

perature of the air introduced to the ventilated spaces will fall. As the falling temperature reaches the temperature for which the multiple point thermostat is set, this thermostat will then begin to function and permit steam to enter the heaters so that the temperature of the air introduced will be prevented from continuing to fall below the minimum desirable point. The fan discharge thermostat, therefore, functions as a minimum temperature control and prevents the introduction of air at temperatures which would produce drafts and faulty distribution. Very accurate control of room temperatures is accomplished by this arrangement, since the direct radiation serves as a heating effect and the air introduced several degrees below room temperature furnishes the necessary cooling effect to prevent overheating.

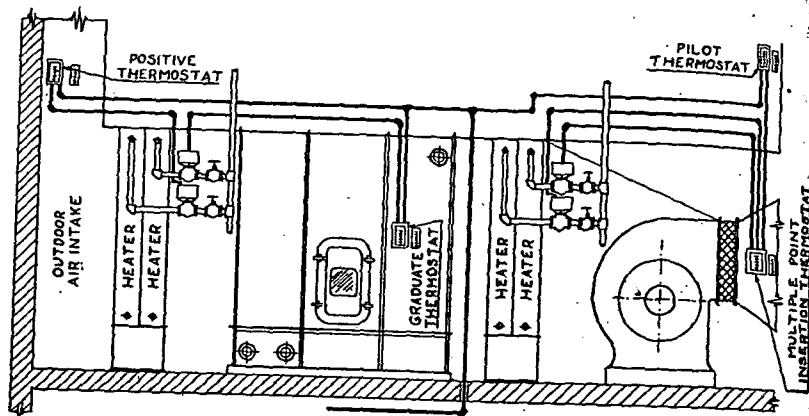


FIG. 11. USE OF PILOT THERMOSTAT WITH VENTILATING SYSTEM

Two-Temperature Control

This is used when it is desired to control at two distinct temperatures by means of a single instrument. For example, a temperature of approximately 70 F may be desired during the day, while some lower temperature is satisfactory during the night. Shifting from the high to the low temperature may be accomplished either at the thermostat or at some remote point by means of a switch.

Weather-Compensating Control

Weather-compensating thermostats have been developed for controlling the temperature of the heating medium with respect to the outdoor temperature. This type of control makes use of two liquid-filled bulbs connected by means of capillary tubing to a common Bourdon tube which operates a mercury tube switch. This switch opens and closes an electric circuit, which in turn operates a motorized valve. One bulb is placed outdoors and the other is attached to a riser near the boiler. Expansion of the liquid in the bulb in contact with the riser moves the Bourdon tube to its off position and the outdoor temperature then determines the

ultimate position of the valve under control. In hot water heating systems, for example, the water temperature may be maintained in proportion to the outdoor temperature. This type of control may be applied to hot water and steam heating systems, and to gas burners, oil burners, coal stokers or to district steam systems.

Switch Control

Remote control of steam valves has been found to assist in efficient operation of the heating plant. Centrally-located, manually-operated switches are used in this connection to operate valves in steam risers or in steam lines feeding certain sections of the building. Outdoor air, vent

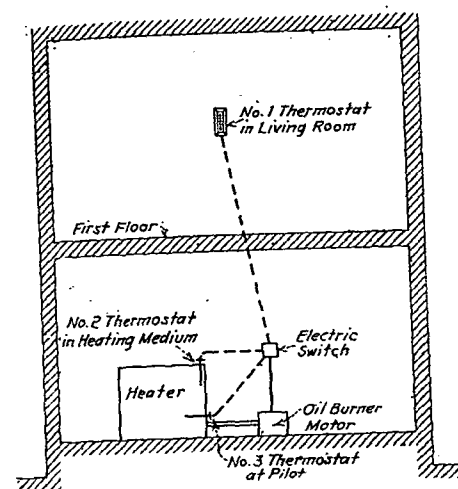


FIG. 12. ELECTRIC THERMOSTAT APPLIED TO OIL BURNER FOR HEATING SYSTEM

and recirculating dampers in connection with ventilating systems may to advantage be conveniently operated from some central point.

RESIDENCES

In residence heating, the thermostats should be located in representative or key places; never, of course, on an outside wall or near a window, nor too close to radiators or in a drafty hallway. They should be located on a wall of the room which has the greatest number of hours of occupation, preferably the living room.

Fig. 12 illustrates a hot water heating system with thermostatic control. Thermostat No. 1 asks for heat and gets it unless thermostat No. 2 claiming the heating medium is already too hot, prevents it. Thermostat No. 3 will shut down everything regardless of No. 1 and No. 2, if once having been warm it gets cold, indicating that the pilot flame is out; or if following operation of the burner it does not get warm promptly, indicating that ignition has failed.

Fig. 13 illustrates a steam or vapor plant performing the dual service. Either the room thermostat or the tank thermostat may cause the open-