

**Ox ISO RED CI, ISO RED MAX, ISO RED MAX WF,  
ISO RED MAX LD & ISO RED MAX HD Foam Plastic  
Insulating Sheathing – Limit States - Canada**

**TER No. 1808-05**

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**DIVISION: 07 00 00 – THERMAL AND MOISTURE PROTECTION**

Section: 07 20 00 – Thermal Protection  
Section: 07 21 00 – Building Insulation  
Section: 07 22 00 – Roof and Deck Insulation  
Section: 07 25 00 – Water-Resistive Barriers  
Section: 07 27 00 – Air Barriers

**1. Products Evaluated:**

- 1.1. ISO RED CI Polyiso Foam Insulated Sheathing
- 1.2. ISO RED MAX Polyiso Foam Insulated Sheathing
- 1.3. ISO RED MAX WF Polyiso Foam Insulated Sheathing
- 1.4. ISO RED MAX LD Polyiso Foam Insulated Sheathing
- 1.5. ISO RED MAX HD Polyiso Foam Insulated Sheathing
- 1.6. For the most recent version of this Technical Evaluation Report (TER), visit [drjengineering.org](http://drjengineering.org). For more detailed state and provincial professional engineering and code-compliance legal requirements and references, visit [drjengineering.org/statelaw](http://drjengineering.org/statelaw). DrJ is fully compliant with all state professional engineering and code compliance laws. Douglas Consultants Inc. has collaborated with DrJ through the review of this technical evaluation and conformity to Canadian building codes.
- 1.7. This TER can be used to obtain product approval in any country that is an IAF MLA Signatory (all countries found [here](#)) and covered by an [IAF MLA Evaluation](#) per the [Purpose of the MLA](#) (as an example, see [letter to ANSI](#) from the Standards Council of Canada). Manufacturers can go to jurisdictions in the U.S., Canada and other [IAF MLA Signatory Countries](#) and have their products readily approved by authorities having jurisdiction using [DrJ's ANSI accreditation](#).

***DrJ is a Professional Engineering Approved Source***

 **Learn more about DrJ's Accreditation**

- DrJ is an ISO/IEC 17065 accredited product certification body through ANSI Accreditation Services.
- DrJ provides certified evaluations that are signed and sealed by a P.E.
- DrJ's work is backed up by professional liability insurance.

## Technical Evaluation Report (TER)

- 1.8. Building code regulations require that evaluation reports be provided by an approved agency meeting specific requirements. Any agency accredited in accordance with ANSI ISO/IEC 17065 meets this requirement within ANSI's scope of accreditation. For a list of accredited agencies, visit ANSI's [website](#). For more information, see [drjcertification.org](#).
- 1.9. Requiring an evaluation report from a specific private company (i.e., ICC-ES, IAPMO, CCMC, DrJ, etc.) can be viewed as discriminatory and is a violation of international, federal, state, provincial and local anti-trust and free trade regulations.
- 1.10. DrJ's code compliance work:
  - 1.10.1. Conforms to code language adopted into law by individual states/provinces and relevant consensus-based standards such as an ANSI or ASTM standard.
  - 1.10.2. Complies with accepted engineering practice, all professional engineering laws and, by providing an engineer's seal, DrJ takes professional responsibility for its specified scope of work.

## 2. Applicable Codes and Standards:<sup>1</sup>

- 2.1. *2010 and 2015 National Building Code of Canada (NBC)*
- 2.2. *2017 National Energy Code of Canada (NECC)*
- 2.3. *AAMA 711-13 – Voluntary Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products*
- 2.4. *ANSI/FS100 – Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies*
- 2.5. *ASTM C203 – Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation, Method 1, Procedure B*
- 2.6. *ASTM C209 – Standard Test Methods for Cellulosic Fiber Insulating Board (Tensile Strength, and Water Absorption)*
- 2.7. *ASTM C518 – Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*
- 2.8. *ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Insulation Board*
- 2.9. *ASTM D2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging (Dimensional Stability)*
- 2.10. *ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials, Desiccant Method*
- 2.11. *ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials*
- 2.12. *ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.13. *ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*
- 2.14. *ASTM E1354 – Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter*
- 2.15. *ASTM E2178 – Standard Test Method for Air Permeance of Building Materials*
- 2.16. *Canadian Wood Council - Engineering Guide for Wood Frame Construction*
- 2.17. *CAN/CSA O86-14 – Engineering Design in Wood*

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<sup>1</sup> Unless otherwise noted, all references in this code compliant technical evaluation report (TER) are from the 2015 version of the NBC. This product is also approved for use with the 2010 NBC and the standards referenced therein. Where this TER is not approved, the building official shall respond in writing, stating the reasons this TER was not approved. For variations in state, provincial, and local codes, if any see [Section 8](#).

