

Where round domestic boilers are contemplated, those with a maximum number of horizontal water sections above the fire-box are to be preferred.

In selecting burner sizes the total load imposed upon the boiler and thence upon the burner should be carefully determined. This load should be determined in accordance with the method for determining the load on any boiler as outlined in preceding chapters.

The same allowance for hot water heaters should be made as for ordinary boiler practice and the same precaution should be followed in insulating the boiler and piping.

Draft is a matter of importance, since the quantity of air introduced by the very essential motor driven burner fan, must have adequate opportunity to pass freely into the stack. The standard practice of assigning an individual flue to the heating boiler should be strictly adhered to.

Oil burners with their frequent periods of idleness, and the consequent elimination of needless fuel consumption, do not always impart sufficient heat to ordinary water coils in the fire-pot of heating boilers.

Where vapor or steam is used, any of the boiler water-heating units that connect into the boiler below the water-line, thus heating the storage tank, should be used. In hot water heating plants, larger coils are necessary.

In studying the burner equipment itself, attention should be given to the stability of the burner manufacturer and that of his local distributor. The reputation of the burner in past performance is of equal importance. The simplicity and quality of the mechanical construction should be studied and the element of noise, must be given attention.

A burner listed as standard by the Underwriters' Laboratories, may be considered as having been built-up standards.

CHAPTER XI

GAS HEATING

GAS heating appliances may be divided into two general classes, namely those which discharge their products of combustion indoors and those which discharge their products of combustion outdoors, as follows:

1. Products of Combustion Discharged Indoors

- a. Space Heaters { (1) Luminous Flame { (a) Radiant Type
(2) Bunsen Flame { (b) Convection Type

2. Products of Combustion Discharged Outdoors

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|-------------------|---------------|-----------------------|---------------------|---------------------------------|
| a. Localized..... | { | (1) Fireplace Heaters | { | (a) Gas Logs |
| | | | (b) Radiant Heaters | |
| b. Central Plants | { | (2) Vented | { | (a) Gas Fired Steam Radiators |
| | | | { | (b) Gas Fired Hot-Air Radiators |
| | { | (1) Hot Air | { | (a) Radiators |
| | | | { | (b) Furnaces |
| { | (2) Radiation | { | (a) Hot Water | |
| | | { | (b) Vapor | |
| | | { | (c) Steam | |

Unvented appliances are appropriate only in a limited way. The same is true of vented appliances for localized heating.

Of central heating plants, the choice between the various systems is governed by the same considerations that affect the selection of coal burning apparatus.

EFFICIENCY

The *gross* heating value of a gas is usually referred to in codes of regulatory bodies; most gas men also refer to the *gross* value when designating the heating power of their fuel. It is the basis upon which gas fuel is sold. Yet, some manufacturers of appliances, in rating their product, have taken as a basis the lower *net* heating value. The distinction should be thoroughly understood when comparisons are made.

For example for an hypothetical gas, having a *gross* heating value of 550 B.t.u. per cu. ft., and a *net* heating value of 500 B.t.u. per cu. ft., and

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