

been developed systems which differ in their construction and arrangement of piping, pumping and tank equipment. One of the most widely used oil systems at the present time is the continuous circulation system. In this system, the oil is pumped from the tank by the oil pump and is delivered to the burner supply line; any excess oil is by-passed through a regulating valve back to the tank or to the suction side of the oil pump. In this way the proper atomizing temperature of the oil is maintained and choking or accumulation of sediment in the supply line is avoided. In the layout of the piping for pre-heated oils it is important to keep the oil supply pipe below the level of the burner and without traps to prevent the formation of vapor pockets which are liable to shut off the fuel supply or cause irregular operation.

CHAPTER XIV

HEATING WITH GAS

Data on Gas Fired Boilers and Furnaces, Space Heaters, Combustion and Heat Values, Installation Data, Costs to Operate, Conversions.

USING gas for building heating purposes does not bring in any new heating problems. The only problem peculiar to the use of gas for this purpose is one of fuel utilization. Gas is a fuel with a high form value, easy to handle and control. This ease of control makes possible extreme economy, and gas-burning appliances should, therefore, be designed and selected so as to take full advantage of this potential economy.

Determination on the part of gas companies that building heating is a desirable load to have on their lines has led to an increasing number of such corporations granting materially reduced rates for gas used for heating purposes. These communities in which reduced rates for heating purposes have been granted are of a widely diversified character as to size, climate, geographical situation and industries. In natural gas territory, the rates, while showing a tendency to increase, are still such that gas is a cheap fuel for any purpose. The most marked effect of more costly natural gas has been the increasing demand for efficient gas-burning appliances.

The average user of gas for heating is in the very enjoyable situation of having the corporation from which he purchases his fuel display a continued interest in the up-keep and efficient operation of the fuel-burning appliance. A large proportion of the gas-burning heating appliances that are installed are distributed through gas companies. The gas company then stands ready to see that the purchaser of the appliance enjoys uninterrupted and efficient service from it. A notable development of comparatively recent date is the offering of gas-burning boilers designed with the object of meeting the requirements peculiar to large scale heating. Compact and automatic in operation, these large unit boilers are appropriate to the heating requirements of commercial, industrial and institutional buildings.

ORIGINAL INSTALLATIONS COMPARED WITH CONVERSIONS (FOR CENTRAL HEATING PLANTS)

During the period when gas heating was limited to those localities where a cheap supply of natural gas was available, practically all installations were *conversions*; that is, appliances designed for coal, with gas

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