The most convenient values for use in infiltration calculations are the coefficients of infiltration for the particular kind of crack with a wind velocity of 15 miles per hour under average conditions, with 1/16 in. *crack* and 1/64 in. *clearance* reduced by 20 per cent (Table 39, Part II).

For a wind velocity other than 15 miles per hour, use the proper velocity for that locality in place of 15. For temperature gradients other than 70 deg. multiply the value given in the tables by the new temperature gradient and divide by 70. For special cases involving unplastered walls or storm sash use values obtained from Table 37 or Figs. 7 and 8.

Infiltration Due to Temperature Difference

Even without wind movement, a difference of temperature between inside and outside of a building will cause the pressure state inside to be

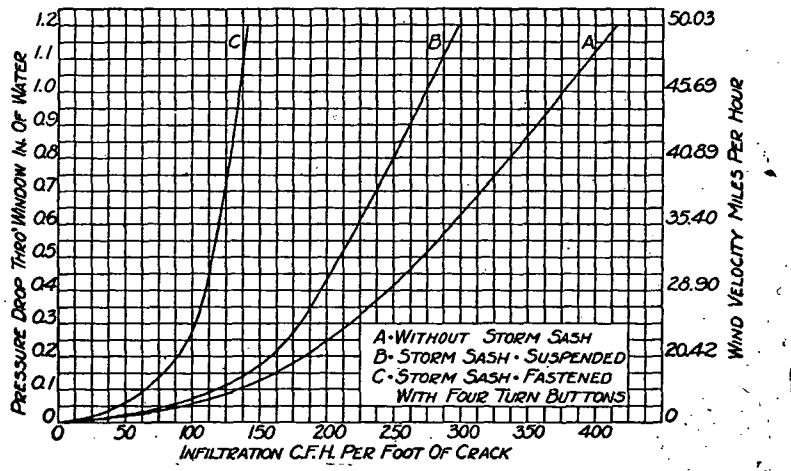

FIG. 8. INFILTRATION THROUGH SASH PERIMETER OF WINDOW WITH AND WITHOUT STORM SASH—1/8 IN. CRACK AND 1/8 IN. CLEARANCE

less than that outside near the ground, and greater near the roof; infiltration will occur at windows in the lower part of the building, and exfiltration at windows in the upper part. Thus in the case of a building 200 ft. high, arranged in stories with more or less free communication from one to another, and with a temperature difference of 70 deg., the pressure causing infiltration near the ground, and exfiltration near the roof, may easily exceed 0.20 in. of water, which is the equivalent of a twenty-mile wind.

The factors influencing the pressures causing infiltration are so numerous that it does not seem wise at this time to attempt to include any quantitative values to express the effect of temperature difference, but it is something that should be kept in mind in the design and operation of heating systems in tall buildings.

TABLE 39. INFILTRATION THROUGH DOUBLE HUNG WOOD SASH WINDOWS[a-e]

	Wind Velocity Miles per Hour	Per Foot of Uncaulked Crack Around Frame			Per Foot of Crack around the Sash, including meeting rail for Cracks of 1/16 in. and 1/64 in. Clearance, Window Unlocked					
					Plain Non-Stripped Wood Window[b]			Average Weatherstripped Window[b]		
		Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70 Deg. Fahr.	Equivalent Steam Radiation Sq. Ft.d	Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70 Deg. Fahr.	Equivalent Steam Radiation Sq. Ft.d	Leakage Cu. Ft. per Hour	Heat Loss B.t.u. per Hour 0-70 Deg. Fahr.	Equivalent Steam Radiation Sq. Ft.d
PART I Values actually determined by Laboratory tests.	5.0	1.76	2.22	0.009	49.1	62.0	0.26	3.75	4.76	0.020
	7.5	7.95	10.1	0.042	78.6	99.1	0.42	8.52	10.8	0.045
	10.0	14.1	17.9	0.075	106.0	134.0	0.56	14.7	18.7	0.078
	15.0	28.3	35.9	0.15	155.0	196.0	0.82	28.6	36.4	0.15
	20.0	38.8	49.3	0.21	201.0	254.0	1.06	43.6	55.4	0.23
	30.0	67.1	85.3	0.36	291.0	367.0	1.54	74.5	93.9	0.39
	40.0	95.0	121.0	0.51	386.0	487.0	2.03	110.0	138.0	0.58
	50.0	111.0	141.0	0.59	488.0	615.0	2.56	146.0	185.0	0.78
PART II Values for practical use; average test values reduced by 20 per cent to allow for building up of pressure in room, etc.	5.0	1.41	1.77	0.007	39.3	49.5	0.21	3.00	3.80	0.016
	7.5	6.36	8.08	0.034	62.8	79.2	0.33	6.82	8.60	0.036
	10.0	11.3	14.3	0.060	84.9	107.0	0.45	11.7	14.9	0.062
	15.0	22.6	28.7	0.12	124.0	157.0	0.65	22.9	29.1	0.12
	20.0	31.1	39.4	0.16	161.0	203.0	0.85	34.9	44.3	0.19
	30.0	53.6	68.2	0.28	233.0	294.0	1.23	59.6	75.6	0.32
	40.0	76.0	96.5	0.40	309.0	390.0	1.63	87.8	111.0	0.46
	50.0	88.9	114.0	0.48	390.0	492.0	2.05	117.0	148.0	0.62

[a] This table is approximately correct for cracks up to 1/4 in.

[b] The values given for the plain non-stripped wood window and for the weatherstripped window include the "elsewhere" leakage through the frame, but not the leakage through the uncaulked crack around the frame. If the frame is to be left uncaulked the loss under that heading should be included in the heat loss calculations.

[c] Practically all leakage around frames can be stopped by proper calking.

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

[e] See *Air Leakage*, by Houghten and Schrader (TRANSACTIONS, A. S. H. V. E., Vol. 30, 1924, No. 686.)