

Panasonic

VENTILATION & IAQ SOLUTIONS





THE MAGNIFICENT SEVEN

HIGH PERFORMANCE VENTILATION FANS AND INDOOR AIR QUALITY SOLUTIONS

For over two decades, Panasonic has led the industry with an impressive commitment to innovative, high performance ventilation solutions that have set new standards for quiet operation and energy efficiency.

Panasonic Advanced Ventilation Solutions

1993	2003	2006	2007	2011
WhisperCeiling™ VENTILATION FAN	WhisperFit™ VENTILATION FAN	WhisperGreen™ VENTILATION FAN	WhisperComfort™ VENTILATION FAN	WhisperSense™ VENTILATION FAN
Quiet Solution	Retrofit Solution	ASHRAE 62.2 Compliance Solution	Multi-Family Solution	Balanced Air Solution
				CALGreen Compliance Solution

Leading the Way with High Performance Ventilation Fans and Indoor Air Quality Solutions

Panasonic is the premier manufacturer of powerful, energy-efficient ventilation fans that quietly exhaust unhealthy, unpleasant or moist air from your home or business. Contractors, builders, architects and homeowners rely on us for our quality and for the wide array of solutions we offer—from bathroom fans with both motion and humidity sensors to remote in-line fans.

Panasonic is proud to be recognized by the EPA for the **seventh** consecutive year, earning their most prestigious ENERGY STAR® honor, the Sustained Excellence 2016 Award. Sustained excellence is precisely what we strive for as evidenced by our legacy of providing high performance, energy-efficient ventilation solutions. In fact, for over two decades—highlighted by industry-leading quiet fans, revolutionary DC Motor technology, and leading-edge LED lighting—we've continued to demonstrate outstanding leadership, year after year.

Panasonic has been in the ventilation business for over 100 years and is the largest manufacturer of ventilation equipment globally. Panasonic produces the highest quality, most efficient and environmentally friendly products available in the market today. We do this by designing, engineering and manufacturing in our own facilities. Panasonic is known around the world for offering the quietest ENERGY STAR® fans in the industry!

A LEGACY OF INNOVATION

2012	2013	2014	2015	2016	
					
Design Solution	Ultimate Energy Efficient Fan/Light Solution	One Fan - Multiple IAQ Solutions Most Efficient 2017	Retrofit Solution Customizable Airflow	Low Cost, Whole House Ventilation Solution	Multi-Family Solution DC motor technology



*2017 MOST EFFICIENT ENERGY STAR®
APPLIES TO WHISPERGREEN SELECT
FAN ONLY MODELS



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Panasonic Ventilation Fan Benefits

High Performance, Low Cost Solutions

Panasonic offers the most cost effective solutions for meeting code and minimizing the impact to your HERS index. Whether utilizing an exhaust only, supply only or balanced ventilation strategy, you can rely on Panasonic for unmatched quality and value.

Certified & Code Compliant

Panasonic ventilation fans are certified by the Home Ventilating Institute (HVI) and ENERGY STAR® certified, where guidelines exist. All models can be used to comply with ASHRAE 62.2, the ventilation standard required by LEED for Homes, ENERGY STAR® for Homes 3.0 IAP, CALGreen, NAHB Green Building Standard, EarthCraft, Washington Ventilation Code and other building programs.

Powerful & Quiet

Fully enclosed DC and AC condenser motors assure remarkable performance and quiet operation at industry standard, 0.25" w.g. static pressure (Installed Performance).

Long Life

Permanently lubricated motors are engineered for trouble-free, continuous operation for 30,000 hours on AC motors, along with rust-proof paint and galvanized housing.

Easy Installation

Integrated duct adapters, adjustable mounting brackets (up to 24" o.c.), fan/motor units that easily detach from the housing and uncomplicated wiring all lend to user-friendly installation. Double-hanger bar systems allow for ideal positioning. Flex-Z Fast™ bracket with articulating joints provides even more flexible, fast and easy installation on select models.

Energy Savings

When it comes to energy efficiency, our wattage requirements are among the lowest in the industry. Our fans have also been engineered to comply with ENERGY STAR® 4.0 requirements for increased efficiency (CFM/Watt), ensuring low cost, energy efficient operation.



**Safety**

WhisperGreen Select™ models are protected by UL Class 2 Power Unit while all other models are equipped with thermal fuse protection. With the exception of the ERV and fan/heaters, all models are UL listed for tub/shower enclosure when GFCI protected.

Airflow

A built-in plastic or metal damper (depending on model #) in all ceiling-mounted models helps prevent backdraft. Built-in metal flange provides blocking for penetrations through drywall as an air barrier, and assists with the decrease in leakage in the building envelope during blower door testing.

Illumination

The fan/lights have ENERGY STAR® rated compact fluorescent lamps (CFLs) that can be used to comply with California Title 24, and have 10,000 hours of rated life. The CFL lighted models feature >70LPW, the highest Lumens Per Watt in the industry. A 4W night light is available on most models. Some models feature LED lighting that have 40,000 hours of rated life, along with an optional 1W LED night light.

Green Manufacturing

All fan only models are RoHS Approved. Restriction of Hazardous Substances Directive (RoHS) restricts the use of the following six substances in the manufacturing process: Lead, Mercury, Cadmium, Hexavalent chromium [CR(VI)], Polybrominated biphenyls (PBB), and Polybrominated diphenyl ether (PBDE).

Warranty

6-Year warranty on DC motor, 5-Year warranty on LED, 3-Year warranty on CFLs and 3-Year warranty on all other parts.



Why is Ventilation Necessary?

Today's homes are designed and built to improve energy efficiency. However, these airtight homes may actually cause health problems due to the build-up of pollutants and uncirculated stale air. What do they need? Mechanical ventilation!

Airtight Homes

Homes designed and built in recent years are more airtight and energy efficient than in the past. To obtain this airtight design, newly designed windows and doors, sealing caulks and other insulating materials are used to create better energy efficiency. The resulting benefit is fewer drafts, which lowers the cost to heat and air-condition a home. But pollutants retained in airtight buildings can be hazardous to their occupants. That's why Panasonic stresses a "build tight and ventilate right" platform. Proper mechanical ventilation design can address poor indoor air quality, while retaining energy efficiency.

Biological Pollutants

Biological pollutants, to some degree, are found in all homes. These include mold, mildew, pollen, dust mites, pet dander, viruses and bacteria. Accumulation of these biological pollutants can result in hazardous health effects for the occupants, as well as structural damage to the building.

Volatile Organic Compounds (VOCs)

Volatile Organic Compounds are carbon-based compounds that easily evaporate.

Formaldehyde and other types of gases are released from building materials, carpets, furniture and many other household items as part of aging, decomposition or curing, all of which are natural processes known as off-gassing. Some other household items that emit VOCs include hair sprays, paints, lacquers, finishes, oven cleaners and other cleaning solvents, pesticides, etc. Often colorless and odorless, VOCs can ultimately sensitize certain people to react to them.

Ways to Improve Indoor Air Quality

The first step to improve indoor air quality should be to reduce or remove the source of the pollutants.

Unfortunately, indoor pollutants are virtually impossible to eliminate completely, creating the need for a second step to improve indoor air quality—mechanical ventilation. Mechanical ventilation is used to remove stale, moist, polluted air and replace it with fresh outside air.

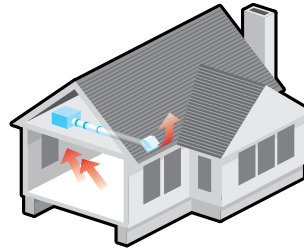
Whole House Ventilation

All homes need to exhaust stale air and bring in fresh air for the health of the occupants. To meet Whole House Ventilation Standards, a typical solution is to exhaust air on a low, continuous basis and allow outdoor infiltration air to freshen the home. However, it is also possible to mechanically bring in fresh air for Whole House Ventilation by running a fan at a higher speed on an intermittent basis. Either way, continuous or intermittent, it is important to insure fresh air routinely replaces the stale air within the home.



Bad

Pollutants such as smoke, formaldehyde, dust, humidity and VOCs accumulate in a poorly vented building.



Good

Ventilation fans help to maintain indoor air flow and air quality.

Ideally, an airtight home designed with both continuous and intermittent ventilation will contribute to a healthy and comfortable living environment for the entire family.

Local, or Source, Ventilation

Local, or source ventilation, sometimes referred to as spot ventilation, is used to capture and remove pollutants quickly at the source. Pockets of excessive moisture and pollutants can build up in the bathroom, kitchen, utility room, garage and home office. This secondary process serves to exhaust these problem areas quickly, before bad air can spread throughout the house. Just as important as Whole House ventilation, source ventilation complements the effort to improve indoor air quality.

Both systems exhaust pollutants from the air, but source ventilation is especially effective at removing pollutants where they can become concentrated such as in the bathroom, kitchen or garage.

Source (spot) ventilation:

The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) recommends the following minimums for source ventilation: (See ASHRAE on page 80)

I. Bathrooms - 50 CFM minimum.

A good rule of thumb for bathrooms is 1 CFM/sq.ft.

II. Kitchens - 100 CFM. A good rule of thumb for kitchens is 2 CFM/sq.ft.

Whole house ventilation:

Most building codes have adopted the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Standard 62. The most widely-used version, ASHRAE 62.2-2010, calls for continuous

mechanical ventilation as shown in the following steps below.

The formula for calculating the needed whole house mechanical ventilation is as follows:

CFM fan = 0.01 A floor + 7.5 (Number of bedrooms + 1)

7.5 CFM/bedroom plus 7.5 CFM (assuming 2 people in the Master Bedroom) and add 1% of the square feet of the house or apartment.

Finally, it would be good to calculate the Equivalent Duct Length of the planned duct run. Bear in mind that some fans are not able to overcome the static pressure of a long, or difficult duct run to the exterior.

Static pressure and duct run:

A ventilating fan must overcome resistance when pulling air through the grille and pushing it through the duct and cap to the outside of the building. This resistance is known as static pressure. The amount of static pressure depends on the duct length, type of duct, elbows and the roof jack or wall cap.

Fan Selection Guide

1. What is the size of the bathroom?

- Need 1 CFM (cubic foot per minute) per square foot
- Length x Width of floor space (sq.ft.) = CFM (length) x (width) = (Total CFM needed)
- Example: 8 ft length x 10 ft wide = 80 CFM is needed to properly ventilate the bathroom

2. What features are needed/wanted?

Fan only? Light? Heat? Variable speed? Motion? Humidity? Time delay?

3. What type of access or truss height is available?

- 2 x 8 construction – use any fan combination that we have
- 2 x 6 construction – use our fan combinations that fit 2 x 6 or 2 x 4 construction
- 2 x 4 construction – use our fan combinations that fit 2 x 4 construction

Now that you know the CFM needed, the features wanted and the construction size, you are ready to find your fan combination.

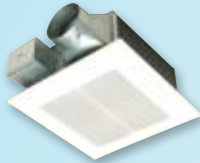
High Performance, Low Cost Ventilation & IAQ Solutions



WhisperRecessed LED™

Ideal Design Solution

- Architectural grade recessed fan/light
- ENERGY STAR® 2.0 certified LED lamp



WhisperFit EZ

Ideal Retrofit Solution

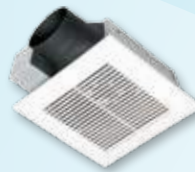
- Low profile, 5-5/8" housing depth
- Pick-A-Flow™ Speed Selector



WhisperWarm™

Quiet, Fan/Heater Solution

- Quick, 1 minute warm up



ecovent™

Cost effective, Spot Ventilation Solution

- Ideal for Home Builders
- Ventilation Verification Assurance



WhisperComfort™

Low Cost and Easy to Install Balanced Air Solution

- UL listed ceiling and wall mount spot ERV



Intelli-Balance™ 100

Cost Effective, Code Compliant ERV for Any Climate Zone

- Two DC motors with Pick-A-Flow™
- Built-in ASHRAE 62.2 timing function



SelectCycler™

Lowest Cost Per HERS Point Solution

- Supply or Balanced ventilation
- Designed to work with WhisperGreen Select fans



WhisperLine™

Remote Mount, In-line Spot Ventilation Solution

- Remote mount in-line fans for single or multiple inlets





WhisperValue^{DC} VENTILATION FAN

Ideal Multi-Family Solution

- DC motor and Pick-A-Flow™ Speed Selector
- Super low profile, 3-3/8" housing depth
- UL listed ceiling and wall mount

WhisperGreen^{Select} VENTILATION FAN

One Fan - Multiple IAQ Solutions

- Customizable, all-in-one fan and fan/LED light combinations
- Works with the SelectCycler System

WhisperWall[™] VENTILATION FAN

Through the Wall Spot Ventilation

- Through-the-wall application

WhisperSupply Wall[™] VENTILATION FAN

Filtered Supply Air Solution

- Filtered supply air fan solution to meet ASHRAE 62.2 requirements



Recessed Inlet[™]

Design solution for exhaust or supply inlets

- Ideal for use with in-line fans and H/ERVs
- ENERGY STAR® 2.0 certified LED lamp fans



WhisperCeiling[™] VENTILATION FAN

Quiet, Spot Ventilation Solution

- Low sone & energy efficient



WhisperSense[™] VENTILATION FAN

Moisture Control for CALGreen Compliance Solution

- Built-in dual motion and humidity sensors



WhisperControl

Condensation Sensor Plus Solution

- Automatic dual humidity and temperature sensor



Scan code to view
WhisperGreen Select
animation





One Fan - Multiple IAQ Solutions

WhisperGreen Select™ is a ground-breaking IAQ solution that is revolutionizing the vent fan industry with a unique set of features that enable customization and easy installation. To the builder and professional installer, Whisper Green Select™ provides unequalled installed performance and quietest operation at 0.25" w.g. static pressure. Its unique design and superior energy efficiency are achieved through engineering expertise, provided by a company who sets the standard for quality and value.

Panasonic brings you the next wave of technological innovation, with a built-in **Pick-A-Flow™** speed selector that provides the unique ability to select your required airflow (50-80-110 and 110-130-150 CFM models) with the simple flip of a switch.

WhisperGreen Select also offers a unique set of four patented **Plug 'N Play™** modules that allow you to further customize your fan.



Multi-Speed with Time Delay* (FV-VS15VK1)

Allows you to select the proper CFM settings to satisfy ASHRAE 62.2 continuous ventilation requirements. The fan runs continuously at a preset lower level (0, 30-100 or 0, 50-120 CFM, in 10 CFM increments), then elevates to a maximum level of operation (50-80-110 or 110-130-150 CFM) when the wall switch is turned on, or when the Motion Sensor or Condensation Sensor module is activated. A High/Low delay timer returns the fan to the preset CFM level after a period of time set by the user.

*Applies to both the pre-installed multi-speed with time delay, as well as the FV-VS15VK1 multi-speed with time delay Plug 'N Play module.



