AIRZONE™ VENTILATION FANS

FAN SIZING GUIDELINES

The following recommendations are based on the Home Ventilating Institutes (HVI) "best practices" and are in compliance with current ASHRAE 62.2 (2008) and California Energy Commission (CEC) guidelines. Providing adequate on-demand ventilation for bathrooms and damp areas will help prevent mold and mildew accumulation, which can cause significant damage to the home or structure.

How much ventilation do I need for my bathroom?

ASHRAE CFM GUIDLINES: Divide the room volume in cubic feet, by 7.5

$$\text{CFM} = \frac{\text{ROOM VOLUME (IN CUBIC FEET)}}{7.5}$$

To calculate the CFM size of a fan for adequate ventilation in bathrooms:

Multiply the room height X room width X room length = room volume.
(Example: Bathroom is 8' X 10' x 10' = 800 cubic feet.
Divide the room volume / by 7.5, then round up to the nearest fan CFM capacity.
(Example: 800 / 7.5 = 106 round up to nearest CFM = 110 cfm.
One fan operating at 110 CFM will provide adequate ventilation for an 800 cubic foot bathroom.
Fans with long duct runs should be size based on .25"hg (water lift) per ASHRAE 62.2.
Rooms requiring fans larger than 150 cfm should use two fans.
Minimum fan size for a bathroom should be 50 cfm.

HVI CFM CALCULATION: One CFM per Square Foot. Minimum 50 CFM per bathroom.

The HVI recommends bathrooms less than 100 square feet require one CFM per square foot, with a minimum of 50 CFM's per bathroom.

Example: If you bathroom is 10' x 8' = 80 square feet, an 80 CFM rated fan or larger should be used. If the Bathroom is larger than 100 square feet, the ventilation required is the sum of the following fixtures in the bathroom: for each toilet or shower add 50 CFM each, for a jetted tub or whirlpool add 100 CFM.

Example: If a bathroom has one (1) toilet, and one (1) shower it will require (50 + 50 = 100 CFM) a fan with 100 CFM capacity. An enclosed toilet room should have its own exhaust fan. It is recommended that a timer control be used to allow the fan to operate for a minimum of 20 minutes after each use of the bathroom and extent up to one hour depending on how much moisture has accumulated. For quiet bathroom ventilation, the HVI recommends the fan be rated for 1.0 sones or less.

Fan sizing (in CFM) should be based on the fans performance at .25" wg to account for increased static pressure caused by longer duct runs. When permissible, larger duct sizes and fewer turns will increase the efficiency of the fan and decrease the operational sound level. Straight duct has less static pressure and will allow the fan to operate more efficiently than flexible duct. The duct should slope slightly downward, away from fan, to allow condensation to escape to the outside.

AIR PERFORMANCE (CFM)

MODEL	Static Pressure: 0	0.1"	0.15"	0.2"	0.25"	0.3"	0.35"	0.4"	0.45"	0.5"	Air flow (cfm)
PA500V	76	58	48	34	15	2					50
PA700V	90	77	70	62	53	44	24	6			70
PA900V	108	98	92	86	82	73	67	56	37	7	90
PA1100V	120	110	105	98	92	87	80	63	40	7	110