



SECTION 07 21 13
CONTINUOUS INSULATION
(Addressing Rmax® Below Grade Insulation)

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polymeric faced, below grade polyisocyanurate foam insulation for foundation walls and slab-on-grade insulation:
 - 1. Rmax® Below Grade.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.
- B. Section 07 10 00 - Dampproofing and Waterproofing.

1.3 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C203 - Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation.
 - 2. ASTM C272 - Standard Test Method for Water Absorption of Core Materials for Sandwich Construction.
 - 3. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 4. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 5. ASTM C1763 - Standard Test Method for Water Absorption by Immersion of Thermal Insulation Materials.
 - 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 D3237 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 10. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 11. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
 - 12. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Show fabrication and installation layouts of metal wall panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 - 1. Accessories: Include details of all integral panel components and their interface with adjacent materials.
 - 2. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- D. Verification Samples: For each finish product specified, two samples, minimum size 4 x 6 inches (102 x 150 mm).
- E. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.
- F. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 3. Remodel mock-up area as required to produce acceptable work.
- G. Pre-installation Meeting: Conduct pre-installation meeting to verify project requirements, foundation/structural system/substrate conditions, and insulation manufacturer's installation instructions.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle products per manufacturer's instructions until ready for installation.

1.6 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

- A. Insulation Warranty: At project closeout, provide to Owner an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.
 - 1. Limited 15 Year Thermal Warranty: Warranting that for a period of fifteen (15) years, the actual thermal resistance of the Rmax Below Grade insulation product will not vary

by more than ten percent (10%) from its published R-value as of the date of manufacture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Rmax, A Business Unit of Sika Corporation, which is located at 2075 Midway Road, Lewisville TX 75056; Tel: 800-527-0890; Email: rmax@rmax.com. Technical Support: Tel: 972-850-3604; Email: technical@rmax.com; Web: www.rmax.com.
 - 1. Manufacturing plant locations in Dallas, TX, Greer, SC, and Fernley, NV, to serve multiple regions.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 BELOW GRADE INSULATION

- A. Below Grade Polyisocyanurate-Foam Insulation: ASTM C1289, Type I, Class 1 or Class 2, rigid, cellular, polyisocyanurate thermal insulation, bonded to reinforced polymeric facers on both sides.
 - 1. Basis of Design: Rmax® Below Grade from Rmax, A Business Unit of Sika Corporation.
 - 2. Flame Spread Index and Smoke Developed Index per ASTM E84:
 - a. Flame: 75 or less.
 - b. Smoke: 450 or less.
 - 3. Water Vapor Permeability per ASTM E96 desiccant method: 0.1 perm or less.
 - 4. Water Absorption:
 - a. Per ASTM C209, 0.2 percent by volume maximum.
 - b. Per ASTM C272, 0.3% maximum.
 - 5. Air Permeability per ASTM E2178: 0.004 cfm per sq ft (1.2192 L per min per sq m) or less.
 - 6. Compressive Strength per ASTM D1621:
 - a. 25 psi (172 kPa).
 - 7. Aged R-Value per ASTM C518:
 - a. R-5.0 minimum at thickness of 0.75 inch (19 mm).
 - b. R-6.0 minimum at thickness of 1 inch (25 mm).
 - c. R-10.0 minimum at thickness of 1.5 inches (39 mm).
 - d. R-13.1 minimum at thickness of 2 inches (51 mm).
 - e. R-15.3 minimum at thickness of 2.3 inches (58 mm).
 - f. R-20.3 minimum at thickness of 3 inches (76 mm).
 - g. Required Insulation R-value and Thickness as indicated on the Drawings.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION, GENERAL

- A. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair, or replace damaged products before Substantial Completion.

END OF SECTION