

SECTION 22 07 00 - PLUMBING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Insulation of plumbing piping.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.
1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS

2.1 FLEXIBLE ELASTOMERIC INSULATION

- A. Polyolefin: Unicellular, polyethylene thermal plastic insulation. Comply with ASTM C 534 or ASTM C 1427, Type I, Grade 1 for tubular materials.
1. Products:
 - a. Armacell, LLC; Tubolit SS.
 - b. Nomaco Insulation; IMCOLOCK and NOMALOCK.
- B. Insulation shall be listed and labeled per ASTM E 84 for plenum installations employing slip on techniques.

2.2 INSULATION FOR HANDICAP ACCESSIBLE FIXTURES

- A. Handicap Lavatory P-Trap and Angle Stop Assembly Insulation:

1. Basis of Design: Brocar; Trap Wrap Protective Kit 500R.
2. Provide smooth abrasion resistant exterior cover with minimum 1/8-inch (3-mm) wall over cushioned foam insert. Provide fasteners out of sight.

2.3 PIPING INSULATION MATERIALS:

- A. Exposed Exterior Piping: Encase pipe fittings insulation with 1-piece premolded PVC fitting covers, minimum 10 mil thick. fastened as per manufacturer's recommendations.
 1. Basis of Design: Johns Manville, Performance Materials Division; "Zeston",

2.4 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated and approved by insulation manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION AND INSPECTION:

- A. Examine areas and conditions under which mechanical insulation is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- B. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
- C. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.

3.2 PLUMBING PIPING SYSTEM INSULATION:

- A. Insulation Omitted: Omit insulation on chrome-plated exposed piping, unions, balance cocks, flow regulators, fire protection piping within main building only and pre-insulated equipment.
 1. Exception: Handicap lavatory piping to be completely insulated.
- B. Piping:
 1. Application Requirements: Insulate the following piping systems:
 - a. Potable Pre-Heat Water Piping (from Water Heater)
 - b. Potable Hot Water Piping
 - c. Potable Cold Water Piping
 - d. Horizontal storm piping, roof drain pans, and vertical piping from roof drain pans to first horizontal bend.
 - e. Waste piping above ceilings that receive condensate.

3.3 INSTALLATION OF PIPING INSULATION:

- A. Install insulation products in accordance with manufacturer's written instructions, and in accordance with recognized industry practices, to ensure that insulation serves its intended purpose and as follows:
 - 1. Insulate domestic cold water piping, associated fittings and valves with 1/2-inch (13-mm) wall thickness insulation only when piping is located above ceilings or in other unconditioned spaces.
 - 2. Insulate domestic hot and hot water return piping, associated fittings and valves with 1-inch (25 mm) wall thickness insulation.
 - 3. Insulate hot water piping below floor with 3/8-inch (9.5-mm) wall thickness insulation.
 - 4. Insulate reclaim hot water piping with 1-inch (25 mm) wall thickness insulation.
 - 5. In geographical areas subject to freezing, insulate horizontal above floor storm drain and roof drain pans with 1/2-inch (13-mm) wall thickness insulation.
 - 6. Insulate waste piping above ceilings that receive condensate with 1/2-inch (13-mm) wall thickness insulation.
 - 7. Insulate waste piping, supply piping, stops, and valves under handicap accessible plumbing fixtures.
- B. Install insulation on pipe systems subsequent to installation of heat tracing, painting, testing and acceptance of tests.
- C. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with single cut piece to complete run. Do not use cut pieces or scraps abutting each other.
- D. Clean and dry pipe surfaces prior to insulation. Butt insulation joints firmly together to ensure complete and tight fit over surfaces to be covered.
- E. Cover valves, fittings and similar items in each piping system with equivalent thickness and composition of insulation, as applied to adjoining pipe run. Install factory molded, precut or job fabricated units (at Installer's option), except where specific form or type is indicated.
- F. Extend piping insulation, without interruption, through walls, floors and similar piping penetrations, except where otherwise indicated.
- G. Provide continuous insulation through hangers, straps and all other supporting members.

3.4 PROTECTION AND REPLACEMENT:

- A. Replace damaged insulation, which cannot be repaired satisfactorily.
- B. Protection: Provide adequate protection for insulation work during remainder of construction period, to avoid damage and deterioration.

3.5 PENETRATIONS

- A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated):
Install insulation continuously through walls and partitions.
- B. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
- C. Insulation Installation at Floor Penetrations:
 - 1. Pipe: Install insulation continuously through floor penetrations.
 - 2. Seal penetrations through fire-rated assemblies.

3.6 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
 - 1. Install pipe insulation to outer diameter of pipe flange.
 - 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 - 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 - 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
 - 1. Install mitered sections of pipe insulation.
 - 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:
 - 1. Install preformed valve covers manufactured of same material as pipe insulation when available.
 - 2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 - 3. Install insulation to flanges as specified for flange insulation application.
 - 4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

END OF SECTION 22 07 00