

## Quik-Therm Sub-Grade Insulation (SGI) - Compressive Strength

Quik-Therm's EPS core is a closed cell, lightweight and resilient, foamed plastic cells composed of approximately 95% air. The mechanical strength of Quik-Therm SGI varies with its density. The most important mechanical property of SGI is its resistance to compressive stresses, which increase as EPS density becomes higher. Quik-Therm SGI has a compressive resistance of between 12.6 – 26.7 psi. Higher compressive strength, up to 60 psi is available on request.

ASTM C578, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation is a performance standard that was developed by producers of polystyrene foam, third party testing laboratories, regulatory agencies and building professionals in North America. It covers the types, physical properties, and dimensions of cellular polystyrene used as thermal insulation for temperatures from -54 to 74°C. ASTM C578 covers types of EPS thermal insulation currently available and the minimum requirements for the properties considered most important. Flexural strength and compressive resistance values are included. These values were determined based on ASTM C203, Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation and C165, Test Method for Measuring Compressive Properties of Thermal Insulations and/or D1621 for Test Method for Compressive Properties of Rigid Cellular Plastics.

### Typical Strength Characteristics – Quik-Therm Sub-Grade Insulation

Property	Units	ASTM Test	ASTM C 578 Type		
			Type 1	Type 2	Type 3
Density Range	pcf	1622-03	1.0	1.4	1.8
Flexural Strength	psi	C203-05	29	37	55
Compressive Resistance at 10% deformation	psi	D1621-04	12.6	19.7	26.7
Water Vapour Transmission (perms)	perms	E-96	1.0 or less	1.0 or less	1.0 or less

### Typical Quik-Therm SGI Below-Grade Applications

**Type 1:** Supports a 4 to 8 inch concrete slab. Examples: basement floors, warehouse structures and back filled vertical foundations.

**Type 2:** Supports a minimum thickness slab of 5.5 inches. Examples: heavy vehicles, farm machinery and vehicular traffic.

**Type 3:** Supports load bearing walls and footings. For these applications a specific geotechnical assessment should be undertaken.

\*\* Resilience of Quik-Therm SGI insulation provides reasonable absorption of building movement without transferring stress to the interior or exterior finishes at the joints.