SECTION- 220700 - PLUMBING PIPING INSULATION

PART 1-GENERAL

1.1 SECTION INCLUDES

A. Interior pipe insulation, jackets, and accessories.

B. Field-applied insulation on hot and cold equipment surfaces.

1.2 SUBMITTALS

A. Submit shop drawings and product data per applicable Division I Specification.

B. Submittals are required and shall include product data noting materials, thickness for each service or piece of equipment, aged thermal qualities, and accessories.

1.3 QUALITY ASSURANCE

A. Fire performance characteristics in accordance with ASTM E 84 for flame spread of 25 and smoke developed of 50.

B. Materials and installation in accordance with NFPA 255 and UL 723.

PART 2-PRODUCTS

2.1 MATERIALS

A. Glass Fiber: With ASJ jacket (unless noted otherwise) and with vapor-barrier.
1. Preformed Pipe Insulation: ASTM C 547, Class I, rigid, minimum density to be 3.5 pcf, Owens Corning SSL II with ASJ Max jacket (or equal).
2. Board Insulation: ASTM C 612, Type 2, rigid and semi-rigid. Minimum density to be 6 pcf. Owens Corning 705 or equal.
3. Blanket: ASTM C 553, Type II, Class F-1, with FSK vapor barrier jacket, minimum density to be 1 pcf, Owens Corning Type 100 SOFTR Duct Wrap FRK or equal.
4. Adhesive: UL Classification; Nonflammable, and as recommended by insulation manufacturers.
5. Pre-formed Pipe and Tank Insulation: ASTM C1393, Owens Corning Fiberglas Pipe and Tank with ASJ Max jacket
6. Maximum “K” Value: 0.27 at 75 degrees F.

B. Flexible Elastomeric Cellular: Flexible cellular elastomeric material, molded or sheet.
1. Preformed: ASTM C534, Type II.
2. Adhesive: Waterproof vapor retarder, as recommended by insulation manufacturer.
3. Maximum “K” Value: 0.245 at 75 degrees F.

C. Insulating Cements
1. Mineral fiber, hydraulic-setting insulating and finishing cement.
2. Expanded or exfoliated vermiculite.

D. Adhesives: MIL-A-3316C, Classes 1 and 2, Grade A.

E. Field Applied Protective Jackets for Mechanical Rooms, Storage Rooms, Boiler Rooms, and Any Other Room or Location Subject To Abuse (All below 8' level): Field applied jackets for protection of plumbing piping and equipment shall be 30 mil, 25/50 rated PVC by Speedline or Proto.

2.2 MANUFACTURER'S

A. Acceptable manufacturers for glass fiber insulation are Owens-Corning, Manville, Knauf, and Certainteed.
B. Acceptable manufacturers for flexible elastomeric insulation are Armacell and Rubatex.
C. Acceptable manufacturers for ADA fixture piping protective wraps/covers are Truebro and Brocar as called out below in PART 3.

PART 3-EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Leak test piping system before installing insulation systems.

3.2 INSTALLATION

A. Install material in accordance with manufacturer's recommendations and in conformance with building codes and industry standards. Refer to Section 220529 for requirements on inserts and shields.

B. A continuous vapor barrier is required for all piping and equipment with a fluid temperature or surface below the ambient air temperature.

C. Provide proper support at piping hanger systems.

D. Insulate valves and fittings in cold water systems.

E. Insulated cold pipes and equipment conveying fluids below ambient temperature:
1. Provide vapor barrier jackets, factory applied.
2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe.
3. PVC fitting covers may be used.
4. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations.
5. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, chilled water pump bodies, and expansion joints.

F. For insulated pipes conveying fluids above ambient temperature:
1. Provide standard jackets, with vapor barrier factory applied.
2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe.
3. PVC fitting covers may be used.
4. For hot piping and equipment conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
5. For hot piping and equipment conveying fluids over 140 degrees F, insulate flanges and unions at equipment.

G. Exposed Sanitary Drains, Domestic Water, Domestic Hot Water, and Stops at lavatories shall be insulated and finished with Truebro Model No. 102 "Lav-Guard" or Brocar "Trap-Wrap" white insulation kits.

H. Finish insulation at supports, protrusions, and interruptions.

3.3 INSULATION SCHEDULE

	Service	Pipe Size	Insulation
A.	Plumbing hot water, cold water, and hot water recirc piping.	Up thru 1-½” >1 ½”	1" 1.5”
B.	Non-vertical storm water conductors, roof drain bodies, and the first two feet of vertical storm water conductors.	All	1”
C.	Drip pan drain piping. Plumbing drain lines and trap from floor drains in equipment room not located on grade to a point 10'-0" from trap. Electric water cooler waste traps.	Flame retardant flexible elastomeric pipe insulation 1/2" thick. Seal all joints with #520 adhesive. Insulate all valves and fittings to match adjacent piping.	
D.	Domestic cold water equipment and tanks	All	1”

END OF SECTION 220700

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