Part 1 General

1.1 SECTION INCLUDES

.1 SPEC NOTE: SPEC NOTE:
This section specifies PowerWool CavityBoard and CavityBoard HD semi-rigid non-structural and non-combustible exterior mineral wool insulation sheathing board for use in exterior cavity wall and rainscreen applications. For PowerWools standard board insulation line, refer to Section 07 21 13.19 - Mineral Wool Board Insulation.

.2 Mineral board insulation in exterior [cavity wall] [rainscreen] applications.

.3 Accessories.

1.2 RELATED REQUIREMENTS

.1 SPEC NOTE: In this article, indicate those sections that inter-rely on this section. The listing below is only partial and should be edited to include those sections specific to the project that describe subjects or products that affect this section directly.

.2 Section [05 12 00 - Structural Steel] [05 41 00 - Structural Metal Stud Framing]: Structural metal studs to receive cavity insulation.

.3 Section [06 10 00 - Rough Carpentry]: Strapping and tie-down rainscreen materials adjacent to insulation.

.4 Section [06 11 00 - Wood Framing]: Framing materials adjacent to insulation.

.5 Section [06 16 00 - Sheathing].

.6 Section 07 26 00 - Vapour Retarders: Vapour retarder materials to adjacent insulation.

.7 Section 07 27 00 - Air Barriers: Air seal rainscreen materials to adjacent insulation.

.8 Section [07 46 16 - Preformed Metal Siding]: Board insulation behind [metal] [wall] [soffit] rainscreen cladding.

.9 Section [07 52 00 - Modified Bituminous Membrane Roofing]: Rigid insulation at roof system.

.10 Division 23 - Heating, Ventilating, and Air-Conditioning (HVAC): Pipe insulation.

1.3 REFERENCE STANDARDS

.1 SPEC NOTE: Edit this article after editing the rest of this section. Only list reference standards below that are included within the text of this section, when edited for a project specification. Delete other references that do not apply.

.2 SPEC NOTE: Where revision dates exist, the first date is the date to which CavityBoard is tested; the second is the latest version of the standard. Edit to reflect the desired version for the project.

.3 ASTM C303-21 - Standard Test Method for Dimensions and Density of Preformed Block and Board–Type Thermal Insulation.

.4 ASTM C356-22 - Standard Test Method for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat.

.5 ASTM C423-23 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

.6 ASTM C518-[17] [21] - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

.7 ASTM C612-14(2019) - Standard Specification for Mineral Fiber Block and Board Thermal Insulation.

.8 ASTM C665-[17] [23] - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

.9 ASTM C1104/C1104M-[13a] [19] - Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.

.10 ASTM C1338-[08] [19(2022)] - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.

.11 ASTM E84-[23] [24] - Standard Test Method for Surface Burning Characteristics of Building Materials.

.12 ASTM E96/E96M-[16] [24] - Standard Test Methods for Water Vapor Transmission of Materials.

.13 ASTM E136-24c - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 °C.

.14 ASTM E795-23 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

.15 CAN/ULC S102-[16] [18] - Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.

.16 CAN/ULC S114-[18] - Standard Method of Test for Determination of Non-Combustibility in Building Materials.

.17 CAN/ULC S702.1-[09] [21]- Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification.

1.4 ADMINISTRATIVE REQUIREMENTS

.1 Section 00 31 00: Project management and coordination procedures.

.2 Coordination:

.1 Coordinate with other work having a direct bearing on work of this section.

.2 Coordinate the work with Section [07 26 00] for installation of vapour retarder and Section [07 27 00] for air seal materials.

.3 Pre-Installation Meetings: Convene [one (1) week] [[____] weeks] before starting work of this section.

1.5 ACTION SUBMITTALS

.1 SPEC NOTE: Do not request submittals if this specification section or drawings sufficiently describe the products of this section - or if proprietary specifying is used. This requested review of submittals increases the possibility of unintended variations to the Contract Documents, thus increasing a Consultant's liability. The following submittals are intended for review to determine eligibility for the Project.

.2 Section 01 33 00: Submission procedures.

.3 Product Data: Provide data on product characteristics, performance criteria, limitations, including published R-value for thicknesses of insulation, product characteristics, performance criteria, and limitations, for each product indicated. [Provide ULC certification for fire resistance performance.]

