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This MANU-SPEC™ utilizes the Construction Specifications Institute (CSI) *Manual of Practice*, including *MasterFormat™*, *SectionFormat™* and *PageFormat™*. A MANU-SPEC is a manufacturer-specific proprietary product specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by brackets []; delete optional text in final copy of specification. Specifier Notes typically precede specification text; delete notes in final copy of specification. Trade/brand names with appropriate symbols typically are used in Specifier Notes; symbols are not used in specification text. Metric conversion, where used, is soft metric conversion.

This MANU-SPEC specifies foam insulation for use in masonry cavity and stud framed walls. This product is manufactured by Polymaster, Inc. Revise MANU-SPEC section number and title below to suit project requirements, specification practices and section content. Refer to CSI *MasterFormat* for other section numbers and titles.

SECTION 07210
BUILDING INSULATION
(FOAMED-IN-PLACE INSULATION)

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

Specifier Note: Revise subparagraphs below to suit project requirements and specifier's practice.

1. Foamed-in-place insulation in cavities of concrete masonry unit (CMU) walls, wythe area of exterior walls and cavity fill of interior and exterior stud framed walls.
2. Foamed-in-place sound insulation in masonry and stud framed walls.

Specifier Note: Article below may be omitted when specifying manufacturer's proprietary products and recommended installation. Retain Reference Article when specifying products and installation by an industry reference standard. If retained, list standard(s) referenced in this section. Indicate issuing authority name, acronym, standard designation and title. Establish policy for indicating edition date of standard referenced. Conditions of the Contract or Division 1 References Section may establish the edition date of standards. This article does not require compliance with standard, but is merely a listing of references used. Article below should list only those industry standards referenced in this section.

1.02 REFERENCES

A. ASTM International:

1. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
2. ASTM C1363 Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus (replaces ASTM C236).
3. ASTM D2842 Standard Test Method for Water Absorption of Rigid Cellular Plastics.
4. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
5. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
6. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.

- 7. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
- 8. ASTM E413 Standard Classification for Rating Sound Insulation.

Specifier Note: Article below should be restricted to statements describing design or performance requirements and functional (not dimensional) tolerances of a complete system. Edit article below to suit project. If sound transmission class (STC) is a specified design criterion, retain applicable text in both paragraphs appropriate to wood frame and/or masonry construction.

1.03 SYSTEM DESCRIPTION

- A. Design Requirements: [(ASTM E413): STC 44] [(ASTM E90): STC 52].
- B. Performance Requirements: Provide [3 1/2 inch (89 mm) stud frame cavity walls] [And] [Concrete masonry unit (CMU) walls] which have been manufactured, fabricated and installed to meet specified Sound Transmission Class criteria.

Specifier Note: Article below includes submittal of relevant data to be furnished by Contractor before, during or after construction. Coordinate this article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.04 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit manufacturer's product data and installation instructions, including the following:
 - 1. Product description, insulation properties, preparation and storage requirements.
 - 2. Requirements and procedures for site installation, including equipment and accessories.
- C. Quality Assurance/Control Submittals: Submit the following:
 - 1. Test Reports: Provide product test reports upon request.
 - 2. Certificates:
 - a. Manufacturer's certification that product meets or exceeds specified requirements.
 - b. Manufacturer's certification that applicator is trained in installation of product and is authorized by manufacturer to install product.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section. Coordinate article below with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. General statements to comply with a particular code are typically addressed in Conditions of the Contract and Division 1 Regulatory Requirements Section. Repetitive statements should be avoided.

- A. Qualifications:
 - 1. Applicator Qualifications: Utilize a qualified applicator with demonstrated experience in performing work comparable to the work of this section, and who is trained and authorized by the manufacturer to install the product.

Specifier Note: Revise paragraph below to suit project requirements and specifier's practice.

- B. Regulatory Requirements and Approvals: [Specify applicable requirements of regulatory agencies.].
 - 1. [Insert code agency name.].
 - a. [Insert report or approval number.].
- C. Certifications: Manufacturer certification that product complies with requirements of this section.

Specifier Note: Article below should include special and unique requirements. Coordinate article below with Division 1 Product Requirements Section.

1.06 DELIVERY, STORAGE & HANDLING

- A. General: Comply with Division 1 Product Requirement Section.
- B. Delivery: Deliver materials to applicator in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer. Product should be stored in paper sacks and protected from any water source until blending by installer.
- D. Recycling:
 - 1. Ship materials in containers that are readily recyclable.
 - 2. Waste insulation materials must be biodegradable, suitable for public landfill disposal.

1.07 PROJECT/SITE CONDITIONS

- A. Environmental Requirements: Do not install foam insulation when product temperature is below 50 degrees F (10 degrees C).

PART 2 PRODUCTS

Specifier Note: Retain article below for proprietary method specification. Add product attributes, performance characteristics, material standards, and descriptions as applicable. Use of such phrases as "or equal" or "or approved equal" or similar phrases may cause ambiguity in specifications. Such phrases require verification (procedural, legal and regulatory) and assignment of responsibility for determining "or equal" products.

2.01 FOAMED-IN-PLACE BUILDING INSULATION

Specifier Note: Paragraph below is an addition to CSI *SectionFormat* and a supplement to MANU-SPEC. Retain or delete paragraph below per project requirements and specifier's practice.