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### 2.18. CAN/ULC S102 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

### 3. Performance Evaluation:

#### 3.1. ISO RED CI has been evaluated to determine:

- 3.1.1. 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/FS100*.
- 3.1.2. Performance in accordance with the foamed plastic requirements of *NBC* Division B Article 3.1.5.15.
- 3.1.3. 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.
- 3.1.4. Performance for use as a water-resistive barrier (WRB) in accordance with *NBC* Division B Note A-5.6.2.1.
- 3.1.5. Performance for use as a vapour retarder in accordance with *NBC* Division B Subsection 9.25.4.
- 3.1.6. Performance for use as an air barrier in accordance with *NBC* Division B Section 5.4 and Subsection 9.25.3.
- 3.1.7. Performance for surface burning characteristics in accordance with *NBC* Division B Subsection 3.1.12 and 9.10.3.2.
- 3.1.8. Performance of ISO RED CI for vertical and lateral fire propagation is outside the scope of this TER.

#### 3.2. ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD have been evaluated to determine:

- 3.2.1. Performance in accordance with the foamed plastic requirements of *NBC* Division B Article 3.1.5.15.
- 3.2.2. 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.
- 3.2.3. Performance for use as a vapour retarder in accordance with *NBC* Division B Subsection 9.25.4.
- 3.2.4. Performance for use as an air barrier in accordance with *NBC* Division B Section 5.4 and Subsection 9.25.3.
- 3.2.5. Performance for surface burning characteristics in accordance with *NBC* Division B Subsection 3.1.12 and 9.10.3.2.
- 3.2.6. Performance for vertical and lateral fire propagation is outside the scope of this TER.
- 3.2.7. Performance of for wind-pressure resistance and for use as a WRB is outside the scope of this TER.

- 3.3. When used as over-sheathing<sup>2</sup> on light-frame, masonry, or concrete exterior walls, ISO RED CI is not required to meet the wind-pressure resistance requirements of this TER.
- 3.4. This TER does not address wind-pressure resistance requirements for ISO RED CI used as part of an Exterior Insulation Finish System (EIFS). Refer to the EIFS manufacturer's installation instructions for building-code compliance.
- 3.5. 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 shall also comply with the prescriptive wind-pressure resistance requirements of [Section 5.2](#).
- 3.6. ISO RED CI 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 8](#).

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<sup>2</sup> As used in this TER, *over-sheathing* refers to the application of foam sheathing over and directly on the surface of wall sheathing material or solid wall construction, such as masonry or concrete, whereby the substrate is capable of resisting the full design transverse wind load required by the applicable building code. In addition, cladding is separately installed over foam sheathing in accordance with [Section 5.2](#). An over-sheathing application of foam sheathing does not require that the foam sheathing resist wind pressure in accordance with this TER.

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3.7. Any code-compliance issues not specifically addressed in this section are outside the scope of this TER.

### 4. Product Description and Materials:

#### 4.1. ISO RED CI

4.1.1. ISO RED CI is a Type 1, Class 1 Dual Faced Rigid Cellular Polyisocyanurate Insulation Board product as defined in *ASTM C1289*.

4.1.2. ISO RED CI consists 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 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.



Figure 1: ISO RED CI & ISO RED MAX

#### 4.3. Material Availability

##### 4.3.1.1. Thicknesses:

4.3.1.1.1. ISO RED CI – range from 12.7 mm (0.5") up to 50.8 mm (2.0")

4.3.1.1.2. ISO RED MAX (including WF, LD and HD) – up to 102 mm (4.0")

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

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

### 5. Applications:

#### 5.1. General

5.1.1. ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD are used in buildings constructed in accordance with *NBC Division B Section 9.23* for wood frame construction.

