



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.**

SECTION 07 21 19.13 –FOAMED-IN-PLACE LIGHTWEIGHT CEMENT INSULATION

GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
1. Foamed-in-Place Lightweight Cement Insulation.
 2. Retention Fabric.

Related Sections include the following:

As noted in this section.

1.3 DEFINITIONS

- A. Foamed-in-Place Lightweight Cement Insulation is Ultra-light insulating foam composed of (including, but not limited to) inorganic cementitious stabilizer, cell generator, and compressed air, which foams in place.
- B. Retention Fabric: A porous material that 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

Foamed-in-Place Lightweight Cement Insulation properties shall be fireproof, 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.

LEED Submittal:

1. Product Data for Credit MR.1 and MR.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and pre-consumer recycled content.

Include statement-indicating costs for each product having recycled content.

2. Credit.1 and Credit.2:

List of proposed regionally manufactured materials and regionally extracted and manufactured materials.

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

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

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

1.7 QUALITY ASSURANCE

All work under this section consists of furnishing all labor, materials and equipment necessary for, or incidental to, the complete installation of Foamed-in-Place Lightweight Cement Insulation as specified herein, and in accordance with the contract documents.

- A. Source Limitations: Obtain Foamed-in-Place Lightweight Cement Insulation through one source from a single manufacturer.
- B. Material and installation shall conform to applicable building code requirements of Authorities Having Jurisdiction.
- C. 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.



PRODUCTS

2.1 MANUFACTURER

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

MATERIALS

- A. Foamed-in-Place Lightweight Cement Insulation:
1. [ASTM-76](#) foamed to a density of 2.07 lbs/cu ft, producing a minimum R-Value of 3.9 per inch of thickness.
 2. Fire-Test-Response Characteristics: Provide Foamed-in-Place Lightweight Cement 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:
 - a. Smoke Develop, Smoke Density Factor:
0 Meets Class A-25 [ASTM E-84-81a](#)
 - b. Flame Spread Value:
0 Meets Class A-25 [ASTM E-84-81a](#)
 - c. Fuel Contribution Fuel Contributed Factor:
0 Meets Class A-25 [ASTM E-84-81a](#)
 3. Shrinkage:
0 after 40 days [ASTM C951](#)
 4. Permeability:
0.3701 cm/S [ASTM E-96](#)
 5. Sound Transmission Loss:
STC = 44 [ASTM E90](#)
 6. Formaldehyde & VOC
No emissions [ASTM D5116](#)
 7. Resistant to Mold growth [ASTM Guideline D6329-98](#)
- 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. When specified elsewhere, barrier shall be minimum 6 mil polyethylene film or manufacturer approved alternate material impervious to moisture.
 - a. Alternate material must be compatible with Foamed-in-Place Lightweight Cement Insulation and must be approved/verified by Foamed-in-Place Lightweight Cement Insulation manufacturer.



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-in-Place Lightweight Cement Insulation, retention fabric, vapor/weather retarders, and attachments, including removing projections capable of puncturing vapor/weather retarders or interfering with attachments.
 - 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-in-Place Lightweight Cement 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 its 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.
- 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 fireproofing, encapsulation, very high temperature and sound deadening application instructions.
- P. All installations to be performed by manufacturer-trained and certified installers.

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 thermo graphic 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 licensed manufacturer will bear the cost of the test, along with the cost of correcting the non-compliant items.

END OF SECTION 072119.13

**GUIDE SPECIFICATION
for
FOAMED-IN-PLACE LIGHTWEIGHT CEMENT INSULATION**