriate scope.*”¹¹
- 8.9 Product certification organizations, accredited by the SCC and ANAB, are defined as equivalent evaluation services:
- 8.9.1 Canada-United States-Mexico Agreement (CUSMA), Article 11.6 Conformity Assessment confirms mutual recognition by stating, “*...each Party shall accord to conformity assessment bodies located in the territory of another Party treatment no less favorable than that it accords to conformity assessment bodies located in its own territory or in the territory of the other Party.*”
- 8.9.2 The SCC National Conformity Assessment Principles states, “*SCC is a member of a number of international organizations developing voluntary conformity assessment agreements that help ensure the international acceptance of Canadian conformity assessment results. Signatories to these agreements (like SCC) recognize each other’s accreditations as being equivalent to their own.*”¹²
- 8.10 Building official approval of a licensed professional engineer is performed by verifying the professional engineer and/or their business entity are listed by the engineering regulators of the relevant jurisdiction.

9 Conditions of Use

- 9.1 Material properties shall not fall outside the boundaries defined in Section 3.
- 9.2 As defined in Section 3, where material and/or engineering mechanics properties are created for load resisting design purposes, the resistance to the applied load shall not exceed the ability of the defined properties to resist those loads using the principles of accepted engineering practice.
- 9.3 ISO RED CI® and ISO RED CI® XS shall be fully protected from the interior of the building by an approved 15 minute thermal barrier or ignition barrier where required by the applicable code
- 9.4 These products shall not be used as a structural nailing base for claddings.
- 9.5 In areas where termites are known to occur, and foundations are insulated or otherwise finished in a manner that could conceal a termite infestation, in accordance with NBC Division B Article 9.3.2.9, a metal or plastic barrier shall be installed through the insulation to control the passage of termites behind or through the insulation.
- 9.6 Walls sheathed with these products must not be used to resist horizontal loads from concrete or masonry walls.
- 9.7 When using these products, the stud walls shall be braced by other materials in accordance with the applicable code.
- 9.8 Where required by regulation and enforced by the building official, also known as the authority having jurisdiction (AHJ) in which the project is to be constructed:
- 9.8.1 Any calculations incorporated into the construction documents shall conform to accepted engineering practice, and, when prepared by an approved source, shall be approved when signed and sealed.
- 9.8.2 This TER and the installation instructions shall be submitted at the time of permit application.

¹¹ <https://iaf.nu/en/about-iaf-mla/#:~:text=required%20to%20recognise>

¹² The National Conformity Assessment Principles states, “*Product regulations and standards may vary from country to country. If these are set arbitrarily, they could be deemed as protectionist. The World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT Agreement) is intended to ensure that technical regulations, standards and conformity assessment procedures of member countries do not create unnecessary obstacles to trade. Under the TBT Agreement, members of the WTO agree to use international standards, including conformity assessment standards and guides, as a basis for their technical requirements.*”

- 9.8.3 These innovative products have an internal quality control program and a third-party quality assurance program.
- 9.8.4 At a minimum, these innovative products shall be installed per Section 6 of this TER.
- 9.9 Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed and/or by the designer (i.e., owner).
- 9.10 At a minimum, these innovative products shall be installed per Section 6 of this TER.
- 9.11 These innovative products have an internal quality control program and a third-party quality assurance program in accordance with ISO/IEC 17065 certification procedures.
- 9.12 The actual design, suitability, and use of this TER, for any particular building, is the responsibility of the owner or the owner's authorized agent.
- 9.13 This TER shall be reviewed for code compliance by the AHJ in concert with the duties and powers granted to the building official by the provincial regulations governing such duties and powers.
- 9.14 The implementation of this TER for these innovative products are dependent on the design, quality control, third-party quality assurance, proper implementation of installation instructions, inspections, and any other code or regulatory requirements that may apply.

10 Identification

- 10.1 The innovative products listed in Section 1.1 are identified by a label on the board or packaging material bearing the manufacturer name, product name, TER number, and other information to confirm code compliance.
- 10.2 Additional technical information can be found at oxengineeredproducts.com.

11 Review Schedule

- 11.1 This TER is subject to periodic review and revision. For the most recent version, visit drjcertification.org.
- 11.2 For information on the status of this TER, contact DrJ Certification.

12 Legislation that Authorizes New Product Approval in International Markets is Found in Appendix A

- 12.1 ISO RED Polyiso Foam Insulated Sheathing Products have been tested by an [ISO/IEC 17025 accredited laboratory](#) and/or evaluated to be in conformance with accepted engineering practice to ensure durable, livable and safe construction.
- 12.2 This TER is published by an [ISO/IEC 17065 accredited certification body](#) with the [expertise](#) to evaluate products, materials, designs, services, assemblies and/or methods of construction.
- 12.3 This TER meets the legislative intent and definition of a [duly authenticated report](#), which shall be accepted by the AHJ, unless there are specific reasons why the alternative shall not be approved as provided for in writing.

