

19. Make all valves and controls convenient and accessible, either direct or through remote control. It is only human nature to delay and avoid doing that which is inconvenient.

20. Keep a daily record consistently, based on weather requirements, and watch it every day.

21. Control the heat supplied to water tanks located on or above the roof. Such tanks require heat to prevent freezing. No heat is required when the temperature in the tank is above 32 F.

22. Investigate every complaint of *no heat* by tenants; find the cause and correct it. Do not overheat an entire building to correct a local condition in one room.

AUTOMATIC TEMPERATURE CONTROL

As stated in Chapter 37, automatic control properly applied to heating, ventilating and air conditioning systems makes possible the maintenance of desired conditions with maximum operating economy.

In addition to the large possibilities for economy, the use of adequate temperature control provides more healthful, comfortable, and efficient working conditions in the buildings because through its use the building is uniformly heated with correct temperatures and drafts from open windows and over-heating are eliminated.

There are many types of temperature control available, each adaptable to a particular type of building, but all require uniform distribution of steam and proper venting.

Before the installation of any type of modern temperature control equipment, it is necessary to see that the heating system is put in good operating condition. In general, the heating system in a building is not given the attention that other mechanical equipment is given because it will continue to function, after a fashion, even though changes in piping, location of radiation, settlement of piping, and the normal wear and tear or other changes have taken place. Through all this depreciation of the system, it becomes more and more costly to operate and parts of the building have to be greatly overheated in order to prevent underheating in a small section of the building. Vents, traps, vacuum pumps, and valves should be given a careful inspection and replaced or repaired if required. The piping should be of adequate size and graded properly. The return piping should have a careful inspection, and any pockets or lifts removed and properly vented. These inspections and repairs are not costly and prevent a much greater outlay in future years. In most cities district heating companies will be willing to make a survey of heating systems and offer recommendations as to operation and changes in piping layout.

The selection of control equipment depends upon the type and size of building and the degree of saving possible.

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PROBLEMS IN PRACTICE

1 ● a. What are the advantages and disadvantages of a low pressure distribution system?

b. High pressure?

a. The advantages of a low pressure distribution system include: (1) smaller heat loss from the pipes, (2) less trouble with traps and valves, (3) simpler problems with pressure reducing equipment at the buildings, and (4) no danger to building heating equipment from high pressure through failure of the reducing valves.

The disadvantages of a low pressure system are: (1) larger pipe sizes, and (2) decreased field of usefulness owing to small pressure range.

b. The advantages of a high pressure system are: (1) smaller pipe sizes, and (2) greater adaptability of the steam to various uses other than building heating.

The disadvantages of a high pressure system are: (1) large heat loss from the pipes, (2) the high pressure traps and valves required often give more trouble than low pressure traps and valves do, (3) extra heavy fittings are required, and (4) usually two reducing valves or some form of emergency relief is necessary to protect the building piping system.

2 ● What points should be borne in mind when laying out an underground steam conduit?

The conduit should be reasonably water-proof, able to withstand earth loads and to take care of the expansion and contraction of the piping without strain or stress on the couplings, or without affecting the insulation or the conduit. Expansion of the piping must be carefully controlled by means of anchors and expansion joints or bends so that the pipes can never come in contact with the conduit.

3 ● What is considered the proper pressure for a hydrostatic test before completing the conduit?

In the case of any underground piping which is to be buried or otherwise made inaccessible, the assembled lines shall first be tested hydrostatically at a pressure of one and one-half times the maximum allowable service pressure and held for a period of at least two hours without evidence of leakage. In any case the hydrostatic pressure should not be less than 100 lb per square inch.

4 ● What are the common methods for salvaging heat in condensate?

The most common methods are: (1) the use of a water heating economizer for pre-heating the hot water supply to the building, and (2) the use of a cooling radiator.