

1. DESIGN STANDARD:

- 1.1 All domestic cold water and fire protection piping exposed to exterior conditions must be heat traced and wrapped with aluminum jacket. Other non-critical areas Rice University prefers insulation with out heat trace.
- 1.2 All horizontal storm drain piping including drain body above finished ceilings must be insulated. Pipes in walls adjacent to sound sensitive areas must be insulated.
- 1.3 All domestic hot water and tempered water including circulation pumps, condensate, drain lines, drinking fountains and drain lines must be insulated.
- 1.4 Provide insulation on Valves, Fittings and Other Components.

2. PRODUCT STANDARDS:

- 2.1 Rice prefers Koolphen insulation with canvas wrap over paper wrap. No Armaflex.
- 2.2 All insulation for fittings must be prefabricated.
- 2.3 All insulation must be minimum 1" thick.

3. PERFORMANCE STANDARDS:

- 3.1 Insulation thickness must meet or exceed Energy Code requirements.
- 3.2 Unless noted otherwise, insulation thicknesses indicated are for interior locations where the temperature and relative humidity are maintained at 80 degrees F and 60% RH. The insulation system shall be sufficient to eliminate the possibility of condensation at the design fluid temperature of the piping system and 90 degrees F and 85% RH when the piping is located in the following conditions:
  - 1. Within equipment or storage rooms that are ventilated with unconditioned outside air.
  - 2. In exterior equipment yards, on roofs or any other exterior location.
  - 3. Within crawl spaces, exterior soffit areas, ventilated attics and other concealed locations subject to ambient conditions.

Note: Locations where temperature and humidity may exceed these conditions, the engineer will evaluate on a case by case basis and will provide Rice University's Project Manager with recommendations.

- 3.3 At each support point, install a hard section of insulation, minimum 8" length on lower 180E of piping or 360E of piping if clamps are used on top of pipe. Hard section should be same thickness as adjacent insulation.

Provide formed galvanized sheet metal saddles at support points that are the same length as the hard section to completely cover hard sections.