

TABLE 26. RATE OF HEAT GAIN FROM APPLIANCES WITHOUT HOODS^{a,b} (CONCLUDED)

TABLE 26. RATE OF HEAT GAIN FROM APPLIANCES WITHOUT HOODS.^{1,2} (CONCLUDED)

APPLIANCE	CAPACITY	OVERALL 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
<i>Miscellaneous Electrical Appliances</i>									
Hair Dryer, Blower Type			M	Fan, 165 w; Low, 915 w; High, 1580 w	1550	5400		2300	400
Hair Dryer, Helmet Type			M	Fan, 80 w; Low, 300 w; High, 710 w	705	2400		1370	330
Permanent Wave Machine			M	60 heaters at 25 w each, 36 in normal use	1800	5000		850	150
Neon Sign, per linear ft of tube				1/2 in. outside diam. 3/8 in. outside diam.				30 60	30 60
Sterilizer, Instrument			A	For physicians; thermo- stat cuts off 550 w before boiling	1100	3750		650	1200
<i>Miscellaneous Gas-Burning Appliances</i>									
Burners, Laboratory			M	Manufactured Gas		1800		960	240
Small Bunsen		7/8 in. Barrel	M	Natural Gas		2000		1580	420
Small Bunsen		7/8 in. Barrel	M	Manufactured Gas		3500		1960	490
Fishtail		7/8 in. Barrel	M	Natural Gas		4500		3080	770
Fishtail		1 1/4 in. Mouth	M	Adjustable orifice		6000		3350	850
Large Bunsen			M	Continuous Flame		2500		900	100
Cigar Lighter				Heater and fan blowing air to helmets		33000		16000	4000
Hair Dryer, 5 helmets			A	Insulated, modern Not insulated		25000	6000 8600	7200 9200	1800 3300
Stoves, Oven									11500

^a For restaurant appliances, miscellaneous electrical and miscellaneous gas burning appliances.

^b When these appliances are hooded and provided with adequate exhaust, use 50 percent of recommended rate of heat gain from unhooded appliances.

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heating appliances, but it is believed that when they are properly hooded with a positive fan exhaust system through the hood, 50 percent of the heat will be carried away and 50 percent dissipated in the space to be conditioned. The same effectiveness of the hood should be figured for both latent and sensible heat.

LOAD FROM MOISTURE TRANSFER THROUGH PERMEABLE BUILDING MATERIALS

The diffusion of moisture through all common building materials is a natural phenomenon which is always present to a greater or lesser degree.

The permeability and permeance values for various building materials are given in Table 2 of Chapter 10, together with an explanation of moisture transmission through these materials.

In the usual comfort air-conditioning application, it is common practice to neglect moisture transfer through walls, for the actual rate is quite small and the corresponding latent-heat load is hardly significant. So-called *vapor barriers* are frequently employed in modern construction for the purpose of keeping moisture transfer to a minimum, and reducing the deteriorating and insulation-destroying effects of moisture.

Industrial jobs, on the other hand, frequently call for a low moisture content to be maintained in a conditioned space. Here the matter of moisture transfer cannot be neglected; indeed, it is quite possible to have the latent-heat load accompanying this transfer be of greater magnitude than any other latent-heat load. The equation for computing this load is:

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

where

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

7000 = grains per pound.

^aThe 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*