

## **PRODUCT FEATURES**

### **Basic Uses/Related Uses**

INSULWORKS is manufactured from high-density EPS and is designed for hydronic heating applications, such as:

- under slab-on-grade
- in sandwich slab applications
- snow melt systems

### **Product Attributes and Characteristics**

- High compressive strength supports concrete structures, construction activity, machinery and heavy loading
- Efficient thermal barrier between the heated slab and underlying ground
- Moisture vapour permeable
- Contains no CFCs, HCFCs, or other refrigerant gases
- Biologically inert; will not support mould, mildew or fungus growth
- Contains a chemical additive to inhibit accidental ignition from a small fire source
- Non-toxic and hypo-allergenic

### **Selection Criteria**

- Reduces labour and costs by eliminating the need to tie tubing down to wire mesh
- Available in four standard thicknesses with additional thicknesses available on request
- Standard thermal resistance values range from 1.1 RSI (R-6) to 21. RSI (R-12) or over
- Available for 13 mm (1/2") and 15.8 mm (5/8") and 19 mm (3/4") tubing
- Material is easily cut

### **Applicable Standards, Related References**

- ASTM C578 – standard specification for rigid, cellular polystyrene thermal insulation
- ASTM C177 – standard test method for steady-state heat flux measurements and thermal transmission properties by means of the guarded-hot-plate apparatus
- ASTM D696-03 – standard test method for coefficient of linear thermal expansion of plastics between -30°C and +30°C with a vitreous silica dilatometer
- ASTM D1 62 1-00 – standard test method for compressive properties of rigid cellular plastics
- ASTM E84 – standard test method for surface burning characteristics of building materials
- ASTM E96-00el – standard test methods for water vapor transmission of materials ASTM
- D2842-01 – standard test method for water ASTM absorption of rigid cellular plastics
- CAN/ULC-S701 – standard for thermal insulation, polystyrene, boards and pipe covering

### **Quality Statement, Tests, Certifications, and Approvals**

- Product certified under Warnock Hershey third party certification program
- ISO 9001:2000 registered company certificate #Q9234
- Canadian Construction Materials Centre, evaluation 13218-L
- International Code Council-Evaluation Service, evaluation ER-6100

### **Packaging, Handling, Protection, and Delivery Instructions**

- Observe normal fire precautions and good housekeeping during storage and application.

### **Limitations**

- Product will burn when exposed to large continuous flame

### **Availability**

Contact AMC Foam Technologies Inc. for a list of local distributors.

### **Cost**

- Varies with substrate condition and configuration, and relative size of building.
- Consult AMC for specific product costs.

## PRODUCT PROPERTIES

### Materials, Composition, Properties

#### Material:

Rigid closed cell, expanded polystyrene (EPS) board, Type 2 to CAN/ULC/S701 and ASTM C578.

#### Performance:

- Flame Spread/Smoke Developed Index: Less than 25/450 to ASTM E84

#### Thermal resistance for standard thicknesses available:

- 38 mm (1 1/2") thickness: 1.1 RSI (R-6)
- 48 mm (1 7/8") thickness: 1.3 RSI (R-7.5)
- 64 mm (2 1/2") thickness: 1.7 RSI (R-10)
- 75 mm (3") thickness: 2.1 RSI (R-12)

#### Dimensions

- Standard board sizes: 1220 x 1220 mm (4' x 4') panels
- Standard board thickness: 38 mm, 48 mm, 64 mm, and 75 mm (1 1/2", 1 7/8", 2 1/2" and 3")

PHYSICAL PROPERTY	UNITS IMPERIAL (R VALUE)	UNITS SI (METRICS)	ASTM TEST PROCEDURE	VALUES	
				IMPERIAL	METRIC
Minimum Thermal Resistance (R-Value)	Hr.ft <sup>2</sup> °F / BTU / 1 in.	hm <sup>2</sup> °C / W / 25 mm	C-177-76 or C-518-76	4.00	0.70
Coefficient of Thermal Expansion (max)	In / in / °F	m / m °C	D-696-79	3.5 x 10 <sup>-5</sup>	6 x 10 <sup>-5</sup> c <sup>-1</sup>
Compressive Strength	Psi	kPA	D-1621-73	16	110
Capillary Action	-----	-----	-----	none	none
Water vapor permeance (max)	perm - in	ng / Pa.s.m <sup>-2</sup>	E96-80	3.5	200
Water absorption % (max)	%	%	D2842-69	4.0	4.0

## PRODUCT PLACEMENT

### Installation

- Verify surface is ready to receive insulation.
- Install insulation panels to manufacturer's instructions.
- "Step" hydronic tubing into raised panel ridges.

### Coverage

- Insulworks panels are bundled in packs providing the following coverage:

PANEL DESCRIPTION	PIECES PER PACK	AREA
38 mm (1 1/2")	20	29.7 m <sup>2</sup> (320 sq.ft.)
48 mm (1 7/8")	16	23.8 m <sup>2</sup> (256 sq.ft.)
64 mm (2 1/2")	12	17.8 m <sup>2</sup> (192 sq.ft.)
75 mm (3")	10	14.8m <sup>2</sup> (160 sq.ft.)

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