HYDRONIC SPECIALTIES

Design Requirements

Compression/Expansion Tanks

Tanks to be of the diaphragm type, constructed for appropriate design pressure. The tanks should be welded steel, stamped with ASME code Section VIII for appropriate psi design. Indicate system volume, and expansion tank fill and operating pressures on design drawings.

Air Separators

Install air separators to aid removal of air from hot water heating systems and as required for chilled water systems. Separators shall be a tangential type, designed and installed per manufacturers instructions

System Fill and Pressure Relief Valves

The design shall include system fill and pressure relief valve with a field adjustable pressure setting.

Balancing and Measuring Devices

All hydronic systems shall have means of measuring and balancing flow at each piece of equipment and terminal device. Balancing valves shall be sized so they are not closed more than 60% for the flow and pressure expected. Do not base sizing on pipe size alone. If numerous devices are in the project, include a schedule on the drawings.

Automatic Flow Balancing Valves

Installation of automatic flow balancing valves is permitted for terminal devices (coils, finned tube radiation etc.), in lieu of installing manual balancing valves at these locations. Suitability of each application should be carefully considered by the A/E, especially in variable volume systems, and systems where design flow is likely to change.

Strainers

Strainers should be Y-Type having heavy cast iron body, with blow-off tapping in screen covers and full port ball valves.

Sizes 1/2 inch through 1-1/2 inches should have screens of 20 mesh Monel.

Sizes 2 inches and over should be perforated stainless steel, 233 holes per square inch @ .045 inch diameter. The steel should be .016 inch thick. The screen should be removable without disturbing piping. The unit should be rated for at least 125 psi working pressure, or higher as required to suit system.

Glycol Systems

Do not provide an automatic water makeup for glycol filled systems. Provide a two stage low water alarm. The first stage alarms the CEC system (or, if CEC is not available, energizes an audible device). The second stage shuts off the pumps and requires a manual reset.

Make provisions for filling glycol filled systems that ensure reasonable convenience, such that large drums will not need to be lifted up stairs.

Pre-mixed glycol is generally preferred.

Installation Requirements

Expansion tanks and air separators shall be independently supported.

Install air vents at all high points in all hydronic systems. Generally, automatic vents should be installed only in mechanical equipment rooms. All other locations will contain manual vents. Where automatic air vents are installed elsewhere, install a normally closed isolation ball valve. Where practical, pipe outlet from automatic air vents to floor drains.

Flow meters shall be installed with unrestricted lengths of straight pipes as required by the manufacturer.

Install unions, isolation valves and bypass lines on devices requiring removal for maintenance.

Generally, install strainers ahead of all hydronic system control valves, flow measuring devices and pumps.

Dielectric unions shall not be installed between dissimilar materials. Use brass nipples or brass unions between copper and steel piping 2" and smaller. Use dielectric flanges on larger piping.

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