Schools:	
Classrooms	2.0 cu. ft. per minute per square foot of floor area
Assembly rooms	1.5 cu. ft. per minute per square foot of floor area
Gymnasia	1.5 cu. ft. per minute per square foot of floor area
Picture Machine Booth	1.5 cu. ft. per minute per square foot of floor area
Dining-rooms	1.5 cu. ft. per minute per square foot of floor area
Kitchens	2.0 cu. ft. per minute per square foot of floor area
Corridors	0.5 cu. ft. per minute per square foot of floor area
Wardrobes and lockers	2.0 cu. ft. per minute per square foot of floor area
Toilet, Bath, Etc.	2.0 cu. ft. per minute per square foot of floor area
Theatres:	
Seating spaces	2.0 cu. ft. per minute per square foot of floor area
Toilets, etc.	2.0 cu. ft. per minute per square foot of floor area
Hotels:	
Assembly rooms	2.0 cu. ft. per minute per square foot of floor area
Dining-rooms	1.5 cu. ft. per minute per square foot of floor area
Kitchens	4.0 cu. ft. per minute per square foot of floor area
Hospitals:	
Wards	1.0 cu. ft. per minute per square foot of floor area
Dining-rooms	1.5 cu. ft. per minute per square foot of floor area
Toilets	2.0 cu. ft. per minute per square foot of floor area
Kitchens	4.0 cu. ft. per minute per square foot of floor area

Air temperature is second in the list for the reason that it has been proved by practically all of the accredited experimentors that over-heating is more detrimental to the quality of ventilation than any other one thing.

Some methods of controlling air temperature with ventilating plants are discussed in THE GUIDE Chapter on Automatic Heat Control and in Chapter XIV of this section, entitled Conditioning and Cooling Air.

Relative humidity bears an intimate relationship with Air Supply and Temperature. These relations are described in Chapter XVIII of this section.

Air Motion is also associated with the three preceding factors, and enters into the Comfort Zone term which has been designated "Effective Temperature." See Chapter XVIII.

Air Cleanliness has to do with human health both from the standpoint of freedom from dust and other suspended substances, which irritate and clog the air passages, and from the standpoint of freedom from bacteria and other infectious media carried along with these substances which constitute the dirt in air.

Methods of cleaning air are treated in Chapter XXII in this section.

Air Distribution is of the utmost importance, and is closely correlated with effective temperature. Chapter XIX, Systems of Ventilation, has much to do with the effectiveness of air distribution, as also does Chapter XXI, Air Duct Design and Construction.

Freedom from Odors is often accomplished by plentiful air supply and efficient distribution, but may be facilitated by other means, among which are Ozone, treated in Chapter XXIV.

Freedom from Injurious Substances such as gases and fumes may be of the utmost importance. These are handled usually by mechanical exhaust ventilation with effective distribution. This phase of ventilation is affected in one way or another by nearly all of the items, tabulated before.

Psychological Reactions

The engineer who disregards the psychological factor in ventilation is indeed short sighted. As in most human contacts and activities, the effect on the mind of air conditions is profound.

Consideration must always be given to objectionable noise from machinery or to air friction noises. It is usually helpful if the occupants of a ventilated room may visualize some indication that air is moving. It helps if they may, when they wish, place their bodies or portions thereof, in sensible air currents, to demonstrate that ventilation is in effect. Periodical or occasional temperature reductions or increases in air movement, possibly accompanied by muscular exercises, are of great value, psychologically as well as physically.

Ventilation Requirements

In the practical work of engineers who design ventilating systems and of architects and owners who have to pass upon these systems, the one item involving standards which is the basis of all calculations and layouts, is the quantity of air to be handled by the system to be used, for producing the results desired. The functions of the air handled in connection with ventilated spaces are: (1) to supply the necessary oxygen for respiration, (2) to keep the dilution of CO_2 and other objectionable substances down to the proper point, and (3) to maintain the proper effective air temperature. It has been estimated that an adult at rest will breathe 0.25 cu. ft. of air per minute and exhale 0.01 cu. ft. of CO_2 in the same period or at the rate of 0.6 cu. ft. per hour, thus removing about 5 per cent of the oxygen from the air breathed. The same air may be rebreathed for a limited time without apparent harmful effect, but discomfort is evident. However, air may be filtered, washed, cooled and recirculated with evident satisfaction.

The air handled may consist entirely of air taken in from the outside or it may consist partly of new air and partly of recirculated air.

Heat from Occupants, Lights, Equipment

In a crowded place of assemblage, the heat given off by the occupants together with that given off by the lighting and power equipment is usually more than the normal heat loss through the structure to the outside air, even in winter under cold climatic conditions. This means that in order to preserve an equilibrium of effective temperature the entering air must be cooler than the leaving air, so that the problem is usually one of cooling and ventilating rather than of heating and ventilating.

A typical case for winter might show about 300 B.t.u. of body heat plus 100 B.t.u. from light, etc., being given up to the building against 200 B.t.u. heat loss from the building, per person per hour. This would mean that 200 B.t.u. per person must be carried away by the air. (See page 52, Chapter I of THE GUIDE.)

If the flow of air is upward, or from the side, so as to bring the incoming air into direct contact with the occupants, the temperature of the incoming air should not be more than about 5 deg. below the temperature of the air leaving the occupant (for ceilings 10 ft. or less in height), otherwise the ventilation will be drafty and uncomfortable. This difference may be increased about 1 deg. for each 2 ft. of added ceiling height, providing