SmartAction® Motion Sensor (FV-MSVK1)

Automatically activates the fan when someone enters the room. Once the settings have been applied, the fan becomes truly automatic. This module also activates a 20 minute delay off timer for the fan.



Condensation Sensor (FV-CSVK1)

Helps control bathroom condensation to prevent mold and mildew. Sensor technology detects relative humidity and temperature to anticipate dew point, automatically turning the fan on to control humidity. Built-in Relative Humidity (RH) sensitivity adjustment enables fine tuning for moist conditions and for satisfying CALGreen requirements. When the Condensation Sensor is used in conjunction with multi-speed functionality, the fan will ramp up to high speed when the Condensation Sensor detects moisture in the room. This module also activates a 20 minute delay off timer for the fan.



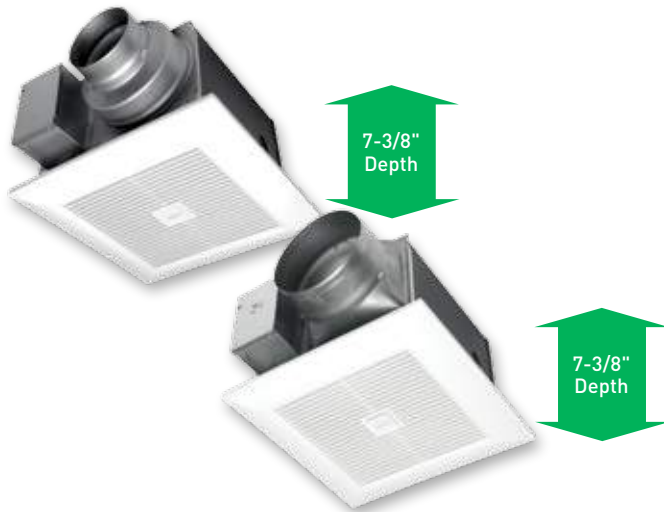
NiteGlo™ LED Night Light (FV-NLVK1)

A photocell automatically turns on the 1 watt LED night light when darkness is sensed in the room. High/Low brightness switch enables you to fine tune the photocell to work in conjunction with the darkness level of your bathroom. This module also activates an automatic 20 minute delay off timer for the fan.

Single Speed Fans (On/Off)

WhisperGreen^{Select} | One Fan - Multiple IAQ Solutions

FV-05-11VK1 50-80-110 CFM 4" or 6" Duct
FV-11-15VK1 110-130-150 CFM 6" Duct



WhisperGreen Select Key Benefits:

- Customizable, all-in-one fan
- Pick-A-Flow™ speed selector – one fan, you choose the CFM
- Plug 'N Play™ modules provide up to three value added features (select from Multi-Speed with Time Delay, SmartAction® Motion Sensor, Condensation Sensor or NiteGlo™ LED Night Light) (See page 10-11 for details)
- Revolutionary DC motor with SmartFlow™ technology for optimum CFM output
- Flex-Z Fast™ installation bracket provides flexible, fast and easy installation
- Integrated dual 4" or 6" duct adapter (50-80-110 CFM models)
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, CALGreen, California Title 24, WA Ventilation Code and ENERGY STAR® for Homes 3.0



Multi-Speed with Time Delay*
 (FV-VS15VK1)



SmartAction® Motion Sensor*
 (FV-MSVK1)

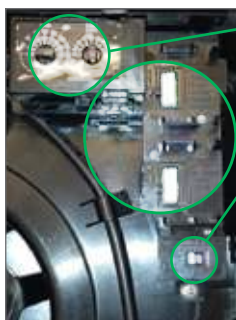


Condensation Sensor*
 (FV-CSVK1)



NiteGlo™ LED Night Light*
 (FV-NLVK1)
 *Optional Add-On Feature

Plug 'N Play Receptacles & Pick-A-Flow Switch



1 Plug 'N Play Modules Sold Separately

2 Plug 'N Play Module Receptacles

3 Pick-A-Flow Speed Selector Switch



Flex-Z Fast installation bracket
 with articulating joints



BUILT-IN SELF ADJUSTING
 AIRFLOW TECHNOLOGY



WhisperGreen Select	FV-05-11VK1 (Base Fan)						FV-11-15VK1 (Base Fan)					
Characteristics												
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	113	80	82	50	53	150	151	130	130	110	110
Noise (sones)	<0.3	0.8	<0.3	0.4	<0.3	<0.3	<0.3	0.7	<0.3	0.5	<0.3	<0.3
Power Consumption (Watts)	9.8	16.1	5.4	10.2	3.2	6.5	12.7	21.7	9.5	16.8	6.6	12.7
Energy Efficiency (CFMs/Watt)	11.5	7.2	15.3	8.4	15.1	8.1	11.5	6.8	13.1	7.8	15.7	8.2
Speed	931	1205	814	1131	747	1072	664	904	635	891	616	889
Current	0.10	0.16	0.06	0.10	0.04	0.07	0.13	0.21	0.10	0.17	0.07	0.13
Power Rating (V/Hz)	120/60											

WhisperGreen Select	FV-05-11VK1 + FV-VS15VK1 (Base Fan with Multi-Speed Time Delay Plug 'N Play™ Module)																	
Characteristics																		
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	113	100	106	90	95	80	82	70	71	60	66	50	53	40	43	30	33
Noise (sones)	<0.3	0.8	<0.3	0.7	<0.3	0.6	<0.3	0.4	<0.3	0.4	<0.3	<0.3	<0.3	0.3	<0.3	<0.3	<0.3	<0.3
Power Consumption (Watts)	9.8	16.1	8.0	14.0	6.5	11.7	5.5	10.2	4.3	8.6	3.2	6.5	3.5	7.0	2.7	5.7	2.4	5.0
Energy Efficiency (CFMs/Watt)	11.5	7.2	13.0	7.9	14.5	8.5	15.3	8.4	17.2	8.7	17.5	8.8	15.1	8.1	16.3	8.2	14.2	7.6
Speed	931	1205	895	1179	852	1146	814	1131	772	1112	750	1107	747	1072	731	1073	718	1062
Current	0.10	0.16	0.09	0.14	0.07	0.12	0.06	0.10	0.05	0.09	0.04	0.08	0.04	0.07	0.08	0.06	0.03	0.06
Power Rating (V/Hz)	120/60																	

WhisperGreen Select	FV-11-15VK1 + FV-VS15VK1 (Base Fan with Multi-Speed Time Delay Plug 'N Play™ Module)																			
Characteristics																				
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	150	151	130	130	120	121	110	110	100	102	90	96	80	84	70	72	60	62	50	51
Noise (sones)	<0.3	0.7	<0.3	0.5	<0.3	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	<0.3	0.4	<0.3	0.4	<0.3	0.4
Power Consumption (Watts)	12.7	21.7	9.5	16.8	7.4	14.1	6.6	12.7	5.6	11.3	4.9	10.7	4.4	9.6	3.8	8.6	3.6	7.7	3.1	6.8
Energy Efficiency (CFMs/Watt)	11.5	6.8	13.1	7.8	16.2	8.6	15.7	8.2	17.9	9.0	18.6	9.0	18.2	8.8	18.4	8.4	16.7	8.1	16.1	7.5
Speed	664	904	635	891	615	884	616	889	603	886	595	891	604	911	602	918	622	919	616	928
Current	0.13	0.21	0.10	0.17	0.08	0.14	0.07	0.13	0.06	0.11	0.06	0.11	0.05	0.10	0.05	0.09	0.04	0.08	0.04	0.07
Power Rating (V/Hz)	120/60																			

Flex-Fast™



CALGreen



Fans with Built-in Controls & Fan/Lights with Built-in Controls

WhisperGreen[®]Select™ | One Fan - Multiple IAQ Solutions

FV-05-11VKS1 30 to 110 CFM 4" or 6" Duct



7-3/8"
Depth



WhisperGreen Select Key Benefits:

- Customizable, all-in-one fan
- Pick-A-Flow™ speed selector – one fan, you choose the CFM
- Pre-installed multi-speed control module with high/low delay timer up to 60 minutes
- Plug 'N Play™ modules provide up to **two** value added features (select from SmartAction® Motion Sensor, Condensation Sensor or NiteGlo™ LED Night Light) (See page 10-11 for details)
- Revolutionary DC motor with SmartFlow™ technology for optimum CFM output
- Flex-Z Fast™ installation bracket provides flexible, fast and easy installation
- Integrated dual 4" or 6" duct adapter
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, CALGreen, California Title 24, WA Ventilation Code and ENERGY STAR® for Homes 3.0

WhisperGreen[®]Select™ | One Fan/Light - Multiple IAQ Solutions

FV-05-11VKSL1 30 to 110 CFM 4" or 6" Duct



7-3/8"
Depth



INCLUDES: (2) replaceable, 7W ENERGY STAR® rated, GU24 base LED lamps. 3000 Kelvin/80+ CRI/ 550 Lumens per lamp/ 80 Lumens per watt/ 40,000 hours rated average life.



APPLICABLE TO
FV-05-11VKSL1 ONLY



BUILT-IN SELF ADJUSTING
AIRFLOW CAPABILITY

WhisperGreen Select	FV-05-11VKS1																
Characteristics	(Base Fan with Pre-installed Multi-Speed with Time Delay)																
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1
Air Volume (CFM)	110	113	100	106	90	95	80	82	70	71	60	66	50	53	40	43	30
Noise (sones)	<0.3	0.8	<0.3	0.7	<0.3	0.6	<0.3	0.4	<0.3	0.4	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Power Consumption (Watts)	9.8	16.1	8.0	14.0	6.5	11.7	5.5	10.2	4.3	8.6	3.6	7.8	3.2	6.5	2.7	5.7	2.4
Energy Efficiency (CFMs/Watt)	11.5	7.2	13.0	7.9	14.5	8.5	15.3	8.4	17.2	8.7	17.5	8.8	15.1	8.1	16.3	8.2	14.2
Speed	931	1205	895	1179	852	1146	814	1131	772	1112	750	1107	747	1072	731	1073	718
Current	0.10	0.16	0.09	0.14	0.07	0.12	0.06	0.10	0.05	0.09	0.04	0.08	0.04	0.07	0.08	0.06	0.03
Power Rating (V/Hz)	120/60																

WhisperGreen Select	FV-05-11VKS1																
Characteristics	(Base Fan with LED Light and Pre-installed Multi-Speed with Time Delay)																
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1
Air Volume (CFM)	110	114	100	105	90	94	80	86	70	71	60	62	50	53	40	43	30
Noise (sones)	0.4	0.9	<0.3	0.8	<0.3	0.6	<0.3	0.5	<0.3	0.4	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Power Consumption (Watts)	11.1	17.6	8.7	15.0	7.0	12.8	5.8	11.1	4.7	8.9	3.9	3.2	6.6	7.0	2.8	5.7	2.5
Energy Efficiency (CFMs/Watt)	9.9	6.3	11.6	7.1	13.1	7.5	13.3	7.7	15.3	8.2	15.9	8.4	12.8	7.7	14.6	7.7	12.8
Speed	960	1237	926	1213	872	1184	837	1157	796	1119	769	1102	740	1081	739	1077	731
Current	0.12	0.17	0.09	0.15	0.08	0.13	0.07	0.12	0.05	0.09	0.05	0.08	0.04	0.07	0.04	0.06	0.03
Power Rating (V/Hz)	120/60																



Pre-Installed Multi-Speed
with Time Delay



SmartAction® Motion Sensor*
(FV-MSVK1)

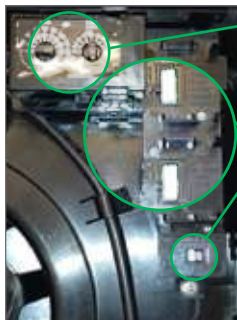


Condensation Sensor*
(FV-CSVK1)



NiteGlo™ LED Night Light*
(FV-NLVK1)
*Optional Add-On Feature

Plug 'N Play Receptacles & Pick-A-Flow Switch



- 1 Pre-Installed Multi-Speed Module
- 2 Plug 'N Play Module Receptacles
- 3 Pick-A-Flow Speed Selector Switch



Flex-Z Fast installation bracket
with articulating joints



Flex-ZFast™

CALGreen



Single Speed Fans with Lights (On/Off)

WhisperGreen^{Select} | One Fan/Light - Multiple IAQ Solutions

FV-05-11VKL1 50-80-110 CFM 4" or 6" Duct
FV-11-15VKL1 110-130-150 CFM 6" Duct



WhisperGreen Select Key Benefits:

- Customizable, all-in-one fan/LED light combination
- Pick-A-Flow™ speed selector – one fan, you choose the CFM
- Plug 'N Play™ modules provide up to three value added features (select from Multi-Speed with Time Delay, SmartAction® Motion Sensor, Condensation Sensor or NiteGlo™ LED Night Light) [See page 10-11 for details]
- Revolutionary DC motor with SmartFlow™ technology for optimum CFM output
- Two replaceable, 7W, GU24 base LED lamps
- Flex-Z Fast™ installation bracket provides flexible, fast and easy installation
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, CALGreen, California Title 24, WA Ventilation Code and ENERGY STAR® for Homes 3.0



Multi-Speed with Time Delay*
 (FV-VS15VK1)



SmartAction® Motion Sensor*
 (FV-MSVK1)

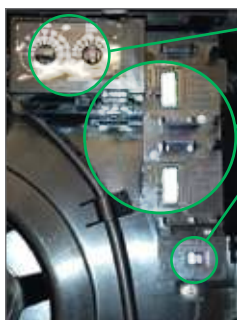


Condensation Sensor*
 (FV-CSVK1)



NiteGlo™ LED Night Light*
 (FV-NLVK1)
 *Optional Add-On Feature

Plug 'N Play Receptacles & Pick-A-Flow Switch



1 Plug 'N Play Modules Sold Separately

2 Plug 'N Play Module Receptacles

3 Pick-A-Flow Speed Selector Switch



Flex-Z Fast installation bracket
 with articulating joints



BUILT-IN SELF ADJUSTING
 AIRFLOW TECHNOLOGY



WhisperGreen Select	FV-05-11VKL1 (Base Fan with LED Light)						FV-11-15VKL1 (Base Fan with LED Light)					
Characteristics												
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	114	80	86	50	53	150	143	130	131	110	111
Noise (sones)	0.4	0.9	<0.3	0.6	<0.3	<0.3	0.6	0.9	<0.3	0.8	<0.3	0.6
Power Consumption (Watts)	11.1	18.0	6.0	11.1	4.0	7.0	16.5	24.0	12.0	21.0	8.5	16.0
Energy Efficiency (CFMs/Watt)	9.9	6.3	13.3	7.7	12.8	7.7	9.2	6.0	10.9	6.3	13.1	7.1
Speed	960	1237	837	1157	740	1081	730	941	679	926	652	914
Current	0.12	0.17	0.07	0.12	0.04	0.07	0.16	0.22	0.12	0.19	0.08	0.15
Power Rating (V/Hz)	120/60											

