

QUIK-THERM NOTE: This master specification section includes QUIK-THERM NOTES identified as “QUIK-THERM NOTE” for information purposes and to assist the specification writer in making appropriate decisions. The QUIK-THERM NOTE always immediately precedes the text to which it is referring. The section serves as a guideline only and should be edited with deletions and additions to meet specific project requirements.

QUIK-THERM NOTE: This specification section follows the recommendations of the Construction Specifications Canada, Manual of Practice including MasterFormat, SectionFormat, and PageFormat. Optional text is indicated by square brackets []; delete the optional text including the brackets in the final copy of the specification. Delete the QUIK-THERM NOTES in the final copy of the specification. Trade/brand names with appropriate product model numbers, styles and types are used in QUIK-THERM NOTES and in the specification text Article or Paragraph titled Acceptable Material. The Section is written for the Canadian industry with units of measurement shown in SI Metric and Imperial measurement following in parentheses.

Part 1 General

1.1 SECTION INCLUDES

- .1 Board insulation at below grade foundation walls and beneath concrete floors.
- .2 Related Accessories.

QUIK-THERM NOTE: In following Article, include in the paragraph only those sections and documents that directly affect the work of this section.

1.2 RELATED REQUIREMENTS

- .1 Section 03 30 00 – Cast-In-Place Concrete.
- .2 Section 04 20 00 – Unit Masonry.
- .3 Section 07 11 00 – Dampproofing.
- .4 Section 07 13 00 – Sheet Waterproofing.
- .5 Section 07 26 00 – Vapour Retarders.
- .6 Section 07 27 00 – Air Barriers.
- .7 Section 07 62 00 – Sheet Metal Flashing.
- .8 Section 07 92 00 – Joint Sealants.
- .9 Section 31 23 00 – Excavating and Backfilling.

QUIK-THERM NOTE: In the following Article, include only those reference standards which appear in the finished version of the project specification.

1.3 REFERENCES

- .1 CAN/ULC S705 - Standard for Thermal Insulation - Spray Applied Rigid Polyurethane Foam, Medium Density – Material.
- .2 CAN/CGSB 51.34 - Vapour Barrier, Polyethylene Sheet for Use in Building Construction.
- .3 ASTM C203 - Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
- .4 ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

- .5 ASTM C1363 – Standard Test Method for Thermal Performance and Building Materials and Envelope Assemblies.
- .6 ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- .7 ASTM D1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- .8 ASTM D2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
- .9 ASTM D3816 - Standard Test Method for Water Penetration Rate of Pressure-Sensitive Tapes.
- .10 ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- .11 ASTM E1512 - Standard Test Methods for Testing Bond Performance of Bonded Anchors.
- .12 ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

1.4 SUBMITTALS

- .1 Section 01 33 00: Submission procedures.
- .2 Product Data: Provide data on product characteristics, performance criteria, limitations [and [____]].
- .3 Installation Data: Indicate special environmental conditions required for installation, installation techniques [and [____]].

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section [01 61 00 - Common Product Requirements] [with manufacturer's written instructions].
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in a covered area, away from the elements, direct sunlight and extreme heat.
 - .2 Store and protect product from damage. Caution to be taken with corners and edges from damage during transport, storage and installation.
 - .3 Replace defective or damaged materials with new.
 - .4 Do not walk on product.
- .4 Packaging and Waste Management:
 - .1 Separate and recycle waste packaging materials in accordance with [Section 01 74 19 – Construction Waste Management and Disposal.]
 - .2 Remove waste packaging materials from site and dispose of packaging materials at appropriate recycling facilities.

Part 2 Products

2.1 MANUFACTURER

- .1 Acceptable Manufacturer: Quik-Therm located at 1680 Sargent Ave., Unit 3 Winnipeg, MB Canada, R3H 0C2; Toll Free: 1-888-735-3012, Telephone: 204-736-3012; Email; info@quiktherm.com, Website; www.quiktherm.com.

2.2 EXPANDED POLYSTYRENE INSULATION - FACED

- .1 Expanded Polystyrene Insulation (Faced): Quik-Therm Sub-Grade Insulation.

QUIK-THERM NOTE: Sub-Grade Insulation has been tested impermeable. Its dual facer technology repels moisture, blocks radon and methane gas. Where thickness is [17 mm] [11/16"] product comes in roll form. For increased thickness and nominal R-value, consult Quik-Therm Representative for further information.

.2 Description:

- .1 Type [I][II][III] closed cell expanded polystyrene (EPS) with metalized polymer facers. Gridlines indicated on facers [$<200\text{ mm}><8''>$] on centre for tubing alignment aide for radiant floors. Board edges square. Board Size; [$<1.2\text{ m}><4'>$] x [$<2.4\text{ m}><8\text{ feet}>$], Thickness; [$<17\text{ mm}><5/8''>$] [$<25\text{ mm}><1''>$] [$<38\text{ mm}><1 1/2''>$] [$<51\text{ mm}><2''>$] [$<64\text{ mm}><2 1/2''>$] [$<76\text{ mm}><3''>$] [$<83\text{ mm}><3 1/4''>$] [$<90\text{ mm}><3 1/2''>$] [$<110\text{ mm}><4 1/4''>$] [$<11/16\text{ inch}>$] [$<1\text{ inch}>$] [$<1.5\text{ inch}>$] [$<2\text{ inch}>$] [$<2-5/16\text{ inch}>$] [$<2.5\text{ inch}>$] [$<2-9/16\text{ inch}>$] [$<3\text{ inch}>$] [$<3-1/4\text{ inch}>$] [$<3.5\text{ inch}>$] [$<4.25\text{ inch}>$].
- .2 Does not contain dyes, formaldehyde or blowing agents. It may contain up to 15% recycled (EPS).

