1 General

1.1 Materials and installations shall be in accordance with the following industry and association standards.

- ASME Boiler and Pressure Vessel Code
- ASME B31.1 Power Piping Code
- ASTM Materials
- AWS Welding

2 PRV Station & SRV Design Conditions:

2.1 Although the High Pressure Steam system is nominally 125 PSIG, the actual pressure can fluctuate depending on the season. Size the PRV system assuming a reduced supply pressure of 70 PSIG.

2.2 PRV Stations located in the steam distribution system to feed the low pressure system from the high pressure system shall be single stage units.

2.2.1 The load at each of these stations shall be divided between three PRVs adjusted to operate sequentially.

*Note: This will also allow continuous operation while one PRV is being serviced.*

2.3 PRV Stations located in building lateral tunnels to provide low and/or medium pressure steam to buildings shall be two stage units. The intermediate steam pressure shall be determined based on building needs and to reduce the noise level of the PRV Station as much as possible.

2.3.1 The load at each of these stations shall be divided between two sets of PRVs using the 1/3 – 2/3 sizing configuration

2.4 SRV Set Pressures

2.4.1 Low Pressure Steam SRVs shall be set to relieve at 20 PSIG.

2.4.2 Medium Pressure Steam SRVs set pressure shall be determined with Utilities Engineering for each project.

2.5 SRV capacity shall be determined in accordance with ASME BPVC and ASME B31.1 – Power Piping Code.

2.6 Multiple SRVs may be provided in parallel, as required, to handle maximum flow.

2.7 Consult Utilities Engineering if an application is believed to be outside of these conditions.

3 Materials & Equipment

3.1 Pressure Reducing Valves

3.1.1 PRV’s shall be pilot-operated.

3.1.2 Cast Steel body, ASME B16.5 Class 300 flanged end connections, with optional stainless steel tubing.

3.1.3 PRV shall be furnished with appropriate silencer or muffling orifice plate(s) to meet noise level requirement of ≤85 db at 10 ft.

3.1.4 Preferred Manufacturers

- Spirax Sarco 25P
- Spence
- Boylston

3.2 Safety Relief Valves

3.2.1 SRV’s shall be spring loaded pop safety relief valve design.

3.2.2 Cast Steel Body, Trim selected for operating conditions, ASME B16.5 Class 300 Flanged Inlet and Class 150 Flanged Outlet, Optional Tungsten Spring

3.2.3 SRV orifice shall be sized for maximum flow.

3.2.4 Preferred Manufacturers

- Kunkle
- Consolidated 1905R 6-150# x 8-150#
- Farris
- Lonergan
- Spirax Sarco

3.3 Separators

3.3.1 Separators shall be baffle type.

3.3.2 Separators shall be carbon steel with ASME B16.5 Class 300 Flanged End Connections.

3.4 Gauges

3.4.1 Pressure

3.4.1.1 4½” iron case, Bourdon type pressure gauge complete with siphon and ball valve. Pressure range is to be indicated on plans.

3.4.2 Temperature

3.4.2.1 4-1/2” iron case, temperature gauge with insertion well. Temperature range is to be 750°F unless otherwise indicated on plans.

3.4.2.2 Temperature gauges shall
include an indicator that displays maximum temperature that has been reached.

4 Installation Guidelines

4.1 Pressure Reducing Valves

4.1.1 PRV Stations shall be designed with components staggered and spaced to provide adequate space for maintenance and removal.

4.1.2 PRVs shall have minimum 15” vertical clearance on top and bottom of the valve.

4.1.3 PRV Stations shall have an isolation valve on either side of the assembly to allow isolation for maintenance or removal.

4.1.4 Each pressure regulator shall be matched with one separator, unless otherwise directed by Utilities Engineering.

4.1.5 Provide pressure and temperature gauges on the high pressure supply header, low pressure discharge header and on the intermediate header if applicable.

4.1.6 Provide plugged ¾” thread-o-lets on supply and discharge for future temperature and pressure transmitters. (Total of 4)

4.2 Safety Relief Valves

4.2.1 SRVs shall have minimum 15” vertical clearance on top of the valve.

4.2.2 SRVs shall have a bellows type expansion joint on the discharge line with appropriate condensate drainage.

4.3 Insulation

4.3.1 All components shall be provided with removable custom fitted insulated jackets.