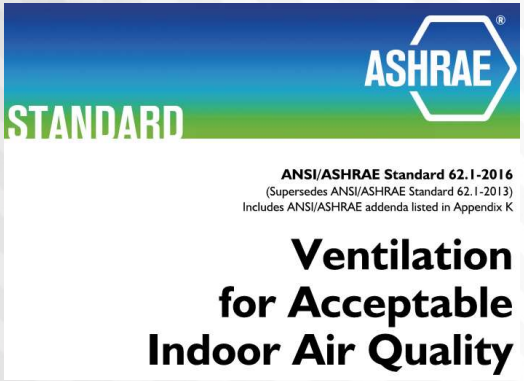
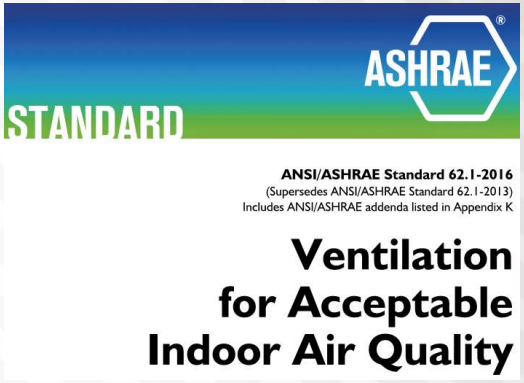
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY



PART – 3



FRESH AIR CALCULATION

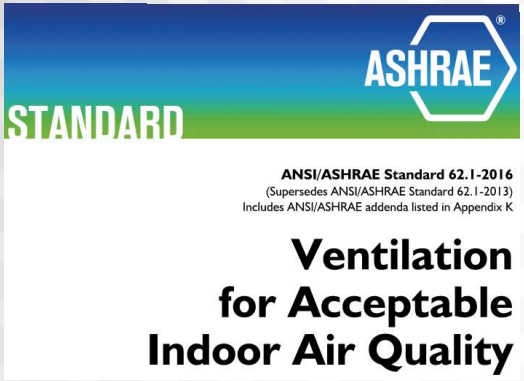
AS PER

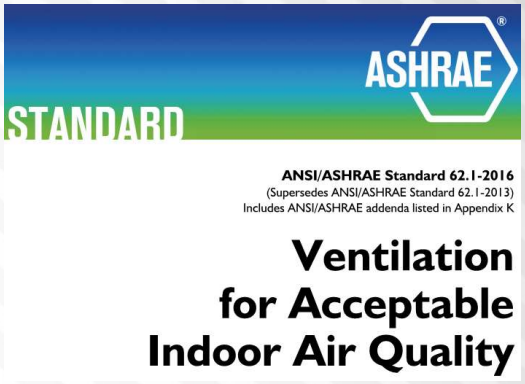
ASHRAE 62.1

Prepared By :
MUJEEB KHAN
B.TECH – MECHANICAL ENGINEER
M.B.A – MARKETING MANAGEMENT

Prepared By : MUJEEB KHAN

VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY





PART – 3

FRESH AIR CALCULATION

AS PER

ASHRAE 62.1

Prepared By : MUJEEB KHAN

Prepared By :
MUJEEB KHAN
B.TECH – MECHANICAL ENGINEER
M.B.A – MARKETING MANAGEMENT

ASHRAE 62.1
VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY

TABLE 6.2.2.1

Minimum Ventilation Rates In Breathing Zone

TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone
(Table 6.2.2.1 shall be used in conjunction with the accompanying notes.)

	People Outdoor Air Rate R_p		Area Outdoor Air Rate R_a			Default Values			
						Occupant Density (see Note 4)	Combined Outdoor Air Rate (see Note 5)		
Occupancy Category	cfm/ person	L/s· person	cfm/ft^2	L/s·m^2	Notes	#/1000 ft^2 or #/100 m^2	cfm/ person	L/s· person	Air Class

Minimum Ventilation Rates Required in Breathing Zone

Breathing Zone Outdoor Airflow Requirements

- The outdoor airflow required in the breathing zone ASHRAE 62.1 Section 6.2.2.1 of the occupied space in a ventilation zone shall be not less than the value determined in accordance with Equation.

