

## HVI TESTED/CERTIFIED

**Static Pressures:** Direct Discharge Fans (Non-Ducted) @ 0.03 in. wg  
 Ducted Fans @ 0.10 in. wg; 0.25 in. wg (optional)  
 Inline Fans @ 0.20 in. wg; (additional static pressures optional)

**Basic Fan Operating Speeds:**

BS	=	BOOST SPEED
HS	=	HIGH SPEED
LS	=	LOW SPEED
WS	=	WORKING SPEED

HVI Tested/Certified air delivery ratings are in Cubic Feet per Minute (CFM).

HVI Tested/Certified sound emission ratings are in Sones (S).

# HOME VENTILATING FANS

- Bathroom Exhaust Fans
- Dowlraft Kitchen Exhausters
- Inline Fans (all models)
- Integrated Supply & Exhaust Ventilators
- Kitchen Exhaust Fans
- Kitchen Range Hoods – Ducted & Convertible
- Other Room Exhaust Fans
- Powered Attic Ventilators
- Remote Exterior Mounted Ventilators
- Whole House Comfort Ventilators



### USE OF HVI LABEL

Companies whose products have been certified by HVI are required to affix appropriate Labels to those products

## RATINGS FOR QUALITY, QUIETNESS

This directory offers a complete and uniform basis for comparison of rated performance for residential ventilating fans which bear the HVI Tested/Certified Label.

All HVI-Certified ratings are based on testing at independent laboratories approved by HVI. Each fan is tested under specific air resistance and other conditions related to actual application, as distinct from "free air" or other nonstandard conditions.

Indoor fans (those typically installed within the living space) carry dual ratings, for quietness as well as ventilating performance. Simple validated numbers tell the air movement in CFM (cubic feet per minute) and the sound output in Sones. Exterior mounted ventilators, usually ducted to the kitchen, offer high capacity and quietness.

Whether their tasks are removal of the odors, fumes, smoke, moisture and heat of indoor air pollution or automatic removal of summer heat and winter moisture from attics, fans with the HVI-Certified Label can be depended on to exhaust the amount of air for which they are rated. All are true ventilators, as distinguished from recirculating devices.

HVI lists ratings in steps of 10 CFM and 0.5 Sones. Fans of multiple speeds must be rated for sound at maximum CFM ratings and may be rated also at lower CFM levels.

Sone ratings permit easy and accurate comparisons of exhaust fans tested under identical laboratory standards and conditions.

A fan rated at 3 Sones makes half the sound of one of 6 Sones, just as 100 CFM is half the air movement of 200 CFM.

## VENTILATION GUIDELINES

For adequate ventilation, the Home Ventilating Institute recommends these guidelines for air changes with wall or ceiling exhaust fans: kitchen, 15 changes an hour; bathroom, 8; family, recreation or laundry room, 6.

To calculate the CFM capacity of wall or ceiling fan which will deliver the needed air movement, multiply floor area by the appropriate factor as follows (assuming an 8-foot ceiling): kitchen, 2; bathroom, 1.07; family, recreation or laundry room, 0.8.

A different basis for selection applies to range hood fans. Recommended minimums: 40 CFM per lineal foot of range hood for along-wall placement. Higher ratings than minimums often are desirable.

The recommended minimum capacity for whole house fans is based on the HVI guideline, which requires one complete air change every two minutes within the occupied area. This may be determined by multiplying the gross square footage of the entire house (including non-occupied areas like closets) by 3. Be sure to include the "upstairs" area of multi-level homes. This formula assumes an 8' ceiling and offsets typical non-occupied areas.

For powered attic ventilators, HVI guidelines call for a minimum of 0.7 CFM per square foot of attic floor space, plus 15% for dark roofs, and intake area of 1 square foot of free opening per 300 CFM of fan capacity. Ratings are based on testing of complete roof or gable units at 0.03" static pressure.

### WHAT IS A SONE?

The sone is an internationally recognized unit of loudness, which simplifies reporting of sound output. The sones translate laboratory decibel readings into numbers that correspond to the way people sense loudness. Sones follow a "linear" scale, like inches. Double the sone is double the loudness. In contrast, decibels follow a "logarithmic" scale, which stands for a complete multiplying of numbers instead of simple adding. Sone readings offer easy, quick and accurate comparisons for both laymen and engineers. In technical terms, the sone is equal in loudness to a pure tone of 1,000 cycles per second at 40 decibels above the listener's threshold of hearing. In everyday terms, one sone is equivalent to the sound of a quiet refrigerator in a quiet kitchen.

### Regarding Sound levels of Exterior Mounted and Inline Fans, and HRVs/ERVs:

HVI, the Home Ventilating Institute, does not certify Sound Ratings for Exterior Mounted and Inline fans, nor Heat/Energy Recovery Ventilators.

Remote mounted fans can be extremely quiet if installed properly. Although different fans produce different amounts of sound power, variations in installation yield significantly greater differences in perceived sound level for remote mounted fans. As is the case with furnaces, rating remote mounted fans for sound does therefore not make sense.

For bathroom and other exhaust or supply air applications using remote mounted fans, HVI recommends using insulated flexible ducting (same as used for HVAC ducting). Insulated flexible ducting has very good noise attenuating properties and minimizes condensation. With eight feet of insulated flexible duct between the ceiling grille and the fan, almost no fan noise should be evident in the bathroom. Ensure that the ceiling grilles are large enough not to induce significant air noise. For bathroom applications, an automatic timer is a recommended in order to keep the fan from being left on inadvertently.

For range hood exhaust, rigid metal duct shall always be used. Rigid ducting does not attenuate sound effectively. With the very powerful remote mounted fans often used for residential range hoods in "professional" style kitchens, a silencer designed for the purpose will significantly lower the sound level.