WhisperGreen Select	FV-05-11VKL1 + FV-VS15VK1 (Base Fan with LED Light and Multi-Speed Time Delay Plug 'N Play™ Module)																	
Characteristics																		
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	114	100	105	90	94	80	86	70	71	60	62	50	53	40	43	30	35
Noise (sones)	0.4	0.9	<0.3	0.8	<0.3	0.6	<0.3	0.6	<0.3	0.4	<0.3	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Power Consumption (Watts)	11.1	18.0	8.7	15.0	7.0	12.8	6.0	11.1	4.7	8.9	3.9	7.6	4.0	7.0	2.8	5.7	2.5	5.0
Energy Efficiency (CFMs/Watt)	9.9	6.3	11.6	7.1	13.1	7.5	13.3	7.7	15.3	8.2	15.9	8.4	12.8	7.7	14.6	7.7	12.8	7.4
Speed	960	1237	926	1213	872	1184	837	1157	796	1119	769	1102	740	1081	739	1077	731	1058
Current	0.12	0.17	0.09	0.15	0.08	0.13	0.07	0.12	0.05	0.09	0.05	0.08	0.04	0.07	0.04	0.06	0.03	0.06
Power Rating (V/Hz)	120/60																	

WhisperGreen Select	FV-11-15VKL1 + FV-VS15VK1 (Base Fan with LED Light and Multi-Speed Time Delay Plug 'N Play™ Module)																	
Characteristics																		
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	150	143	130	131	120	122	110	111	100	102	90	90	80	82	70	71	60	52
Noise (sones)	0.5	0.9	<0.3	0.8	<0.3	0.6	<0.3	0.6	<0.3	0.5	<0.3	0.4	<0.3	0.4	<0.3	0.3	<0.3	0.4
Power Consumption (Watts)	16.4	23.3	11.5	19.6	9.5	16.9	7.9	14.8	6.9	13.5	5.7	11.6	5.0	10.4	4.3	8.8	4.0	7.2
Energy Efficiency (CFMs/Watt)	9.2	6.0	10.9	6.3	12.8	7.3	13.1	7.1	14.8	7.7	16.0	7.8	16.0	7.9	16.3	8.1	15.5	7.5
Speed	730	941	679	926	669	917	652	914	644	923	631	917	633	918	624	904	634	910
Current	0.16	0.22	0.12	0.19	0.10	0.17	0.08	0.15	0.07	0.14	0.06	0.12	0.06	0.11	0.05	0.09	0.05	0.08
Power Rating (V/Hz)	120/60																	



INCLUDES: (2) replaceable,
7W ENERGY STAR® rated,
GU24 base LED lamps.
3000 Kelvin/80+ CRI/
550 Lumens per lamp/
80 Lumens per watt/
40,000 hours rated
average life.



Flex-ZFast™

CALGreen





+



WhisperGreenSelect
VENTILATION FAN

(FV-05-11VK1 shown*)



**Other WhisperGreen Select fan and fan/light models are available for use with this system*



Low Cost, Whole House Ventilation Solution

The SelectCycler™ System is a cost effective, whole house ventilation solution for ASHRAE 62.2 compliance. By combining the best parts of both central fan integrated ventilation (typically forced air HVAC/AHU) and exhaust fan ventilation, the SelectCycler System provides the ultimate energy efficient ventilation solution.

SelectCycler System at a Glance



WhisperGreen Select Provides Customizable Airflow

Pick-A-Flow
Speed Selector



The SelectCycler System was designed exclusively to work with WhisperGreen Select fans, which incorporate Pick-A-Flow™ adjustable CFM technology for optimal use in Balanced mode.



WhisperGreen Select features an ultra-quiet DC motor that incorporates intelligent SmartFlow® technology, so it automatically adjusts its speed to ensure optimal CFM output, even in the case of a complicated duct run.



I Low Cost, Whole House Ventilation Solution

Controller, Supply Damper & FanConnect™ Wall Switch Kit
SACG2K-04/06/08/10 4", 6", 8" or 10" Duct Options

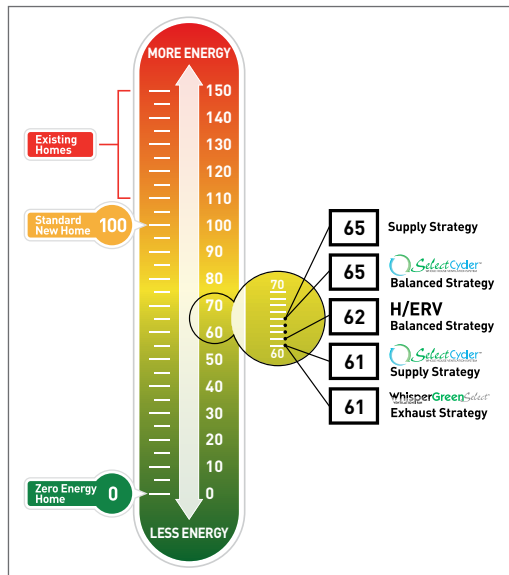


SelectCycler Key Benefits:

- Ideal for single and multi-family construction
- Provides whole house ventilation control that's integrated into the home's Central HVAC system
- Durable, powered open/close damper alleviates damper chatter
- Controls WhisperGreen Select™ (or any 110VAC ventilation fan), to provide supplemental ventilation as needed to meet ASHRAE 62.2
- Two operational modes help a home achieve the lowest cost per HERS point for either supply or balanced ventilation strategies
- Works in tandem with spot exhaust fan to achieve hybrid supply or balanced ventilation
- Features a patented setup process, including two simple options: Flow vs Time
- Digital display panel shows system status and aids in troubleshooting
- Fan/light wall switch can be programmed from the controller to provide a delay timer function

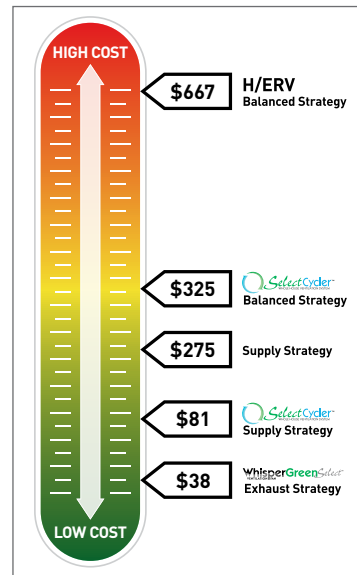
SelectCycler™ System offers the **most cost effective** solution for meeting ventilation code and minimizing the impact to your HERS Index.

HERS Index Per Ventilation Design Strategy*



WhisperGreen Select
 DC Motor and low watt consumption contribute to a low HERS Index Score and Cost Per HERS Point Index

Ventilation Cost Per HERS Point Index*



SelectCycler System **Balanced Mode**
 Lowest cost per HERS point for **Balanced Ventilation**

SelectCycler System **Hybrid Mode**
 Lowest cost per HERS point for **Supply Ventilation**

WhisperGreen Select™
 Lowest cost per HERS point for **Exhaust Ventilation**

*Modeling conducted by third-party RESNET Provider EPX/NRGLogic

SelectCycler Kit (SACG2K)



Programmable Wall Mounted Controller

- Ideal for single and multi-family construction
- Calculates supply duct and exhaust fan run cycles to meet ASHRAE 62.2
- Patented algorithm calculates operation time to meet ASHRAE 62.2 ventilation requirements
- Allows for programmable hours of operation
- Calculated flow or calculated time setup
- LCD display for system operation feedback and easy trouble shooting
- Communicates to the FanConnect wall switch to control the bathroom exhaust fan
- Operating Voltage: 24VAC (up to 30VAC max)
- Current Draw: 0.07 Amps



Motorized Supply Damper

- Stainless steel, power open/close damper
- Available in 4", 6", 8" or 10" duct size
- Operating Voltage: 24VAC (up to 30VAC max)
- Current Draw: 0.07 A idle; 0.125 A for 15 second damper transit time
- Power Draw (VA): >1W idle; 3W for 15 second damper transit time
- Wiring requirements: 19 gauge minimum
- Includes pigtail and damper for wiring
- Damper can be installed in any position



FanConnect™ Bathroom Fan/Light Wall Switch

- Compatible with single, or multi-speed fans, set to a single speed setting
- Light: 450 Watts @ 120VAC (blue wire)
- Fan: 150 Watts @ 120VAC (red wire)
- Operation: 120VAC +/- 10%

Optional Accessories

- The range hood pressure sensor works exclusively with the SelectCycler System to solve depressurization issues by allowing make up air to enter as soon as the range hood is turned on
- Hot and cold temperature sensors disable the fresh air damper in extreme temperatures



Range Hood Pressure Sensor (SACRR)

- Solves depressurization issues
- Max Operating Pressure -10kPa
- Pressure Range: 20 - 200 Pa +/-15%
- Operating Temperature: -40°C to 85°C
- Electrical Rating: 1.5A (1.4A) / 250V
- Mounting: Diaphragm in any vertical plane



Hot Temperature Sensor (SACTG-H01)

- System control in extreme hot climates
- OFF Temperature: 95°F +/- 5°
- ON Temperature: 4°F lower
- Operation: 2A @ 24VAC



Cold Temperature Sensor (SACTG-C02)

- System control in extreme cold climates
- OFF Temperature: 35°F +/- 5°
- ON Temperature: 4°F higher
- Operation: 2A @ 24VAC



Fans with Built-in Controls

WhisperSense™ | Moisture Control for CALGreen Compliance Solution

FV-08VQC5 80 CFM 4" or 6" Duct
FV-11VQC5 110 CFM 4" or 6" Duct

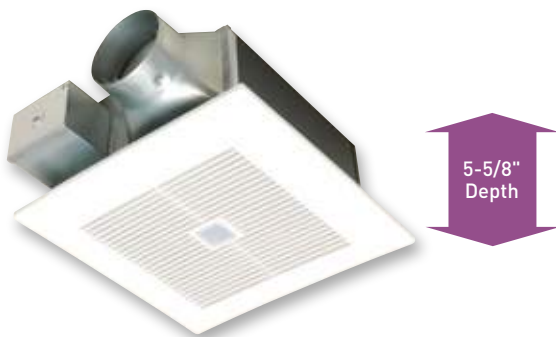


WhisperSense Key Benefits:

- SmartAction® motion sensor automatically turns fan on when someone enters the room
- Humidity sensor detects rapid rise in relative humidity (RH) and automatically turns fan on to remove moisture to help prevent mold and mildew
- Dual sensor technology provides built-in redundancy that ensures proper fan operation.
- Adjustable time delay – 30 seconds to 60 minutes
- Auto shutoff feature helps eliminate unnecessary energy usage and further reduce operating costs
- Integrated dual 4" or 6" duct adapter
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, CALGreen and California Title 24

WhisperFit EZ | Automatic Spot Ventilation Solution

FV-08-11VFM5 80 or 110 CFM 4" or 3" Duct



WhisperFit EZ Key Benefits:

- Ideal for remodeling and hotel new construction or renovation
- Pick-A-Flow™ Speed Selector – one fan, you choose the CFM (80 or 110)
- SmartAction® Motion Sensor with 20 minute delay off timer
- Flex-Z Fast™ bracket provides flexible, fast and easy installation
- Detachable installation adapter provides even greater flexibility
- Low profile housing design fits in 2 x 6 construction
- 4" duct with 3" duct adapter included
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

*WhisperFit EZ replaced WhisperFit and WhisperWelcome

WhisperSense	FV-08VQC5		FV-11VQC5	
Characteristics				
Static pressure in inches w.g.	0.1	0.25	0.1	0.25
Air Volume (CFM)	80	59	110	91
Noise (sones)	<0.3	<0.3	0.3	0.5
Power Consumption (Watts)	15.8	15.6	24.3	24.2
Energy Efficiency (CFMs/Watt)	5.1	3.9	4.6	3.9
Speed	825	1110	957	1170
Current	0.14	0.14	0.22	0.21
Power Rating (V/Hz)	120/60		120/60	



Built-in Controls

Three ways the fan can function

- Motion on/Motion off
- Motion on/Humidity off
- Humidity on/Humidity off
- Variable humidity controls from 30-80% relative humidity (RH)
- Adjustable delay timer from 30 seconds to 60 minutes



WhisperFit EZ	FV-08-11VFM5							
Characteristics	4" Duct		3" Duct		4" Duct		3" Duct	
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	102	100	88	80	71	70	59
Noise (sones)	0.8	1.2	1.3	1.5	0.3	0.8	0.5	1.1
Power Consumption (Watts)	27.0	26.8	26.8	26.3	21.6	21.1	21.4	20.8
Energy Efficiency (CFMs/Watt)	4.1	3.8	3.8	3.3	3.7	3.3	3.5	3.0
Speed	955	1174	1197	1352	847	1131	1008	1229
Current	0.23	0.23	0.23	0.22	0.18	0.18	0.18	0.17
Power Rating (V/Hz)	120/60				120/60			



INCLUDED:
4" to 3" Duct Adapter

Installation is as Easy as 1-2-3!



Insert Flex-Z Fast™
installation bracket



Connect the wiring and attach
duct to installation adapter



Install Fan

Flex-ZFast™



Single Speed Fans (On/Off)

WhisperCeiling™ | Quiet, Spot Ventilation Solution

FV-05VQ5	50 CFM	4" or 6" Duct
FV-08VQ5	80 CFM	4" or 6" Duct
FV-11VQ5	110 CFM	4" or 6" Duct
FV-15VQ5	150 CFM	6" Duct



7-3/8"
Depth

FV-20VQ3	190 CFM	6" Duct
FV-30VQ3	290 CFM	6" Duct
FV-40VQ4*	390 CFM	6" Duct

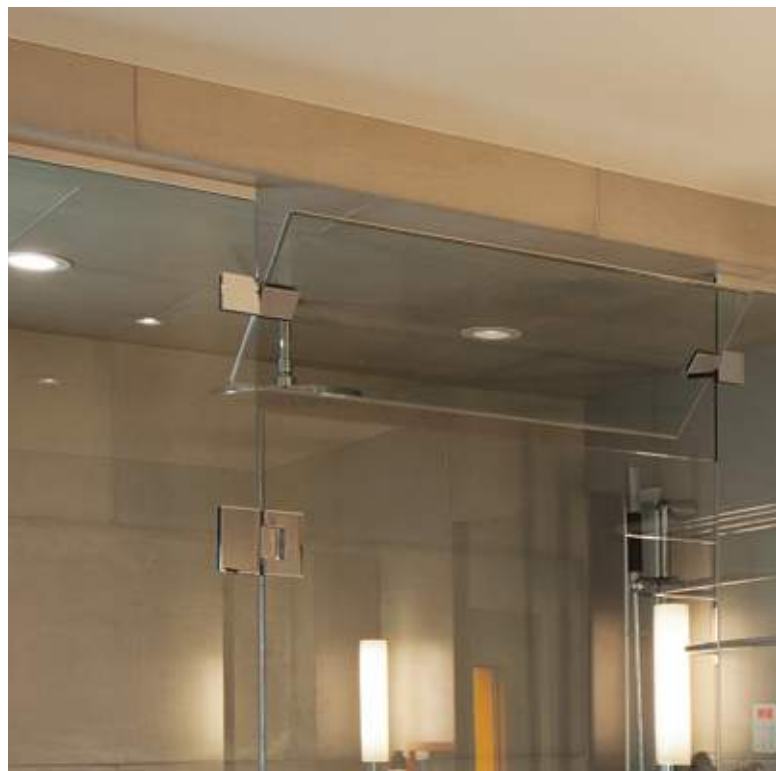


9-9/32"
Depth

WhisperCeiling Key Benefits:

- Quiet, yet powerful – ideal for new and remodel residential applications
- Integrated dual 4" or 6" duct adapter on 50-110 CFM models
- 50-110 CFM models fit in 2 x 8 construction
- Large volume (190-390) CFM options available for light commercial applications
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, EarthCraft, California Title 24 and WA Ventilation Code

*FV-40VQ4 does not comply with the ENERGY STAR® 4.0 requirement for increased efficiency (CFM/Watt).