6.2.2.1 Breathing Zone Outdoor Airflow. The outdoor airflow required in the breathing zone (V_{bz}) of the occupiable space or spaces in a ventilation zone shall be not less than the value determined in accordance with Equation 6.2.2.1.

$$V_{bz} = R_p \times P_z + R_a \times A_z \qquad (6.2.2.1)$$

where

A_z = zone floor area, the net occupiable floor area of the ventilation zone, ft^2 (m^2)

P_z = zone population, the number of people in the ventilation zone during use

R_p = outdoor airflow rate required per person as determined from Table 6.2.2.1

Informative Note: These values are based on adapted occupants.

R_a = outdoor airflow rate required per unit area as determined from Table 6.2.2.1

Minimum Ventilation Rates Required in Breathing Zone

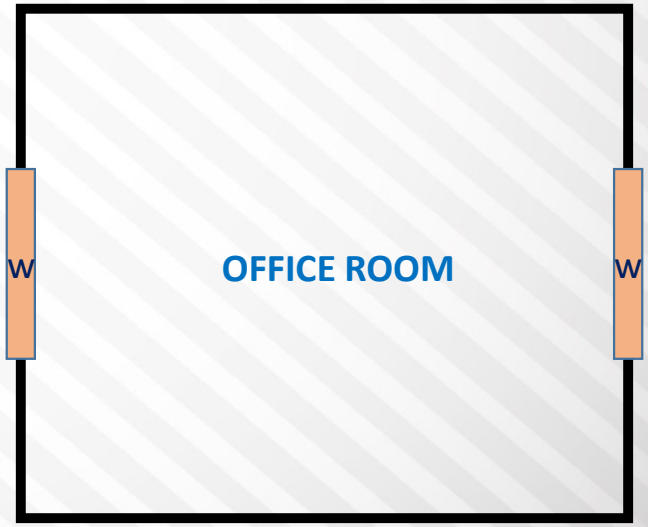
Breathing Zone Outdoor Airflow

- The outdoor airflow required in the breathing zone (V_{bz}) of the occupied space in a ventilation zone shall be not less than the value determined in accordance with Equation.

Equation : $(V_{bz}) = (R_p \times P_z) + (R_a \times A_z)$

Where :

- V_{bz} = ***T**otal **F**resh **A**ir **R**equired in Zone –* ***CFM*** *or* ***LPS.***
- R_p = ***A**irflow rate **R**equired per **P**erson –* ***CFM/Person.***
- P_z = ***N**umber of People in Zone –* ***Person.***
- R_a = ***A**irflow rate **R**equired per **A**rea –* ***CFM/Ft².***
- A_z = ***A**rea of **Z**one –* ***Ft².***



Prepared By : AMK

Minimum Ventilation (Fresh Air) Rates Required In Breathing Zone

- Office Room = 5CFM/Person
- NO. Of Person In Office = 10
- 5 CFM/Person x 10 Person = ?
- 5 X 10 = 50 CFM

OFFICE ROOM

Equation :

$$(V_{bz}) = (R_p \times P_z) + (R_a \times A_z)$$

$$= (5 \times 10) + (0.12 \times 500)$$

$$= (50) + (60)$$

$$= (110\ CFM)$$

The total fresh air required for the Office Room is 110 CFM

- Office Room CFM/Ft² = 0.12
- Office Room Area = 500ft²
- 0.12 CFM/Ft² x 500ft²= ?
- 0.12 x 500 = 60 CFM

Where :

- V_{bz} = ***T**otal **F**resh **A**ir **R**equired in Zone – **CFM***
- R_p = ***A**irflow rate **R**equired per **P**erson – **CFM/Person**.*
- P_z = ***N**umber of People in Zone – **Person**.*
- R_a = ***A**irflow rate **R**equired per **A**rea – **CFM/Ft²**.*
- A_z = ***A**rea of **Z**one – **Ft²**.*

Prepared By : MUJEEB KHAN

Minimum Ventilation (Fresh Air) Rates Required In Breathing Zone

Two (2) parameters are required to determine the Fresh Air/Outdoor Air as per ASHRAE 62.1 Section 6.2.2.1

FRESH AIR = CFM/Person + CFM/Ft²

FRESH AIR =  **+**

HVAC SIMPLIFIED™

Prepared By : MUJEEB KHAN