

THE HEATING AND VENTILATING MAGAZINE—1123 BROADWAY, N. Y. CITY

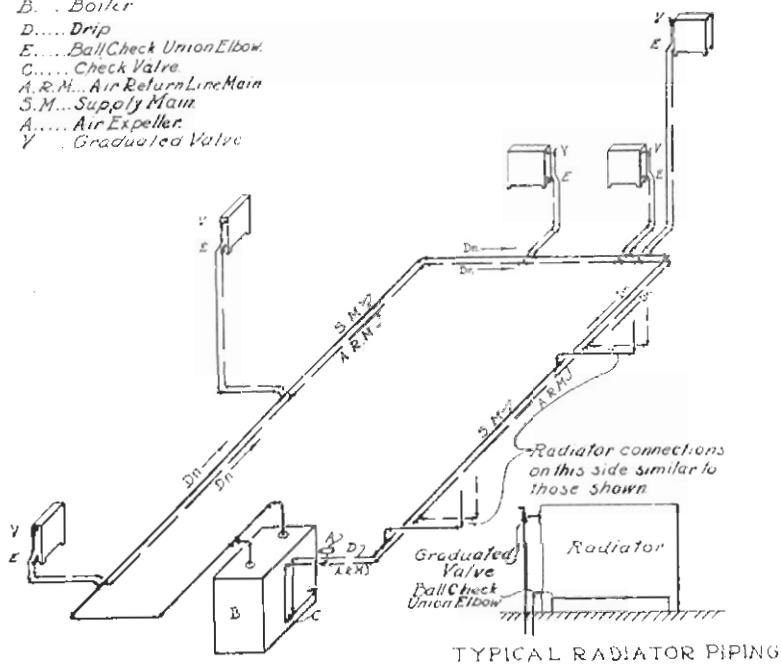
VAPOR HEATING.

The Richardson System.

A characteristic feature of the Richardson System is the use of the Richardson water-seal ball-check union at the return end of each radiator. This device, shown in Fig. 2, takes the place of a vacuum valve at the radiator and serves also as a return elbow.

A typical piping diagram of the Richardson system is shown in Fig. 1. This illustrates a one-circuit arrangement such as the manufacturers suggest for medium sized installations. It should be noted that a separate air return-line circuit is provided for the supply circuit and this holds true for such cases as require three or four supply

- B. Boiler
 D. Drip
 E. Ball Check Union Elbow
 C. Check Valve
 A. R. L. . . . Air Return Line Main
 S. M. Supply Main
 A. Air Expeller
 Y Graduated Valve



~RICHARDSON SYSTEM~

circuits. The manufacturers claim that an air expeller and vacuum valve should be provided for each return line circuit.

The Richardson air expeller and vacuum valve, shown in Fig. 3, is located on the air return-line near the boiler and serves to vent the air from the system, closing when vapor or steam starts to pass through it and remaining closed as long as there is a vacuum in the system. Condensation in the return-line passes through a Richardson horizontal swinging check valve, shown in Fig. 4, into the boiler. This check valve prevents the return of water direct from the boiler into the return-line.

At the supply end of each radiator is placed a Richardson packless, graduated supply valve, as shown in Fig. 5, which is furnished in three sizes.

One feature of the Richardson system which is specially emphasized by its manufacturers, the Richardson & Boynton Company, New York, is that it will operate satisfactorily as either a vapor, a vacuum, or a pressure system. For use with this system they recommend water type radiators, and the same amount of radiation as would be required for a gravity steam system.

(Concluded on Data Sheet No. 132-EE)

VAPOR HEATING.

The Richardson System.

(Concluded from Data Sheet No. 132-DD)

The following tables give the pipe sizes recommended by the manufacturers for use with this system. These tables are based on the assumption that no unusual conditions prevail and that the radiation is sufficient to maintain a temperature of 70° F. Emphasis is laid on the need for maintaining proper grades. All lateral pipes and branches should have a grade of at least 1 in. in 2 ft. and both the supply and the return lines mains should have a grade of 1 in. in 20 ft.

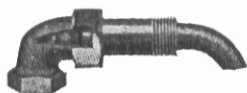


FIG. 2.

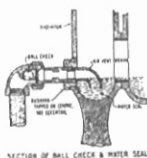


FIG. 3.

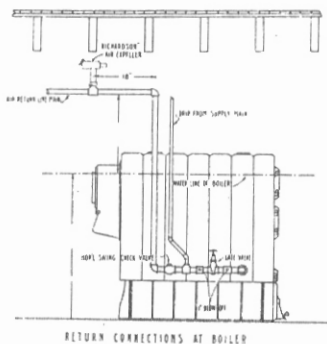


FIG. 4.

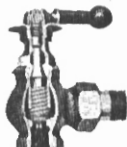


FIG. 5.

Supply mains not exceeding 100 lineal feet in length.

Sq. Ft. Radiation	Pipe Size, In. Diam.
150	1½
400	2
600	2½
1000	3
1400	3½
2000	4

Air Return Line Mains

Sq. Ft. Radiation	Pipe Size, In. Diam.
80	¾
200	1
800	1¼
1500	1½
4000	2

Wet Return Mains

Sq. Ft. Radiation	Pipe Size, In. Diam.
400	1
1000	1¼
1800	1½
5000	2

Risers up to 30 lineal ft. high.

Sq. Ft. Radiation	Sup. Riser In. Diam.	Ret. Riser In. Diam.
20	¾	¾
60	1	¾
100	1¼	¾
180	1½	¾