WhisperCeiling	FV-05VQ5		FV-08VQ5		FV-11VQ5		FV-15VQ5	
Characteristics								
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	50	36	80	62	110	91	150	127
Noise (sones)	<0.3	0.4	<0.3	0.4	<0.3	0.5	<0.3	0.5
Power Consumption (Watts)	11.1	11.7	14.7	14.5	21.1	20.7	28.4	27.3
Energy Efficiency (CFMs/Watt)	4.7	3.2	5.8	4.5	5.3	4.5	5.3	4.7
Speed	731	1060	829	1089	950	1161	691	911
Current	0.09	0.10	0.12	0.12	0.18	0.17	0.24	0.23
Power Rating (V/Hz)	120/60		120/60		120/60		120/60	

WhisperCeiling	FV-20VQ3		FV-30VQ3		FV-40VQ4*	
Characteristics						
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	190	145	290	257	390	356
Noise (sones)	0.8	1.4	2.0	N/A	3.0	3.0
Power Consumption (Watts)	44.5	43.6	64.0	62.0	111.4	109.6
Energy Efficiency (CFMs/Watt)	4.6	3.6	4.5	4.1	3.5	3.3
Speed	761	949	877	990	793	874
Current	0.34	0.33	0.53	0.52	0.99	0.98
Power Rating (V/Hz)	120/60		120/60		120/60	

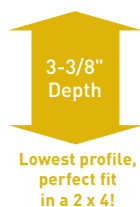


Single Speed Fans (On/Off)

NEW

WhisperValue[®] DC™ | Ideal Multi-Family Solution

FV-0510VS1 50-80-100 CFM 4" Oval Duct



Fits in nearly every ceiling cavity.

Coming Soon! Q2, 2017

WhisperValue DC fans with built-in ASHRAE 62.2 Timing Function or Condensation Control options.

WhisperValue Key Benefits:

- Ideal for residential construction (single and multi-family) and manufactured homes
- **Revolutionary DC motor with SmartFlow™ technology for optimum CFM output**
- **Pick-A-Flow™ Speed Selector – one fan, you choose the CFM (50, 80 or 100 CFM)**
- 3-3/8" housing depth – lowest profile ENERGY STAR® fan available
- UL approved for ceiling or wall mount – perfect fit in a 2 x 4 stud bay
- Wall installation eliminates the need and cost for a radiation damper
- Optional 24 gauge steel, fire code rated 4" oval to 3" round duct adapter, sold separately (Model # FV-VS43R)
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

WhisperValue[®] DC™

Transfer Register Box

FV-JD



WhisperValue™

Transfer Register Box (TRB) – Room to Room Solution Key Benefits:

- **Designed exclusively for use with WhisperValue™ and WhisperValue DC fan and fan/light combinations**
- Perfect for room-to-room powered circulation in Multi-family projects with ductless heat pumps
- Powered 60 CFM transfer at less than 0.3 sone (based on FV-05VS3 fan)
- 26 gauge steel, fire code rated accessory, sold separately as model #FV-JD
- No need for a radiation damper like on jump ducts
- Works with standard size HVAC registers – 4" x 10" HVAC supply grille
- Can be used to comply with ASHRAE 62.2, LEED for Homes, CALGreen and ENERGY STAR® for Homes 3.0*

*Specific to WhisperValue™ and WhisperValue Lite™ fans

WhisperValue DC	FV-0510VS1					
Characteristics	4" Oval Duct		4" Oval Duct		4" Oval Duct	
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	100	100	80	81	50	53
Noise (sones)	0.9	1.3	0.4	0.8	<0.3	0.5
Power Consumption (Watts)	11.1	16.0	7.2	11.5	4.4	7.5
Energy Efficiency (CFMs/Watt)	9.2	6.4	11.4	7.2	12.8	7.9
Speed (RPM)	902	1121	797	1070	708	1025
Current (amps)	0.20	0.27	0.13	0.20	0.09	0.14
Power Rating (V/Hz)	120/60		120/60		120/60	

WhisperValue U-Can Contractor Pack*

The Contractor Pack includes four complete fans. The housing and motor/grille are packaged separately for flexibility during installation.

Universal Housing Can	Motor/Grille Assembly	Complete Fan Unit	Master Pack
FV-0510VSA1	FV-0510VSB1	FV-0510VS1	4

*Must order in quantities of 4, shipment will contain 1 box with 4 units.



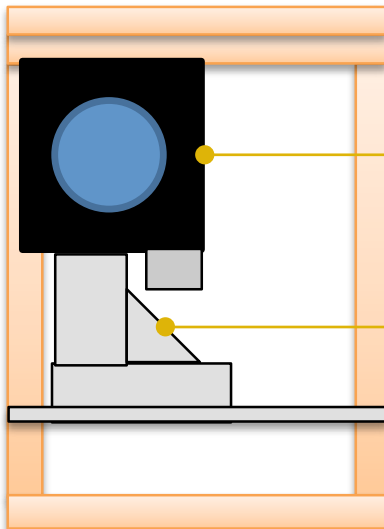
Pick-A-Flow Speed Selector Switch



Optional 4" Oval to 3" Round Duct Adapter (Model #: FV-VS43R)



WhisperValue Fan & Transfer Register Box



WhisperValue Fan

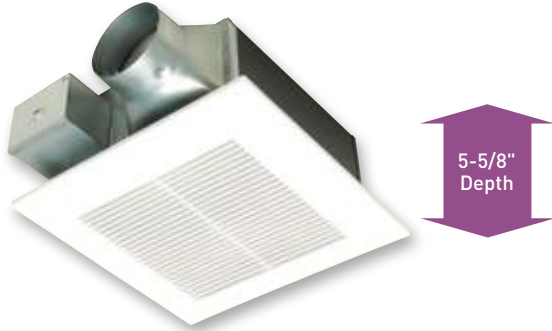
Transfer Register Box

*WhisperValue fan sold separately.

Single Speed Fans (On/Off)

WhisperFit EZ | Ideal Retrofit Solution

FV-08-11VF5 80 or 110 CFM 4" or 3" Duct



*WhisperFit EZ replaced WhisperFit

WhisperFit EZ Key Benefits:

- Ideal for remodeling and hotel new construction or renovation
- Pick-A-Flow™ Speed Selector – one fan, you choose the CFM (80 or 110)
- Flex-Z Fast™ bracket provides flexible, fast and easy installation
- Detachable installation adapter provides even greater flexibility
- Low profile housing design fits in 2 x 6 construction
- 4" duct with 3" duct adapter included
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

ecovent™ | Cost-effective, Spot Ventilation Solution

FV-07VBA1 + FV-07VBB1 70 CFM with Veri-Boost™ 4" Duct



EcoVent Key Benefits:

- Ideal for new residential construction
- Perfect cost effective ENERGY STAR® solution for Home Builders
- 70 CFM – 0.7 sones at 0.1" w.g. (56 CFM/1.3 sones at 0.25" w.g.)
- Unique Veri-Boost™ integral switch ensures the fan meets designed airflow requirements and provides Ventilation Verification Assurance: ≥50 CFM installed performance, to help meet the new ENERGY STAR® 3.0 standards
- Small grill design complements the aesthetics of your bathroom, powder room or laundry room
- Fits in 2 x 6 construction
- Available in contractor packs only – housing and motor/grille packaged separately reduces risk of parts being lost or damaged on site
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED and ENERGY STAR® for Homes 3.0



FIELD ADJUSTABLE
AIRFLOW CAPABILITY

WhisperFit EZ	FV-08-11VF5							
Characteristics	4" Duct		3" Duct		4" Duct		3" Duct	
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	104	100	88	80	73	70	61
Noise (sones)	0.8	1.2	1.3	1.5	0.3	0.6	0.5	1.1
Power Consumption (Watts)	26.5	26.4	26.4	25.9	21.1	20.7	20.9	20.3
Energy Efficiency (CFMs/Watt)	4.2	4.0	3.9	3.5	3.8	3.5	3.5	3.2
Speed	961	1179	1215	1369	848	1123	1005	1236
Current	0.23	0.23	0.22	0.22	0.18	0.17	0.17	0.17
Power Rating (V/Hz)	120/60				120/60			



INCLUDED:
4" to 3" Duct Adapter

Installation is as Easy as 1-2-3!



Insert Flex-Z Fast™
installation bracket



Connect the wiring and attach
duct to installation adapter



Install Fan

Flex-ZFast™



EcoVent	FV-07VBA1 + FV-07VBB1			
Characteristics	Standard		Veri-Boost™ Activated	
Static pressure in inches w.g.	0.1	0.25	0.1	0.25
Air Volume (CFM)	70	56	90	75
Noise (sones)	0.7	1.3	1.5	1.5
Power Consumption (Watts)	20.0	20.0	24.0	24.0
Energy Efficiency (CFMs/Watt)	3.5	2.8	3.8	3.1
Speed	907	1200	1019	1266
Current	0.15	0.14	0.19	0.18
Power Rating (V/Hz)	120/60			

EcoVent U-Can Contractor Packs

Model #	Description	Contents	Master Pack*
FV-07VBA1	Universal Housing Can	Housing Can, Duct Adapter & Junction Box	4
FV-07VBB1	Motor/Grille Assembly	Motor & Grille	4

*Must order in quantities of 4, shipment will contain 1 box with 4 pieces of each item.



Built-in Veri-Boost™ switch
provides a 20 CFM boost

Unique
Solution!



Scan code to view
EcoVent installation



Fan/Lights with Built-in Controls

WhisperSense Lite™ | Moisture Control for CALGreen Compliance Solution

FV-08VQCL6 80 CFM 4" or 6" Duct
FV-11VQCL6 110 CFM 4" or 6" Duct



WhisperSense Lite Key Benefits:

- SmartAction® motion sensor automatically turns fan on when someone enters the room
- Humidity sensor detects rapid rise in relative humidity (RH) and automatically turns fan on to remove moisture to help prevent mold and mildew
- Dual sensor technology provides built-in redundancy that ensures proper fan operation
- Adjustable time delay – 30 seconds to 60 minutes
- Auto shutoff feature helps eliminate unnecessary energy usage and further reduce operating costs
- (2) 13W self ballasted GU24 base CFL lamps and a 4W night light
- Integrated dual 4" or 6" duct adapter
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, CALGreen, California Title 24 and WA Ventilation Code



WhisperSense Lite	FV-08VQCL6		FV-11VQCL6	
Characteristics				
Static pressure in inches w.g.	0.1	0.25	0.1	0.25
Air Volume (CFM)	80	62	110	89
Noise (sones)	<0.3	0.4	0.7	0.7
Power Consumption (Watts)	17.5	17.6	26.0	25.7
Energy Efficiency (CFMs/Watt)	4.7	3.6	4.3	3.5
Speed	881	1125	1017	1202
Current	0.16	0.15	0.23	0.22
Power Rating (V/Hz)	120/60		120/60	



INCLUDES: (2) 13W ENERGY STAR® rated self ballasted GU24 base CFL lamps and a 4W night light. 3500 Kelvin/ 80+ CRI/997 Lumens per lamp/75 Lumens per watt/ 10,000 hours rated average life at 3 hours per start.



Built-in Controls

See page 23 for details on three ways this fan can function.



CALGreen



THE ART AND DESIGN OF
SPOT
VENTILATION





Design Solution for Fan/Light Combinations

Combining performance and beauty, WhisperRecessed LED™ incorporates a powerful yet quiet 80 CFM fan behind an elegant recessed LED light. Its stylish all-in-one design delivers the quietest, most efficient ENERGY STAR® certified recessed fan/light combo unit available. In fact, you'll only know it's working because of the clean, fresh air in your bathroom. The warm white dimmable LED lamp uses up to 40% less energy than CFLs.

Best of all, the environmentally friendly WhisperRecessed LED helps you comply with the industry's most stringent green building standards.

- ENERGY STAR® rated architectural grade recessed fan/LED light
- Quiet, energy efficient and powerful 80 CFM ventilation hidden above the ceiling
- Includes (1) replaceable 11W, ENERGY STAR® 2.0 certified, GU24 base LED lamp
- Ultra energy efficient LED lamp uses up to 40% less energy than CFLs
- LED lamp is dimmable
- Beautiful lighting with 6-1/2" aperture and advanced luminaire design



Single Speed Fans with Lights (On/Off)

NEW

WhisperRecessed LED™ | Design Solution for Fan/Light Combinations

FV-08VRE2 80 CFM 4" or 6" Duct



See Page 46 for Recessed Inlet, a light only option to match WhisperRecessed LED fan/light combinations.

WhisperRecessed LED Key Benefits:

- Architectural grade recessed fan/light
- Ideal for use in the bathroom, living room or laundry room
- Quiet and powerful 80 CFM ventilation hidden above the ceiling
- **(1) replaceable 11W, ENERGY STAR® 2.0 certified, GU24 base LED lamp**
- Beautiful lighting with 6-1/2" aperture and advanced luminaire design
- Integrated dual 4" or 6" duct adapter
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, CALGreen*, LEED, IAP, California Title 24 and WA Ventilation Code

*Can be used to comply with CALGreen when controlled by the Panasonic Condensation Sensor Plus (See page 48).

WhisperLite® | Quiet, Spot Ventilation Fan/Light Solution

FV-08VQL6 80 CFM 4" or 6" Duct
FV-11VQL6 110 CFM 4" or 6" Duct
FV-15VQL6 150 CFM 6" Duct



WhisperLite Key Benefits:

- Quiet, yet powerful – ideal for new and remodel residential applications
- (2) 13W self ballasted GU24 base CFL lamps and a 4W night light
- Integrated dual 4" or 6" duct adapter on 80-110 CFM models
- Fits in 2 x 8 construction
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

WhisperRecessed LED	FV-08VRE2	
Characteristics		
Static pressure in inches w.g.	0.1	0.25
Air Volume (CFM)	80	66
Noise (sones)	1.0	0.8
Power Consumption (Watts)	18.5	17.6
Energy Efficiency (CFMs/Watt)	4.4	3.8
Speed	1342	1480
Current	0.15	0.15
Power Rating (V/Hz)	120/60	



New LED Lamp!

