

## **PART 1: GENERAL**

### 1.01 Purpose:

- A. This standard is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. The responsibility of the engineer is to apply the principles of this section so that the University may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be justified through LCC analysis and submitted to the University for approval.

## **PART 2: PRODUCTS**

### 2.01 Ductwork Insulation Materials:

**NOTE: NO INTERNALLY LINED / INSULATED DUCT WORK. EXTERNAL/ INSTALLATION ON ALL SUPPLY AIR DUCT WORK.**

## **PART 3: EXECUTION**

### 3.01 Piping System Insulation:

- A. Plumbing System Omissions: Omit insulation on chrome-plated exposed piping (except for handicapped fixtures), air chambers, unions, strainers, check valves, balance cocks, flow regulators, drain lines from water coolers, drainage piping located in crawl spaces or tunnels, buried piping, fire protection piping, pumps, and pre-insulated equipment.
- B. HVAC Piping System Omissions: Omit insulation on hot piping within radiation enclosures or unit cabinets; on cold piping within unit cabinets provided piping is located over drain pan; on heating piping beyond control valve, located within heated space; on condensate piping between steam trap and union; and on unions, flanges, strainers, flexible connections, pumps, and expansion joints.
- C. Steel piping insulated with rigid phenolic shall be coated with epoxy finish prior to insulation installation.
- D. Insulate piping systems per table 23.07.1

	<b>MATERIAL</b>	<b>BARRIER</b>
CHW supply/return	Rigid Phenolic, Cellular Glass	Yes
Fin Water	Rigid Phenolic Flexible Elastomeric Closed Cell	Yes No
Existing wet CHW piping, tunnel CHW piping, primary CHW piping in machine rooms.	Cellular Glass	Yes
Heating Hot Water supply/return (max. 250 °F), Steam Condensate	Mineral Fiber, Calcium Silicate	No
Potable Cold Water, make-up water. drinking water fountain drain, roof drain piping	Flexible Elastomeric Closed Cell or Phenolic Foam	No Yes
Potable Hot Water supply/return (max. 200 °F)	Calcium Silicate, Fiberglass or Phenolic Foam	No
Refrigerant Suction	Flexible Elastomeric Closed Cell	No

### 3.02 Equipment Insulation:

- A. Do not insulate over nameplate or ASME stamps. Bevel and seal insulation around nameplates.
- B. Insulate the following equipment per Table 23.07.2: Cold refrigeration equipment not factory insulated, drip pans under chilled equipment, cold and hot water storage tanks, water softeners, duct mounted coils, cold and chilled water pumps, air handling equipment not factory insulated, expansion and air separator tanks, heat exchangers, hot water generators, and pumps handling media above 130 °F, except pumps on steam condensate return units. This requirement would include condensate receivers. If there is not a flash tank upstream of the receiver, then a leaking low-pressure trap would heat the condensate receiver well above the 212 °F. This temperature causes the condensate pumps to fail. Leave the condensate receivers uninsulated to help protect the pumps.
- C. Do not insulate HOT WATER pumps.

**Table 23.07.2**

EQUIPMENT HANDLING MEDIA AT INDICATED TEMPERATURE	INSULATION MATERIAL	THICKNESS
1 to 34 degrees F	Flexible Elastomeric Closed Cell or Cellular Glass	2 inches
35 to 60 degrees F	Closed Cell or Cellular Glass	1.5 inches
100 to 200 degrees F	Mineral Fiber	1.5 inches
	Calcium Silicate	1.5 inches

END OF STANDARD