1.6 INFORMATIONAL SUBMITTALS

.1 SPEC NOTE: The following submittals are for information only; do not request these submittals if the information submitted will be assessed for acceptability.

.2 Section 01 33 00: Submission procedures.

.3 Installation Data: Indicate special environmental conditions required for installation, installation techniques [and [_____]].

.4 Manufacturer's Certificate: Certify that Products meet or exceed specified [requirements].

1.7 CLOSEOUT SUBMITTALS

.1 Section 01 78 00: Submission procedures.

.2 [_____]

1.8 DELIVERY, STORAGE, AND HANDLING

.1 Section 01 61 00: Transport, handle, store, and protect products from damage.

.2 Deliver products in their original packages.

.3 Store products in weather protected environment, clear of ground and moisture and protected from direct exposure to sunlight.

Part 2 Products

2.1 MANUFACTURERS

.1 PowerWool Insulation Inc., Tel: 1-877-337-2802, www.powerwoolinsulation.com.

.2 Substitutions: [Not permitted] [Refer to Section 01 25 00].

2.2 DESCRIPTION

.1 SPEC NOTE: Edit and use this article carefully; restrict statements to describe the combined result of the components used to piece together an operating or functional assembly. Do not repeat statements from the SECTION INCLUDES article.

.2 Assembly of components includes materials providing:

.1 Continuity of thermal barrier at building enclosure elements [in conjunction with thermal insulating materials in Section [_____]].

.2 Thermal protection to vapour retarder in conjunction with vapour retarder materials in Section [07 26 00].

.3 Thermal protection to air seal materials at building enclosure elements in conjunction with air barrier materials in Section [07 27 00].

2.3 PERFORMANCE/DESIGN CRITERIA

.1 Thermal Resistance to ASTM C518: Minimum RSI-0.74 per 25 mm (R-4.2 per inch)].

.2 SPEC NOTE: Surface burning characteristics for CAN/ULC S702.1 Type 1 products to have flame-spread classification not exceeding 25 and smoke-developed classification not exceeding 50 tested according to CAN/ULC S102. Values noted below are actual results for PowerWool insulation, meeting required limits.

.3 Surface Burning Characteristics: to [CAN/ULC S102].

.1 Flame Spread/Smoke Developed: 0/0.

.4 Combustibility: Non-combustible when tested in accordance with [CAN/ULC-S114].

.5 Water Vapour Permeance: 1670 ng/Pa.s.m² (29 perms) at 38 mm (1-1/2-inch) thickness, tested to ASTM E96/E96M.

.6 Moisture Absorption: Maximum 0.05% by volume to ASTM C1104.

.7 Fungi Resistance: Fungi resistant when tested in accordance with ASTM C1338.

.8 Corrosion: Non-corrosive when tested in accordance with ASTM C665 (steel, stainless-steel).

2.4 INSULATION MATERIALS

.1 SPEC NOTE: Select CavityBoard for rigid increased thermal-value insulation, and CavityBoard HD for rigid, high-density increased thermal-value insulation.

.2 Semi-Rigid Mineral Wool Insulation: CAN/ULC S702.1, Type 1, semi-rigid board, with the following characteristics:

.1 Board Density to ASTM C303: 72 kg/m^3 (4.5 lbs/ft^3).

.2 Linear Shrinkage at 650°C (1200°F): Average linear shrinkage in all dimensions not to exceed 0.7% when tested to ASTM C356 at 650°C (1200°F).

.3 SPEC NOTE: Consult with the insulation data sheet for available thickness and edit following to suit project conditions. CavityBoard is available in 12 mm (1/2-inch) inch thickness increments from 38 mm (1-1/2-inch) thick to 152 mm (6-inches) thick.

.4 Thickness: [38 mm (1-1/2-inch)] [51 mm (2-inches)] [76 mm (3-inches)] [102 mm (4-inches)] [114 mm (4-1/2-inches] [127 mm (5-inches)] [140 mm (5-1/2-inches)] [152 mm (6-inches)].

.5 Acoustic Performance: to ASTM C423.

