

SECTION 07 2135

INJECTED FOAM INSULATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Injected foam thermal wall cavity insulation.
- B. Injected foam acoustic wall cavity insulation.
- C. Injected foam fire resistant wall cavity insulation.

1.02 RELATED REQUIREMENTS

- A. Section 01 3515 - LEED Certification Procedures.

1.03 REFERENCE STANDARDS

- A. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- B. ASTM D 240 - Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter.
- C. ASTM D 1621 - Standard Test Method for Compressive Properties Of Rigid Cellular Plastics.
- D. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- E. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- F. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- G. FHSA - Federal Hazardous Substances Act.
- H. HUD - U.S. Department of Housing and Urban Development.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section.
 - 1. Required attendance as follows:
 - a. Contractor.
 - b. Architect.
 - c. Insulation Installer.
 - d. Insulation Manufacturer's Representative.
 - 2. Review installation, adjusting, cleaning, protection, and coordination with other work.

1.05 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide product description, insulation properties, and preparation requirements.
- C. Manufacturer's Qualification Statement.
- D. Installer's Qualification Statement.
- E. Manufacturer's Field Reports: Submit report on evaluation of installation and work results.
- F. LEED Submittals: Documentation of VOC content of insulation.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

- B. Installer Qualifications: Company specializing in performing work of the type specified with minimum two years of experience.
 - 1. Provide field installers that are trained and certified by the manufacturer with minimum of one year direct experience.
- C. Provide pre-mixed product to ensure consistency.
- D. Provide insulation components produced by a single manufacture.

1.07 FIELD CONDITIONS

- A. Do not apply material against surfaces with temperatures exceeding 212 degrees F for prolonged periods of time.
- B. Do not apply under conditions that will require material to support compressive loads, potential for use as flotation device, or underground without adequate protection.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. C.P. Chemical Company; Product Tripolymer: www.injectionfoam.com.
 - 1. Manufacturing/Distribution Location: 25 Home St., White Plains, NY 10606.
- B. Substitutions: Not permitted.

2.02 APPLICATIONS

- A. Cavity Construction:
 - 1. Acoustic; interior stud wall insulation at locations indicated on the Drawings.
 - 2. Thermal; exterior stud wall insulation at locations indicated on the Drawings.
 - 3. Thermal; existing exterior stud wall insulation.
 - a. Wood Stud Wall Depth: 3 1/2 inch, [_____].
 - b. Metal Stud Wall Depth: 3 5/8 inch, [_____].
 - c. Stud Wall Depth: As indicated on the Drawings.
 - 4. Thermal; exterior wall furring insulation.
 - a. Depth of Wood Furring: 3/4 inch, [_____].
 - b. Depth of Metal Furring: 7/8 inch, [_____].
 - c. Depth of Furring: As indicated on the Drawings.
 - 5. Thermal; exterior wall masonry core-fill insulation.
 - a. Block Wall Thickness: 6 inch, 8 inch, 10 inch, 12 inch, nominal.
 - b. Block Wall Thickness: As indicated on the Drawings.

2.03 MATERIALS

- A. Insulation: Phenolic type; air expanded, cold setting, phenolic based resin copolymer with 60 percent closed cell.
 - 1. Curing: Initial set takes approximately 10 to 30 seconds with final curing within 48 to 72 hours, depending upon thickness and humidity.
 - a. Curing is a cold setting process independent of ambient temperatures.
 - 2. Components: Provide manufacturing lot number, date and product descriptions for both the aqueous resin solution (Component A) and foaming agent/catalyst (Component B).
 - a. Materials are properly mixed together using compressed air and specially engineered metering and pumping equipment.
 - 3. Thermal Conductivity: When tested in accordance with ASTM C 177.
 - a. R Value (sq. ft. degrees F hour/Btu): 4.7 at 75 degrees F and 5.1 at 35 degrees F.
 - 4. Water Vapor Transmission: 31.7 perms per inch.
 - 5. Shrinkage: Variable from 0.5 to 1.5 percent in accordance with HUD Procedure.
 - 6. Compressive Strength: 34.5 psi, when tested in accordance with ASTM D 1621.
 - 7. Density: 1.233 lb/cu ft, when tested in accordance with ASTM D 1622.
 - 8. Heat of Combustion: 6,435 Btu's/lb, or 2,575 Btu's/sq. ft. at 4 inches thick, when tested in accordance with ASTM D 240.
 - 9. Surface Burning Characteristics: Flame spread/Smoke developed index of 5 / 10, when tested

in accordance with ASTM E 84, Class A.

