

# ASHRAE 62.2 Standards – Panasonic Green Solution Ventilation Systems

## PANASONIC GREEN SOLUTIONS FOR MEETING ASHRAE 62.2 AND OTHER GREEN BUILDING PROGRAMS

LEED for Homes, the ENERGY STAR® Homes Indoor Air Package, the National Association of Home Builders Green Buildings Standard, and the 2008 California Title 24 all use ASHRAE Standard 62.2 for the ventilation requirements. While 62.2 allows exhaust, supply, or balanced ventilation, the simplest solution is a continuous low flow (30-100 cfm) and quiet (max 1.0 sone) exhaust fan. Panasonic created the WhisperGreen fans and the WhisperComfort ERV specifically to meet 62.2. The WhisperGreen (WG) fans are the least expensive, most energy efficient, simplest to implement, and quietest way to meet ASHRAE 62.2.

### FAQ's

People breathe 24 hours a day and chemical contaminants are generated 24 hours a day in the home, so providing exhaust ventilation 24/7 is the best way to provide good IAQ. Using very quiet fans means that occupants are more likely to allow them to run all the time. So all Panasonic fans are designed to operate continuously and quietly.

The Green concept is a combination of energy efficiency, sustainability, improved interior environment (IAQ), and ultimately operating cost. The Whisper Green fans are the most energy efficient and quietest products on the market and the six year warranty and low energy use ensure sustainability.

ASHRAE stands for the American Society of Heating, Refrigerating, and Air Conditioning Engineers. ASHRAE develops most national and international standards for the HVAC industry. Don Stevens, the National R&D Manager for PHEC, is our representative to ASHRAE and is the Vice Chair of the ASHRAE Standard 62.2 committee.

ASHRAE Standard 62.2-2007, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, is the national ventilation standard of design for all homes and up to three-story multifamily buildings. 62.2 allows exhaust, supply, or balanced ventilation, meaning that a simple exhaust fan or supply fan can be used, or these flows can be balanced with both a supply fan and an exhaust fan, with or without heat recovery. It is up to the designer or builder to decide if filtration, tempering, or dehumidification is required, based on where the house or building is built.

With the WhisperGreen, all it takes for a builder to meet 62.2 is to upgrade one or two bath fans and set the low flow continuous rate in accordance with the table on the next page. That is it. So now the cost to meet any of these Green programs is the cost of upgrading one fan. Another option is to use a WhisperComfort ERV, with the 40 cfm of exhaust covering all or a portion of the required 62.2 continuous rate. Add a WhisperGreen in the Master Bath and you can provide up to 120 cfm total, covering most houses.

There is no requirement in 62.2 for distribution of the outdoor air, but in a large house it may be desirable to exhaust from more than one location. It is much less complex, less expensive, and quieter to install two WhisperGreen fans rather than the competitions SmartSense system that operates at three times the required rate for one-third of the time. Some builders want to use the airhandler to pull in the air and possibly provide some filtration, but that is a 300+ watt motor working to bring in what can be done for under 10 watts with a WhisperGreen fan, which is a \$2-300 savings per year. It is also nearly impossible to control the amount of outdoor air being pulled into the return air plenum of the airhandler to be distributed to the house. So keep it simple - use a WhisperGreen fan or WhisperComfort ERV. A WhisperGreen fan costs only about \$15 per year to operate continuously, 24/7.

The ASHRAE 62.2 fan sizing is based on total square footage of the home and number of bedrooms. The formula is; (total square footage of the home/100) + ((number of bedrooms+1) X 7.5 cfm). For example; a 2500 square foot house with 3 bedrooms needs  $((3+1) \times 7.5) + (2500/100) = 30 + 25 = 55$  cfm. ASHRAE 62.2 makes the sizing easy by providing the following table:

Floor Area	BEDROOMS				
	0-1	2-3	4-5	6-7	>7
< 1500	30	45	60	75	90
1501 - 3000	45	60	75	90	105
3001 - 4500	60	75	90	105	120
4501- 6000	75	90	105	120	135
6001 - 7500	90	105	120	135	150
>7500	105	120	135	150	165

All houses leak to some extent. ASHRAE 62.2 assumes an average new construction tightness level that is based on national testing and that will allow some leakage. Air leaks in (if exhausting) or out (if supplying) of the house when the fan operates, through the cracks and holes in the building between building materials, around windows and doors, and through utility penetrations. While not required by 62.2, through-the-wall inlets from Panasonic and others can be installed in the bedrooms to ensure some of the leakage happens through those inlets.

An exhaust fan brings air into the house by creating a negative pressure. However, the low exhaust rates required by 62.2 will virtually never create enough negative pressure to cause a combustion device to backdraft. High flow fans, such as large range hoods and clothes dryers, can create enough negative pressure to create a backdraft if natural draft combustion devices are used in a tight house. ASHRAE 62.2 sets a limit on how much total exhaust can be tolerated.

The US Green Building Council (USGBC [www.usgbc.org](http://www.usgbc.org)) offers the Leadership in Energy and Environmental Design (LEED) program for commercial buildings and the LEED for Homes program for residential buildings. Neither program offers specific product certification, but both require mechanical ventilation. The Whisper Green fans can be used to meet the ASHRAE 62.2 ventilation requirements in the LEED for Homes program.

The US Environmental Protection Agency (EPA) operates the ENERGY STAR® program, including the ENERGY STAR® Homes Program. This program offers certification of the home as energy efficient based on an outside evaluation of the energy use and construction features of the house, with a variety of levels attainable. The ENERGY STAR® Homes program does not require a full ventilation strategy, but EPA offers the Indoor Air Package (IAP) as a supplement to the ENERGY STAR® Homes program. The IAP requires compliance with ASHRAE 62.2, so WhisperGreen is the product of choice.

These programs, like LEED for Homes and ENERGY STAR® IAP, all require various levels of insulation, use of renewable building and finishing products, special care about recycling, etc. They also require compliance with the ventilation requirements of 62.2. So the builder has to include quiet low flow ventilation, offering another opportunity for WhisperGreen fans.a10

ASHRAE 62.2 allows the designer or builder to choose the method that fits his project, climate, or budget. It only sets the continuous rate and provides guidance on how to increase the flow to allow for intermittent operation. Essentially, the higher rate is the reciprocal of the run time. If it operates one-third of the time, it must be increased to three times the continuous rate in the table. Once again, the easiest way to meet the requirements is to use a WhisperGreen fan operating continuously. Most of the single speed Panasonic fans under 1.0 sone can be used to meet 62.2, but the rated flow at 0.25 inches of water gauge must meet the required flow. So the WhisperGreen models are the preferred choice.