

required to raise 1 lb. of air 1 deg., is 0.2415. To raise 0.87 cu. ft. of air which weighs 0.075 lb. only 1 deg., requires $0.075 \times 0.2415 = 0.0181$ heat units, and to raise it 70 deg. from zero to room temperature, requires $70 \times 0.0181 = 1.267$ heat units.

In every day practice of figuring, the approximate value of 0.02 heat units per cu. ft. per deg. rise in temperature is used in place of 0.0181.

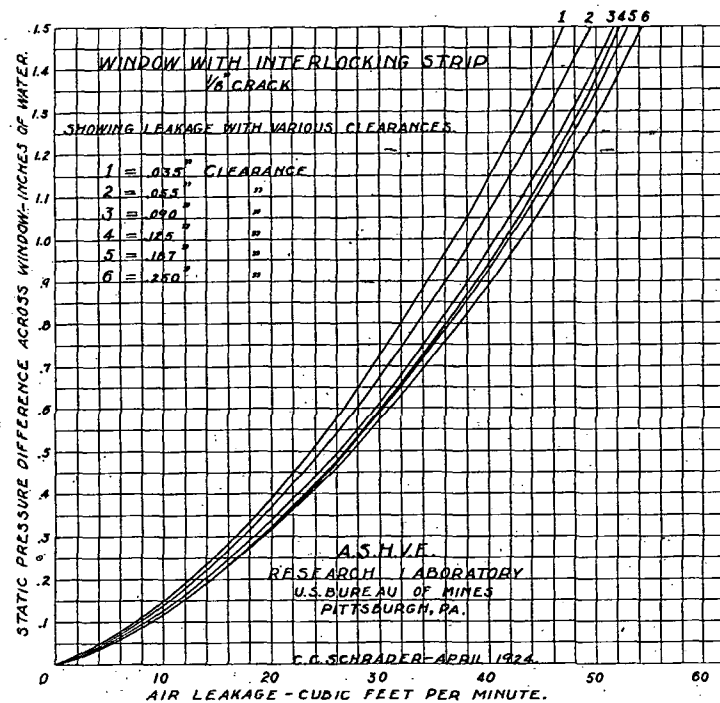


FIG. 3. LEAKAGE THROUGH WEATHER-STRIPPED WINDOW WITH VARIOUS CLEARANCES

Therefore, in order to obtain the heat loss due to infiltration multiply together these four factors: (1) contents of room in cubic feet times (2) number of air changes per hour times (3) the difference in temperature between the inside and outside times (4) 0.02 heat units.

Leakage of air into and from buildings takes place largely around the sash and frame of windows, and around the doors and depends in large measure upon the wind velocity.

The quantity of air leaking through various types of windows with and without weather-stripping has been determined by the Research Laboratory of the AMERICAN SOCIETY OF HEATING and VENTILATING ENGINEERS

and others as Fig. 1 gives the amount of air leakage through a brick wall, and the various cracks around the sash and frame of a window in such a wall with various wind velocities. The various curves from 1-8 were

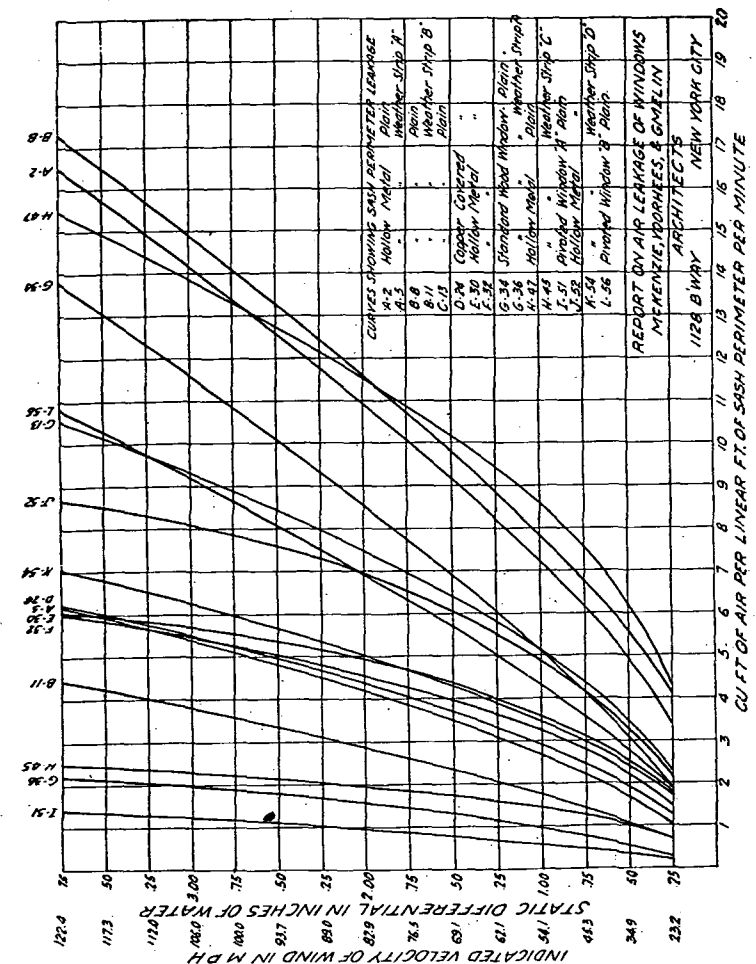


FIG. 4. TOTAL INFILTRATION LEAKAGE FOR VARIOUS WINDOWS TESTED

obtained after sealing off the various cracks through which air leaked as indicated in the legend. A very surprising fact is brought out by curve 5 which shows that considerable air actually leaked through the 50 sq. ft. of 13 in. brick wall tested. Only one such wall has been tested, however,