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Product Information Bulletin

DuroSpan® GPS Insulation - 2012 OBC Insulating Sheathing Installation Requirements

DuroSpan® GPS insulation is a rigid, closed-cell expanded polystyrene (EPS) insulation that meets or exceeds requirements as per CAN/ULC-S701, Type 1. ***DuroSpan GPS*** insulation has a silver-gray colour with laminated films on the top and bottom surfaces which result in a more durable product that is less susceptible to handling damage.

DuroSpan GPS insulation is manufactured using ***Neopor® F5300 GPS Plus***, a graphite-enhanced expandable polystyrene (GPS) provided by BASF. The graphite within the cellular structure of ***DuroSpan GPS*** insulation reduces radiation heat transfer resulting in enhanced thermal resistance compared to standard white EPS insulation.

CAN/ULC-S701[1] Material Properties	Test Method	Units	Values
Thermal Resistance[2] *Minimum per 25 mm (inch)*	ASTM C518	$m^2 \cdot °C/W$ ($ft^2 \cdot h \cdot °F/BTU$)	0.82 (4.7)
Compressive Resistance *Minimum @ 10% Deformation*	ASTM D1621	kPa (psi)	70 (10)
Flexural Strength *Minimum*	ASTM C203	kPa (psi)	170 (25)
Water Vapour Permeance[3] *Maximum for 25-mm (1-inch) thickness*	ASTM E96	$ng/(Pa \cdot s \cdot m^2)$ (Perms)	30 (0.5)
Water Absorption[4] *Maximum*	ASTM D2842	% By volume	6.0
Dimensional Stability *Maximum, 7 Days @ 70 ± 2°C (158 ± 4°F)*	ASTM D2126	% Linear Change	1.5
Limiting Oxygen Index *Minimum*	ASTM D2863	%	24
Surface Burning Characteristics *Classification or Rating*	CAN/ULC S102.2	Flame Spread	220
		Smoke Developed	Over 500

1. CAN/ULC-S701-11, ***Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering***.
2. ***DuroSpan GPS*** insulation material properties are third party certified under a quality listing program administered by Intertek. See Intertek Code Compliance Research Report CCRR-1033 for detailed code compliance information.
3. Unfaced EPS insulation ***maximum*** vapour permeance is 300 $ng/Pa \cdot s \cdot m^2$ (5.0 perms). ***DuroSpan GPS*** insulation vapour permeance is significantly lower as a result of the laminated films. Where water vapour permeance is a design issue, contact Plasti-Fab technical services for additional information.
4. 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.

This bulletin provides a specification for general material and installation requirements using ***DuroSpan GPS*** insulating sheathing in conformance with the 2012 OBC. See Plasti-Fab Product Information Bulletin 362 for additional code information on meeting 2012 Ontario Building Code (2012 OBC) energy efficiency requirements using ***DuroSpan GPS*** insulating sheathing.

1. Scope:
   1.1. Article 9.23.10.2. – Bracing and Lateral Support
   1.2. Article 9.23.16.1. – Required Sheathing
   1.3. Article 9.23.16.2. – Thickness, Rating and Material Standards
   1.4. Article 9.23.16.3. – Attachment of Cladding to Sheathing
   1.5. Article 9.27.3.4. – Insulating Sheathing in Lieu of Sheathing Membrane
   1.6. Article 9.27.5.1. – Attachment of Cladding
   1.7. Article 9.27.5.7. – Penetration of Fasteners

2. Materials:
   2.1. Insulation Materials:
      2.1.1. ***DuroSpan GPS*** 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. ***DuroSpan GPS*** insulation meets the requirements of CAN/ULC-S701, Type 1. See Intertek Code Compliance Research Report CCRR-1033 for detailed code compliance information.
      2.1.3. When required to provide solid backing for the exterior cladding per Sentence 9.23.16.1.(1), the minimum thickness of insulating sheathing per Sentence 9.23.16.2.(1) and Table 9.23.16.2.A. would be 38 mm (1 ½”) for ***DuroSpan GPS*** insulation.
      2.1.4. As stated in Sentence 9.23.16.3.(1), rigid insulating sheathing board shall not be used for the attachment of cladding materials.
      2.1.5. Sentence 9.27.3.4.(1) states where non-wood-based rigid exterior insulating sheathing, or exterior insulating sheathing with an integral sheathing membrane is installed, a separate sheathing membrane is not required.
      2.1.6. Sentence 9.27.3.4.(2) states that the joints of rigid insulating sheathing panels must be lapped or detailed to ensure drainage of water to the exterior of the wall or all joints must be sealed.

   2.2. Other Materials:
      2.2.1. Caulking adhesives used 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 2012 OBC.
      3.1.2. Install ***DuroSpan GPS*** insulating sheathing board 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. Fasteners as per section 2.2.4 for attaching insulating sheathing shall extend not less than 25 mm (1") into the framing.
      3.1.4. When used as a backing for an exterior cladding, the insulating sheathing board shall be fastened to framing at not more than 150 mm (6 in) centers along its vertical edges.
      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 joint may be cut include at corners or around windows and doors.
      3.1.6. As stated in Sentence 9.27.5.1.(1), cladding material shall be nailed to the framing members, furring members or to blocking between the framing members.
      3.1.7. Cladding materials attached on the exterior side of ***DuroSpan GPS*** 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 2012 OBC with fastener penetration as per Article 9.27.5.7.