

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 bypassed 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, so as to prevent the formation of vapor pockets which are liable to shut off the fuel supply or cause irregular operation.

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CHAPTER 13

HEATING BY ELECTRICITY

Desirable Features; Cost Comparisons; Off-Peak Systems of Heating; Domestic Hot Water Heaters.

THE use of electricity for both domestic and industrial heating is increasing and the desirable features of this type of heating are as follows:

1. Minute and exacting regulation of temperatures.
2. Extreme simplicity and automatism of operation with minimum maintenance.
3. Freedom from the dangers attending the presence of a flame.
4. Freedom from handling and disposition of resulting products of combustion.
5. Reliability of source of supply.
6. Maximum efficiency of conversion of the fuel into usefulness.
7. Cleanliness.

These features embrace all the requirements of an ideal heating agent, except one: low cost. Where electrical energy is sufficiently low priced, it is being used for heating buildings.

Heaters of both radiant and convection types are available. The resistors of these heaters are made usually of nickel-chromium wire or ribbon. Radiant type heaters are seldom employed in house heating, except for booster-heaters or emergency heaters in small rooms which are isolated.

HEATING COSTS WITH ELECTRICITY

The major recent development in the domestic field of electrical heating has been the educational effort to demonstrate to the electric light and power companies and to the consumers, the availability of comparatively low cost electricity, if taken at certain hours, when the cost can be made low, namely, the off-peak hours during which the stations and a considerable part of the lines are not worked to full capacity.

Cost comparisons between various fuels and electricity for house heating should be made on a heat unit basis, giving due consideration in each case to efficiency. The cost of heat per 1,000,000 B.t.u. for any rate per kilowatt-hour for electricity may be determined from Fig. 1. A comparison between the cost of heating with electricity and the cost of heating with other fuels may be made by referring to similar charts in the chapters on Heating by Coal, Heating by Oil and Heating by Gas.

The importance of insulation and weatherstripping for electrically heated houses cannot be over-emphasized. The remarks on page 224, Chapter 11, on this subject, apply to even a greater degree here.

The more costly the fuel, the greater the need for insulation, weather-