TABLE 28. RATE OF HEAT GAIN FROM APPLIANCES WITHOUT HOODS[a,b] (CONCLUDED)

Appliance	Capacity	Over-all Dimensions (Less Legs and Handles; Last Dimension is Height) Inches	Control A—Automatic M—Manual	Miscellaneous Data	Manufacturer's Rating Watts	Btu/Hr	Maintaining Rate Btu per Hour	Recommended Rate of Heat Gain Btu per Hour		
								Sensible	Latent	Total
Miscellaneous Electrical Appliances										
Hair Dryer, Blower Type			M	Fan, 165 w; Low, 915 w; High, 1580 w	1580	5400		2300	400	2700
Hair Dryer, Helmet Type			M	Fan, 80 w; Low, 300 w; High, 710 w	705	2400		1870	330	2200
Permanent Wave Machine			M	60 heaters at 25 w each, 38 in normal use	1500	5000		850	150	1000
Neon Sign, per linear ft of tube				½ in. outside diam. ⅝ in. outside diam.				30 50		30 50
Steriliser, Instrument			A	For physicians; thermostat cuts off 550 w before boiling	1100	3750		650	1200	1850
Miscellaneous Gas-Burning Appliances										
Burners, Laboratory										
Small Bunsen		⅛ in. Barrel	M	Manufactured Gas		1800		960	240	1200
Small Bunsen		⅛ in. Barrel	M	Natural Gas		3000		1680	420	2100
Fishtail		⅛ in. Barrel	M	Manufactured Gas		3500		1960	490	2450
Fishtail		⅛ in. Barrel	M	Natural Gas		5500		3080	770	3850
Large Bunsen		1½ in. Mouth	M	Adjustable orifice		6000		3350	850	4200
Cigar Lighter			M	Continuous Flame		2500		900	100	1000
Hair Dryer, 5 helmets			A	Heater and fan blowing air to helmets		33000		15000	4000	19000
Stoves, Oven				Insulated, modern		25000	6000	7200	1800	9000
				Not insulated		25000	8500	9200	2300	11500

[a] For restaurant appliances, miscellaneous electrical and miscellaneous gas burning appliances.
[b] When these appliances are hooded and provided with adequate exhaust, use 60 percent of recommended rate of heat gain from unhooded appliances.

than any other latent-heat load. The equation for computing this load is:

$$\left(\frac{q_m}{A}\right) = \frac{M}{7000} \times \begin{pmatrix}\text{Vapor Pressure}\\ \text{Difference, In. Hg}\end{pmatrix} \times 1076, \text{ Btu per (hr) (sq ft)} \qquad (17)$$

where

M = permeance of the specimen in perms, or grains per (square foot) (hour) (inch of mercury vapor pressure difference).

7000 = grains per pound.

The factor 1076 is defined in list of symbols at Equation 9. (Sensible cooling of the water vapor is included in the factor 1076.)

The only means of preventing moisture transfer is to use a vapor proof wall, or to apply a special lining, which is vapor proof. All openings in moisture proof construction must be equipped with special gaskets to prevent entrance of moisture.

When moisture transfer contributes an appreciable part of the latent-heat load, it is recommended that estimates should be made intentionally liberal in order to avoid later difficulties with insufficient dehumidifying capacity. Storage spaces, for example, would require sufficient dehumidifying capacity to handle the moisture brought in with goods to be stored, in addition to moisture leaking in subsequently.

MISCELLANEOUS HEAT LOADS

This designation is intended to cover the various small heat gains from exposed piping, ducts, work done by circulating fan, and unforeseen contingencies. Where sufficient data are available, these various heat gains may be estimated individually. In the majority of cases, however, common practice is to lump these factors together and combine them with a *safety factor* according to the experience and judgment of the estimator. On this basis, a small safety factor is added to the calculated cooling load to compensate for miscellaneous effects. No rules can be given for this procedure, as experience in air conditioning is indispensable for application of suitable safety factors.

APPARATUS DEW POINT AND REQUIRED AIR QUANTITY THROUGH CONDITIONING EQUIPMENT

In ordinary practice, with commercial apparatus, complete saturation of the air is seldom obtained. Four-row finned cooling coils contact approximately 80 percent of the air, whereas six-row finned coils contact approximately 95 percent of the air. In spray type dehumidifiers of good design the air leaves the dehumidifier at 1 to 2 deg higher wet-bulb temperature than the spray water leaving the dehumidifier, and the difference between the dry-bulb and wet-bulb temperatures leaving the dehumidifier may be as low as 1 deg. A spray type dehumidifier having sufficient length of spray chamber and density of spray, together with proper arrangement of nozzles, may approach saturation very closely.

As explained in Chapter 3, and shown in Fig. 5, the slope of the line on the psychrometric chart connecting the room condition with the apparatus dew point on the saturation line, determines the ratio of sensible heat absorbing capacity to the moisture absorbing capacity of the supply air. Therefore the room condition can be maintained as long as the supply air temperature lies on this line, but a greater volume of supply air must be