5.1.2. ISO RED CI is foamed plastic insulation used as wall sheathing in accordance with *NBC Division B Articles 3.1.5.15* and *9.10.17.10*.

5.1.3. ISO RED MAX, ISO RED MAX WF, 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*.

5.1.4. ISO RED CI, ISO RED MAX, ISO RED MAX WF, 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)*.

5.1.5. Where the application exceeds the limitations set forth herein, design shall be permitted in accordance with accepted engineering procedures, experience and technical judgment.

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### 5.2. Transverse Loads

- 5.2.1. ISO RED CI may be used to resist wind loads transverse to the face of the wall, as shown in [Table 1](#).
- 5.2.2. 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)).
- 5.2.3. As stated in [Section 3.2.6](#), performance of ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD for wind-pressure resistance is outside the scope of this TER.

ISO RED CI Nominal Thickness	Summary of Specified Pressures for ISO RED CI Resisting Transverse Wind Loads <sup>1</sup>
	Hourly 1-in-50 Wind Pressure <sup>1</sup> kPa
25.4 mm (1")	2.0 (42)

For SI: 1" = 25.4 mm , 1 psf= 0.04788 kPa  
 1. Hourly Wind Pressure (1-in-50) for selected locations are listed in *NBC* Division B, Appendix C, Table C-2.

**Table 1:** Summary of Transverse Specified Pressures of ISO RED CI

### 5.3. Thermal Resistance

- 5.3.1. ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD are used as foamed plastic insulation in wall, roof and ceiling assemblies.
- 5.3.2. 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.
- 5.3.3. These products have the thermal properties shown in [Table 2](#).

Insulation RSI (R) Values		
Product	Thickness mm. (in.)	RSI (R) Values <sup>1</sup> , m <sup>2</sup> ·°K/W (h·ft <sup>2</sup> ·°F/Btu)
ISO RED CI	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 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 (6.3)
	19.1 (0.75)	0.9 (5.0)
12.7 (0.5)	0.6 (3.2)	

25.4 mm = 1 in, 1 m<sup>2</sup>·K/W = 5.678 hr<sup>2</sup>·ft<sup>2</sup>·°F/Btu  
 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<sup>2</sup>.h/Btu).

**Table 2:** ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD Thermal Resistance Properties

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### 5.4. Air Barrier

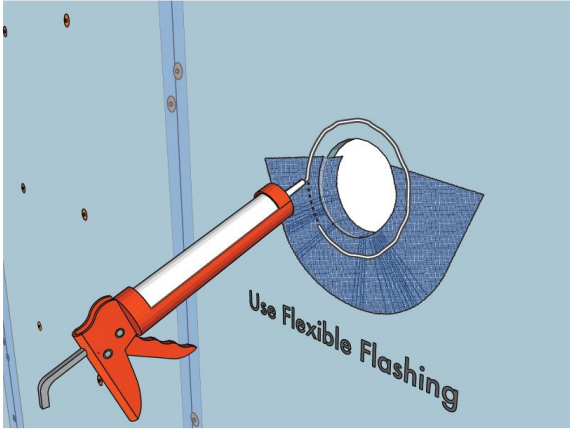
- 5.4.1. Wall and ceiling assemblies constructed with ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD are used to meet air-barrier requirements in accordance with *NECC* Division B Part 3.
- 5.4.2. All penetrations shall be flashed and sealed in accordance with the flashing manufacturer's installation instructions. Self-adhered flashing tape shall meet *AAMA 711* (FortiFlash® Butyl or equivalent).
- 5.4.3. These products are defined as air-barrier materials having an air permeance of less than 0.02 L/s\*m<sup>2</sup>, in accordance with *NBC* Division B Article 5.4.1.2.

