TABLE 41. INFILTRATION THROUGH ROLLED SECTION STEEL WINDOWS[a-c]

Per Foot of Crack of Ventilating Sash

	Wind Velocity Miles per Hour	Industrial Pivoted 1/8 in. Crack			Architectural Projected 3/16 in. Crack			Residential Casement 1/2 in. Crack			Heavy Casement Section Projected 1/2 in. Crack		
		Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70°F.	Equivalent Steam Radiation Sq. Ft.[b]	Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70°F.	Equivalent Steam Radiation Sq. Ft.[b]	Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70°F.	Equivalent Steam Radiation Sq. Ft.[b]	Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70°F.	Equivalent Steam Radiation Sq. Ft.[b]
PART I Values actually determined by Laboratory tests.	5	65	82	0.34	25	32	0.13	17	21	0.09	10	13	0.05
	10	135	170	0.71	65	82	0.34	40	50	0.21	30	38	0.16
	15	220	278	1.16	110	139	0.58	65	82	0.34	47	59	0.25
	20	305	384	1.60	145	183	0.76	95	120	0.50	68	86	0.36
	25	380	479	2.00	190	239	1.00	125	158	0.66	90	113	0.47
	30	465	586	2.44	260	328	1.37	160	202	0.84	120	151	0.63
PART II Values for practical use; test values reduced 20 per cent to allow for building up of pressure in room, etc.	5	52	66	0.27	20	26	0.10	14	17	0.07	8	10	0.04
	10	108	136	0.57	52	66	0.27	32	40	0.17	24	30	0.13
	15	176	222	0.93	88	111	0.46	52	66	0.27	38	47	0.20
	20	244	307	1.28	116	146	0.61	76	96	0.40	54	69	0.29
	25	304	383	1.60	152	191	0.80	100	126	0.53	72	90	0.38
	30	372	469	1.95	208	262	1.10	128	162	0.67	96	121	0.50

[a]With reasonable care in installation, leakage at contacts where windows are attached to steel framework, and at mullions, is negligible. With 1/64 in. crack, representing poor installation, leakage at contact with steel framework is about one-third, and at mullions about one-sixth, of that given for industrial pivoted windows above.

[b]Based on heat emission of 240 B.t.u. per sq. ft.

[c]Taken from *Weathertightness of Rolled Steel Windows*, by Emswiler and Randall (JOURNAL, A. S. H. V. E., Vol. 34, No. 6, June, 1928).

TABLE 42. INFILTRATION THROUGH A HOLLOW METAL VERTICALLY PIVOTED STEEL WINDOW, INSTALLED IN A BUILDING[a]

Wind Velocity Miles per Hour	Leakage Cu. Ft. per Hour per Foot of Crack	Heat Loss B.t.u. per Hour 0-70 Deg. Fahr.	Equivalent Steam Radiation Sq. Ft.[b]
5	29.5	37	0.15
10	88.5	112	0.47
15	144.5	182	0.76
20	186.0	234	0.98
25	221.5	279	1.16
30	242.0	305	1.27

[a]From *Air Leakage Through Pivoted Metal Windows*, by Houghten and McConnell (JOURNAL, A. S. H. V. E., Vol. 34, No. 7, July, 1928).

[b]Based on heat emission of 240 B.t.u. per sq. ft.

Wind movement involves both *direction* and *velocity*, and hence after transmission and infiltration losses have been computed, using coefficients which allow for average velocity, a further allowance must be made for the direction of the prevailing wind in any given locality. This shall be done by adding 15 per cent to the wall and glass transmission losses and the infiltration losses on the sides of the building exposed to the prevailing winds. Those walls which lie in the two adjacent sides of the building most nearly facing the prevailing wind are to be considered in making this correction. This is not necessarily the same as adding 15 per cent to the total heat loss of a room on the exposed sides of the building.

HEAT SOURCES

Heat Available from Sources other than Heating Plant

The heat supplied by persons, lights, motors and machinery should always be ascertained in the case of theaters, assembly halls, and industrial plants, but allowances for such heat sources must be made only after careful consideration of all local conditions. In many cases, these heat sources should not be allowed to affect the size of the installation at all, although they may have a marked effect on the operation and con-

TABLE 43. HEAT GIVEN UP BY PERSONS AND LIGHTS

[a]PERSONS:

Man at rest	400 B.t.u. per hr.
Man at work	500 B.t.u. per hr.

LIGHTS:

Electric lamps, B.t.u. per hr. equals watts per lamp × number of lamps × 3.415

Gas lighting:

1 cu. ft. producer gas	150 B.t.u.
1 cu. ft. illuminating gas	700 B.t.u.
1 cu. ft. natural gas	1,000 B.t.u.

A WELSBACH BURNER AVERAGES 3 CU. FT. OF GAS PER HOUR AND A FISH TAIL BURNER 5 CU. FT. PER HOUR.

[a]For more detailed information see Table 44, Heat Emitted by Persons per Hour at Different Room Temperatures.