10. Fire Resistance Rating: [_____] hour fire resistance wall rating, when tested in accordance with ASTM E 119.
11. Fungi Resistance: No Growth in accordance with HUD Procedure.
12. Toxicity: Non toxic in accordance with FHSA.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Verify that interior finish work has not been started, and masonry and structural concrete work is complete and in place in accordance with manufacturer's instructions.

3.02 INSTALLATION

- A. Apply in accordance with manufacturer's instructions, using approved equipment and factory trained and certified insulation installers with a current certification card.
- B. Masonry Core-fill Insulation: Fill open cells and voids within hollow concrete masonry units where indicated on the Drawings.
 1. Conduct this work from the interior side of wall, unless noted otherwise.
 2. Pressure inject foam insulation through 5/8 inch to 7/8 inch holes drilled into every vertical column of block cells, at approximately 8 inches on center.
 3. Start this work at 4 feet to 7 feet above finished floor with horizontally aligned series of fill holes.
 4. Repeat this procedure at approximately 10 feet above the previous series of fill holes until the cavities are completely filled.
 5. Patch fill holes with mortar and score to match adjacent surface.
- C. Brick Veneer Cavity Insulation: Fill cavity between veneer and wall sheathing where indicated on the Drawings.
 1. Pressure inject foam insulation through 5/8 inch holes drilled through mortar joint of veneer into the cavity at 24 inches on center, horizontally.
 2. Locate fill holes at 18 inches above grade, center height of wall, and top of wall with horizontally aligned fill holes.
 3. Patch fill holes with mortar and score to match adjacent surface.
- D. Stud Cavity Fill Insulation: Fill cavities within stud walls where indicated on the Drawings.
 1. Conduct this work from the interior side of wall, unless noted otherwise.
 2. Pressure inject foam insulation through 5/8 inch to 7/8 inch holes drilled into the center of each stud cavity, at 16 inches [24 inches] on center.
 3. Locate fill holes at center height of wall with horizontally aligned fill holes.
 4. Verify location of blocking within each stud cavity to ensure that each cavity is completely filled within the entire wall.
 5. Patch fill holes with material to match adjacent surface.
- E. Existing Stud Cavity Fill Insulation: Fill cavities within stud walls where indicated on the Drawings.
 1. Conduct this work from the exterior side of wall.
 2. Remove existing exterior siding from wall for fill holes.
 3. Pressure inject foam insulation through 5/8 inch to 7/8 inch holes drilled into the center of each stud cavity. Verify width of existing stud cavities.
 4. Locate fill holes at center height of wall with horizontally aligned fill holes.
 5. Verify location of blocking within each stud cavity to ensure that each cavity is completely filled within the entire wall.
 6. Patch fill holes with material to match adjacent surface.
 7. Replace or maintain integrity of vapor retarder on existing wall sheathing in areas required for fill holes.
 8. Replace existing exterior siding to match adjacent surfaces.
- F. Interior Acoustic Wall Insulation: Fill cavities within stud walls where indicated on the Drawings.
- G. Exterior Block Wall With Interior Furred-out Insulation: Fill cavities within furred walls where indicated

on the Drawings.

H. Plumbing Chase Insulation: Fill cavities within plumbing chase where indicated on the Drawings.

I. Elevator Shaft: Fill cavities within elevator shaft walls where indicated on the Drawings.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Provide manufacturer's field representative to inspect for proper insulation installation.

3.04 CLEANING

A. Immediately clean insulation residue off of adjacent surfaces.

END OF SECTION