

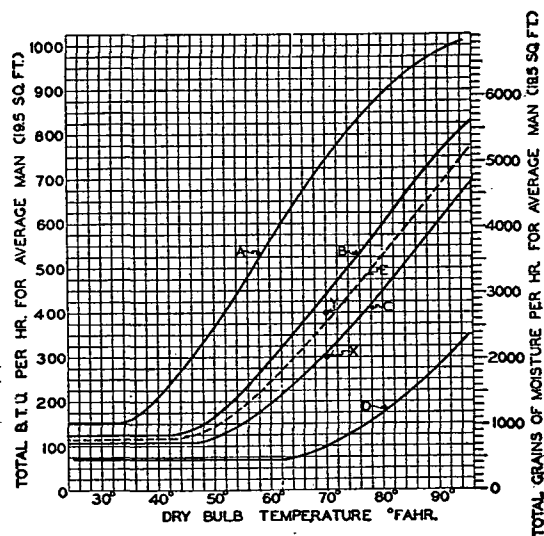


FIG. 10. LATENT HEAT AND MOISTURE LOSS FROM THE HUMAN BODY BY EVAPORATION, IN RELATION TO DRY-BULB TEMPERATURE FOR STILL AIR CONDITIONS<sup>a</sup>

<sup>a</sup>Curve A—Men working 66,150 ft-lb per hour. Curve B—Men working 33,075 ft-lb per hour. Curve C—Men working 16,538 ft-lb per hour. Curve D—Men seated at rest. Curves A and C drawn from data at a dry-bulb temperature of 81.3 F only and extrapolating the relation between Curves B and D which were drawn from data at many temperatures.

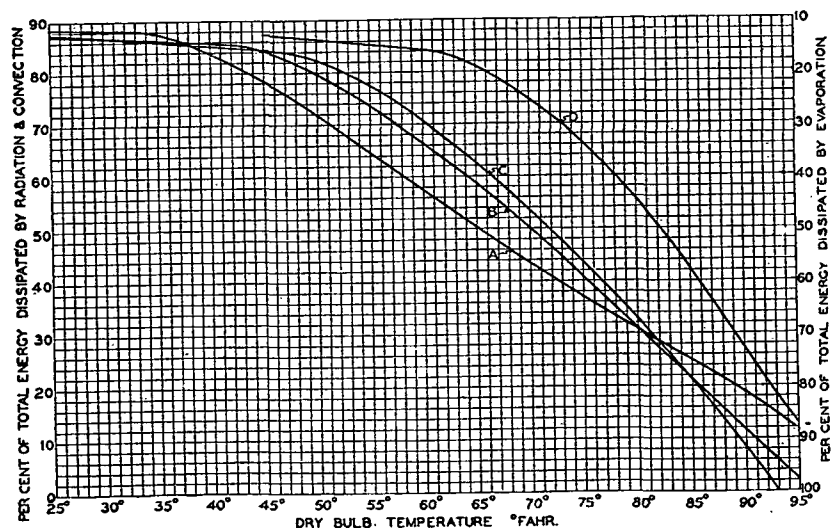


FIG. 11. HEAT LOSS FROM THE HUMAN BODY BY EVAPORATION, RADIATION AND CONVECTION IN RELATION TO DRY-BULB TEMPERATURE FOR STILL AIR CONDITIONS<sup>a</sup>

<sup>a</sup>Curve A—Men working 66,150 ft-lb per hour. Curve B—Men working 33,075 ft-lb per hour. Curve C—Men working 16,538 ft-lb per hour. Curve D—Men seated at rest. Curves A and C drawn from data at a dry-bulb temperature of 81.3 F only and extrapolating the relation between Curves B and D which were drawn from data at many temperatures.

receive an adequate amount of air from out-of-doors. The partial vacuum produced on the leeward side under the action of the wind may even reverse the flow of air so that the leeward half of the building has to take the *drift* of the air from the rooms of the windward half. Under such conditions no outdoor air would enter through a leeward window opening, but room air would pass out.

In warm weather natural methods of ventilation afford little or no control of indoor temperature and humidity. Outdoor smoke, dust and noise constitute other limitations of natural methods.

### A.S.H.V.E. VENTILATION STANDARDS†

As Adopted in August, 1932

It is the intent of the Committee in presenting this report to confine itself to a statement of those requirements which, based on present day knowledge (1932), will provide adequate ventilation for spaces intended for human occupancy. The following standards shall apply to all spaces occupied by human beings in all buildings for which ventilation regulations are to be established.

#### SECTION I—AIR TEMPERATURE AND HUMIDITY

The *temperature* and *humidity* of the air in such occupied spaces, and in which the only source of contamination is the occupant, shall be maintained at all times during occupancy at an *Effective Temperature*, as hereinafter stated.

The relative humidity shall be not less than 30 per cent, nor more than 60 per cent in any case. The Effective Temperature shall range between 64 deg and 69 deg when heating or humidification is required, and between 69 deg and 73 deg when cooling or dehumidification is required.

These Effective Temperatures shall be maintained at a level of 36 in. above the floor. (See Appendix, Tables A and B).

#### SECTION II—AIR QUALITY

The air in such occupied spaces shall at all times be free from toxic, unhealthful or disagreeable gases and fumes and shall be relatively free from odors and dust.

In every space coming within the provisions of these requirements and in which the quality of the air is below the standards prescribed by good medical and engineering practices, due to toxic substances, bacteria, dust, excessive temperature, excessive humidity, objectionable odors, or other similar causes, means for ventilating shall be provided so that the quality of the air shall be raised to these standards.

#### SECTION III—AIR MOTION

The air in such occupied spaces shall at all times be in constant motion sufficient to maintain a reasonable uniformity of temperature and humidity, but not such as to cause objectionable drafts in any occupied portion of such spaces.

The air motion in such occupied spaces, and in which the only source of contamination is the occupant, shall have a velocity of not more than 50 ft per minute, measured at a height of 36 in. above the floor.

#### SECTION IV—AIR DISTRIBUTION

The air in all rooms and enclosed spaces shall, under the provisions of these requirements, be distributed with reasonable uniformity, and the variation in the carbon dioxide content of the air shall be taken as a measure of such distribution.

The air in a space ventilated in accordance with these requirements, and in which the only source of contamination is the occupant, shall be distributed and circulated so that the variation in the concentration of carbon dioxide, when measured at a height of 36 in. above the floor, shall not exceed one part in 10,000.

†Report of A.S.H.V.E. Committee on Ventilation Standards consisting of W. H. Driscoll, *Chairman*, J. J. Aeberly, F. Paul Anderson, L. A. Harding, D. D. Kimball, J. R. McColl, C. L. Riley, W. A. Rowe, Perry West and A. C. Willard, presented at the Semi-Annual Meeting of the Society, Milwaukee, Wis., June, 1932, and adopted by the Society in August, 1932. (See A.S.H.V.E. TRANSACTIONS, Vol. 38, 1932).