- A. Manufacturer: Polymaster, Inc.
 - 1. Contact: 10523 Lexington Drive, Knoxville, TN 37932-3210; Telephone: (800) 580-3626, (865) 966-3005; Fax: (865) 675-3300; E-mail: info@polymaster.com; Web site: www.polymaster.com.
- B. Proprietary Products/Systems. Foamed-in-place building insulation, including the following:
 - 1. Polymaster R-501 Foam Insulation:
 - a. Formulation: 3-part polymer foamed-in-place plastic insulation consisting of a proprietary dry powder resin, mixed by the applicator with a catalyst and foamed with compressed air.
 - b. Thermal Properties: R-value on 8 inch (203 mm) CMU at 105 pcf (1682 kg/m³) (ASTM C1363): 11.05 ft² × h × °F/Btu (1.94 m² × K/W).
 - c. Thermal Properties: K-value and R-value per inch thickness at 25 degrees F (-4 degrees C) (ASTM C518): K-value 0.216 Btu/(ft² × h × °F) (0.37 W/(m × K)). R-value 4.63 ft² × h × °F/Btu (0.81 m² × K/W).
 - d. Thermal Properties: K-value and R-value per inch thickness at 75 degrees F (24 degrees C) (ASTM C518): K-value 0.244 Btu/(ft² × h × °F) (0.42 W/(m × K)). R-value 4.09 ft² × h × °F/Btu (0.72 m² × K/W).
 - e. Water Vapor Transmission (ASTM E96): 4.655 grains/hr × ft².
 - f. Permeance (ASTM E96): 6.631 perms/inch (381 ng/(Pa × s × m²)).
 - g. Average Permeability (ASTM E96): 15.749
 - h. Water Vapor Absorption (ASTM D2842): 10% by volume at 24 hours, at 25 degrees F (-4 degrees C), at 100% relative humidity.
 - i. Surface Burning Characteristics (ASTM E84): Flamespread 25, smoke developed 40, thickness 1 inch (25.4 mm).
 - j. Building Code Surface Burning Classification: Class I or Class A.
 - k. Shrinkage: 2% maximum.
 - l. Corrosivity: Noncorrosive.
 - m. Asbestos or Glass Fiber Content: None.

- n. Off-Gassing or Odors: None.
- o. Formaldehyde or CFC Content: None.
- p. Biodegradability: Biodegradable.

Specifier Note: Edit Article below to suit project requirements. If substitutions are permitted, edit text below. Add text to refer to Division 1 Project Requirements (Product Substitutions Procedures) Section.

2.02 PRODUCT SUBSTITUTIONS

- A. Substitutions: No substitutions permitted.

PART 3 EXECUTION

Specifier Note: Article below is an addition to the CSI *SectionFormat* and a supplement to MANU-SPEC. Revise article below to suit project requirements and specifier's practice.

3.01 MANUFACTURER'S INSTRUCTIONS

- A. Comply with the instructions and recommendations of the foamed-in-place building insulation manufacturer.

3.02 EXAMINATION

- A. Site Verification of Conditions:
 - 1. Ensure cores or spaces are free of mortar or other restrictions to the free flow of foam insulation.
 - 2. Verify that all work within the wall voids is complete prior to installation.
 - 3. Verify that masonry cells do not contain water.

3.03 PREPARATION

- A. Allow masonry mortar to set prior to installing insulation.
- B. Select most aesthetically pleasing locations for foam injection, including:
 - 1. Locations to be concealed where possible:
 - a. Masonry joints.
 - b. Wythe side of walls.
 - c. Covered side of walls.
- C. For pressure fill installation, drill fill holes into CMU cores.
 - 1. Drill Hole Size: Minimum diameter 5/8 inch (15.9 mm), maximum diameter 2 inches (51 mm).
- D. For 8 inch (203 mm) CMU, drill every other core. For 12 inch (305 mm) CMU, drill every core.

Specifier Note: Coordinate article below with manufacturer's recommended installation details and requirements.

3.04 INSTALLATION

- A. Install foam insulation in CMU cores using [Pressure fill method] [Top fill method] to a uniform density. Completely fill all spaces, crevices and voids.
- B. If pressure fill method is used, fill and point drill holes in exposed or concealed masonry units with mortar after installation, shaping and texturing to match existing materials.

3.05 FIELD QUALITY CONTROL

- A. Site Tests: Verify insulation density of each foam batch by random sampling of foam before installation.
 - 1. Fill a 1 gal (3.8 L) nonsealing plastic bag with foam.
 - 2. The bag weight shall be between 285 - 325 grams.
- B. Inspection: Verify complete filling of voids by drilling or removing block face upon request.
 - 1. Fill and point drill holes in masonry with mortar after inspection.
- C. Correct any foam installation found not to be in compliance with manufacturer's requirements.

Specifier Note: Coordinate article below with Division 1 Execution Requirements (Cleaning) Section.

3.06 CLEANING

- A. After foam insulation sets, remove excess insulation outside of cavity. Properly and legally dispose of waste with other construction waste material.

Specifier Note: Coordinate article below with Division 1 Execution Requirements Section.

3.07 PROTECTION

- A. Do not permit subsequent construction to damage or disturb installed foam insulation.
- B. Do not paint masonry walls until at least 72 hours after installation of foam insulation.

END OF SECTION