

tests are conducted at the *A.G.A. Testing Laboratories*. Output rating is determined from the approved input and an average efficiency stated in the Approval Requirements and represents the heat available at the outlet of the appliance.

Sizing Gas-Fired Heating Plants

Although gas-burning equipment usually is completely automatic, maintaining the temperature of rooms at a predetermined figure, there

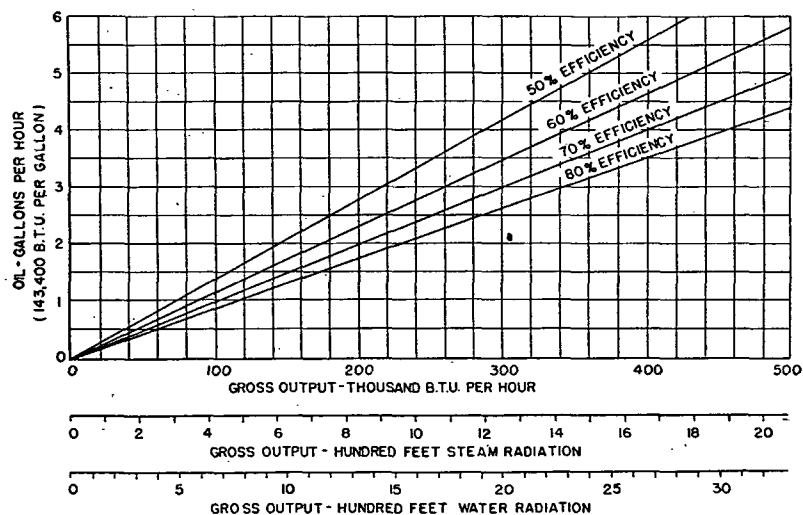


FIG. 19. OIL FUEL BURNING RATE CHART^a

^aThis chart is based upon No. 3 oil having a heat content of 143,400 Btu per gallon. If other grades of oil are used multiply the value obtained from this chart by the following factors: No. 1 oil (139,000 Btu per gallon) 1.032; No. 2 oil (141,000 Btu per gallon) 1.017; No. 4 oil (144,500 Btu per gallon) 0.992; No. 5 oil (146,000 Btu per gallon) 0.982; and No. 6 oil (150,000 Btu per gallon) 0.956.

are some manually controlled installations. In order to effectively overcome the starting load and losses in piping, a manually-controlled gas boiler should have an output as much as 100 per cent greater than the equivalent standard radiation which it is expected to serve.

Boilers under thermostatic control, however, are not subject to such severe pick-up loads and consequently, it is possible to use a lower selection factor. For a gas-fired boiler or furnace under thermostatic control a factor of 20 per cent is usually sufficient for pick-up allowance.

The factor to be allowed for loss of heat from piping, will vary somewhat, the proportionate amount of piping installed being greater for small installations than for large ones. Selection factors to be added to the installed radiation under thermostatic control are discussed in Chapter 12, page 246.

Appliances used for heating with gas should bear the approval seal of the *A.G.A. Testing Laboratories*. Installations should be made in accordance with recommendations shown in the publications of that association.

Controls

Temperature controls for gas burners are described in Chapter 34. Some central heating plants are equipped with push-button or other manual control. The main gas valve may be of either the snap action or throttling type.

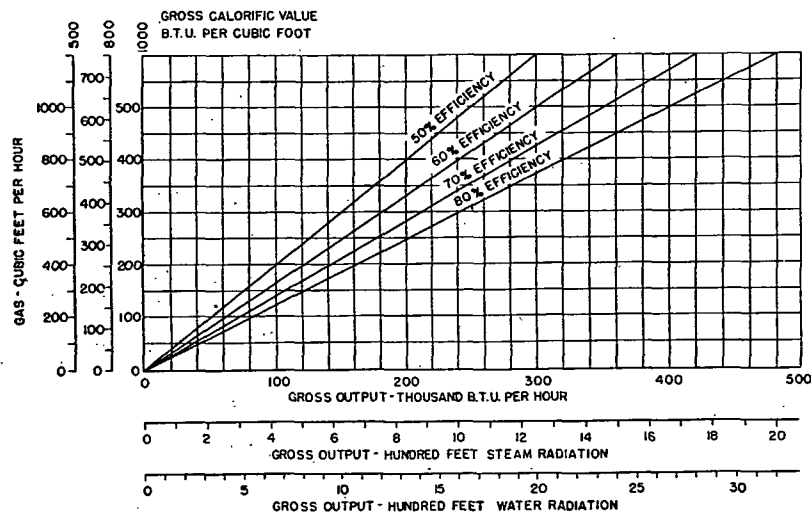


FIG. 20. GAS FUEL BURNING RATE CHART

FUEL BURNING RATES

The burning rate for automatic fuel burning devices is determined by the gross heat output required of the boiler, or furnace, to carry the net heating load plus allowances for system losses, and pick-up. General values for these allowances previously have been noted. Detailed information for piping and pick-up allowances for steam, and hot water systems is given in Chapter 12. Similar data for warm air systems are given in Chapters 19 and 20.

When the gross output, operating efficiency, and heat value of the fuel are known, the required rate of burning can be determined. Figs. 18, 19 and 20 afford a convenient method for finding rates of burning for the several fuels.

For a given efficiency, the rate of fuel burning is directly proportional to the load and therefore these charts can be extended by moving the decimal points the same number of digits in both vertical and horizontal scales.