.3 Physical Properties:

QUIK-THERM NOTE: Compressive strength applications for each type;

Type I: Basement and garage floors. Backfilled vertical foundation and walls.

Type II: Structural slabs, warehouse floors, heavy vehicle traffic and heavy vehicle storage.

SGI30: Load bearing floors, walls and footings.

SGI40: Roadways, high load bearing floors, walls and footings.

CHARACTERISTIC	UNITS	NOMINAL VALUE				TEST METHOD
		Type I	Type II	SGI 30	SGI 40	
Dimensional Stability – Maximum Linear Change	%	1.5				ASTM D2126
Length Tolerance	mm (in)	+/- 3.2 (+/- 0.125)				-
Width Tolerance	mm (in)	+/- 1.6 (+/- 0.63)				-
Water Vapour Transmission	perms	<1.0				ASTM E96
Density	Kg/m ³ (lbs/ft ³)	23 (1.4)				ASTM 1622-03
Compressive Strength	kPa (psi)	87 (12.6)	136 (19.7)	207 (30)	276 (40)	ASTM D1621-04a
Flexural Strength	kPa (psi)	202 (29.3)	257 (37.3)	376 (54.5)	376 (54.5)	ASTM C203-05
Nominal RSI (R-value)	m ² .K/W (ft ² .°F.h/BTU)	0.67 (3.81)	0.73 (4.18)	0.77 (4.40)	0.77 (4.40)	ASTM C518

Nominal Density	Kg/m ³ (pcf)	16 (1.0)	23 (1.4)	29 (1.8)	38 (2.4)	ASTM D1622
Air Permeance	L/s •m ²	0.0139				ASTM E2178-13
Effect of Exposure to Environmental Cycling	Pass					ASTM C1512

.4 Performance Criteria:

QUIK-THERM NOTE: For approved radon barrier and equivalency to a polyethylene vapour barrier, joints and penetration in insulation to be sealed with Tuck tape sheathing tape for polyethylene (PE) vapour barriers tested to ASTM E96 and ASTM D3816 water penetration rate.

- .1 Radon barrier where (SGI) in conjunction with manufacturer approved joint and penetration tape tested to ASTM E2178 and ASTM E96.
- .2 Effective [$\langle RSI \rangle \langle R \text{-value} \rangle$] tested to ASTM C1363.
- .3 Nominal [$\langle RSI \rangle \langle R \text{-value} \rangle$] Standard Test ASTM C518.
- .4 Meets CAN/CGSB-51.34M as equivalent polyethylene sheet vapour barrier.

2.3 ACCESSORIES

- .1 Tape: Sheathing tape for polyethylene (PE) vapour barriers tested to ASTM E96 and ASTM D3816 water penetration rate.
 - .1 Acceptable Manufacturers;
 - .1 Technical Tape Limited; Tuck Tape 202.
 - .2 Berry Plastic Corporation; Flex Fit.
- .2 Adhesive: Gun grade, mastic type, compatible with insulation and substrate. [In accordance with Section 07 92 00 – Joint Sealants.]
 - .1 [Acceptable Manufacturer;
 - .1 Adfast; Adseal 4580.]

Part 3 Execution

3.1 EXAMINATION

- .1 Section 01 70 00: Verify existing conditions before starting work.
- .2 Verify insulation boards are unbroken, free of damage, with face membrane intact.
- .3 Verify surfaces within subgrade being insulated have been inspected.
- .4 Verify substrate surface is flat, free of honeycomb, fins, irregularities, materials or substances that may impede installation.

3.2 PREPARATION

- .1 Clean surface of substances that are harmful to insulation includes removing projections capable of puncturing insulation or vapour retarders, or that interfere with insulation attachment.

3.3 INSTALLATION – FOUNDATION WALLS

- .1 Install in accordance with Manufacturer’s written instructions.

- .2 [Fasten insulation board to foundation wall with concrete fasteners with [<25 mm> <<1 inch>>] dial washers, 6 per [<600 mm> <<24 inch>>] x [<2400 mm> <<8 foot>>] board.]
- .3 [Apply adhesive in [three (3)] continuous beads per board length.]
- .4 Push edge of next board securely into edge of fastened board.
- .5 Seal walls, tie rod holes and control joints.
- .6 Seal and flash top edge of foundation and insulation.
- .7 Board joints to be tight together and perimeter edges to be taped should be dry and clean.
- .8 As part of an air, vapour system, insulation can be sealed to polyethylene vapour barrier.
- .9 Use a spatula to apply uniform pressure to ensure a seal between tape and insulation board.

3.4 INSTALLATION – RADON BARRIER

- .1 Install to manufacturer's written instructions.
- .2 Place boards on top surface, in a method to maximize contact bedding. Stagger end joints. Butt edges and ends tight to adjacent board and to protrusions.
- .3 Board joints to be tight and perimeter edges to be taped should by dry and clean.
- .4 Seal joints and penetrations through insulation.
- .5 Where insulation and polyethylene sheet vapour barrier lap, joints to be sealed.

3.5 CLEANING

- .1 Progress Cleaning: clean in accordance with Section [01 74 00 - Cleaning].
 - .1 Leave Work area clean at end of each day.
- .2 Waste Management:
 - .1 Coordinate recycling of waste materials with [01 74 19 – Construction Waste Management and Disposal].
 - .2 Collect recyclable waste and dispose of or recycle field generated construction waster created during construction or final cleaning related to work of this section.
 - .3 Remove recycling and waste containers from site and dispose of materials at appropriate facility.

3.6 PROTECTION

QUIK-THERM NOTE: This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. Consult a design professional.

- .1 Protect installed panels until completion of project.
- .2 Touch-up, repair or replace damaged products.

END OF SECTION