



## **InsulSmart MH – Specification Guide – AIA**

### **Section 07210: Building Insulation (Foamed-in-Place Insulation)**

#### **Part 1—General**

##### Description of Work:

- A. Applications for foam insulation specified in this section include:
  - 1. Foam-in-place insulation for improving thermal and acoustical insulative properties in:
    - a. Stud Cavity Walls
    - b. Sloped Ceilings
    - c. Concrete Masonry Units (CMU) Walls

##### Quality Assurance:

- A. Foam insulation is to be installed by or under the supervision of an InsulSmart MH-trained installer.
- B. Products are supplied by manufacturer as concentrates and are to be blended by installer to insure product reactivity and consistency.
- C. Product is also available in a factory-mixed version supplied by the manufacturer.

#### **Part 2—Products**

##### Manufacturer:

cfiFOAM, Inc.  
P. O. Box 10393  
Knoxville, TN 37939  
800.656.3626

##### Typical Product Performance Standards:

- A. ASTM E-84 Surface Burning Characteristics:
  - a. Flame Spread:  $\leq 25$
  - b. Smoke Generated:  $< 450$
  - c. Thickness: 4" (maximum thickness allowed by test apparatus)
  - d. Tests performed by an independent, accredited laboratory located within the USA.

- B. Thermal Conductivity:
  - a. k-value 0.22 BTU/(hr ft<sup>2</sup> °F in) @ 75°F
  - b. k-value 0.20 BTU/(hr ft<sup>2</sup> °F in) @ 25°F
- C. Thermal Resistance:
  - a. R-value = 4.4 per inch @ 75°F
  - b. R-value = 5.1 per inch @ 25 °F

### **Part 3 – Execution**

#### Installation Guidelines:

- A. All open cavities within each wall to be insulated shall be filled with foam insulation as shown on the drawings.
- B. InsulSmart MH shall be either mixed by an authorized installer prior to each job or the factory-mixed version shall be supplied by the manufacturer.
- C. Stud wall cavities in retrofit or new construction can be filled with foam after gypsum wallboard is installed using either of three (3) methods:
  1. Top-Fill Method: The installer inserts an extended whip hose through a 2-inch minimum diameter hole drilled in the top plate, extending the hose to begin installing foam from the bottom of the cavity, gradually withdrawing the hose as the foam fills the cavity.
  2. Side-Fill Method: Drill 5/8-inch to 7/8-inch holes in each stud cavity (bottom, middle and top) before injecting foam into the cavity through the hole in 4-foot lifts until it completely fills each cavity as evidenced by foam exiting a small vent hole at the top.
  3. Side-Fill Method (Alternate): Drill a 2-inch minimum diameter hole in the center of the stud cavity, insert a whip hose and fill the lower half of the cavity before repositioning the whip hose to similarly fill the upper portion of the cavity.

Installation can be performed either from the exterior or interior of the wall section. In either case, seal each hole with a snug fitting polystyrene foam plug prior to patching and sealing the hole. The closed-cell polystyrene foam plug is recommended in order to maintain the integrity of the vapor retarder portion of the wall assembly.

D. Stud wall cavities in new construction can be filled with foam before gypsum wallboard is installed.

1. Fabric Supported Method: Either non-woven construction fabric or 4 mil polyethylene is stretched tightly and stapled to the framing faces to contain and support the foam during application. The authorized installer then slits a 1" hole through the fabric and injects the foam to fill the cavity through the hole and fills in 4-foot lifts.
2. Open-Mesh Method: Open-mesh (1/4" max.) is stretched tightly and stapled to the framing faces to contain and support the foam during application. The authorized installer injects the foam to fill the cavity through the open mesh. Excess foam exiting through the mesh is easily swept from the insulated surfaces with a broom for disposal.

Benefits:

- a. Enables visual confirmation of foam placement during application.
- b. The foam is biodegradable; thus, may be disposed on-site by mixing with soil used as a turf substrate or landscaping.
- c. Facilitates curing before installing gypsum wallboard.

Note: A small amount of shrinkage, typically 0.5%, may occur as the foam dries and cures, resulting in small gaps between the foam and the framing members.

E. CMU (Concrete Masonry Unit) cores can be filled with foam using either top-fill or, more commonly, 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 at an approximate height of 4' from finished floor level.
  - a. 3/8" holes for visually sensitive areas for use with a low-volume touch-up gun
  - b. 5/8" holes for use with a standard foam gun
  - c. 7/8" holes for use with a high-volume production gun.

Normally each vertical core is drilled and injected with foam in 10'-24' lifts, although in 8" CMU, alternating cores can be used in walls less than 12' high.

3. InsulSmart MH is injected until it completely fills each vertical core of block cells, evidenced by foam exiting the adjacent injection hole and an occasional test hole drilled at the top of the wall section. If needed, drill holes and fill with foam at an approximate height of 10'-14' above the initial row of injection holes until the wall is completely filled.
  4. Patch holes with mortar to resemble existing surface.
- F. Product should be protected from excess moisture during initial 24 hour curing period after installation. A 72-hour curing period is recommended prior to painting; however, in each case the coating contractor should test the walls to confirm the gypsum wallboard's surface is suitable for painting before beginning paint application.
- G. All foamed areas need fresh air ventilation until foam has fully cured and dried.
- H. Foam should not be exposed to surfaces over 190°F for an extended period of time.

**END OF SECTION 07210**