**SECTION 22 0700**

**PLUMBING INSULATION**

**PART 1 GENERAL**

1. DESCRIPTION
   1. All work specified in this Section is governed by the Common Work Results for Plumbing Section 22 0500.
   2. This Section 22 0700 and the accompanying drawings cover the provision of all labor, equipment, appliances, and materials and performing all operations in connection with the insulation of the plumbing systems as specified herein and as shown. These systems include, but are not limited to, the following:
      1. Sanitary waste and vent systems
      2. Domestic water systems
      3. Storm drainage systems
2. INTENT
   1. It is the intent of this Section of the specifications to provide complete and operable plumbing systems complete with insulation, which are free of unreasonable noise, vibration and sweating, and fabricated so as to fit the space allotted.
   2. The word "piping" is defined to mean all piping, fittings, joints, hangers, coatings, valves, cocks, insulation and accessories necessary for the plumbing systems described, shown and specified.
3. ACCEPTABLE MANUFACTURERS
   1. Insulation products shall be listed according to Landmark’s Construction Appendix A – Product Selection.

**PART 2 PRODUCTS**

1. PLUMBING INSULATION
   1. All pipe insulation products shall have a permanent composite insulation, jacket and adhesive fire and smoke hazard rating as tested by procedure ASTM-84, NFPA 255 and UL 723 not exceeding Flame Spread 25 or Smoke Developed 50.
   2. Blanket-type insulation on storm drains shall have an average thermal conductivity (k-value) not to exceed 0.27 BTU per inch/h·ft2·°F at a mean temperature of 75°F. Insulation shall have a minimum density of 1 lb/cu.ft. and shall be 2" thick.
   3. Preformed insulation for all domestic hot water piping shall be minimum 1-1/2" thick for piping less than or equal to 1-1/2” diameter, 2” thick for piping above 1-1/2” in diameter, preformed fiberglass pipe insulation with white all-service jacket. All longitudinal joints shall be lapped, self-sticking type with all butt joints, tears, etc. sealed with a matching white vapor barrier tape. Elbows shall be mitered or may be Zeston covers filled with equivalent fiberglass insulation. The maximum conductivity (k-value) of the insulation shall be 0.23 BTU per inch/h·ft2·°F at 75°F.
   4. Insulation shall be continuous over all valve bodies, fittings, and wall and floor penetrations. Do not insulate unions on hot water piping; nor instruments, gauges, valve handwheels, etc. on any piping.
   5. All piping insulation covering water-carrying piping which is exposed to the weather and subject to bursting from freezing temperatures shall have oversized insulation to accommodate heating cable. See specification 23 0533.
   6. Piping installed outside the building and exposed to weather shall have polyisocyanurate insulation in accordance with specification 23 0719. Provide a continuous watertight aluminum jacket and fitting covers for all polyisocyanurate insulation piping exposed to the weather.
   7. Closed-cell insulation shall be provided over all piping called to have insulation that is installed below ground. Closed-cell piping insulation shall match the thicknesses for above ground piping, 25/50 Armaflex or Rubatex. All glues and coatings shall be products of the same manufacturer as the insulation. The insulation shall be installed by the slip-on method; slitting of the insulation is prohibited and shall be cause for rejection.

**PART 3 EXECUTION**

1. ARRANGEMENT
   1. Follow the general piping layout, arrangement, schematics and details. Provide all offsets, vents, drains and connections necessary to accomplish the installation. Fabricate piping accurately to measurements established at the project site to avoid interference with ductwork, other piping, equipment, openings, electrical conduits and light fixtures. Make suitable provision for expansion and contraction with expansion loops and offsets.
2. INSULATION INSTALLATION
   1. Provide blanket insulation over all horizontal roof drain piping which is within the building and including the vertical risers to the roof drains and the underbody of the roof drains.
      1. Blanket insulation shall be wrapped around the piping and underbodies of roof drains. Ends of insulation shall overlap at least 2" and bottom of insulation shall overlap pipe insulation at pipe connection to roof drain at least 3". Adhere insulation to roof drain underbodies with 100% coverage of fire retardant adhesive and tape all joints with 3" wide foil reinforced kraft tape.
   2. Provide insulation over all above ground hot and cold water piping, except that no insulation is required on cold water lines installed inside interior plumbing chases (those chases with no exterior wall). In addition, no insulation is required for cold water piping outside the building vapor barrier and designed to be drained down for freeze-protection, such as parking deck hose bibbs for washdown.
      1. All joints and tears shall be sealed with matching white vapor barrier tape
   3. See specification 23 0719 for HVAC piping insulation requirements.

**END OF SECTION**