### 5.5. Water-Resistive Barrier

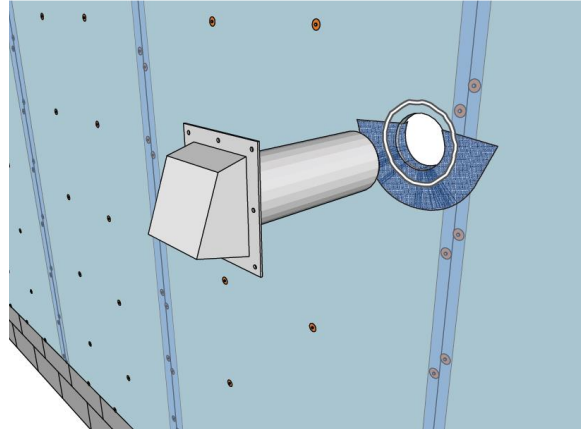
- 5.5.1. ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD are approved as the second plane of protection in accordance with *NBC* Division B Article 9.27.3.4 when installed with 63-mm (2½") -wide 3M (8087), White 3M Venture 1558 HT, Venture 1520 CW Aluminum Foil Sheathing Tape or equivalent on all sheathing seams. 102 mm (4") wide self-adhered flashing tape meeting *AAMA 711* (FortiFlash® Butyl or equivalent) with release liner may be required for effective taping of inside and outside corners. See the [manufacturer's product information](#) for further details.
- 5.5.2. ISO RED CI 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](#).
- 5.5.3. A separate sheathing membrane may also be provided. If a separate sheathing membrane method is used, taping of the sheathing joints is not required.
- 5.5.4. Flashing of penetrations shall comply with the applicable code and must be installed at all sheathing penetrations. Use qualified flashing material such as self-adhered flashing tape meeting *AAMA 711* (3M All Weather Flashing Tape 8067 or equivalent). See [Figure 2](#), [Figure 3](#) and [Figure 4](#) for typical penetration flashing details.
- 5.5.5. Flashing Details – Typical Flanged and Unflanged Penetration and Flanged Window



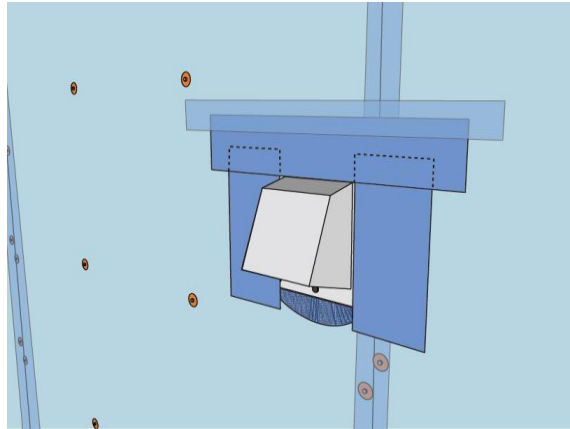
Technical Evaluation Report (TER)