INCLUDED: (1) 11 Watt GU24 base LED lamp/2700 Kelvin Warm White/ >90CRI/750 lumens/68 LPW/ ENERGY STAR 2.0 certified/ 25,000 hours rated average life.



WhisperLite	FV-08VQL6		FV-11VQL6		FV-15VQL6	
Characteristics						
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	80	62	110	90	150	128
Noise (sones)	<0.3	0.4	0.5	0.6	0.9	1.0
Power Consumption (Watts)	14.9	14.7	23.4	23.0	31.8	30.9
Energy Efficiency (CFMs/Watt)	5.5	4.3	4.7	3.9	4.8	4.2
Speed	863	1117	1006	1193	800	988
Current	0.12	0.12	0.20	0.19	0.27	0.26
Power Rating (V/Hz)	120/60		120/60		120/60	



INCLUDES: (2) 13W ENERGY STAR® rated self ballasted GU24 base CFL lamps and a 4W night light. 3500 Kelvin/ 80+ CRI/997 Lumens per lamp/75 Lumens per watt/ 10,000 hours rated average life at 3 hours per start.



Single Speed Fans with Lights (On/Off)

WhisperValue Lite™ | Ideal Multi-Family Fan/Light Solution

FV-08VSL3 80 CFM 4" Oval Duct
FV-10VSL3E 100 CFM 4" Oval Duct



Lowest profile,
perfect fit
in a 2 x 4!

Fits in nearly every ceiling cavity.

WhisperValue Lite Key Benefits*:

- Ideal for residential construction (single and multi-family) and manufactured homes
- 3-3/8" housing depth – lowest profile ENERGY STAR® fan available
- L-shaped bracket simplifies installation and provides strong support
- UL approved for ceiling or wall mount – perfect fit in a 2 x 4 stud bay
- Wall installation eliminates the need for a radiation damper
- (2) 13W self ballasted GU24 base CFL lamps and a 4W night light
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

*Optional 4" oval to 3" round duct adapter (FV-VS43R) and Transfer Register Box (FV-JD) sold separately. See page 26-27 for details.

Coming Soon! Q2, 2017

WhisperValue fan/LED lights with DC motor and Pick-A-Flow technology (50-80-100 CFM). Built-in ASHRAE 62.2 Timing Function and Condensation Control options will also be available.

WhisperFit EZ | Ideal Retrofit Fan/Light Solution

FV-08-11VFL5 80 or 110 CFM 4" or 3" Duct



(with 3" duct adapter)

WhisperFit EZ Key Benefits:

- Ideal for remodeling and hotel new construction or renovation
- Pick-A-Flow™ Speed Selector – one fan, you choose the CFM (80 or 110)
- (2) 13W self ballasted GU24 base CFL lamps and a 4W night light
- Flex-Z Fast™ bracket provides flexible, fast and easy installation
- Detachable installation adapter provides even greater flexibility
- Low profile housing design fits in 2 x 6 construction
- 4" duct with 3" duct adapter included
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

*WhisperFit EZ replaced WhisperLite

WhisperValue Lite	FV-08VSL3		FV-10VSL3E	
Characteristics	4" Oval Duct		4" Oval Duct	
Static pressure in inches w.g.	0.1	0.25	0.1	0.25
Air Volume (CFM)	80	72	100	88
Noise (sones)	0.5	0.7	1.0	1.1
Power Consumption (Watts)	22.5	22.9	27.3	27.0
Energy Efficiency (CFMs/Watt)	3.6	3.1	3.7	3.3
Speed (RPM)	825	1021	896	1059
Current (amps)	0.19	0.19	0.23	0.22
Power Rating (V/Hz)	120/60		120/60	



INCLUDES: (2) 13W ENERGY STAR® rated self ballasted GU24 base CFL lamps and a 4W night light. 3500 Kelvin/ 80+ CRI/997 Lumens per lamp/75 Lumens per watt/ 10,000 hours rated average life at 3 hours per start.



Optional 4" Oval to 3" Round Duct Adapter (Model #: FV-VS43R)



Optional Transfer Register Box (Model #: FV-JD)

WhisperValue Lite U-Can Contractor Pack*

The Contractor Pack includes four complete fans. The housing and motor/grille are packaged separately for flexibility during installation.

Universal Housing Can	Motor/Grille Assembly	Complete Fan Unit	Master Pack
FV-08-10VSLA3	FV-08VSLB3	FV-08VSL3	4
FV-08-10VSLA3	FV-10VSLB3E	FV-10VSL3E	4

*Must order in quantities of 4, shipment will contain 1 box with 4 units.



WhisperFit EZ	FV-08-11VFL5							
Characteristics	4" Duct		3" Duct		4" Duct		3" Duct	
Static pressure in inches w.g.	0.1	0.25	0.1	0.25	0.1	0.25	0.1	0.25
Air Volume (CFM)	110	102	100	86	80	72	70	60
Noise (sones)	1.0	1.3	1.3	1.5	0.4	0.7	0.6	1.0
Power Consumption (Watts)	26.6	26.5	26.4	25.8	20.9	20.5	20.8	20.2
Energy Efficiency (CFMs/Watt)	4.2	3.9	3.9	3.4	3.8	3.5	3.7	3.2
Speed	1033	1240	1270	1399	905	1164	1065	1263
Current	0.23	0.22	0.22	0.22	0.17	0.17	0.17	0.17
Power Rating (V/Hz)	120/60				120/60			



INCLUDES: (2) 13W ENERGY STAR® rated self ballasted GU24 base CFL lamps and a 4W night light. 3500 Kelvin/ 80+ CRI/997 Lumens per lamp/75 Lumens per watt/ 10,000 hours rated average life at 3 hours per start.



INCLUDED:
4" to 3" Duct Adapter

Installation is as Easy as 1-2-3!



Insert Flex-Z Fast™ installation bracket



Connect the wiring and attach duct to installation adapter



Install Fan

Flex-ZFast™







Cost Effective, Code Compliant ERV for Any Climate Zone

Ideal for tight single family homes and multi-family units, the Intelli-Balance 100 is a customizable, high performance, high efficiency Energy Recovery Ventilator (ERV) that's designed to help you meet ASHRAE 62.2 requirements. This unique and cost effective ERV was engineered for total versatility and installation flexibility, in any climate zone.

The Panasonic Intelli-Balance 100 ERV is designed to run continuously at a low CFM setting to exhaust stale air, moisture, and indoor pollutants, while bringing in clean, tempered air from outside. Homeowners and tenants will enjoy a healthier and cleaner home; while builders and installers comply with the industry's most stringent codes, including the Department of Energy's Zero Net Energy Ready program, ENERGY STAR® for Homes 3.0, Indoor airPLUS, LEED for Homes and CALGreen.

Intelli-Balance 100 can be installed in a ceiling or on a wall, making it ideal for apartments where tenants may not run the air conditioner or bath exhaust fans on a regular basis. The Intelli-Balance 100 ERV allows for regular air exchange which decreases the potential for maintenance or major renovation issues due to humid, stale air. Intelli-Balance 100 does not require connection to the central HVAC or the addition of a condensate line. As a result, installation and routine maintenance is hassle free making this ERV an even more value-driven, cost-effective choice.

Balanced Ventilation: Tightly built homes and buildings utilizing exhaust only fans can create negative pressure. Intelli-Balance 100 solves this by supplying air to replace exhausted air, helping to balance air pressure within the home. By coupling a balanced approach with an energy recovery or heat recovery ventilator (H/ERV), incoming air can be conditioned and dehumidified, saving on heating and cooling expenses for the home.

Built-in Controls: Built-in controls like a Pick-A-Flow Speed Selector Switch (50 to 100 CFM) and ASHRAE timing function help minimize the time it takes to determine desired airflow, verify and maintain performance and ensure code compliance. Intelli-Balance 100 allows you to simply design and specify your ventilation system requirements, improve IAQ and reduce ventilation costs.

Exchange Capillary Core: Intelli-Balance 100's unique and patented capillary core is made from a paper-like material that allows the airstream of inside air to pass right next to airstreams of outside air. The airstreams don't touch each other or mix but the core design allows heat and moisture to transfer to the other airstream. In winter, heat is transferred from the warm outgoing air to the cooler incoming air. In summer, heat is extracted from the warm incoming air and transferred to the cool outgoing air. The result is better air quality and lower energy bills.

DC Motor Technology: Intelli-Balance 100 uses two (2) DC brushless motors with built-in SmartFlow technology. When the ERV senses static pressure, its speed is automatically increased to ensure optimal CFM output; regardless of a complicated duct run. This feature provides peace of mind, as the installer doesn't have to worry about compromising the ERV's performance.

Filters and Maintenance: Easy access panel allows for quick and easy product maintenance and filter checks. Intelli-Balance 100 has two filters that clean the exhaust and supply air before passing through the ERV core, extending the life of the core. Intelli-Balance 100 comes equipped with a MERV 8 filter that can easily be upgraded to a MERV 13. Convenient light and sound indicators signal when it's time to clean the filters using the soft brush attachment of a vacuum.

Energy Recovery Ventilator (ERV)

NEW

Intelli-Balance™ 100

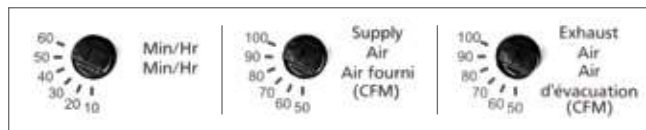
| Cost Effective, Code Compliant ERV for Any Climate Zone

FV-10VEC1 (Cold Climate) 50 to 100 CFM Four 4" or 6" Ducts
FV-10VE1 (Temperate Climate) 50 to 100 CFM Four 4" or 6" Ducts



8-7/8"
Depth

Built-In Controls



Intelli-Balance 100 Key Benefits:

- Engineered for use in any North America Climate Zone
- Two (2) revolutionary DC motors with Smart Flow™ technology ensure optimum CFM output
- Pick-A-Flow speed selector (50 to 100 CFM) provides customizable airflow to create balanced, positive or negative pressure within the home
- Exclusive built-in ASHRAE 62.2 timing function helps ensure code compliance
- MERV 8 filter included; optional MERV 8 and MERV 13 replacements available
- Patented exchange capillary core recovers heat and moisture
- Total Recovery Efficiency: FV-10VEC1 = 65; FV-10VE1 = 73
- Connect to existing ductwork or use as a standalone, whole-house ventilation solution
- Wall or ceiling mount capability
- Can be used to meet green building code requirements and helps minimize the impact to your HERS index
- Model FV-10VEC1 meets Ontario, ENERGY STAR®* and Novoclimat requirements

*Meets strict energy efficiency guidelines set by Natural Resources Canada and is ENERGY STAR® certified for the Canadian market only.

WhisperComfort™ VENTILATION FAN

| Low Cost and Easy to Install Balanced Air Solution

FV-04VE1 40/20 CFM or 20/10 CFM Two 4" Ducts



7-7/8"
Depth

WhisperComfort Key Benefits:

- ERV balances air pressure by supplying fresh exterior air while exhausting stale interior air
- Low-rate continuous ventilation ideal for multi-family dwellings
- UL listed for ceiling or wall mount, making it ideal for multi-family applications
- MERV 6 supply filter and damper employed
- Exchange capillary core recovers temperature and moisture
- Dual setting air volume for 40/20 or 20/10 CFM
- Ideal for new air-tight houses built to meet energy-efficiency standards
- Compact size fits in walls and ceilings, and 2 x 8 construction
- Sensible Energy Recovery 66%
- Latent Energy Recovery 32%
- Does not require a condensate line or drain
- Can be used to comply with ASHRAE 62.2, LEED, IAP, CALGreen, California Title 24 and WA Ventilation Code

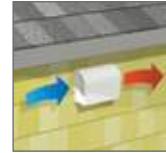
*See page 58 for Recommended Zones Map

Intelli-Balance-100	FV-10VEC1		FV-10VE1	
Characteristics	COLD CLIMATE		TEMPERATE CLIMATE	
Static pressure in inches w.g.	0.1	0.4	0.1	0.4
Net Exhaust Air Volume (CFM)	96	95	95	95
Net Supply Air Volume (CFM)	98	96	99.0	101
Power Consumption (Watts)	64.0	84.0	62.0	80.0
Power Rating (V/Hz)	120/60		120/60	

FV-10VEC1

Supply Temperature		Net Air Flow		Power Consumed (Watts)	Sensible Recovery	Apparent Sensible	Net Moisture
°C	°F	L/S	CFM		Efficiency	Effectiveness	Transfer
Heating							
0	32	25	53	24	81	88	0.8
0	32	31	67	34	77	86	0.76
0	32	40	86	54	75	83	0.72
-25	-13	27	57	66	65	85	0.7
-25	-13	32	68	84	64	80	0.7
Cooling				Total Recovery Efficiency			
35	95	23	48	16	65		

Supply and exhaust air flows through a single exterior opening



FV-WC04VE1*
Optional Exterior Wall Cap

FV-10VE1

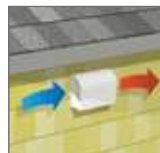
Supply Temperature		Net Air Flow		Power Consumed (Watts)	Sensible Recovery	Apparent Sensible	Net Moisture
°C	°F	L/S	CFM		Efficiency	Effectiveness	Transfer
Heating							
0	32	25	54	20	79	90	0.76
0	32	32	67	28	79	88	0.76
0	32	41	87	46	75	85	0.72
-25	-13	-	-	-	-	-	-
-25	-13	-	-	-	-	-	-
Cooling					Total Recovery Efficiency		
35	95	25	52	22	73		



* FV-WC04VE1 is Not recommended for use at CFM settings higher than 50 CFM.

