

TABLE 1. HEAT EMITTED BY DIRECT CAST IRON HEATERS—CONVERSION FACTORS

STEAM PRESSURE		TEMP. OF STEAM IN DEG. FAHR.	TEMPERATURE OF ROOM					
Vacuum In. Hg.	Lb. Absolute		80 deg. fahr.	75 deg. fahr.	70 deg. fahr.	65 deg. fahr.	60 deg. fahr.	50 deg. fahr.
23.4	3.71	150	0.388	0.424	0.462	0.499	0.538	0.617
19.7	4.75	160	0.462	0.499	0.538	0.577	0.617	0.697
15.3	5.99	170	0.538	0.577	0.617	0.657	0.697	0.782
12.3	7.51	180	0.617	0.657	0.697	0.740	0.782	0.868
8.7	9.33	190	0.697	0.740	0.782	0.825	0.868	0.955
6.5	11.52	200	0.782	0.825	0.868	0.911	0.955	1.045
Lb. GAGE								
1	15.7	215	0.911	0.955	1.000	1.045	1.091	1.183
2	16.8	219	0.947	0.991	1.036	1.081	1.128	1.220
3	17.8	222	0.973	1.018	1.063	1.109	1.155	1.249
4	18.9	225	1.000	1.045	1.091	1.137	1.183	1.277
5	19.6	227	1.018	1.063	1.109	1.155	1.202	1.296
6	20.8	230	1.045	1.091	1.137	1.183	1.230	1.325
8	22.8	235	1.091	1.137	1.183	1.230	1.277	1.373
10	24.9	240	1.137	1.183	1.230	1.277	1.325	1.421

These conversion factors multiplied by the heat emitted by a conductor operating at 215 deg. fahr. in a room at 70 deg. fahr., give the heat emitted by a conductor operating under the indicated conditions.

tipling its standard heat emission by the proper factor taken from Table 1. In estimating the size of heater required for a room under other than standard conditions divide the estimated heat loss from the room by the factor for the prevailing conditions as given in Table 1, and choose a heater which will supply this corrected heat loss when operating under standard conditions. Thus, if a room whose heat loss with 60 deg. air is 7,200 B.t.u. per hour, is to be heated to 60 deg. with steam at 200 deg., divide 7,200 by 0.955 giving 7,539, and pick a heater which will give

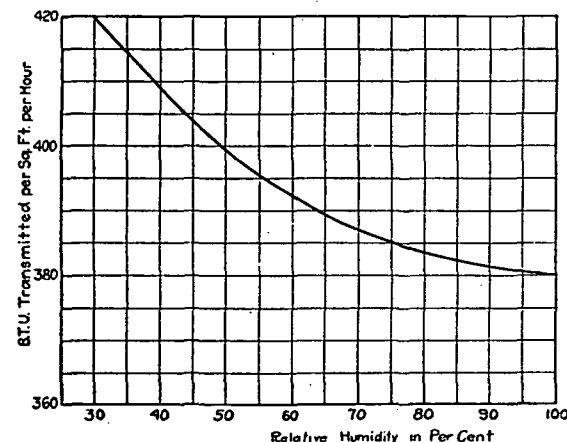


FIG. 1. EFFECT OF HUMIDITY ON HEAT TRANSMISSION

7,539 B.t.u. per hour when supplied with 215 deg. steam in a 70 deg. room.

Effect of Humidity

Fig. 1 shows the effect of increasing the humidity upon the heat transmission. It will be noted that with extreme change of humidity there is a slight change in the heat transmission.

Heating the Conductor

It is often very important to know the maximum condensation that occurs in a heater when steam is turned on. Fig. 2 shows the condensation rate in pounds per hour for the time elapsing after steam is turned into a column conductor. In practice the rate of steam supply to the conductor while heating up is, however, frequently retarded by controlled elimination of air through air valves or traps, and if sufficient time is allowed for the heating-up process, overload on the boiler may practically be eliminated.

Effect of Paint

Painting a conductor changes the emissivity constant of the radiating surface, but has practically no effect upon the heat lost by convection. It is, therefore, a surface effect and it makes no appreciable difference