STEP 1



STEP 2



STEP 3

Figure 2: Typical Penetration Flashing Detail – Flanged

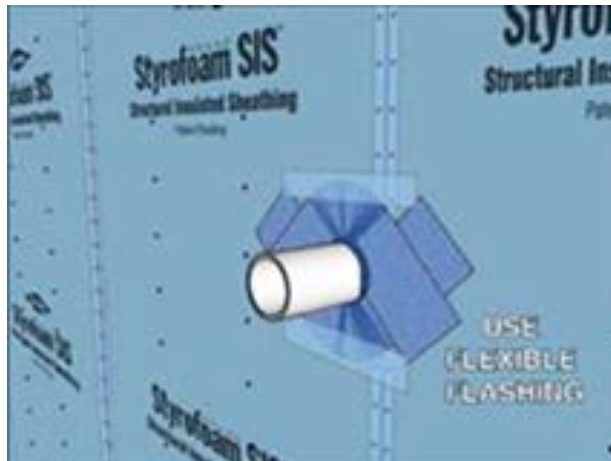


Figure 3: Typical Penetration Flashing Detail – Unflanged

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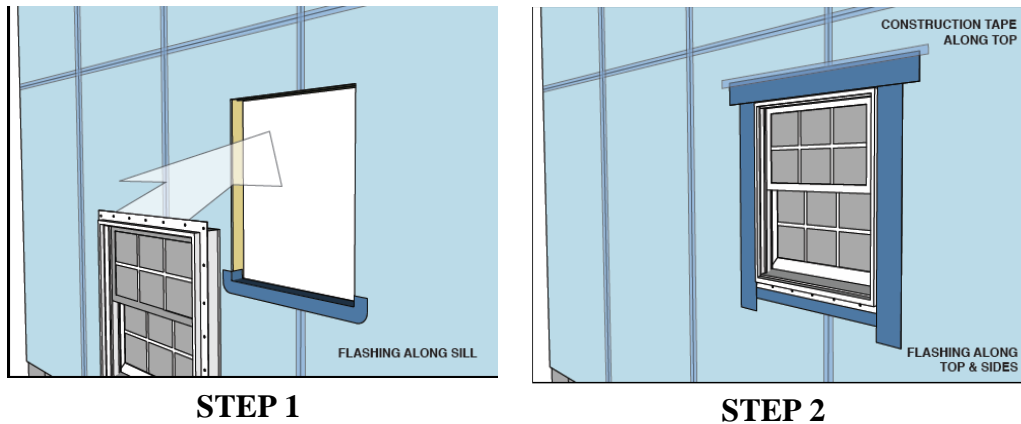


Figure 4: Typical Window Flashing Detail

### 5.6. Fire Safety Performance

#### 5.6.1. Surface Burn Characteristics

5.6.1.1. ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD, ISO RED MAX HD and ISO RED MAX SRONG-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.

Product	Flame Spread	Smoke Developed
ISO RED CI <sup>1</sup>	60	35
ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD, ISO RED MAX HD and ISO RED MAX STRONG-R <sup>2</sup>	20	125
1" = 25.4 mm 1. Tested in accordance with <i>CAN/ULC-S102</i> , with maximum foam thickness of 2". Tested in accordance with <i>CAN/ULC-S102</i> , with maximum foam thickness of 4".		

Table 3: Surface Burn Characteristics of ISO RED CI & ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD, and ISO RED MAX HD

#### 5.6.2. Thermal Barrier

5.6.2.1. ISO RED CI, ISO RED MAX, ISO RED MAX WF, 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.

### 6. Installation:

- 6.1. ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD must be installed in accordance with the [manufacturer's installation instructions](#), the applicable code, and this TER. In the event of conflict between the manufacturer's installation instructions and this TER, the more restrictive shall govern. See [The Foam Sheathing Committee \(FSC\) Best Practices](#) guide for further details.
- 6.2. These products may be cut to size with a utility knife, hand saw, or power saw.



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Application <sup>1</sup>	Stud Spacing <sup>2</sup> 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

<sup>1</sup> = 25.4 mm  
 1. Butt panels tightly and seal all joints, where intrusion of bulk moisture or moisture vapour 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.

**Table 4:** Attachment Information

- 6.3.** Windows and doors shall be installed in accordance with the manufacturer's installation instructions.
- 6.4.** Windows, door openings and other penetrations shall be flashed in accordance with *NBC Division B Article 9.7.6.2.*
- 6.5.** Follow the manufacturer's instructions for installation of claddings and rain screens over these products.
- 6.6.** Installation shall comply with the manufacturer's installation instructions and this TER. In the event of a conflict between the manufacturer's installation instructions and this TER, the more restrictive shall govern.

**7. Test and Engineering Substantiating Data:**

- 7.1.** Evaluation and analysis of testing, data and reporting of thermal properties in accordance with *ASTM C518 – Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*, performed by LaserComp.
- 7.2.** Evaluation and analysis of testing, data and reporting of material properties in accordance with *ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board* by Architectural Testing, Inc., an Intertek company.
- 7.3.** Evaluation and analysis of testing, data and reporting of fire-resistance testing performed in accordance with *ASTM E119 – Standard Test Methods for Fire Tests of Building Construction and Materials*, conducted by Architectural Testing, Inc., an Intertek company.
- 7.4.** Evaluation and analysis of testing, data and reporting of transverse wind pressure performed in accordance with *ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*, conducted by SBCRI.
- 7.5.** Evaluation and analysis testing data and reporting of water penetration performed in accordance with *ASTM E331 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference*, conducted by NTA, Inc.
- 7.6.** Evaluation and analysis of testing, data and reporting of air permeance in accordance with *ASTM E2178 – Standard Test Method for Air Permeance of Building Materials*, conducted by Architectural Testing, Inc., an Intertek company.
- 7.7.** Evaluation and analysis of testing, data and reporting of surface burning characteristics in accordance with *CAN/ULC S102 – Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies*, conducted by Intertek.