WhisperComfort	FV-04VE1		
Characteristics	40 CFM	20 CFM	10 CFM
Static pressure in inches w.g.	0.1	0.1	0.1
Air Volume Exhaust (CFM)	40	20	10
Air Volume Supply (CFM)	30	20	10
Noise (sones)	0.8	<0.3	N/A
Power Consumption (Watts)	23	21	17
Speed	1479	1292	1095
Current	0.15	0.10	0.09
Power Rating (V/Hz)	120/60		

Supply and exhaust air flows through a single exterior opening



FV-WC04VE1
Optional Exterior Wall Cap



FV-EB04VE1
Optional Elbow



Specialty Fans

WhisperWarm™
VENTILATION FAN

WhisperWarm Lite™
VENTILATION FAN

| Quiet Fan/Heater/Light Solution

FV-11VH2 110 CFM 4" Duct
FV-11VHL2 110 CFM 4" Duct



7-3/4"
Depth

WhisperWarm/Warm Lite Key Benefits:

- Durable 1400W stainless steel sheathed heating element
- Totally enclosed condenser motor for long life – rated 30,000 hours continuous run
- Thermal fuse protection on motor and 3-level safety device for heater
- Quick 1 minute warm-up
- Light option includes (2) 13W self ballasted GU24 base CFL lamps and a 4W night light
- Minimum 20 Amp dedicated circuit required
- For optimum performance, install heater no more than 8 feet from floor to ceiling
- Fits in 2 x 8 construction

WhisperSupply Wall™
VENTILATION FAN

| Filtered Supply Air Solution

FV-01WS2 10 CFM/On/Off switch 4" Duct
FV-04WS2 20 CFM/40 CFM/Off switch 6" Duct



WhisperSupply Wall Benefits:

- Filtered supply air fan solution to meet ASHRAE 62.2 requirements for make-up/supply air
- Easy installation in new construction or retrofits
- Designed for use in conjunction with furnace blower in Combustion Appliance Zone (CAZ) depressurization situations
- Interior deflector enhances airflow for improved Indoor Air Quality (IAQ)
- Merv 8 filter included
- Includes interior wall duct and exterior ventilation cap
- Can be used to comply with ASHRAE 62.2, LEED, and California Title 24

WhisperWarm/Warm Lite		FV-11VH2		FV-11VHL2	
Characteristics					
Static pressure in inches w.g.		0.1	0.25	0.1	0.25
Air Volume (CFM)		110	89	110	89
Noise (sones)		0.6	1.0	0.7	1.0
Power Consumption (Watts)		30.7	30.5	30.6	30.5
Energy Efficiency (CFMs/Watt)		3.6	2.9	3.6	2.9
Speed		778	935	812	956
Current		0.25	0.25	0.25	0.25
Power Rating (V/Hz)		120/60		120/60	



INCLUDES: (2) 13W ENERGY STAR® rated self ballasted GU24 base CFL lamps and a 4W night light, 3500 Kelvin/ 80+ CRI/997 Lumens per lamp/75 Lumens per watt/ 10,000 hours rated average life at 3 hours per start.



WhisperSupply Wall		FV-01WS2		FV-04WS2	
Characteristics					
Static pressure in inches w.g.		0.3	0.3	0.3	
Air Volume (CFM)		10	20	40	
Noise (sones)		<0.3	<0.3	1.2	
Power Consumption (Watts)		3	5.2	8.2	
Energy Efficiency (CFMs/Watt)		4.7	4.8	5.6	
Speed		2662	1738	2559	
Current		0.03	0.06	0.07	
Power Rating (V/Hz)		120/60		120/60	



Specialty Fans

WhisperWall™ | Through the Wall Spot Ventilation Solution

FV-08WQ1 70 CFM 8" Duct



WhisperWall Key Benefits:

- UL listed for through-the-wall application
- 10" galvanized sleeve and steel exterior hood included
- UL listed for tub/shower enclosure when GFCI protected
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

WhisperLine™ | Remote Mount, In-line Spot Ventilation Solution

FV-10NLF1E 120 CFM 4" Duct
FV-20NLF1 240 CFM 6" Duct
FV-30NLF1* 340 CFM 6" Duct
FV-40NLF1* 440 CFM 8" Duct



WhisperLine Key Benefits:

- Remote mount in-line fan for single or multiple inlets
- Insulated housing to prevent condensation and noise
- Tapered duct adapter for easy connection
- 5 positions for installation
- Joist or truss attachment brackets included
- Suspension brackets included
- Can be used to comply with ASHRAE 62.2, LEED, IAP, California Title 24 and WA Ventilation Code

*FV-30NLF1 and FV-40NLF1 do not comply with the ENERGY STAR® 4.0 requirement for increased efficiency (CFM/Watt).

WhisperWall	FV-08W01
Characteristics	
Static pressure in inches w.g.	0.03
Air Volume (CFM)	70
Noise (sones)	1.1
Power Consumption (Watts)	18.0
Energy Efficiency (CFMs/Watt)	4.3
Speed	660
Current	0.20
Power Rating (V/Hz)	120/60



Exterior Hood included



WhisperLine	FV-10NLF1E			FV-20NLF1			FV-30NLF1*			FV-40NLF1*		
Characteristics												
Static pressure in inches w.g.	0.2	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.4	0.2	0.3	0.4
Air Volume (CFM)	120	108	89	230	223	205	340	322	302	440	421	407
Power Consumption (Watts)	27.5	25.6	24.3	56.5	55.1	53.1	95.2	93.5	91.5	136	132	130
Energy Efficiency (CFMs/Watt)	4.4	4.4	3.9	4.1			3.2			3.2		
Speed	1562	1596	1637	1260			1337			1150		
Current	0.24	0.22	0.21	0.46			0.86			1.10		
Power Rating (V/Hz)	120/60			120/60			120/60			120/60		

WhisperLine Installation Kits					
Model No.	Description	Inlet Grille	Backdraft Damper	Clamp	Y-Adapter
FV-NLF04G	4" Inlet Grille + Metal Plate	1 (4")	-	-	-
FV-NLF06G	6" Inlet Grille + Metal Plate	1 (6")	-	-	-
PC-NLF04S	4" Single Inlet Kit	1 (4")	1 (4")	6	-
PC-NLF06S	6" Single Inlet Kit	1 (6")	1 (6")	6	-
PC-NLF04D	4" Double Inlet Kit	2 (4")	2 (4")	12	1 (4" - 4" x 2)
PC-NLF06D	6" Double Inlet Kit	2 (6")	2 (6")	12	1 (6" - 6" x 2)
PC-NLF64D	6"-4" Double Inlet Kit	2 (4")	2 (4")	12	1 (6" - 4" x 2)
PC-NLF86Y	8"-6" Y-Adapter	-	-	-	1 (8" - 6" x 2)



Recessed Inlet™ | Design Solution for Exhaust or Supply Inlets

FV-NLF46RES 4" or 6" Duct



Recessed Inlet Key Benefits:

- Multi-purpose exhaust or supply recessed inlet is ideal for use with remote mount in-line fans and H/ERVs
- Can be used as a light only option matching the WhisperRecessed LED™ fan/light
- Incorporates an architectural grade recessed can light design
- Includes (1) replaceable 11W, ENERGY STAR® 2.0 certified, GU24 base LED lamp
- Ultra-energy efficient LED lamp uses up to 40% less energy than CFLs
- LED lamp is dimmable
- Beautiful lighting with 6" aperture and advanced luminaire design
- Can be used to comply with California Title 24
- UL listed for tub/shower enclosure when GFCI protected
- IC rated





LED Lamp

INCLUDED: (1) 11 Watt GU24 base
LED lamp/2700 Kelvin Warm White/
>90CRI/750 lumens/68 LPW/
ENERGY STAR 2.0 certified/
25,000 hours rated average life.



WhisperControl

Condensation Sensor Plus

On/Off—

FV-WCCS1-W (White),

FV-WCCS1-A (Light Almond)

On/Off/Light—

FV-WCCS2-W (White),

FV-WCCS2-A (Light Almond)



FV-WCCS1-W



FV-WCCS2-A

Condensation Sensor Plus Features & Benefits:

- Intelligent and advanced sensor technology monitors humidity and temperature to anticipate dew point, automatically operating the fan to control moisture
- Automatic seasonal adaptability with optional Moisture Sensitivity Selector allows fine tuning for dry or moist environments
- Adjustable Minutes Per Hour (MPH) Fan Timer ensures consistent and controlled ventilation throughout the day for compliance with ASHRAE 62.2
- Automatic Fan Control – 30 minute countdown timer initiates after moisture returns to normal levels
- Manual Fan Control – 20 minute countdown timer initiates once fan is turned on
- Blue LED indicates when the fan is on
- Commercial Grade – 8 Amp max load, 2 year limited warranty*
- Engineered to efficiently control current LED lighting and DC motor loads
- For indoor use. Includes matching wall plate
- Can be used to comply with ASHRAE 62.2, LEED, ENERGY STAR® 3.0 and CALGreen

*One year additional fan or fan/light warranty available when a Panasonic WhisperCeiling/Lite, WhisperValue/Value Lite or WhisperFit EZ fan or fan/light is controlled by a Panasonic Condensation Sensor Plus.

WhisperControl

Preset Countdown and Hourly Timer

On/Off—

FV-WCD01-W (White),

FV-WCD01-A (Light Almond)

On/Off/Light—

FV-WCD02-W (White),

FV-WCD02-A (Light Almond)



FV-WCD01-W



FV-WCD02-A

Preset Countdown and Hourly Timer Features & Benefits:

- Preset the fan timer anywhere from 5-60 minutes
- Adjustable Minutes Per Hour (MPH) Fan Timer ensures consistent and controlled ventilation throughout the day for compliance with ASHRAE 62.2
- Manual On/Off Fan Control
- Blue LED indicates when the fan is on
- Commercial Grade, 8 Amp max load, 2 year limited warranty
- Engineered to efficiently control current LED lighting and DC motor loads
- For indoor use. Includes matching wall plate
- Can be used to comply with ASHRAE 62.2, LEED and ENERGY STAR® 3.0

WhisperControl Condensation Sensor Plus	FV-WCCS1-W/A	FV-WCCS2-W/A
Ground	Grounding	Grounding
Feature	Blue LED	Blue LED
Amperage	15 Amp	15 Amp
Maximum Fan Load	8 Amp	8 Amp
Voltage	120 Volts	120 Volts
Termination	6" Leads	6" Leads
Dry Contact Switching	24 Volt AC Input/Output	24 Volt AC Input/Output
Connections (Copper Wire Connections)	Use #14 or #12	Use #14 or #12
Max. Fluorescent Light Load	NA	400 Watt
Standard Certifications	UL/CSA Listed	UL/CSA Listed
Warranty	2 Year Limited	2 Year Limited

Timer and Sensor Settings



Moisture Sensitivity Selector Settings



High Sensitivity – Setting the Condensation Sensor Plus to it's most sensitive setting covers the widest range of humidity. This is a setting for dryer climates and/or larger rooms. In a very dry environment, higher sensitivity is needed.



Average Sensitivity – The Condensation Sensor Plus comes factory set to this most common setting.



Low Sensitivity – The least sensitive setting is used in hotter and more humid climates. In a very moist environment, low moisture sensitivity may be needed to avoid excessive fan run-time.



Preset Countdown and Hourly Timer	FV-WCD01-W/A	FV-WCD02-W/A
Ground	Grounding	Grounding
Feature	Blue LED Light	Blue LED Light
Amperage	8 Amp	8 Amp
Dry Contact Switching	24V AC input/output	24V AC input/output
Max. Fluorescent Light Load	N/A	400 Watt
Termination	6" Leads	6" Leads
Standard Certifications	UL/CSA Listed	UL/CSA Listed
Warranty	2 Year Limited	2 Year Limited

Timer Settings



ecoswitch

FV-WCSW11-W (White)
FV-WCSW11-A (Light Almond)



1 Function EcoSwitch Features & Benefits:

- Fan On/Off Switch
- Engineered to efficiently control current LED lighting and DC motor loads
- Back and side wiring terminals accept both solid and stranded wire to ease installation
- Full-rated current capacity with fluorescent or resistive loads. Motor capacity is 80% of switch rating
- Fits single gang box / Includes matching wall plate
- Commercial Grade

ecoswitch

FV-WCSW21-W (White)
FV-WCSW21-A (Light Almond)



2 Function EcoSwitch Features & Benefits:

- Multi-switch combination devices save space and add convenience
- Engineered to efficiently control current LED lighting and DC motor loads
- Common feed shunted internally to all switches
- Elegant decorator styling provides multiple controls in a single-gang wall box
- Fits single gang box / Includes matching wall plate
- Commercial Grade

ecoswitch

FV-WCSW31-W (White)
FV-WCSW31-A (Light Almond)



3 Function EcoSwitch Features & Benefits:

- Multi-switch combination devices save space and add convenience
- Engineered to efficiently control current LED lighting and DC motor loads
- Common feed shunted internally to all switches
- Elegant decorator styling provides multiple controls in a single-gang wall box
- Fits single gang box / Includes matching wall plate
- Commercial Grade

Specifications	FV-WCSW11-W/A
Ground	Grounding
Feature	Single Pole
Amperage	15 Amp
Voltage	120 Volt
Terminations	Quickwire Push-in, and Side Connection
Standards & Certifications	UL/CSA Listed
Warranty	2 Year Limited



Specifications	FV-WCSW21-W/A
Ground	Grounding
Feature	Single Pole / Single Pole
Amperage	15 Amp
Voltage	120 Volt
Terminations	Side Connection
Standards & Certifications	UL/CSA Listed
Warranty	2 Year Limited



Specifications	FV-WCSW31-W/A
Ground	Grounding
Feature	Single Pole / Single Pole / Single Pole
Amperage	15 Amp
Voltage	120 Volt
Terminations	Quickwire Push-in, and Side Connection
Standards & Certifications	UL/CSA Listed
Warranty	2 Year Limited



ecoswitch

FV-WCSW41-W (White only)

Designed for model FV-11VHL2
Heater/Fan/Light/Night-light



4 Function EcoSwitch Features & Benefits:

- Single pole/double throw on-off-on top switch, two single pole on-off switches
- Multi-switch combination saves space and adds convenience
- Common feed shunted internally to all switches
- Commercial grade
- Includes matching wall plate
- Elegant styling provides multiple controls in a single-gang wall box
- 2 year limited warranty

SmartExhaust™

Controls

FV-WCPT1-W

Fan/Light Control
Delay Timer
Wall plate not included



SmartExhaust™ Features & Benefits:

- Earn LEED and ENERGY STAR® points for enhanced exhaust ventilation
- Replaces both fan and light switches for one easy operation
- Microprocessor technology provides precise ventilation times
- Programmable DELAY and VENTILATION settings
- Excess manual and/or delay operation is subtracted from the next hours programmed ventilation time
- Works with ALL incandescent, CFL, fluorescent and LED lights
- Make standard bath fans ASHRAE 62.2 compliant when used with ASHRAE 62.2 complaint fans

Configuring Ventilation Time

In order to properly set the VENTILATION time on your SmartExhaust™, you will need to know the code required CFM [Cubic Feet Per Minute] for your home and the Fan CFM. Follow this simple equation to calculate the VENTILATION minutes per hour.

$\frac{\text{Code Required Ventilation in CFM}}{\text{Fan CFM}} = \text{Hour Fraction}$	
$\text{Hour Fraction} \times \frac{60}{\text{Minutes}} = \text{Ventilation Settings in Minutes}$	

CFM = Cubic Feet Per Minute

Specifications	FV-WCSW41-W/A
Ground	Grounding
Feature	Single pole / double throw on-off-on top switch, two single pole on-off switches
Individual Switch Amperage	15 Amp
Total Switch Amperage	20 Amp
Voltage	120 Volt
Terminations	Quickwire and wire leads
Standards & Certifications	UL/CSA Listed
Warranty	2 Year Limited



SmartExhaust™ Settings:

VENTILATION setting allows the user to set the number of minutes per hour the fan should run.

