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Specifier Note:

- **This product guide follows the AIA MasterSpec format.**
- **This product guide must be edited to meet the specific conditions and requirements of the project, and must be coordinated with the construction drawings and other specification sections.**

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SECTION 072101 –FOAMED CEMENTITIOUS INSULATION

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

Adjust list below to suit Project. Delete applications, such as cavity wall, that are specified in other Sections.

1. Foamed Cementitious Insulation.
2. Retention Fabric.

Retain first subparagraph below only if retaining vapor retarders that are separate from vapor-retarder facings on insulation.

- B. Related Sections include the following:

List below only products, construction, and equipment that the reader might expect to find in this Section but are specified elsewhere.

1. As noted in this section.

1.3 DEFINITIONS

- A. Cementitious Foam Insulation: Ultra-light insulating foam composed of (including, but not limited to) inorganic cementitious stabilizer, cell generator, and compressed air which foams in place.

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- B. Retention Fabric: A porous material which is sufficiently rigid to prevent deformation while insulation cures.

1.4 REFERENCES

- A. ASTM C 518-76: Steady-State Heat Flux Measurements and Thermal Transmission properties.
- B. ASTM E 84-81A: Surface Burning Characteristics of Building Materials.
- C. ASTM C 951: Dimensional Stability

1.5 ENVIRONMENTAL REQUIREMENTS

Delete this Article if no mineral-fiber insulation in ceiling plenums. If retaining, indicate, on Drawings or in the Insulation Schedule at the end of Part 3, locations where mineral-fiber insulation is installed in ceiling plenums.

- A. Foamed Cementitious Insulation properties shall be fire-proof, inorganic and free of carcinogenic fibers or toxic substances.

1.6 SUBMITTALS

- A. Product Data: Provide Data indicating compliance with specified insulation properties, burning characteristics, dimensional stability and percentage of inorganic elements.

Delete paragraph below if no exposed insulation or if no Samples are required.

Retain paragraph and subparagraphs below if recycled content is required for LEED-NC or LEED-CI Credits MR 4.1 and MR 4.2.

- B. LEED Submittal:
 - 1. Product Data for Credit MR 4.1 and MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content.
 - a. Include statement indicating costs for each product having recycled content.
 - 2. Credit MR 5.1 and Credit MR 5.2: List of proposed regionally manufactured materials and regionally extracted and manufactured materials.

First subparagraph below applies to LEED-CI Credits MR 5.1 and 5.2.

- a. Identify each regionally manufactured material, including its source and cost.

Subparagraph below applies to LEED-CI Credit MR 5.2.

- b. Identify each regionally extracted and manufactured material, including its source and cost.

Delete paragraph below if this Section has been edited to retain only products with well-known unvarying values.

- C. Manufacturer Certification: Provide documentation indicating applicator/installer is licensed or certified by the manufacturer.

Insert specific model code organization in paragraph below or revise if report must be from another source.

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1.7 QUALITY ASSURANCE

- A. Source Limitations: Obtain Foamed Cementitious Insulation through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide Foamed Cementitious Insulation and related materials with the fire-test-response characteristics indicated below as determined by testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of acceptable testing and inspecting agency.

Retain subparagraph below if test results are indicated with other product requirements in Part 2. Retain only test methods applicable to types of characteristics specified.

- 1. Smoke Develop: 0

Retain subparagraph below only if products specified in Part 2 are part of a fire-resistance-rated assembly.

- 2. Flame Spread: 0

Pass-fail test in subparagraph below is for measuring combustibility and is referenced in codes to determine if elementary products are noncombustible. Only selected unfaced mineral-fiber insulation and unfaced cellular-glass insulation pass this test. Delete if not required. See Evaluations.

- 3. Fuel Contribution: 0

Retain paragraph below to specify recycled content if required for LEED-NC or LEED-CI Credits MR 4.1 and MR 4.2. An alternative method of complying with Credits MR 4.1 and MR 4.2 requirements is to retain requirement in Division 01 Section "Sustainable Design Requirements" that gives Contractor the option and responsibility for determining how Credits MR 4.1 and MR 4.2 requirements will be met.

- C. All work under this section consists of furnishing all labor, materials and equipment necessary for, or incidental to, the complete installation of cementitious foamed insulation as specified herein, and in accordance with the contract documents.
- D. Material and installation shall conform to applicable building code requirements of Authorities Having Jurisdiction.
- E. Applicator Certification and experience:
 - 1. Applicator shall be certified by the Manufacturer.
 - 2. Certification shall include training received from the Manufacturer.
 - 3. Applicator shall possess minimum three (3) years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Materials shall be delivered to the project site in sealed, clearly labeled containers.
- B. Protect insulation materials from physical damage, deterioration, and the weather according to the Manufacturer's written instructions for shipping, handling, storage, and protection.
- C. Damaged material found unsuitable, according to manufacturers written guidelines, shall be rejected and removed.

Delete paragraph and subparagraphs below if no plastic insulation.

GUIDE SPECIFICATION

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Air krete, Incorporated:

See Editing Instruction No. 1 in the Evaluations for cautions about naming manufacturers and products.

Edit this Article with other Part 2 articles in which manufacturers and products, or manufacturers only, are named. See Division 01 Section "Product Requirements" for an explanation of the terms "Available Products," "Products," "Available Manufacturers," and "Manufacturers" and the effect these terms have on "Comparable Product" and "Product Substitution" requirements.