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- 7.8. ISO RED CI Quality Control Manual in accordance with a third-party quality control program with inspections conducted by an approved agency.
- 7.9. The product(s) evaluated by this TER fall within the scope of one or more of the model, state, provincial, or local building codes for building construction. The testing and/or substantiating data used in this TER is limited to buildings, structures, building elements, construction materials and civil engineering related specifically to buildings.
- 7.10. The provisions of model, state, provincial, or local building codes for building construction do not intend to prevent the installation of any material or to prohibit any design or method of construction. Alternatives shall use consensus standards, performance-based design methods or other engineering mechanics-based means of compliance. This TER assesses compliance with defined standards, accepted engineering analysis, performance-based design methods, etc., in the context of the pertinent building code requirements.
- 7.11. Some information contained herein is the result of testing and/or data analysis by other sources, which DrJ relies on to be accurate, as it undertakes its engineering analysis.
- 7.12. DrJ has reviewed and found the data provided by other professional sources to be credible. The information in this TER conforms with DrJ's procedure for acceptance of data from approved sources.
- 7.13. DrJ's responsibility for data provided by approved sources conforms with relevant professional engineering law.
- 7.14. Where appropriate, DrJ relies on the derivation of design values which have been codified into law through codes and standards (e.g., *NBC*, *CAN/CSA*, etc.). This includes review of code provisions and any related test data that aids in comparative analysis or provides support for equivalency to an intended end-use application. Where the accuracy of design values provided herein is reliant upon the published properties of commodity materials (e.g., lumber, steel, concrete, etc.), DrJ relies upon grade/properties provided by the raw material supplier to be accurate and conforming to the mechanical properties defined in the relevant material standard.

## 8. Findings:

- 8.1. When installed in accordance with the [manufacturer's installation instructions](#) and this TER, ISO RED CI complies with, or is a suitable alternative to, the applicable sections of the codes listed in [Section 2](#) for the following applications:
  - 8.1.1. 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*.
  - 8.1.2. Performance in accordance with the foamed plastic requirements *NBC* Division B Article 3.1.5.15.
  - 8.1.3. Performance for use as continuous insulating sheathing in accordance with *NBC* Division B Part 5 and Article 9.36.2.5.
  - 8.1.4. Performance for use as a WRB in accordance with *NBC* Division B Note A-5.6.2.1.
  - 8.1.5. Performance for use as a vapour retarder in accordance with *NBC* Division B Subsection 9.25.4.
  - 8.1.6. Performance for use as an air barrier in accordance with *NBC* Division B Section 5.4 and Subsection 9.25.3.
  - 8.1.7. Surface burning characteristics in accordance with *NBC* Division B Subsection 3.1.12 and 9.10.3.2.
- 8.2. When installed in accordance with the [manufacturer's installation instructions](#) and this TER, ISO RED MAX, ISO RED MAX WF, 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:
  - 8.2.1. Performance in accordance with the foamed plastic requirements of *NBC* Division B Article 3.1.5.15.
  - 8.2.2. Performance for use as continuous insulating sheathing in accordance with *NBC* Division B Part 5 and Article 9.36.2.5.
  - 8.2.3. Performance for use as a vapour retarder in accordance with *NBC* Division B, Subsection 9.25.4.
  - 8.2.4. Performance for use as an air barrier in accordance with *NBC* Division B Section 5.4 and Subsection 9.25.3.

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**8.2.5.** Surface burning characteristics in accordance with *NBC* Division B Subsection 3.1.12 and 9.10.3.2.

**8.3.** *NBC* Section 1.2.1 states:

**1.2.1 Compliance with this Code**

1) Compliance with this Code shall be achieved by

- a) complying with the applicable acceptable solutions in Division B (see Appendix A), or
- b) using alternative solutions that will achieve at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the applicable acceptable solutions (see Appendix A).

2) For the purposes of compliance with this Code as required in Clause 1.2.1.1.(1)(b), the objectives and functional statements attributed to the acceptable solutions in Division B shall be the objectives and functional statements referred to in Subsection 1.1.2. of Division B.

