

down to the wet return below the boiler water line. If the detail shown in Fig. 10 is used at the end of the main, an air valve must be installed above the water line.

Where it is desired to reduce the size of a supply main, an eccentric fitting always must be used, as shown in Fig. 11, or a reducing elbow must be installed, as in Fig. 12, so that complete drainage is accomplished. These details also apply to any other system of steam piping.

A handy rule for cutting the proper length of offset pipe is illustrated in Fig. 13.

Piping Connections for Vapor and Vacuum Systems

In Figs. 14 to 19, inclusive, are illustrated some of the piping details which are recommended in connection with vapor and vacuum heating. Figs. 14 and 18 show methods of draining and venting the ends of supply mains where a return below the boiler water line is used. Fig. 19 shows the same detail where the return main is above the water line. Fig. 15 shows the method of draining the ends of long branches from supply mains to risers or to remote radiators. Fig. 16 shows a sediment chamber which will catch debris in any vapor or vacuum system, this being cleaned occasionally, preventing the foreign matter from stopping up or injuring the traps or other mechanisms. Fig. 17 illustrates an approved method for carrying a return main which runs near the floor, past a door. The air in the upper part of the main rises freely over the door, while the water passes in the trench under the door.

It is considered good practice, when it is necessary to use a lift for the returns of part of a vacuum pump system, to cause the returns from all of the system to be lifted at the vacuum pump. With this condition, the float governor, often furnished with vacuum pumps for normal gravity flow conditions, should be omitted, as its presence on a system with a lift usually leads to misunderstanding and eventual trouble.

Figs. 20 and 21 illustrate approved details of the return pipes leading to vacuum pumps where there must be lifts from low-lying mains up to the pump. These lifts should be avoided wherever possible.

Heater Connections

Figs. 22, 23 and 24 are typical illustrations of various approved heater connections. They may apply to vapor systems and to vacuum systems.

Fig. 25 shows the typical vacuum or vapor system connections to an old-fashioned steam-type radiator. Fig. 26 shows approved connections to a heater below the supply main, with the valve above the main. Fig. 27 shows approved down-feed connections to a wall-type heater with returns and drips running to a wet return main. When such an arrangement as this is used for the supply connections it becomes permissible to place the valve at the radiator inlet in the conventional manner.

Figs. 28 to 34, inclusive, illustrate typical approved connections to cabinet-enclosed and other non-ferrous heaters. Connections to such heaters often are troublesome. It is desirable where practicable, to place both the supply valve and the trap in the basement or at least to place them outside of the heater enclosures. It is exceedingly important that no expansion and contraction strains from the piping shall be brought to

bear against any convactor, since not only damage but also annoying creaking noises may follow such strain.

Figs. 36 and 37 show typical connections to indirect cast iron convectors.

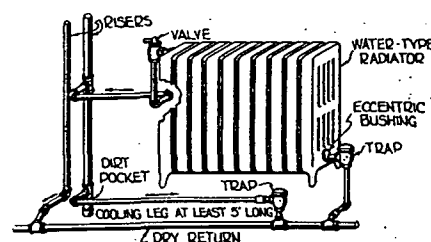


FIG. 22. TOP AND BOTTOM OPPOSITE END RADIATOR CONNECTIONS WITH HEEL OF DOWN FEED RISER DRIPPED INTO DRY RETURN

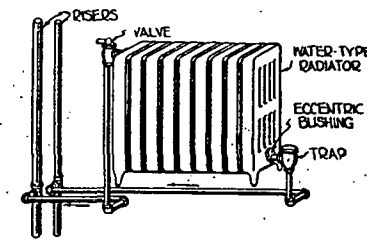


FIG. 23. TOP AND BOTTOM OPPOSITE END RADIATOR CONNECTIONS FROM UP OR DOWN FEED RISERS

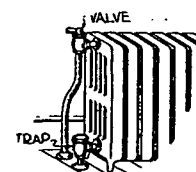


FIG. 24. TOP AND BOTTOM SAME END RADIATOR CONNECTIONS FROM UP OR DOWN FEED RISERS. (NOT TO EXCEED 8 TO 10 SECTIONS).

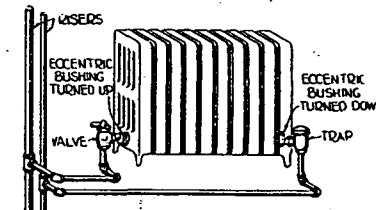


FIG. 25. CONNECTIONS TO STEAM TYPE RADIATOR

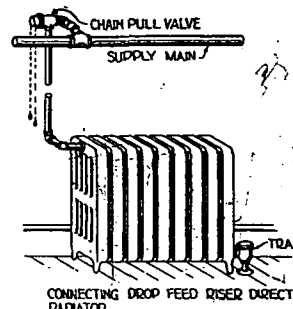


FIG. 26. CONNECTING DROP FEED RISER DIRECT TO RADIATOR BY TURNING VALVE ON ITS SIDE

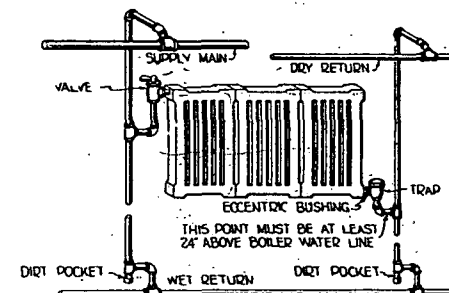


FIG. 27. CONNECTIONS TO RADIATOR HUNG ON WALL

heaters, and apply to vapor and vacuum systems especially. Figs. 35 and 38 show duct connections to such heaters.

Pipe Coil Connections

Fig. 39 shows practicable piping connections to pipe coils. It is important that the supply valves for all radiators which come below the