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CHAPTER 3

STANDARDS OF VENTILATION

General Requirements; Air Supply; Temperature; Recirculation; Testing Methods; Instruments; Physiological Effects; Human Comfort; Comfort Charts; Comfort Zone; Humidity and Comfort.

VENTILATION is the science that treats of air in relation to human comfort, health, and efficiency. The test of good ventilation is the measure of health, comfort and efficiency derived from it.

In general, ventilation is applicable to spaces which are densely occupied by human beings, such as auditoriums, offices and school rooms, to spaces in which atmospheric contamination or over-heating would otherwise occur, as under certain industrial conditions, and to spaces in which a fixed and controlled air condition is required, as in certain manufacturing processes. The object of ventilation is to provide and maintain these desired atmospheric conditions.

GENERAL REQUIREMENTS OF VENTILATION

Proper ventilation depends upon the following factors:

1. Air Volume.
 2. Air Temperature.
 3. Relative Humidity.
 4. Air Motion.
 5. Air purity, in reference to its freedom from odors, dust, bacteria, toxic gases, and other objectionable matter.
 6. Air Distribution, with reference to general distribution, air movement, and freedom from drafts.
 7. Psychological effects.
- These four factors, in combination, contribute to what is termed "Effective Temperature."

AIR SUPPLY FOR VENTILATION

A comparatively small quantity of air supply is required to take care of the needs of the lungs. A comparatively large quantity of air is required, however, to provide the bodily heat control necessary for the maintenance of health and comfort. In order to provide the necessary air movement and volume to provide comfort and to remove odors in spaces of considerable occupancy, the delivery by the ventilating plant of the quantities of air indicated in Table 1, has been general practice.

The resultant volumes will be found to comply with most of the existing legal requirements. It is, of course, understood that the air must be at such temperatures as to promote comfort.

See CODE OF MINIMUM REQUIREMENTS FOR THE HEATING AND VENTILATION OF BUILDINGS, adopted by A.S.H.V.E. in 1925, edition of 1929.