**8.4.** *NBC* Division C Section 2.3 includes additional guidance for Alternative Solutions.

**8.5.** This product has been evaluated with the codes listed in [Section 2](#), and is compliant with all known state, provincial, and local building codes. Where there are known variations in state or local codes that are applicable to this evaluation, they are listed here:

**8.5.1.** No known variations

**8.6.** This TER uses professional engineering law, the building code, ANSI/ASTM consensus standards and generally accepted engineering practice as its criteria for all testing and engineering analysis. Dr.J's professional engineering work falls under the jurisdiction of each state or provincial board of Professional Engineers, when signed and sealed.

## 9. Conditions of Use:

**9.1.** Where required by the authority having jurisdiction (AHJ), as defined in *NBC* Division A Section 1.4, in which the project is to be constructed, this TER and the installation instructions shall be submitted at the time of permit application.

**9.2.** Any generally accepted engineering calculations needed to show compliance with this TER shall be submitted to the code official for review and approval.

**9.3.** Design loads shall be determined in accordance with the building code adopted by the jurisdiction in which the project is to be constructed.

**9.4.** ISO RED CI 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

**9.5.** These products shall not be used as a structural nailing base for claddings.

**9.6.** 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.

**9.7.** Walls sheathed with these products must not be used to resist horizontal loads from concrete or masonry walls.

**9.8.** When using these products, the stud walls shall be braced by other materials in accordance with the applicable code.

**9.9.** ISO RED CI, ISO RED MAX, ISO RED MAX WF, ISO RED MAX LD and ISO RED MAX HD are manufactured under a quality control program with quality control inspections.

**9.10.** Design

**9.10.1.** Building Designer Responsibility

**9.10.1.1.** Unless the AHJ allows otherwise, the Construction Documents shall be prepared by a Building Designer (e.g., Owner, Registered Design Professional, etc.) for the Building and shall be in accordance with *NBC* Division C Sentence 2.2.4.3.(1).

## Technical Evaluation Report (TER)

**9.10.1.2.** The Construction Documents shall be accurate and reliable and shall provide the location, direction and magnitude of all applied loads and shall be in accordance with *NBC* Division C Sentence 2.2.4.3.(1) and Note A-2.2.6.2.(1).

### 9.10.2. Construction Documents

**9.10.2.1.** Construction Documents shall be submitted to the Building Official for approval and shall contain the plans, specifications and details needed for the Building Official to approve such documents.

### 9.11. Responsibilities

**9.11.1.** The information contained herein is a product, material, detail, design and/or application TER evaluated in accordance with the referenced building codes, testing and/or analysis through the use of accepted engineering practice, experience and technical judgment.

**9.11.2.** DrJ TERs provide an assessment of only those attributes specifically addressed in the Products Evaluated or Code Compliance Process Evaluated sections.

**9.11.3.** The engineering evaluation was performed on the dates provided in this TER, within DrJ's professional scope of work.

**9.11.4.** The limits of DrJ's responsibility as stated in this document shall also apply to the responsibility of Douglas Consultants.

**9.11.5.** 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, and the TER shall be reviewed for code compliance by the Building Official.

**9.11.6.** The use of this TER is dependent on the manufacturer's in-plant QC, the ISO/IEC 17020 third-party quality assurance program and procedures, proper installation per the manufacturer's instructions, the Building Official's inspection and any other code requirements that may apply to demonstrate and verify compliance with the applicable building code.

## 10. Identification:

**10.1.** The products described in this TER are identified by a label on the board or packaging material bearing the manufacturer's name, product name, TER number, and other information to confirm code compliance.

**10.2.** Additional technical information can be found at [oxengineeredproducts.com](http://oxengineeredproducts.com).

## 11. Review Schedule:

**11.1.** This TER is subject to periodic review and revision. For the most recent version of this TER, visit [drjengineering.org](http://drjengineering.org).

**11.2.** For information on the current status of this TER, contact [DrJ Engineering](http://DrJ Engineering).



- [Mission and Professional Responsibilities](#)
- [Product Evaluation Policies](#)
- [Product Approval – Building Code, Administrative Law and P.E. Law](#)