

Product Information Bulletin

DuroFoam® Insulation

NBC 2010 & 2015 Insulating Sheathing Installation Requirements Page 1 of 4

DuroFoam® insulation board is a moulded expanded polystyrene (EPS) insulation that meets or exceeds CAN/ULC-S701.1, **Standard for Thermal Insulation, Polystyrene Boards**. The addition of a laminated film to the top and bottom surfaces of insulation boards provides a more durable product that is less susceptible to handling damage.

Table 1 – DuroFoam Insulation Material Properties

Material Properties ¹	Units	Values
Thermal Resistance <i>Minimum per 25 mm (1 inch)</i> ASTM C518	m ² •°C/W (ft ² •h•°F/BTU)	0.65 (3.75)
Compressive Resistance <i>Minimum @ 10% Strain</i> ASTM D1621	kPa (psi)	70 (10)
Flexural Strength <i>Minimum</i> ASTM C203	kPa (psi)	170 (25)
Water Vapour Permeance ² <i>Maximum</i> ASTM E96	ng/(Pa•s•m ²) (Perms)	30 (0.5)
Water Absorption ³ <i>Maximum</i> ASTM D2842	% By volume	6.0
Dimensional Stability <i>Maximum</i> ASTM D2126	% Linear Change	1.5
Limiting Oxygen Index <i>Minimum</i> ASTM D2863	%	24
Flame Spread Rating CAN/ULC S102.2	NA	290
Smoke Developed Classification CAN/ULC S102.2	NA	Over 500

The reflective facer on **DuroFoam** insulation contains a thin layer of foil embedded within the film. The reflective facer does not increase nominal thermal resistance of **DuroFoam** insulation (for additional information see Plasti-Fab PIB 253 - **Facts About Thermal Resistance of Reflective Insulation**). The branded face of **DuroFoam** and **DuroFoam Plus** insulation exposed to the exterior provides markings to assist in cutting the insulation and locating fasteners into framing as required.

¹ **DuroFoam** insulation material properties are third party certified to CAN/ULC-S701.1 under an Intertek third party certification program (see Intertek Code Compliance Research Report CCRR-1072 for additional information) and listed by the Canadian Construction Materials Centre (CCMC) under evaluation listing number 12424-L.

² WVP values quoted are maximum values for 25-mm (1-inch) thick samples with natural skins intact. Lower values will result for thicker materials.

³ The water absorption laboratory test method involves complete submersion under a head of water for 96 hours. The water absorption values above are applicable to specific end-use design requirements only to the extent that the end-use conditions are similar to test method requirements.

The following specification provides general material and installation requirements for **DuroFoam** insulating sheathing board in conformance with the National Building Code of Canada (NBC) 2010 and 2015.

1. Scope:

1.1. NBC 2010 and 2015:

- 1.1.1. Article 9.23.10.2. – Bracing and Lateral Support
- 1.1.2. Article 9.23.17.1. – Required Sheathing
- 1.1.3. Article 9.23.17.2. – Thickness, Rating and Material Standards
- 1.1.4. Article 9.23.17.3. – Attachment of Cladding to Sheathing
- 1.1.5. Article 9.27.3.3. – Required Sheathing Membrane and Installation
- 1.1.6. Article 9.27.3.4. – Insulating Sheathing in Lieu of Sheathing Membrane
- 1.1.7. Article 9.27.5.1. – Attachment of Cladding
- 1.1.8. Article 9.27.5.4. – Size and Spacing of Fasteners
- 1.1.9. Article 9.27.5.7. – Penetration of Fasteners

2. Materials:

2.1. Insulation Materials:

- 2.1.1. **DuroFoam** insulating sheathing does not provide bracing and lateral support required in Article 9.23.10.2. Where bracing is required, it shall be provided as per Sentence 9.23.10.2.(3).
- 2.1.2. **DuroFoam** insulation meets the requirements of CAN/ULC-S701.1, Type 1 and is listed with the Canadian Construction Materials Centre (CCMC) under evaluation listing 12424-L.
- 2.1.3. When required to provide solid backing for exterior cladding per Article 9.23.17.1 the minimum thickness of **DuroFoam** insulating sheathing must be 38 mm (1 ½”) as per Table 9.23.17.2.A.
- 2.1.4. Sentence 9.27.3.3.(1) state that where exterior insulating sheathing is used at least one layer of sheathing membrane shall be applied beneath cladding.
- 2.1.5. Sentences 9.27.3.4.(1) and 9.27.3.4.(2) state that where exterior insulating sheathing with an integral sheathing membrane is installed and the joints of the rigid insulating sheathing panels are lapped or detailed to ensure drainage of water to the exterior of the wall or all joints must be sealed, a separate sheathing membrane is not required.

