

it is filling. The air is vented from the system, either through the vent of the trap to the atmosphere, or where this vent is connected back into the returns the air is vented separately from the trap vent through a thermostatic air trap.

Fig. 11 shows an alternating receiver properly connected for returning the condensate from a low-pressure heating system to the boiler. The trap vent in this case is connected back into the returns with a thermostatic air trap for relieving the air. In this arrangement a check valve on the air vent prevents the return of air to the system during periods when the pressure in the system is below atmospheric pressure. With this arrangement or with some other special types of non-return air venting apparatus the system may be operated over long periods below atmospheric pressure, thus retaining heat over night or during warm weather with a low fire and nothing more than a vapor in the system. The pressure must eventually be raised above atmosphere, however, at certain times to drive out the air, which eventually leaks into even the tightest system, while operating below atmospheric pressure.

CHAPTER XIX

LAUNDRY, KITCHEN AND HOSPITAL EQUIPMENT AND PIPING SYSTEMS

Types, Kinds and Sizes of Apparatus Required, Steam and Hot Water Requirements; Electric Requirements, Layouts, Installation Data.

THE requirements of laundry, kitchen and hospital equipment vary over wide limits, because, *first*—there are so many different classes of laundries, kitchens and hospitals, *second*—the operating technique varies so much. The data and methods herein given are for average operating conditions, but unusual requirements should be given special consideration.

Piping systems for laundry, kitchen and hospital equipment, generally, should have separate flow and return lines either above or below the equipment but it is better to have the return lines below.

Traps (preferably high-pressure thermostatic) are placed on each coil or unit, and the condensation is trapped into a return main which is itself vented, and leads by gravity to a vented receiving tank or feed water heater.

The vertical pipe in connections, especially the drop lines from overhead mains may be dripped through separate traps, although these may well be omitted as the fixture coils and traps will care for a limited amount of condensation when the fixture valves are opened up, without damage.

The steam mains should be dripped and drained in about the same manner that would be required in steam piping for any other purpose.

LAUNDRY EQUIPMENT

It is not the purpose to include custom laundries here but rather flat work laundries for hospitals, institutions, hotels, etc.

There is a wide variety of special machines, used mostly in custom or general laundries, that will not be mentioned herein. Some of these machines are occasionally used in flat work laundries where a limited amount of other classes of work is to be done but usually they occupy little floor space, use small amounts of steam, water and electricity and when their need is felt they can be added without materially effecting the layout of the other and larger machines which require much floor space and use considerable quantities of steam, water and electricity.

These larger machines are washing machines, extractors, tumbler dryers, flat work ironers and similar units.

The material for this Chapter was prepared especially for THE GUIDE by a committee consisting of H. C. Russell, chairman; E. E. Ashley, R. C. Taggart and W. B. Underwood.