

65 F, and in the third row from 65 to 80 F. What is the load in EDR on each supply and return connection?

The pipe sizes would then be based on the length of the run and the pressure drop desired, as in the case of radiators. It generally is considered desirable to place the in-

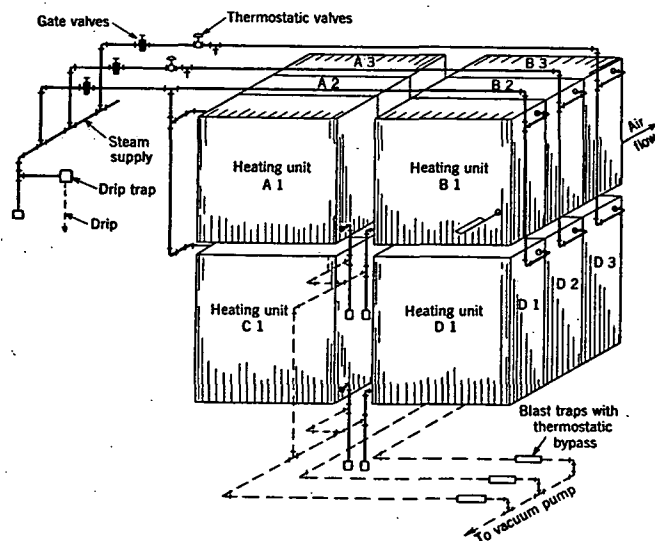


FIG. 26. TYPICAL PIPING FOR ATMOSPHERIC AND VACUUM SYSTEMS WITH THERMOSTATIC CONTROL (CENTRAL FAN SYSTEM)

Solution. For row 1,

$$R = \frac{50,000 \times (40 - 0)}{220.8} = 9058 \text{ sq ft.}$$

For row 2,

$$R = \frac{50,000 \times (65 - 40)}{220.8} = 5661 \text{ sq ft.}$$

For row 3,

$$R = \frac{50,000 \times (80 - 65)}{220.8} = 3397 \text{ sq ft.}$$

Each row of heating units consists of four stacks and each stack has two connections so that the load on each stack and each connection of the stack is as follows:

Row	TOTAL LOAD (EDR)	STACK LOAD ^a (EDR)	CONNECTION LOAD ^b (EDR)
1	9058	2265	2265 or 1132
2	5661	1415	1415 or 708
3	3397	849	849 or 425

^aOne quarter of total row load.

^bOne half of stack load if two steam connections are made; otherwise, same as stack load.

direct heating units on a separate system and not on supply or return lines connected to the general heating system.

DRIPPING

A steam main in any type of steam heating system may be dropped to a lower level without dripping if the pitch is downward, and with the direction of steam flow. Any steam main in any heating system can be elevated if dripped. Fig. 27 shows a connection where the steam main is raised and the drain is to a wet return. If the elevation of the low point is above a dry return it may be drained through a trap to the dry return in two-pipe vapor, return, vacuum return line and sub-atmospheric systems. Hori-

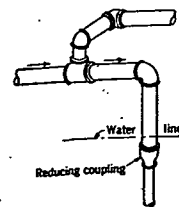


FIG. 27. DRIPPING MAIN WHERE IT RISES TO HIGHER LEVEL

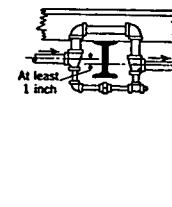


FIG. 28. LOOPING MAIN AROUND BEAM

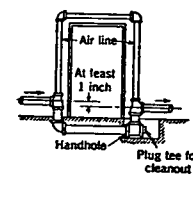


FIG. 29. LOOPING DRY RETURN MAIN AROUND OPENING

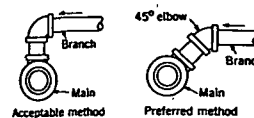
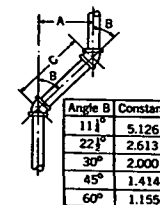


FIG. 30. METHODS OF TAKING BRANCH FROM MAIN



To find length C—multiply A by constant for angle B

FIG. 31. CONSTANTS FOR DETERMINING LENGTH OFFSET PIPE

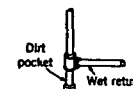


FIG. 32. DIRT POCKET CONNECTION

zontal steam pipes may also be run over obstructions without a change in level if a small pipe is carried below the obstruction to care for the condensation (Fig. 28). Horizontal return pipes may be carried past doorways and other obstructions by using the scheme illustrated in Fig. 29. It will be noted that the large pipe, in this case, runs below the obstruction and the smaller one over it; in vacuum systems it is well to have a gate valve in the air line.

Branches from steam mains in one-pipe gravity steam systems should use the *preferred connection* shown in Fig. 30, but where radiator condensation does not flow back into the main the *acceptable method* shown in the same figure may be used. This acceptable method has the advantage of giving a perfect swing joint when connected to the vertical riser or radiator connection, whereas the preferred connection does not give this swing without distorting the angle of the pipe. Runouts from the steam main