SECTION 15592

1. SCOPE

1.1 All insulating materials and mastics must be rated 25/50 when tested in accordance with ASTM E-84/UL 723.

1.2 The latest edition of The Midwest Insulation Contractors Association Commercial and Industrial Insulation Standards Manual has been adopted as a standard for the workmanship under this section.

1.3 Work Included:

2. GENERAL

2.1 The Insulation Contractor shall be responsible for verifying that all tests and inspections of piping systems or equipment to be insulated under this contract are completed and approved by Owner's Representative before insulation work is started.

2.2 All surfaces to be insulated shall be clean, dry and free from surface frost, oil, mortar, and other foreign matter.

2.3 Insulation, adhesives, coverings, coatings, etc., shall be applied in accordance with the manufacturer's published recommendations.

2.4 No wheat paste or other mold or bacteria breeding or sustaining organic materials shall be used in conjunction with the insulation work.

2.5 All piping insulation shall be continuous across racks, and through hangers and sleeves. Rigid insulation shall be provided between pipe and insulation protectors at hangers.

2.6 Provide necessary tarpaulins and/or coverings required to protect equipment, machinery, walls, floors, etc., in areas where insulation is being installed. Dirt, refuse and droppings, etc., shall be cleaned up daily.

3. HOT WATER PIPING INSULATION

3.1 Insulate all piping with heavy density fiberglass pipe insulation, Knauf Fiberglass, Owens Corning Fiberglas, or Schuller International, Inc.

3.2 Thicknesses as per the following table:

A. Fluid Operating Temperature Range (141 Deg. F.- 200 Deg. F.)

Pipe Size	Thickness	Conductivity Range

1-1/2" and under	1" thick	< 0.27 (Btu•in/(h•ft^3•°F)
Greater than 1-1/2"	2" thick	< 0.27 (Btu•in/(h•ft^3•°F)

3.3 Adhere self-sealing lap by removing release paper after the insulation is installed on pipe, sealing the lap starting in the center of each section, working towards ends. Lap must be pressurized by rubbing with a hard tool such as the back of a knife blade. Install 3" butt strips over joints between sections in the same manner. Apply over clean dry surface with pipe at approximately room temperature, butt adjoining sections firmly together. Seal off ends of insulation with Benjamin Foster 35-00 fire retardant vapor barrier mastic at all flanges, valves and fittings and at intervals of not more than 20 ft. on continuous run of pipe.

3.4 Insulate all flanges, valves, fittings, specialties, appurtenances, and pump casings per the previous table with fiberglass of the same thickness as the insulation of the adjoining pipe, secured fastened in place; 1-1/2" pipe size and smaller - blanket wrapped to an installed density of 1-1/2 lb. and firmly tied. 2" and over pipe size - pre-molded fittings. Insulate fitting insulation with thin layer of finishing cement to smooth up surface. Apply flood coat of Benjamin Foster vapor barrier coating No. 30-35, imbed knitted glass fabric and brush on second coat of No. 30-35 while still wet. (At contractor's option, Knauf 25.50 PVC fitting covers or equal may be used.)

3.5 For each pipe hanger, the Heating Contractor shall provide pipe shields.

4. ACOUSTIC DUCTWORK INSULATION

4.1 Unless otherwise noted on plans, all supply ductwork shown shall be acoustically insulated. Provide Owens Corning Fiberglas, Schuller International, Inc., or Knauf Fiberglass; or equal. 1-1/2 lbs. density duct liner, 1" thickness. Adhere insulation to interior sides of duct, butting joints together with 100% coverage of rubber cement, Benjamin Foster 85-20. Secure insulation to duct by means of Graham welded pins on maximum 16" centers on top sections and on sides. Insulation must be secured so as not to erode or come loose due to air velocity.

END OF SECTION 15592