TABLE 4. CAST-IRON WALL RADIATORS

APPROXIMATE DIMENSIONS—INCHES			HEAT OUTPUT[a]	
Height	Length or Width	Thickness	Sq Ft	Btu/hr
13¼	16½	3	6½	1560
13¼	22	3	8	1920
22	13¼	3	8	1920
13¼	29	3	11	2640
29	13¼	3	11	2640

[a] These ratings are based on steam at 215 F and air at 70 F. They apply only to installed radiators exposed in a normal manner, not to radiators installed behind enclosures, grilles, or under shelves. For Btu per hour ratings at other temperatures divide table values by factors found in Table 7.

CONVECTORS

Convectors are made in a wide variety of depths, sizes, lengths and enclosure or cabinet types. The basic sizes and types are listed in Simplified Practice Recommendation 238-50, Convectors. The heating elements are available in fabricated ferrous and non-ferrous metals as well as cast iron. The air enters the enclosure below the heating element, is heated in passing through the element, and leaves the enclosure through the outlet grille located above the heating element. Factory-assembled units comprised of a heating element and enclosure are widely used. These may be free standing, wall hung, or recessed, (Fig. 1) and may have outlet grilles and arched inlets or inlet grilles as desired.

In cases where cabinets or enclosures are to be used but are not furnished by the manufacturer, it is important that the proportions of the cabinets or enclosures and the grilles be so designed that they will not impair the performance of the assembled convector. It is desirable that the cabinet or enclosure for the convector fit as snugly as possible so that the air passing through cannot by-pass the heating element.

BASEBOARD UNITS

Baseboard heat-distributing units are divided into three types: (1) radiant, (2) radiant-convector and (3) finned-tube.[1]

Radiant-type baseboard is made of cast iron or steel. This type of unit emits a large portion of its heat output by radiation. These units are sometimes suspended from the ceiling in rooms having little or no available wall space for floor mounted units. As the convected heat obtained from these units when mounted at the ceiling is less than when they are

TABLE 5. HEAT EMISSION OF PIPE COILS PLACED VERTICALLY ON A WALL (PIPES HORIZONTAL) CONTAINING STEAM AT 215 F AND SURROUNDED WITH AIR AT 70 F

Btu per linear foot of coil per hour (not linear feet of pipe)

SIZE OF PIPE	1 IN.	1¼ IN.	1½ IN.
Single row	132	162	185
Two	252	312	348
Four	440	545	616
Six	567	702	793
Eight	651	796	907
Ten	732	907	1020
Twelve	812	1005	1135

mounted at floor level additional length must be added as recommended by the manufacturer to allow for the reduction.

Radiant-convector type baseboard also is made of cast iron or steel. These units are provided with air openings at the top and bottom to permit circulation of room air over the wall side of the unit. The wall side of the unit has extended surface to provide increased heat output. A large portion of the heat emitted from these units is transferred by convection. This type of baseboard having a greater output per linear foot than the radiant type is particularly adaptable where wall space is at a premium or the heat loss of the room is high.

Finned-tube type of baseboard has a finned-tube heating element which is concealed by a long low sheet-metal enclosure or cover. A major portion of the heat is transferred to the room by convection. The output of this type of baseboard varies over a wide range depending on the physical

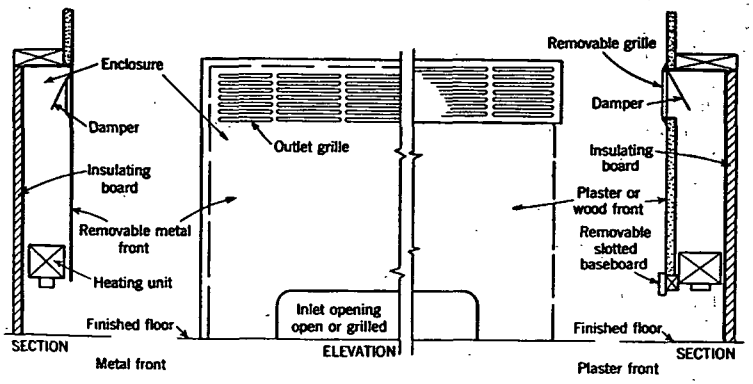

FIG. 1. TYPICAL RECESSED CONVECTOR

dimensions and the materials used. When selecting this type of baseboard the designer should avoid using a unit with too high an output per linear foot. Baseboard performs best when units are so selected that they are installed along as much of the exposed wall as possible.

The basic advantage of the baseboard heat-distributing unit is that its normal placement is along the cold walls and under areas where the greatest heat loss occurs. Other advantages claimed for the baseboard heat-distributing unit are: it is inconspicuous; it offers a minimum of interference with furniture placement, and, it distributes the heat near the floor. This last characteristic reduces the floor-to-ceiling temperature gradient to about 2 to 4 F deg, and tends to produce uniform temperatures throughout the room. It also makes baseboard heat-distributing units adaptable to basementless homes, where cold floors are prevalent.[2]

Heat loss calculations for baseboard heating systems are the same as those used for other types of heat-distributing units. The procedure for designing baseboard heating systems is given in I=B=R Installation Guide No. 5.[1] Ratings for baseboard heat-distributing units are expressed in Btuh per linear foot.

FINNED-TUBE UNITS

A finned-tube heat-distributing unit is a room-air heater composed of a finned-tube element fabricated from metallic tube to which metallic fins