

A Science Service Feature

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? WHY THE WEATHER ? Mailed March 14, 1928

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VENTILATION WITH CLOSED WINDOWS

Dr. E.V.Hill, of Chicago, has recently called attention to the fact that in moderately windy weather closed windows are not incompatible with the adequate ventilation of a sleeping room. In public buildings, he says, where window ventilation is entirely inadequate and a mechanical system of ventilation is installed, the design usually calls for about 25 to 30 cubic feet of air per occupant per minute, though this amount is probably a good deal more than is really necessary. On a summer night, when the temperature indoors is about the same as that outdoors, there is often little change of air during the night, even with the windows wide open, so that the sleeper gets much less "fresh" air than the amount provided by mechanical installations. On the other hand, in winter, with the temperature hovering about zero and a 10 to 25 mile breeze blowing, you may close your windows and still get plenty of outdoor air through leakage around the window sashes.

This is indicated by tests made not long ago by the American Society of Heating and Ventilating Engineers in a big office building in St. Louis. The windows at several carefully selected representative points were completely encased and delicate instruments were installed to measure the leakage. Ordinary windows, with a 10 mile breeze, gave an average leakage of about 2 1/2 cubic feet per minute per foot of crack. The term "crack" means the entire perimeter of the window plus the additional crack between the upper and lower sash. On this basis about 60 cubic feet of air per minute leaks around an average closed window under the conditions stated. "So", says Dr. Hill, "in cold, windy weather a person need have no fear in sleeping with his window closed, as he will obtain at least twice the amount of air that liberal standards demand."

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