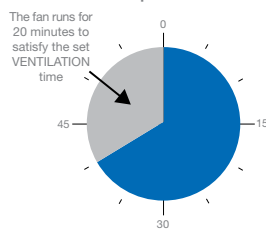
DELAY setting allows the user to set the number of minutes the fan should run after the bathroom light has been turned off. This setting provides additional run time for the fan to complete the remaining necessary ventilation after use. **SmartExhaust™** replaces an existing switch, there are no additional labor costs required for installation. Simple and economical fan and light operation is provided by one switch.

Example

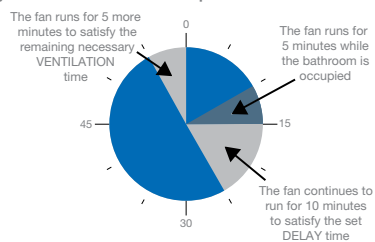
The SmartExhaust™ has a microprocessor in it that reads the two settings dials. If for example the VENTILATION dial is set to 20 minutes/hour, the microprocessor will subtract 20 minutes from 60 minutes and determines that the SmartExhaust™ needs to come on 40 minutes into the hour and run for the remaining 20 minutes of that hour.

If the DELAY dial is set to 10 minutes and the light/fan switch is manually turned on for 5 minutes, the microprocessor will keep track of the 5 minutes of use. When the switch is turned off after the 5 minutes, the microprocessor will continue to run the fan for the 10 minutes of DELAY setting adding up to a total of 15 minutes. The 15 minutes will be subtracted from the total required 20 minutes of VENTILATION time. 55 minutes into the hour, the fan will turn on and run for the 5 additional minutes needed to complete the required ventilation.

A Normal Hour of Operation with no occupancy



The Bathroom is occupied for 5 minutes



NEW

EZSoffitVent™

Versatile Soffit Termination System

EZSV14



Coming Soon! Q2, 2017

Ceiling Radiation Damper

PC-RD05C5



EZ Soffit Vent Features & Benefits:

- Patent pending, ventilation fan soffit termination discharge system designed for fans up to 110 CFM using 4" ductwork
- Designed to improve overall ventilation fan performance
- Designed for pre-soffit installation
- Mounting bracket can be located anywhere there's a vertical surface within the overhang
- Overall height is less than 6" and will fit in a 4/12 pitch roof overhang
- Overall compact design will fit in a narrow 12" soffit (10.5" fascia to building)
- Vent body snap-fits easily into mounting bracket and can be rotated 180 degrees to align with ducting
- Extremely low resistance built-in backdraft damper
- Duct connection stub is 2.25" in length allowing plenty of surface area for connection and sealing
- Flush mounted termination grille mounts with a single fastener (provided)

Radiation Damper Features:

- One damper for both Combustible and Non-Combustible Assembly Ratings
- Damper allows for two-stage construction; fan housing and damper sleeve during framing, fan/motor/damper installation after finishes
- Damper allows access to fan/motor/damper for maintenance
- Compatible with most Panasonic 10 1/4" 50 - 150 CFM fans, fan lights and fan with motion sensor
- Galvanized steel frame with 165°F fusible link
- High temperature, non-asbestos, reinforced fiber thermal fabric damper

Fan Model approved for:	
Damper Model PC-RD05C5	WhisperGreen Select™, WhisperCeiling 50-150 CFM, WhisperLite, WhisperSense, WhisperSense Lite, WhisperFit EZ, WhisperValue, WhisperValue Lite

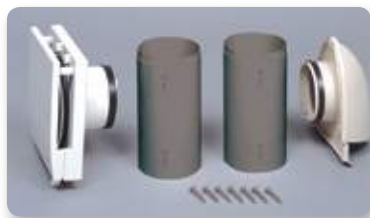


–UL and Warnock Hersey 555C classification for 1, 2 or 3 hour Non-Combustible Assemblies

–UL 555C classification for the following 1 hour UL Wood Truss Assembly Ratings: L521, L528, L546, L558, L562, L574, L576, L581, L583, L585, M509; P522, P-533, P-538, P-545 and P-547

Passive Inlet Vent

FV-GKF32S1



Designer Grilles



FV-GL3TDA



FV-GL3TDB

Inlet Vent Features:

Panasonic Passive Inlet provides make-up air to help balance indoor vs. outdoor air pressure.

- Foam pad reduces outdoor noise and condensation
- Insulation lining to prevent condensation
- Durable ABS and PP resin body
- 7 stainless steel installation screws included
- Sturdy open/close lever
- 2-position air delivery

Passive Inlet		FV-6KF32S1
Specifications	Air Volume Positions	2
	CFM Settings	12 & 18
Features	Open/Close Louver Setting	Yes
	Washable Air Filter	Yes
	Bug Screen	Yes
	3" x 12" Sleeve Included	Yes
	Body	ABS & PP
Installation	Wall Opening (diameter)	3 inch
	Installation Screw Included	Yes

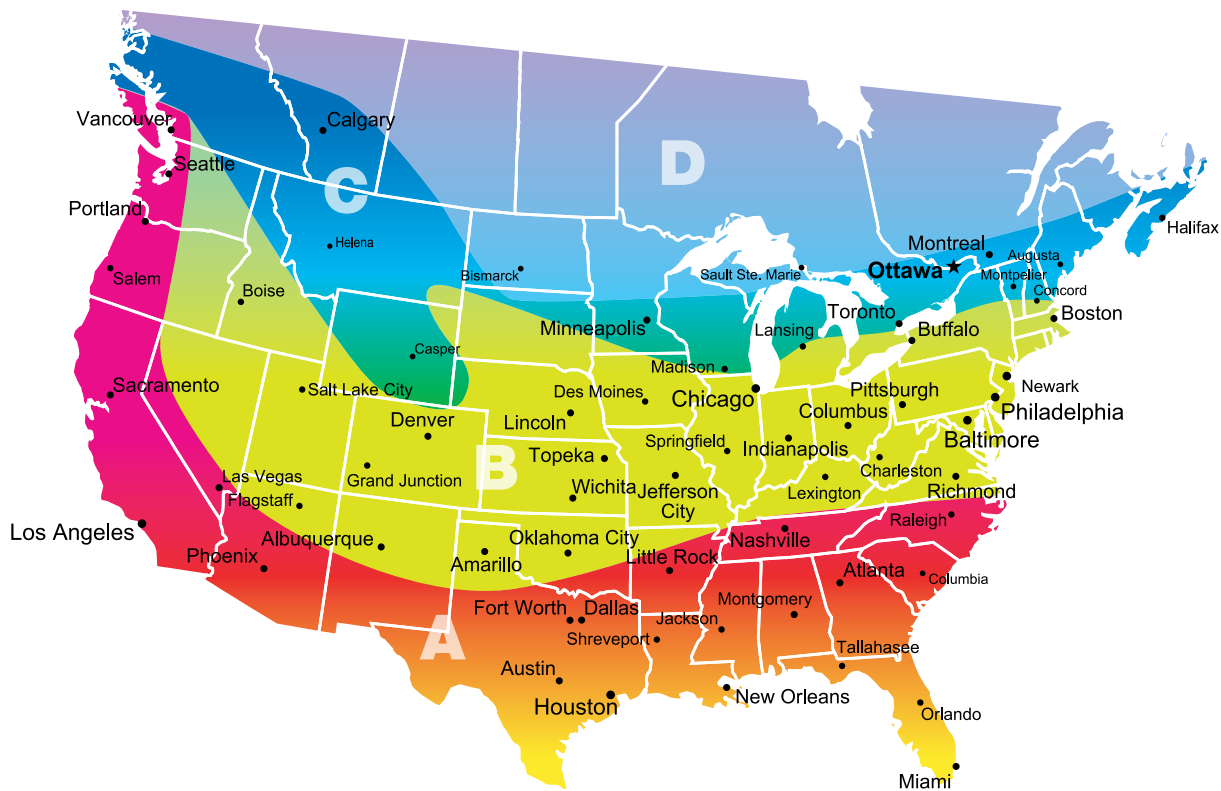
Designer Grille Features:

- Easy and affordable to change
- Change your grille to fit your room decor without compromising the performance and quality of the unit
- **Applicable Models**
WhisperCeiling: FV-05VQ5, FV-08VQ5, FV-11VQ5, FV-15VQ5
WhisperFit EZ: FV-08-11VF5





	FV-GL3TDA	FV-GL3TDB
Characteristics		
Grille Size (inches sq.)	13	14-1/5
Shipping Gross Weight (lbs)	1.1	1.3
Trend Style Category	Traditional	Traditional
Material	ABS	ABS
UL Approved ¹	Yes	Yes
HVI Certified ¹	Yes	Yes
Mfg. in ISO 9001 Certified Facility	Yes	Yes

¹ Approved with applicable models.

Recommended Zones Map for WhisperComfort ERV (See page 40-41 for product details)



Operation Season

-  **Zone A:** Unit can perform optimally throughout the year.
 -  **Zone B:** Unit can perform optimally March through November.*
 -  **Zone C:** Unit can perform optimally April through November.**
 -  **Zone D:** Panasonic does not recommend this unit due to extremely cold year-round weather.

Note: This map is based on average temperature readings over 10 years from 60 major cities in North America. Actual performance may vary depending on annual temperature differences and varying altitudes. Visit www.ashrae.org/technology/page/1330 for the climate zone map adopted by ASHRAE.

*Alternates as balanced or exhaust only Dec-Feb when temperature is above or below freezing.

**Alternates as balanced or exhaust only Dec-March when temperature is above or below freezing.

Cross Reference for Applicable WhisperControl & EcoSwitch to Panasonic Fans

	Model	FV-WCCS1-W/A	FV-WCCS2-W/A	FV-WCD01-W/A	FV-WCD02-W/A	FV-WCSW11-W/A	FV-WCSW21-W/A	FV-WCSW31-W/A	FV-WCSW41-W	FV-WCPT1-W
	Switch Type	Condensation Sensor On/Off	Condensation Sensor On/Off/Light	Countdown & Hourly Timer	Countdown & Hourly Timer	1 Function Control	2 Function Control	3 Function Control	4 Function Control	SmartExhaust
WhisperGreen Select	FV-05-11VK1	X		X		X				
	FV-11-15VK1	X		X		X				
	FV-05-11VKS1	X		X		X				
	FV-05-11VKL1		X		X		X			
	FV-11-15VKL1		X		X		X			
	FV-05-11VKSL1				X		X**			
WhisperRecessed LED	FV-08VRE2		X				X			
WhisperCeiling	FV-05VQ5	X		X		X				X
	FV-08VQ5	X		X		X				X
	FV-11VQ5	X		X		X				X
	FV-15VQ5	X		X		X				X
	FV-20VQ3	X		X		X				X
	FV-30VQ3	X		X		X				X
	FV-40VQ4	X		X		X				X
	FV-08VQL6		X		X		X	X		X
	FV-11VQL6		X		X		X	X		X
	FV-15VQL6		X		X		X	X		X
WhisperSense Lite	FV-08VQCL6				X		X**			X
	FV-11VQCL6				X		X**			X
WhisperFit EZ	FV-08-11VF5	X		X		X				X
	FV-08-11VFL5		X		X		X	X		X
WhisperValue DC/ WhisperValue Lite	FV-0510VS1	X		X		X				X
	FV-08VSL3		X		X		X	X		X
	FV-10VSL3E		X		X		X	X		X
EcoVent	FV-07VBA1	X		X		X				X
	FV-07VBB1	X		X		X				X
WhisperSupply Wall	FV-01WS2	X		X		X				
	FV-04WS2	X		X						
WhisperWall	FV-08WQ1	X		X		X				X
WhisperWarm/ Warm Lite	FV-11VH2*			X*		X*				X
	FV-11VHL2*			X*	X				X*	X
WhisperLine	FV-10NLF1E	X		X		X				
	FV-20NLF1	X		X		X				
	FV-30NLF1	X		X		X				
	FV-40NLF1	X		X		X				
Intelli-Balance 100	FV-10VEC1					X				
	FV-10VE1					X				
WhisperComfort	FV-04VE1						X			

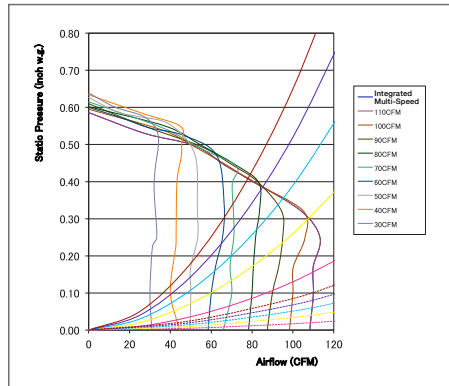
WhisperFit EZ with Motion Sensor, WhisperSense, and WhisperGreen Select S/M models are not compatible with the above switches.

*Needs 1 control per function. **Switch is for light and night-light only.

