

SECTION 22 07 00
PLUMBING SYSTEMS INSULATION
Design Standard

PART 1 GENERAL

1.1 PURPOSE:

The plumbing systems insulation is an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of insulation requirements throughout the San Mateo County Community College District. The intent is to create a standard of quality for maintenance, energy efficiency, and reliability throughout all renovation and new building projects.

PART 2 PRODUCT

Design and specify work to include materials and installation of insulation, jackets and accessories for a complete and operable system.

2.1 GENERAL:

- A. Adhere to the requirements of the California Energy Code – Title 24, latest edition.
- B. Insulation shall be applied on clean, dry surfaces and only after tests and approvals required by the specifications have been completed.
- C. All pipe insulation on piping operating below ambient temperature shall be continuous through wall and ceiling openings and sleeves.
- D. Insulation on all cold surfaces must be applied with a continuous, unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold surfaces shall be adequately insulated and vapor sealed to prevent condensation.
- E. Specified adhesives, mastics, and coatings shall be applied at the manufacturer's recommended minimum coverage per gallon.
- F. Edges of vapor barrier insulation at valve stems, instrument wells, unions, and other raw edges shall be sealed adequately to prevent moisture from penetrating the insulation.

2.2 FIRE HAZARD RATINGS:

- A. All insulation shall have composite (insulation jacket and adhesive used to adhere the jacket to the insulation) Fire and Smoke Hazard ratings as tested under procedure ASTM E 84, NFPA 225, and UL 723.

2.3 INSULATION PROTECTION SHIELDS:

- A. To prevent crushing of insulation, insulation protection shields shall be installed at all pipe hangers and supports. Shields shall span an arc of 180°. Provide full size diameter hangers and shields (18 gauge minimum) for piping. Provide 18-inch long, non-compressible insulation section at insulation shields for lines 2 inches and larger.

2.4 INSULATION JACKETING:

- A. Provide aluminum jacketing for all piping located aboveground, outdoors.

2.5 PIPING:

- A. In general, piping systems shall be insulated with fiberglass piping insulation with an all-purpose jacket. Fittings, flanges, and valves shall be insulated with fiberglass inserts and premolded polyvinyl or PVC jackets.
 - B. Calcium silicate or high-temperature fiberglass shall be used in high temperature applications.
 - C. Special insulation protection shall be considered for areas subject to abuse and moisture, such as outside areas, washdown areas, public areas, and classrooms.
 - D. Removable insulated jackets shall be provided on all valves.
 - E. Insulate all condensate pipe installed above ceilings.
 - F. Condensate water shall drain to planters wherever possible.
- 2.6 EQUIPMENT: AT A MINIMUM, THE FOLLOWING EQUIPMENT SHALL BE PROVIDED WITH INSULATION:
- A. Hot water storage tanks
 - B. Heat exchangers
 - C. Flue pipe
 - D. Roof Drain Body
- 2.7 APPROVED MANUFACTURERS:
- A. Armacell LLC Armaflex
 - B. Certainteed
 - C. Johns Manville
 - D. Knauf
 - E. Owens-Corning Brady

PART 3 EXECUTION

3.1 SUBSTITUTES ALLOWED?

Yes, if performance and quality equivalency can be evidenced.

3.2 ASSOCIATED DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS:

22 05 12 - Plumbing Pipe and Fittings Design Standard

END OF SECTION