CFI FOAM, INC.
INJECTION FOAM PRODUCTS

SECTION 07 21 19.13
FOAMED-IN-PLACE AMINOPLAST MASONRY FOAM INSULATION

[**Note**: Elements of this Guide Specification may be adapted to SECTION 04 20 00]

Part 1 General

1.1 Section includes
- A. Foam-in-place insulation in core-cells of Concrete Masonry Unit (CMU) walls, wythe cavities of exterior walls and exterior stud-framed walls.
- B. Foam-in-place sound control insulation for interior and exterior walls.

1.2 Related Sections: Section 04 20 00 – Unit Masonry

1.3 Referenced Standards
- A. ASTM E-84 "Standard Test Method for Surface Burning Characteristics of Building Materials."
- B. ASTM C-518 "Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus."
- C. NFPA 259 "Standard Test Method for Potential Heat of Building Materials"

1.4 Submittals
- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Manufacturer's data on product, including:
  1. "Product Information" Sheet from Manufacturer.
  2. Material Safety Data Sheet (MSDS) for CfiFOAM Aminoplast Masonry Foam Insulation.
  3. Upon request by the Architect, Installer shall provide test data showing compliance of the product with referenced standards.

1.5 Quality Assurance
- A. Installer Qualifications: A firm with experience installing insulation systems of the type specified and authorized by the foam manufacturer.

1.6 Delivery, Storage and Handling
- A. Delivery
  1. Materials shall be delivered to installer in manufacturer's original, unopened, undamaged containers with identification labels intact.
  2. Installer will blend resin and foaming catalyst according to the manufacturer's instructions prior to arriving at the jobsite and/or at the jobsite, at the installer's discretion.

- B. Storage and Handling
  1. Materials should be stored in original paper packages and boxes protected from moisture until used by installer.
  2. Once blended with water by installer, materials must be maintained at a minimum temperature of 75ºF.

1.7 Project/Site Conditions
A. The wall assembly must be essentially dry with no standing water in the CMU core cells and no visible wetness on exterior surfaces.
B. Mortar must be adequately cured prior to installation of foam insulation.

Part 2 Products

2.1 Manufacturers
A. Acceptable Manufacturer: cfiFOAM, Inc., PO Box 10393, Knoxville, TN 37939. Telephone: 800-656-3626. Fax: 865-588-6607. Email: info@cfifoam.com. Website: www.cfifoam.com.
B. Occupied and/or soon to be occupied structures shall be insulated with InsulSmart Interior Foam Insulation®.
C. Structures in California, Connecticut, New Jersey and New Hampshire shall be insulated with InsulSmart MH®.
D. Framed structures shall not be insulated with Core Foam Masonry Foam Insulation®.

2.2 Materials
A. CfiFOAM Aminoplast Masonry Foam Insulation (Foamed-in-Place)
1. Description: Cellular plastic insulation comprised of a spray-dried polymeric resin and a foaming catalyst concentrate that are combined with water for injection, along with compressed air, into the wall cavity by an authorized installer.
2. Surface Burning Characteristics – ASTM E84: Class A or Class I
a. Flame Spread: 25 or Less
b. Smoke Generated: Less than 450
c. Thickness: 3.5 inches (maximum thickness per test apparatus).
d. Tests performed by an independent, accredited laboratory located within the USA.
3. Thermal Performance (foam) – ASTM C177 or ASTM C518:
a. k-Value: k-0.23/inch @ 75ºF mean temperature.
b. R-Value: R-4.60/inch @ 75ºF mean temperature.
4. Potential Heat – NFPA 259
a. Potential Heat ≤ 8000 Btu/lb.
5. Dimensional Stability (Shrinkage)
a. ≤ 0.5% - 12x8x16 CMU Enclosed Core Cell
6. Density of Foam:
a. Wet Foam 12” x 12” x 12” box weight: 2-½ to 3-¼ lbs.
b. Cured Foam: 0.5-1.0 lbs./ft^3

2.3 Product Substitutions
A. Substitutions: None permitted.

Part 3 Execution

3.1 General
A. Comply with the instructions and recommendations of the foam-in-place insulation manufacturer.

3.2 Examination
A. Site Verification
1. Verify that the wall assembly is essentially dry.
2. Verify that no water is standing in core cells within the wall assembly.

3. Verify that mortar is adequately cured.

3.3 Preparation

A. Select the best location(s) to inject foam:
   1. Preferably through wall surfaces to be covered.
   2. $^{5}/_{8}$"-$^{7}/_{8}$" holes to be drilled in masonry joints or directly through CMU face walls.

3.4 Installation Guidelines

A. All empty core cells and voids within each insulated wall shall be filled with foam insulation as shown on the drawings.
B. Walls can be filled using either top-fill or by pressure-injection techniques.
   1. For top-fill, the installer must use an extension tube to begin installing foam from the bottom of the cavity, withdrawing the extension tube as foam fills the cavity.
   2. For pressure-injection, holes are drilled in each CMU—$^{3}/_{8}$" holes for visually sensitive areas for use with a low-volume touch-up gun, $^{5}/_{8}$" holes for use with a standard foam gun, or $^{7}/_{8}$" holes for use with a high-volume production gun—at an approximate height of four feet from finished floor level. Normally each vertical cell column is drilled and injected with foam in 10'-24' lifts.
   3. CfiFOAM Aminoplast Masonry Foam Insulation is injected until it completely fills each vertical cell column, as evidenced by foam exiting adjacent injection holes. Repeat steps 1 and 2 at intervals of 10' to 14' above the initial row of injection holes, or as needed, until the wall is completely filled. Exit holes may be drilled beneath bond beams and at tops of walls to help visually verify complete foam filling.
C. After foam insulation sets, remove excess foam from outside of cavity, sweeping the wall and floor as needed. Cured foam is an inert material and, therefore, can be disposed of with other construction waste or worked into soils on-site in accordance with local regulations.
D. Patch holes with mortar to resemble adjacent surfaces.

3.5 Field Quality Control

A. Testing
   1. Verify insulation density by random sampling of foam
      a. Fill a 12x12x12 box with foam
      b. Foam weight should be 2 ½ - 3 ¼ lb.
B. Inspection
   1. Verify complete filling of voids by drilling block face upon request.
   2. Upon request by the Architect, Installer shall provide IR scans of all insulated masonry walls prepared and interpreted by IR technicians who are "BlockWallScanIR" trained and certified.
   3. Correct all portions of the installation not in compliance with the Architect's requirements at no added cost to the Owner.

3.6 Protection

A. Product should be protected from excess moisture during initial 24-hour curing period after installation. A 72-hour curing period is normally required prior to painting.
B. Foam should not be exposed to surfaces over 190°F for sustained periods of time.

END OF SECTION 07 21 19.13

Reviewed: March 26, 2014