

This section includes a guide specification for Beaver Plastics INSULWORKS™ LDC buried hydronic tubing insulation. Refer also to Beaver's Product Description for detailed product properties, options, and other technical information. This section includes performance, proprietary, and descriptive type specifications; edit to avoid conflicting requirements.

Part 1 General

1.1 SECTION INCLUDES

In this article, select the components that are intended to be part of the content of this section and will not be included in other sections. Keep the statements brief and concise.

- .1 Insulation boards for large diameter buried hydronic tubing.

1.2 RELATED SECTIONS

- .1 Section [_____ - _____]: Trenching and preparation of adjacent work to receive work of this Section.
- .2 Section 15180 – Hydronic Piping: Installation of hydronic piping system.
- .3 Section [_____ - _____]: Building insulation.
- .4 Section [_____ - _____]: Roof insulation.

1.3 REFERENCES

List reference standards that are included within the text of this section. Edit the following as required to parallel any reference standards statements within this section.

- .1 ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- .2 ASTM C578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- .3 ASTM D696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer.
- .4 ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
- .5 ASTM D2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics.
- .6 ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- .7 ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- .8 CAN/ULC-S701 – Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

1.4 SUBMITTALS

Do not request submittals if drawings sufficiently describe the products of this section or if proprietary specifying techniques are used. The review of submittals increases the possibility of unintended variations to drawings, thereby increasing the Specifier's liability. The following submittals are intended for review and acceptability.

- .1 Section [01300] [01 33 00]: Submission procedures.
- .2 Product Data: Provide product description, list of materials and thickness for each service, and locations.
- .3 Test Reports: Submit substantiating engineering data, test results of previous tests [by independent laboratory] which purport to meet performance criteria, and other supportive data.

When manufacturer's instructions for specific installation requirements are referenced in PART 3 EXECUTION, include the following request for submittal of those instructions. Edit the PART 3 statements to avoid conflict with manufacturer's instructions.

- .4 Manufacturer's Installation Instructions: Indicate procedures which ensure acceptable workmanship and installation standards will be achieved.

1.5 QUALITY ASSURANCE

- .1 Manufacturer: ISO 9001:2000 registered company.

1.6 DELIVERY, STORAGE, AND PROTECTION

- .1 Section [01600] [01 61 00]: Transport, handle, store, and protect products.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .3 Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- .4 Store materials off ground, protected from direct sunlight..
- .5 Remove damaged or deteriorated Products from site.

1.7 ENVIRONMENTAL REQUIREMENTS

- .1 Section [01600] [01 61 00]: Environmental conditions affecting products on site.

Part 2 Products

2.1 MANUFACTURERS:

- .1 Beaver Plastics, Product INSULWORKS™ LDC.
- .2 Substitutions: [Refer to Section 01600.] [Not permitted.] [Refer to Instructions to Bidders.]

2.2 MATERIALS

- .1 Insulation: Rigid closed cell, expanded polystyrene (EPS) board, Type 2 to CAN/ULC-S701 and ASTM C578.
 - .1 Compressive strength: <16 kPa> <<110 psi>>.
 - .2 Maximum Water Vapour Permeance: <200 ng / Pa.s.m.⁻²> <<3.5 perm-in>>.
 - .3 Flame Spread/Smoke Developed Index: Less than 25/450 to ASTM E84
- .2 Fabricate insulation panels with grooves, sized to accommodate hydronic tubing to <[38] [____] mm> <<[1.5] [____] inches>> in diameter.

Part 3 Execution

3.1 PREPARATION

- .1 Prepare trenching in accordance with Section [____ - _____].
- .2 Verify that surfaces are clean, foreign material removed, and dry.

3.2 INSTALLATION

- .1 Install insulation to manufacturer instructions.
- .2 Lay insulation level and joints tight.
- .3 Install hydronic tubing in accordance with Section 15180 – Hydronic Piping.
- .4 Cover with top layer of insulation.
- .5 Infill around insulation board in accordance with Section [____ - _____].

3.3 PROTECTION OF FINISHED WORK

- .1 Section [01700] [01 45 00]: Protecting installed work.
- .2 Protect finished Work from damage during tubing installation.

END OF SECTION