

PART 1 - GENERAL

- 1.01 No direct burial of pipe.
- 1.02 Do not use steam as a direct air heating medium.
- 1.03 Size and grade all steam piping to prevent flashing and assure adequate return of condensate.
- 1.04 Do not install steam isolation valves in vertical piping without providing means to drain water from both sides of valve.
- 1.04 In general, standard Schedule 40 carbon steel for steam piping and standard Schedule 80 carbon steel for condensate piping. Use ASTM A53 Grade A Steel.
- 1.06 Install pressure gauges on both the high pressure and low pressure sides of all regulator stations. Variable loads are expected in buildings. Where design load exceeds 600 lbs. per hour, provide 1/3 and 2/3 steam control valve arrangements.
- 1.07 Install condensate meters on condensate return line after the condensate receiver. Install a vacuum breaker to prevent siphoning and a sample port downstream of the condensate meter. The meter shall be in a line that is fully charged at all times. Provide a manual bypass with isolation valves around the meter and sample port. Obtain piping details from UAF FS Engineers
- 1.08 Electric condensate pump return stations: duplex pumping. Cast iron condensate receivers preferred vented outside.
- 1.09 Drain valve required for each drip leg in utilidor and mechanical room.
- 1.10 Traps must have isolation valves and blow down leg and be easily accessible for maintenance. Install strainer on supply side of each trap. Install unions on both upstream and downstream side of traps.
- 1.11 Size drip legs to line size.
- 1.12 In utilidor runs, install drip legs with ¾ inch valved blow down ahead of each expansion joint, isolation valve, and pipe bend. Install steam traps close to drip legs.
- 1.13 Provide final heat exchanger and pipe sizing calculations to UAF FS Utilities to verify existing steam piping can accommodate the load or if a utility piping upgrade will be required.

PART 2 - PRODUCTS

- 2.01 Traps: float and thermostatic steam traps by SARCO, TLV, no substitutions.

- 2.02 Building: Isolation valves:
- A. Over 3 inch: Cast Steel body, bronze mounted (IBBM) flanged, ASME Class 150, rising stem, OS&Y, bolted bonnet, solid wedge disc, and gate valve with Teflon or graphite impregnated fiber packing.
 - B. 3 inch and under: Threaded, ASME Class 150, rising stem, union bonnet, solid wedge disc, gate valve. Bronze body, bonnet, stem and disc. Malleable iron hand wheel. Teflon or graphite impregnated fiber packing.
- 2.03 Condensate Meter: Owner furnished contractor installed 1 inch Badger M70 disc meter with union connections. Provide 16.625" of space for meter. Provide 1" Y-type strainer upstream of meter and provide isolating valves on inlet and outlet. Provide full line size bypass with globe valve for hot liquid service. Obtain current piping detail from UAF FS for each project. Provide metering wire conduit per Division 26.
- 2.04 Vacuum Breaker: 1: Kadant Johnson or other manufacturer identified by the consultant, with stainless steel threaded vacuum breaker.
- 2.05 Condensate Receiver: Electric condensate pump return stations: duplex pumping. Utilize PACO, Bell and Gosset, or Armstrong, Alternate Brand or Substitution Request Required. Cast iron condensate receivers preferred vented outside. Provide with integral gauges and NEMA rated control panel packaged with receiver and pumps. Operating range should be 10psi unless higher pressure required to overcome head pressure and ensure gravity flow back to the UAF FS Utilities Atkinson Power Plant
- 2.05 Expansion Joints:
- A. Packed Slip Expansion Joint: rated at 250psi, 400°F, PTFE packing type designed for repacking under pressure, flanged for maintenance, Hyspan, Advanced Thermal Systems, Adscos Mfg., alternate brand request or substitution request required.
 - B. Compensator: two ply stainless steel bellows, steel shroud, threaded under 2 inches, flanged over 2.5 inches, Hyspan, Metraflex, Adscos, alternate brand request or substitution request required.

PART 3 – EXECUTION

- 3.01 Install steam and condensate piping to maintain minimum 1 inch clear from all other piping and ductwork. Where piping or ductworks are insulated this requirement applies to surface of insulation.
- 3.02 Provide union connections with spaced needed for meter (at this time, 16.625 inch.) Also provide 1 inch Y-type strainer upstream of the meter. Provide isolating valves on inlet and outlet and full line size bypass with globe valve rated for steam condensate service. Consult with UAF FS Engineers for current detail.

- 3.03 Coordinate with Division 26 to provide metering conduit pathway back to UAF FS Utilities
Atkinson Power Plant

END OF SECTION