2.2. Other Materials:

- 2.2.1. Caulking adhesives shall be compatible with polystyrene insulation conforming to CSGB 71-GP-24M, Adhesive, Flexible, for Bonding Cellular Polystyrene Insulation.
- 2.2.2. Sheathing tape used shall be any commercially available sheathing tape such as 3M, Tuck Tape, Tyvek or equivalent.
- 2.2.3. Foam-in-place non-expanding polyurethane foam shall be commercially available material compatible with polystyrene insulation.
- 2.2.4. Fasteners must be minimum 3.2 mm (1/8”) diameter with heads or washers at least 12.7 mm (1/2”) in diameter, where the cladding is applied directly against the insulation, and at least 25.4 mm (1”) diameter, where an air space between the insulation and the cladding exists.

3. Installation:

3.1. General:

- 3.1.1. Framing, cavity insulation and vapour barrier on the inside of framing (warm side) are all to be installed following normal construction practices and in conformance with the applicable section of the NBC 2010 and 2015.
- 3.1.2. Install **DuroFoam** insulating sheathing on the exterior of wood stud construction with the horizontal joints tightly butted together. Vertical joints shall be made over the studs.
- 3.1.3. Install **DuroFoam** insulating sheathing using fasteners as per section 2.2.4 that extend not less than 25 mm (1") into the framing as per Sentence 9.27.5.7.(2).
- 3.1.4. When used as backing for an exterior cladding, **DuroFoam** insulating sheathing shall be fastened to wood studs at not more than 150 mm (6") centers along vertical edges and not more than 300 mm (12") along intermediate supports as per Table 9.27.5.4.
- 3.1.5. Use a suitable material as per section 2.2.3, to seal joints which have been damaged or cut. Typical locations where the insulating sheathing may be cut include at corners or around windows and doors.
- 3.1.6. Rigid insulating sheathing shall not be used for the attachment of cladding materials as stated in Sentence 9.23.17.3.(1).
- 3.1.7. Cladding material shall be nailed to the framing members, furring members or to blocking between the framing members as stated in Sentence 9.27.5.1.(1).
- 3.1.8. Cladding materials attached on the exterior side of **DuroFoam** insulating sheathing are to be installed following normal construction practices with all fasteners penetrating through the insulating sheathing into framing members in conformance with the applicable section of the NBC with fastener penetration as per Article 9.27.5.7.

DuroFoam Insulation - Frequently Asked Questions



Should **DuroFoam** insulation be installed with the reflective face facing inwards or outwards in wall or floor assemblies?

The reflective facer on **DuroFoam** insulation contains a thin layer of foil embedded within the film. The reflective facer does not increase nominal R-value of **DuroFoam** insulation. See Plasti-Fab Product Information Bulletin No. 253 for additional information on reflective insulation.

How does **DuroFoam** insulation compare to other insulation types?

DuroFoam insulation provides excellent durability and a very competitive cost per R-value when compared to other insulation materials.

How is **DuroFoam** insulation attached to the wall structure?

DuroFoam insulation is attached to a wood frame walls using fasteners with minimum 3.2 mm (1/8") diameter heads or washers at least 12.7 mm (1/2") in diameter, where the cladding is applied directly against the insulation, and at least 25.4 mm (1") diameter, where an air space between the insulation and the cladding exists.

Does a separate sheathing membrane need to be applied over **DuroFoam** insulation installed over the exterior of wood frame walls?

When **DuroFoam** insulation is installed with the joints sealed to ensure drainage of water to the exterior of the wall a separate sheathing membrane is not required.

Are there installation instructions for **DuroFoam** insulation used in various applications available on line?

Typical installation instructions and how-to videos can be downloaded from the Plasti-Fab website at www.plastifab.com.