

TABLE 4. HEAT EMISSION OF DIRECT PIPE COIL CONDUCTOR FOR STEAM

Steam Temperature 215 deg. fahr. Room Temperature 70 deg. fahr.

WALL COILS—COILS PLACED VERTICAL—PIPES HORIZONTAL
B.t.u. per Lineal Feet of Coil per Hour (Not Lineal Feet of Pipe)

SIZE OF PIPE COIL CONDUCTOR	1"	1¼"	1½"
Single Row.....	132	155	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

WALL COILS—COILS PLACED VERTICAL—PIPES VERTICAL

Emission varies in inverse ratio of the height of the coil

Use 100 B.t.u. per lineal feet of pipe as an average for 1¼ in. coil, 10 ft. high.

CEILING COILS—COILS PLACED HORIZONTALLY—PIPES HORIZONTAL

Emission is equal to that of a single row coil

Allowance must be made, however, if the coil is at the ceiling in a higher temperature. In this case use:

126 B.t.u. per lineal feet of pipe for 1 in. coils.
 146 B.t.u. per lineal feet of pipe for 1¼ in. coils.
 175 B.t.u. per lineal feet of pipe for 1½ in. coils.

TABLE 5. CUBIC FEET OF AIR PER HOUR PER SQUARE FOOT OF HEATING SURFACE FOR CAST IRON GRAVITY INDIRECT CONVECTORS

Indirect heaters supplying 1st floor registers.....	150 cu. ft. per hour
Indirect heaters supplying registers 7 ft. above first floor.....	200 cu. ft. per hour
Indirect heaters supplying 2nd floor registers.....	300 cu. ft. per hour
Indirect heaters supplying 3rd floor registers.....	350 cu. ft. per hour

TABLE 6. FINAL TEMPERATURE OF AIR LEAVING ¾ IN. PIN, CAST-IRON, GRAVITY INDIRECT CONVECTORS

TEMPERATURE ENTERING AIR DEG. FAHR.	CUBIC FEET OF AIR (AT 70 DEG.) PER HOUR PER SQUARE FOOT RADIATION													
	50	75	100	125	150	175	200	225	250	275	300	325	350	
-10	132	130	128	126	123	121	119	116	113	111	108	105	103	
0	136	134	132	130	127	125	123	120	117	115	112	109	107	
10	140	138	136	134	131	129	127	124	121	119	116	113	111	
20	144	142	140	138	135	133	131	128	125	123	120	117	115	
30	148	146	144	142	139	137	135	132	129	127	124	121	119	
40	152	150	148	146	143	141	139	136	133	131	128	125	123	
50	156	154	152	150	147	145	143	140	137	135	132	129	127	
60	160	158	156	154	151	149	147	144	141	139	136	133	131	
1st Floor → 2nd Floor → 3rd Floor →														

Note.—Temperature of air entering room shall be assumed lower than temperature of air leaving convactor as follows: 1st Floor, 5 deg. lower; 2nd Floor, 8 deg. lower; 3rd Floor, 10 deg. lower.

Table 7 illustrates the difficulty in tabulating any definite conductor outputs, since there is so much variation between the product of the different manufacturers. Only on the four-tube and six-tube sizes is there practical agreement in output value.

Pin-Type Conductors

Table 6 is for ¾ in. pin-type convactor using steam at 1 lb. pressure. For 1 in. pin-type the temperature rise of the air is about 95 per cent of the corresponding rise for ¾ in. pin-type, and for hot water at 170 deg. fahr. the temperature rise of the air ranges from 80 to 85 per cent of the corresponding temperature rises, with steam at 1 lb. pressure.

LOCATION OF HEATERS

It should be made a rule to install heaters beneath or near the space of greatest heat loss. The best place is underneath an outside window.

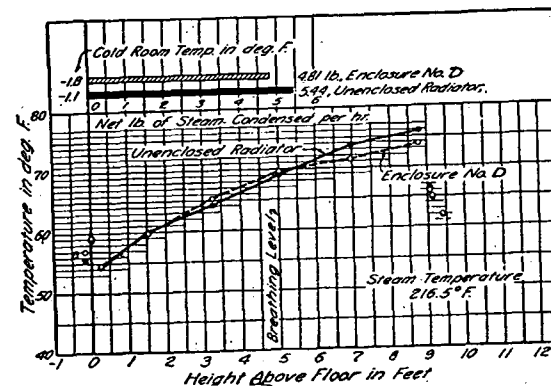


FIG. 5. ROOM TEMPERATURE GRADIENT AND STEAM CONDENSING RATE FOR RADIATOR WITH SHIELD

This seems logical for the following reasons:

1. Heat emitted by radiation from the heater will counteract the effect of heat radiated out through the window from occupants in the room.
2. Cold air leaking in through the window is warmed before it reaches the interior of the room.
3. Air currents from the heaters pass upward, mingling with the cold-infiltrating air, and form a screen of warm air protecting against cold window drafts.
4. There is less discoloration of walls from dust arising from the heater. If the heater cannot be placed underneath the window, then it should be located as near the window as possible, near outside doors, underneath skylights, near to very exposed walls or corners, etc.

SELECTION OF HEATERS

In selecting the proper heater for heating a given room or space, the following procedure should be followed:

1. Estimate the total loss from the room or space to be heated in accordance with Chapter 2, making proper allowance for exposure, wind velocity, height of ceiling, etc.