1. P.O. Box 380, Weedsport NY 13166-0380 –Keene Christopher, Principal Telephone: (315) 834-6609

Delete types of insulation not required from articles below that specify insulation. Coordinate selections with thicknesses indicated on Drawings and with HVAC design and energy program. Where insulation is exposed or open to air spaces in plenums, cavities, or similar voids, include only products that comply with building codes for fire-test-response characteristics. Surface-burning indexes indicated for foam-plastic insulation are examples only and generally represent maximums allowed by model building codes for foam-plastic insulation. Revise to suit products required and code in effect for Project. See Evaluations.

In articles below specifying insulation products, coordinate subparagraphs that introduce a list of manufacturers or manufacturers and products with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semiproprietary specifications.

2.2 MATERIALS

A. Foamed Cementitious Insulation:

1. ASTM C 578-76 foamed to a density of 2.07 lbs/cu ft, producing a minimum R-Value of 3.9 per inch of thickness.
2. Burning characteristics:
 - a. Smoke Develop: 0
 - b. Flame Spread: 0
 - c. Fuel Contribution: 0

B. Retention Fabric:

1. Fabric: Polypropylene, sufficiently porous to permit curing as per Manufacturer requirements. Manufacturer/Model: Industrial Netting; Product No. ON-9565
2. Sufficiently rigid to prevent deformation.
3. Color: Natural
4. Weight: not to be less than 2.15 lbs/1000ft².

C. Vapor/Weather Barriers:

1. Unless specified elsewhere, barrier shall be minimum 6 mil polyethelene film or manufacturer approved alternate material impervious to moisture.
 - a. Alternate material must be compatible with Foamed Cememtitious Insulation and must be approved/verified by Foamed Cememtitious Insulation manufacturer.

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First paragraph below describes products intended for below-grade applications. Verify whether manufacturer's insulation board is suitable for soil pressures to which it will be exposed. See product list in Evaluations. Delete if this product is specified in other Sections, such as Division 33 Section "Subdrainage" and Division 07 waterproofing Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to beginning work, examine substrates and conditions, with Applicator present, for compliance with requirements of Sections in which substrates and related work are specified, and for other conditions affecting application, performance, and compatibility.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to foamed cementitious insulation, retention fabric, vapor/weather retarders, and attachments, including removing projections capable of puncturing vapor/weather retarders or interfering with foamed cementitious insulation attachment.
 - 1. Insure heat producing devices and elements that are not inherently fireproof are shielded such that insulation will be held 3" away.
- B. Utilize drop cloths, masking and other protections as suggested by the manufacturer to prevent damages to adjacent surfaces and/or material.

3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, unsoiled and insulation that has been stored, shipped and handled as per manufacturer's written instructions.
- C. Foamed cementitious insulation shall be installed when the combination of indoor and outdoor temperatures is such that the temperature at the point of application is 40 degrees fahrenheit and rising during the application process and during the initial 48 hour curing process.
- D. Utilize enclosures with heat when necessary, to maintain temperature through initial curing.
- E. Provide adequate ventilation as required by the manufacturer's written instructions to properly cure the insulation during and subsequent to it's application.
- F. Apply insulation in locations and thicknesses as indicated in the construction documents.
- G. Mixing: Component materials shall be mixed using the quantities, proportions and the pressures called for in the manufacturer's instructions for the purpose intended.
- H. Support Attachments: Install where required by Manufacturer using either electric stapler or air stapler. Staple crown width 1/2" minimum, depth 3/8".
- I. New Masonry: Completely fill block cores and cavities between wythes in lifts not to exceed 8'-0".
- J. Retro-fit Masonry: Access between wythes with holes center each way; fill cavities completely; plug holes with non-shrink mortar to match existing. Consult manufacturer for retrofit core filling.

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- K. New Stud Spaces: Apply retention fabric, attaching as required to prevent sagging or deformation; foam stud cavity completely full, leave interior finish (or vapor/barrier when required) off until foam has initially cured.
- L. Retro-fit Stud Spaces: Access spaces 12'-0" or less in height at a point two-thirds of their height above their bottom. Higher spaces shall be accessed such that no lift exceeds 8'-0". Fill spaces completely and plug holes after foaming with material to match existing.
- M. Ceiling Spaces: Fill to depth shown in a manner similar to that specified for stud spaces. Where a vapor/weather barrier may be required, the applicator must receive the manufacturer's approval to use the vapor/weather barrier as a retention fabric.
- N. Pipe Chases: Fill completely after all required inspections and tests have been performed satisfactorily.
- O. Miscellaneous: Consult manufacturer for fire-proofing, encapsulation, very high temperature and sound deadening application instructions.

[Insert specific protection requirements here.](#)

3.4 ON-SITE QUALITY CONTROL

- A. Density: Conduct a timed, field density check at the beginning, middle and end of each day's application. The density check shall be done in accordance with the manufacturer's instructions and a log of results maintained for the architect's review.
- B. Continuity: At the Architect, or Owner's discretion, an infrared thermographic test may be requested.
 - 1. If the test proves compliant with specified performances, the Owner will bear the test cost.
 - 2. If the test proves non-compliant with specified performances, the cost of the test, along with the cost of correcting the non-compliant items.

[Retain this Article or, as an alternative, a tabular schedule on Drawings if multiple types of insulation are required for Project and the method of noting which types of insulation are required in specific locations uses numbered insulation types rather than descriptions of insulation products.](#)

END OF SECTION 072101