.1 SPEC NOTE: Select the appropriate NRC and SAA based on the thickness of insulation selected. Consult the insulation data sheet for thicknesses and their correlation to NRC and SAA values.

.2 Noise Reduction Coefficient (NRC): [0.85] [1.00] [1.10].

.3 Sound Absorption Average (SAA): [0.88] [0.97] [1.08] [1.11].

.6 Facing: Unfaced.

.7 Board Edges: Square.

.8 Product: CavityBoard by PowerWool Insulation Inc.

.3 Semi-Rigid Mineral Wool Insulation: CAN/ULC S702.1, Type 1, semi-rigid board, with the following characteristics:

.1 Board Density to ASTM C303: 100 kg/m^3 (6 lbs/ft^3).

.2 Linear Shrinkage at 650°C (1200°F): Average linear shrinkage in all dimensions not to exceed 0.7% when tested to ASTM C356 at 650°C (1200°F).

.3 SPEC NOTE: Consult with the insulation data sheet for available thickness and edit following to suit project conditions. CavityBoard HD is available in 12 mm (1/2-inch) inch thickness increments from 38 mm (1-1/2-inch) thick to 152 mm (6-inches) thick.

.4 Thickness: [38 mm (1-1/2-inch)] [51 mm (2-inches)] [76 mm (3-inches)] [102 mm (4-inches)] [114 mm (4-1/2-inches] [127 mm (5-inches)] [140 mm (5-1/2-inches)] [152 mm (6-inches)].

.5 Acoustic Performance: to ASTM C423.

.1 SPEC NOTE: Select the appropriate NRC and SAA based on the thickness of insulation selected. Consult the insulation data sheet for thicknesses and their correlation to NRC and SAA values.

.2 Noise Reduction Coefficient (NRC): [0.85] [1.00] [1.05] [1.10].

.3 Sound Absorption Average (SAA): [0.88] [1.01] [1.06] [1.07].

.6 Facing: Unfaced.

.7 Board Edges: Square.

.8 Product: CavityBoard HD by PowerWool Insulation Inc.

2.5 ACCESSORIES

.1 SPEC NOTE: Insulation accessories are project specific; edit the following to suit. Delete items not required. Specify fastener types to suit installation. PowerWool recommends a variety of acceptable fasteners; wood & concrete screws, insulation cap nails, proprietary clips, Z-girts, mechanically fastened pins. Coordinate with Part 3 – Execution requirements.

.2 Insulation Fasteners: Type recommended for the application by insulation manufacturer, [galvanized steel] to be mechanically fastened to surface to receive board insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.

.3 Strapping: [[Pine] species, pressure treated, 50 mm wide x 25 mm thick] [Refer to Section [[06 10 00 - Rough Carpentry] [06 10 53 – Miscellaneous Rough Carpentry]].

Part 3 Execution

3.1 EXAMINATION

.1 Section 01 71 00: Verify existing conditions before starting work.

.2 Verify that substrate, adjacent materials, and insulation boards are dry and ready to receive insulation.

.3 Ensure base work to be covered by the insulation has been inspected and accepted by the Consultant [and authorities having jurisdiction].

.4 Do not commence installation until base work has been corrected and inspection completed.

3.2 INSTALLATION

.1 SPEC NOTE: Use the following where insulation occurs behind composite cladding, metal siding, or other finishing material. Insulation accessories used to secure insulation are project specific; edit the following to suit. Delete items not required.

.2 Install insulation in accordance with manufacturer's written instructions.

.3 Install boards on [wall surface], [vertically] [horizontally] and friction fit between cladding framing members.

.4 Install strapping aligned with studs.

.5 Install fasteners maximum [400 mm (16-inches)] [600 mm (24-inches)] on centre. Locate fasteners minimum 75 mm (3-inches) distance from insulation edges. Embed fasteners minimum 32 mm (1-1/2-inches) into the wall structure.

.6 Place boards in a method to maximize contact bedding. Stagger end joints. Butt edges and ends tight to adjacent board and to protrusions.

.7 Penetrations: Cut and fit insulation tight to protrusions or interruptions to the insulation plane.

3.3 PROTECTION

.1 Section 01 78 23: Protecting installed work.

.2 Do not permit work to be damaged prior to covering insulation.

END OF SECTION