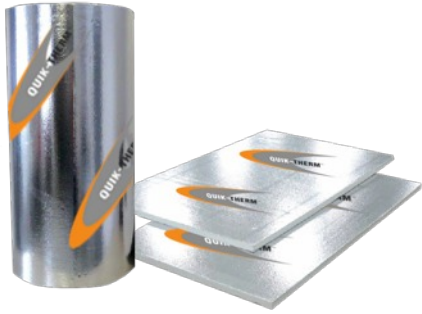




# Quik-Therm Sub-Grade Insulation



Quik-Therm Sub Grade Insulation (SGI) consists of closed cell, lightweight and resilient expanded polystyrene (EPS) layered on both sides with advanced metallic polymer facers. SGI's facer technology provides superior durability and resiliency. SGI is designed for below grade applications such as exterior concrete walls and beneath concrete slabs and floors. Quik-Therm SGI is available in variable densities and compressive strengths.

Intertek/Architectural Testing Inc. tested Quik-Therm SGI to ASTM C1363 "Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies". The interior and exterior heat transfer coefficients and orientation were modified to reflect a sub-grade application that could be used to extrapolate the expected effective R-value for listed thicknesses.

## Standard Dimensions

**Rolls:** 4' x 48' (192 ft<sup>2</sup>) - 11/16" thick  
1.2 m x 14.6 m (17.8 m<sup>2</sup>) - 17 mm thick

**Sheets:** 4' x 8' (32 ft<sup>2</sup>) - Variable Thicknesses  
1.2 m x 2.4 m (3.0 m<sup>2</sup>)  
(Available in Custom Lengths)

SGI was tested to ASTM E96 "Standard Test Method for Vapor Transmission of Materials" and conforms to CAN/CGSB-51.34-M, "Vapour Barrier Polyethylene Sheet for use in Building Construction." SGI meets code compliancy as a radon, vapour and air barrier when joints and seams are taped.

## Features & Highlights

- RESILIENT & RUGGED - Does not easily chip, crack or break.
- AIR, VAPOUR & RADON BARRIER - Qualifies as a code compliant air, vapour and radon barrier when connection points are taped.
- FAST & EASY TO INSTALL - R-5.2 rolls install in about half the time of foam board.
- LONG TERM THERMAL PERFORMANCE - NO thermal drift. R-value remains stable.
- FREEZE, THAW & MOISTURE RESISTANT - Retains thermal characteristics and mechanical properties after being subjected to freeze thaw cycling.
- ECO RESPONSIBLE - Contains no dyes, formaldehyde, or gas blowing agents (GBA).
- RECYCLABLE - Contains up to 15% recycled Expanded Polystyrene.

## Typical Quik-Therm SGI Below Grade Applications

Refer to physical properties table for compressive strength information for each foam type.

### Type 1

Compressive Strength: 12.6 psi (1815 psf)

Supports a 4 to 8 inch concrete slab.  
Examples: basement floors, warehouse structures and backfilled vertical foundations.

### Type 2

Compressive Strength: 19.7 psi (2835 psf)

Supports a minimum thickness slab of 5.5 inches. Vehicular traffic, heavy vehicles and farm machinery.

### Type 3

Compressive Strength: 26.7 psi (3845 psf)

Supports load bearing walls and footings. For these applications a specific geotechnical assessment should be undertaken.

\*\* All SGI products will perform successfully when exposed to soil induced heaving forces. For most sub-grade applications, Type 1 SGI would be the most flexible and suitable.



# Compare Quik-Therm to XPS - Below Grade

Below Grade Performance	Quik-Therm / EPS	XPS
Moisture Absorption	Moisture content of only 4.8% after 15 years	18.9% moisture absorption after 15 years
R-Value Retention	Retained 94% of its stated R-value after 15 years	Retained only 52% of its stated R-value after 15 years
Drying Potential	Good	Minimal
National Research Council Canada 30 month below grade testing	NO loss of R-value and NO change in material properties	Not Tested

## Additional Research

Third party research published by Oak Ridge National Laboratory in April 2012 further validates the findings indicating XPS below grade systems can experience a 10 - 44% loss of energy savings performance when subjected to moisture accumulation in the range of 8% - 16%.

## Effective R-Value Summary

Testing and Energy Modeling - ATI / Intertek

SGI Thickness (mm)	SGI Thickness (inches)	Effective R-Value*	RSI
17	11/16"	5.2	0.92
32	1¼"	7.5	1.32
48	2"	10.2	1.80
57	2¼"	11.1	1.96
59	2 5/16"	12.1	2.13
65	2 9/16"	13.2	2.32
76	3"	15.1	2.66
83	3¼"	16.1	2.84

\* SGI + 3½" Concrete. Thicker concrete will increase the effective R-Value

## Typical Physical Properties

Property	Result			Test Method
	Type 1	Type II	Type III	
Nominal Density, pcf (kg/m <sup>3</sup> )	1.0 (16)	1.4 (23)	1.8 (29)	ASTM D1622
Compressive Strength, psi (kPa)	12.6 (87)	19.7 (136)	26.7 (184)	ASTM 1621-04
Flexural Strength, psi (kPa)	29.3 (202)	37.3 (257)	54.5 (376)	ASTM C203-05
Water Vapour Transmission (perms)	<1.0			ASTM E96
Effect of Exposure to Environmental Cycling	See Below			ASTM C1512

**ASTM C1512** was developed specifically to determine the freeze-thaw and moisture resistance properties of foam insulation in below grade applications. Test results clearly demonstrate that EPS does not absorb excessive amounts of moisture and there is no loss in R-value or change in compressive strength for EPS even after long-term exposure in northern climates.

**Vapour Barriers:** The IRC building code defines a vapour barrier as having a perm rating of 1.0, or less. A vapour barrier is a Class I vapour control layer. The test procedure for classifying vapour barriers is ASTM E-96 Test Method.

Meets CAN/ULC S701-05 / CCMC #13393-L and 13457-L