

WVU DESIGN GUIDELINES & CONSTRUCTION STANDARDS
DIVISION 23 – HEATING, VENTILATION, AND AIR CONDITIONING

SECTION 232233 - STEAM SPECIALTIES

PART 1 - GENERAL

1.1. Any deviance from the following instructions must be approved during design by WVU Facilities Management project manager.

1.2. Steam Quality

A. Steam is currently purchased from Morgantown Energy Associates, (MEA). Their steam meets the following criteria:

1. Steam must be free of harmful materials
2. Must meet Food and Drug Administration, (FDA) requirements for use with food
3. Exhibit a pH of between 8.8 and 9.2 standard pH units
4. Exhibit conductivity of less than 10 $\mu\text{S}/\text{cm}$ as measured at 25 °C
5. Exhibit a cat ion conductivity of less than 1.0 $\mu\text{S}/\text{cm}$ as measured at 25 °C
6. Exhibit a Silica concentration of less than 20 ppb
7. Exhibit an Iron concentration of less than 15 ppb
8. Exhibit a Sodium concentration of less than 10 ppb

B. Condensate Quality: Condensate CANNOT be returned to MEA until it meets ALL of the following criteria.

1. Must be free of oil, grease and their harmful materials
2. Exhibit a conductivity of less than 20 $\mu\text{S}/\text{cm}$ as measured at 25 °C
3. Exhibit a Silica concentration of less than 20 ppb
4. Exhibit a pH of at least 7 and less than 9 standard pH units

1.3. Both the Downtown and Evansdale campuses are served steam at 135 psig. The

Downtown campus steam is 450 degrees F and the Evansdale campus steam is 350 degrees F.

PART 2 - PRODUCTS

- 2.1. Use expansion loops, and not expansion joints, when possible.
- 2.2. Use instantaneous domestic water heaters.
- 2.3. Use Spirax-Sarco, "DIVA" saturated steam flow meters.
- 2.4. Use Spirax-Sarco UTD 52 traps with strainers on main lines and the F&T style trap on equipment.
- 2.5. Use Spirax-Sarco "APT" type steam-powered pump traps to prevent condensate flooding for all heat exchangers and steam heating/pre-heating coils that are controlled by modulating valves.

PART 3 - EXECUTION

- 3.1. Where design dictates a steam control valve larger than 2", then two valves shall be used in parallel. Valves shall be sized for one-third, two-thirds capacity and be sequenced with positioners.
- 3.2. Provide double valve isolation with bleed capability on steam lines 2" diameter and larger.

END OF SECTION 232233