Appendix A

1 Legislation that Authorizes New Product Approval in Canada

- 1.1 The Competition Act is a Canadian federal law governing competition law in Canada. The Act contains both criminal and civil provisions aimed at preventing anti-competitive practices in the marketplace. The Act is enforced and administered by the Competition Bureau, whose regulations encourage the approval of NBC referenced and alternative products, materials, designs, services, assemblies and/or methods of construction that:
 - 1.1.1 Advance Innovation,
 - 1.1.2 Promote competition so all businesses have the opportunity to compete on price and quality in an open market on a level playing field unhampered by anticompetitive constraints, and
 - 1.1.3 Benefit consumers through lower prices, better quality, and greater choice.
- 1.2 **Approved by International Jurisdictions:** The USMCA and GATT agreements provide for approval of innovative materials, products, designs, services, assemblies and/or methods of construction through the Technical Barriers to Trade (TBT) agreements and the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA), where these agreements proclaim the desire of both countries to have their markets open to innovation.
- 1.3 These agreements:
 - 1.3.1 Permit participation of conformity assessment bodies located in the territories of other Members (defined as GATT Countries) under conditions no less favourable than those accorded to bodies located within their territory or the territory of any other country,
 - 1.3.2 State that conformity assessment procedures (i.e., ISO/IEC 17020, 17025, 17065, etc.) are prepared, adopted, and applied so as to grant access for suppliers of like products originating in the territories of other Members under conditions no less favourable than those accorded to suppliers of like products of national origin or originating in any other country, in a comparable situation.
 - 1.3.3 State that conformity assessment procedures are not prepared, adopted, or applied with a view to or with the effect of creating unnecessary obstacles to international trade. This means that conformity assessment procedures shall not be more strict or be applied more strictly than is necessary to give the importing Member adequate confidence that products conform to the applicable technical regulations or standards.
- 1.4 To this end, Canada operates an accreditation system as follows:



1.5 This includes ISO/IEC 17065 product certification as follows:



1.6 Similarly, the United States operates multiple accreditation process with ANAB being the most prominent ISO/IEC 17065 product certification organization as follows:



Accreditation Body | IAF MLA Signatory

ANAB (ANSI National Accreditation Board)

Code of Conduct Adopted: 01 Feb 2005 | <http://www.anab.org>

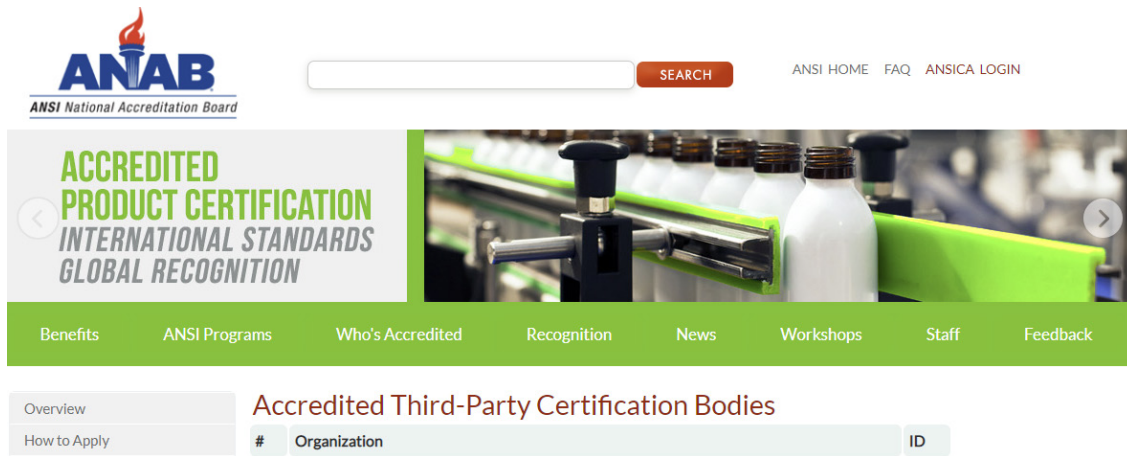
United States of America

IAAC APAC

1.7 This includes ISO/IEC 17065 product certification as follows:



- 1.8 The list of ANAB accredited ISO/IEC 17065 product certification organizations can be found at the following link: <https://anabpd.ansi.org/Accreditation/product-certification/DirectoryListingAccredited?menuID=1&prgID=1>



- 1.9 Approval is granted via International Agreement, where the purpose of the IAF MLA is to ensure mutual recognition of accredited certification and validation/verification statements between signatories. Subsequent acceptance of accredited certification and validation/verification statements is required so that one accreditation can be used for the timely approval of innovative materials, products, designs, services, assemblies and/or methods of construction. Accreditations granted by IAF MLA signatories are recognised worldwide based on their equivalent accreditation programs, therefore reducing costs and adding value to businesses and consumers.
- 1.10 Consequently, these agreements permit product approval of innovative Australian and New Zealand products into US markets and vice-versa.
- 1.11 Finally, a question that often arises is, why do these agreements exist? In addition, another question is, why is the ISO/IEC 17065 accredited third-party certification process so important?
- 1.11.1 The answer is because all countries desire to protect the intellectual property and trade secrets of their country's businesses.
 - 1.11.2 In the US this protection is provided by 18 U.S. Code § 1831 Under Economic Espionage, where it states "whoever, intending or knowing that the offense will benefit any foreign government, foreign instrumentality, or foreign agent, knowingly steals, or without authorization appropriates, takes, carries away, or conceals, or by fraud, artifice, or deception obtains a trade secret shall be fined not more than \$5,000,000 or imprisoned not more than 15 years, or both.
 - 1.11.3 Any organization that commits any offense described shall be fined not more than the greater of \$10,000,000 or three (3) times the value of the stolen trade secret to the organization, including expenses for research and design and other costs of reproducing the trade secret that the organization has thereby avoided.¹³
 - 1.11.4 Protection of intellectual property and trade secrets reinforces the value of the IAF MLA, the GATT/TBT and the ISO/IEC 17065 product approval process.
 - 1.11.5 The goal is to protect everyone's best interests while also facilitating economic freedom and opportunity by promoting free and fair competition in the marketplace.

¹³ <https://www.law.cornell.edu/uscode/text/18/part-II/chapter-90>