Fans with Built-in Controls — Performance Curves

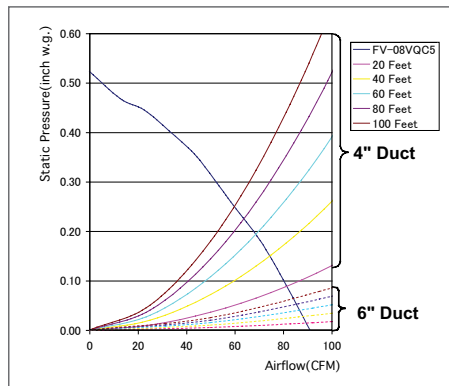
WhisperGreenSelect™
VENTILATION FAN

FV-05-11VKS1 30-110 CFM 4" or 6" Duct

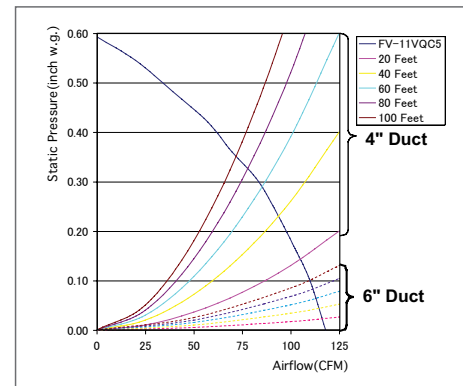


WhisperSense™
VENTILATION FAN

FV-08VQC5 80 CFM 4" or 6" Duct

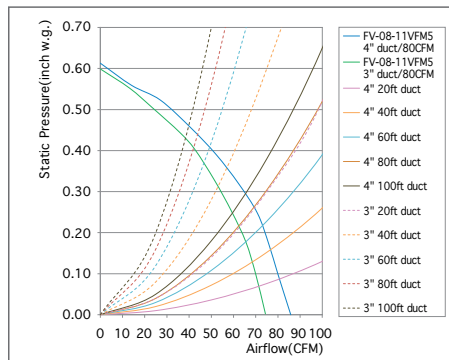


FV-11VQC5 110 CFM 4" or 6" Duct

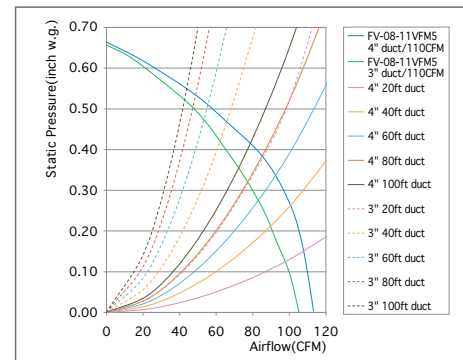


WhisperFit E2™
VENTILATION FAN

FV-08-11VFM5 80 CFM 4" or 3" Duct



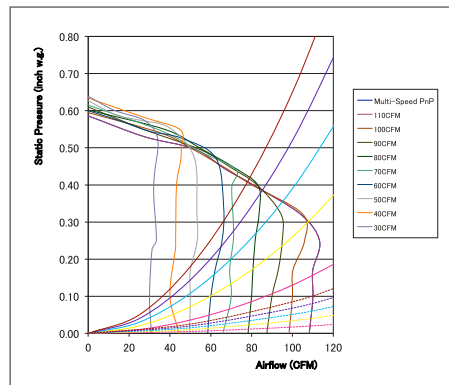
FV-08-11VFM5 110 CFM 4" or 3" Duct



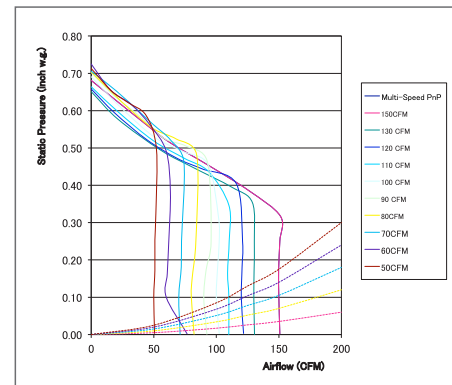
Single Speed Fans — Performance Curves

WhisperGreenSelect™
VENTILATION FAN

FV-05-11VK1 50-80-110 CFM 4" or 6" Duct

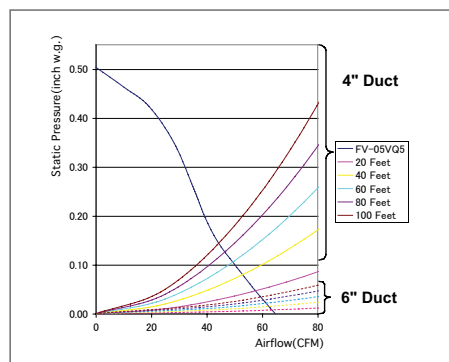


FV-11-15VK1 110-130-150 CFM 6" Duct

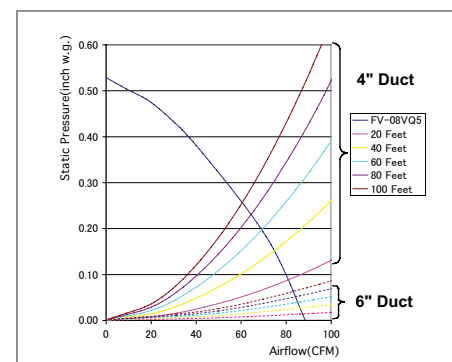


WhisperCeiling™
VENTILATION FAN

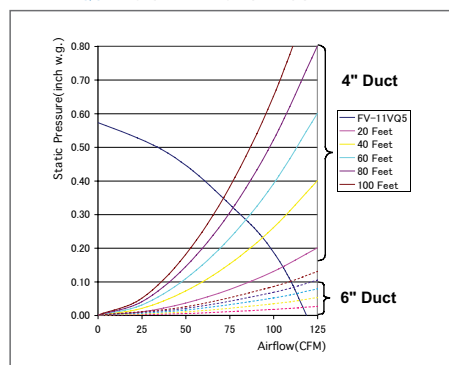
FV-05VQ5 50 CFM 4" or 6" Duct



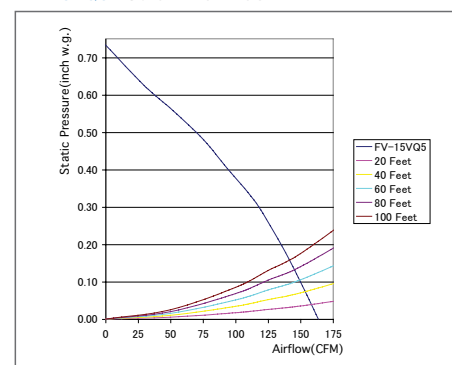
FV-08VQ5 80 CFM 4" or 6" Duct



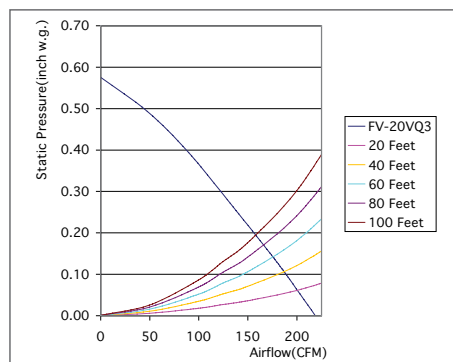
FV-11VQ5 110 CFM 4" or 6" Duct



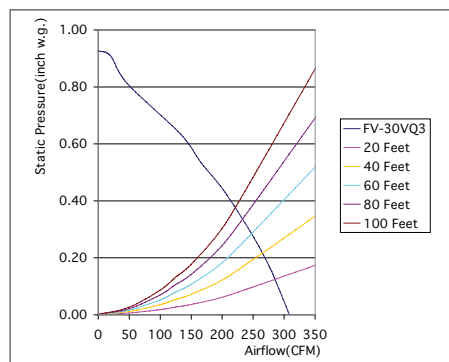
FV-15VQ5 150 CFM 6" Duct



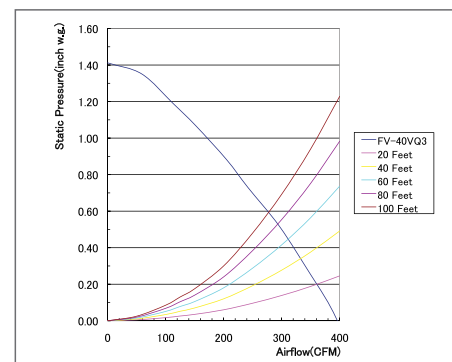
FV-20VQ3 190 CFM 6" Duct



FV-30VQ3 290 CFM 6" Duct



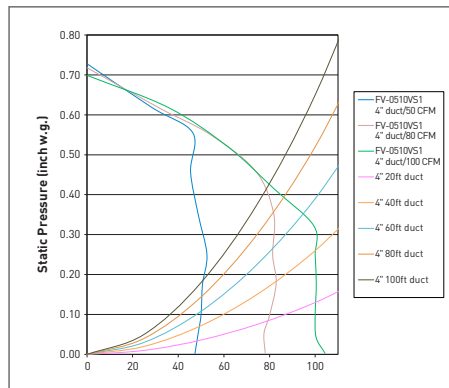
FV-40VQ4 390 CFM 6" Duct



Single Speed Fans — Performance Curves (cont'd)

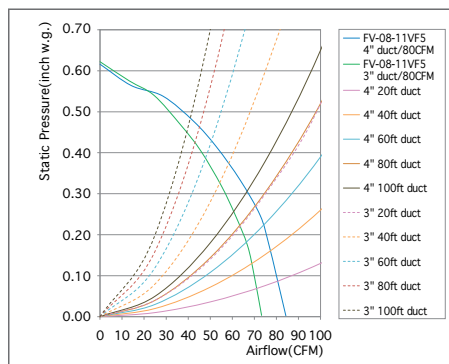
WhisperValue® DC™
VENTILATION FAN

FV-0510VS1 50-80-100 CFM 4" Oval

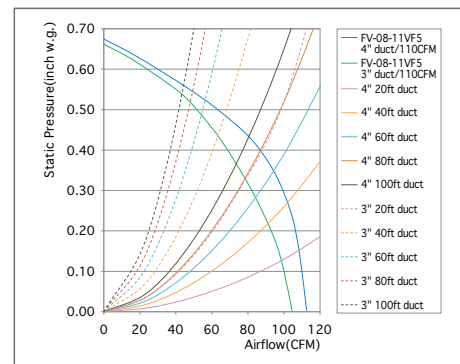


WhisperFit® E2
VENTILATION FAN

FV-08-11VF5 80 CFM 4" or 3" Duct

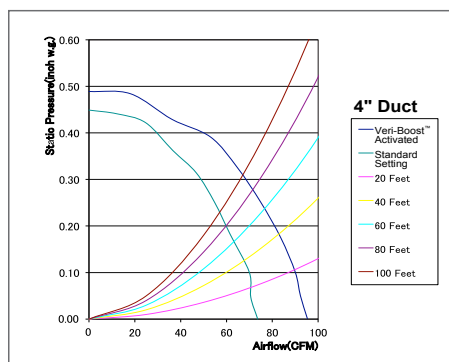


FV-08-11VF5 110 CFM 4" or 3" Duct



ecovent™

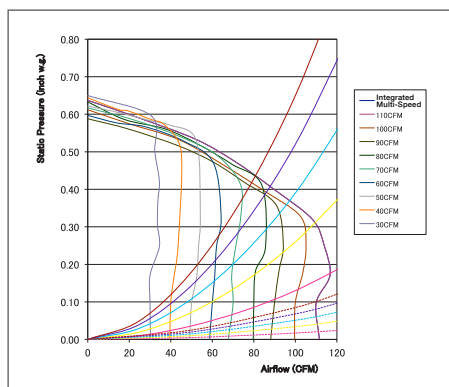
FV-07VBA1 + FV-07VBB1 70 CFM with Veri-Boost™ 4" Ducts



Fan/Lights with Built-In Controls — Performance Curves

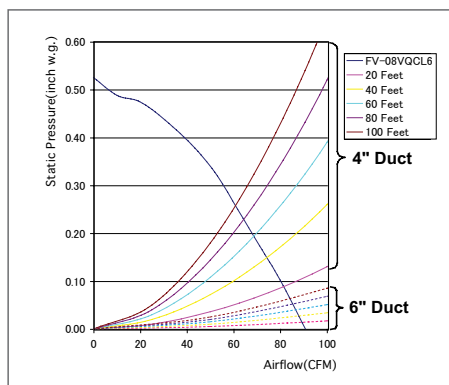
WhisperGreenSelect™
VENTILATION FAN

FV-05-11VKSL1 30-110 CFM 4" or 6" Duct

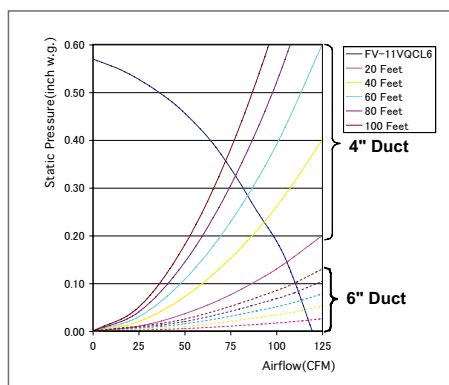


WhisperSense Lite™
VENTILATION FAN

FV-08VQCL6 80 CFM 4" or 6" Duct



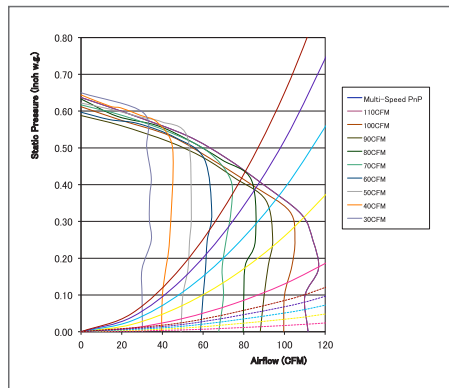
FV-11VQCL6 110 CFM 4" or 6" Duct



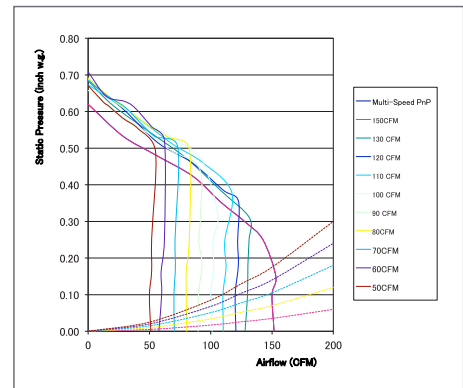
Single Speed Fans with Lights — Performance Curves

WhisperGreenSelect™
VENTILATION FAN

FV-05-11VKL1 50-80-110 CFM 4" or 6" Duct

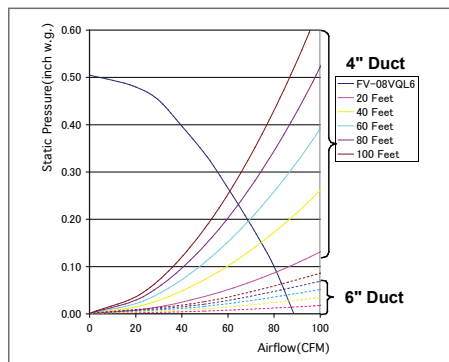


FV-11-15VKL1 110-130-150 CFM 6" Duct

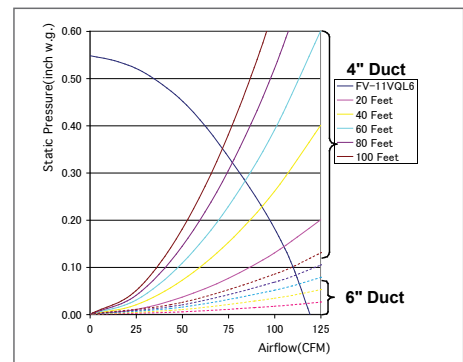


WhisperLite™
VENTILATION FAN

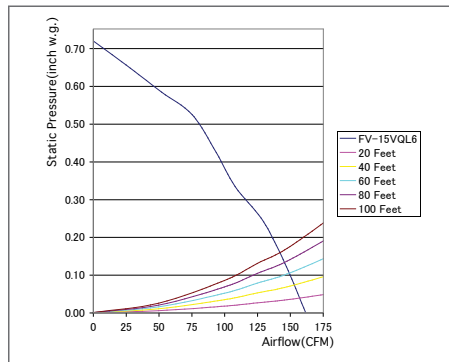
FV-08VQL6 80 CFM 4" or 6" Duct



FV-11VQL6 110 CFM 4" or 6" Duct

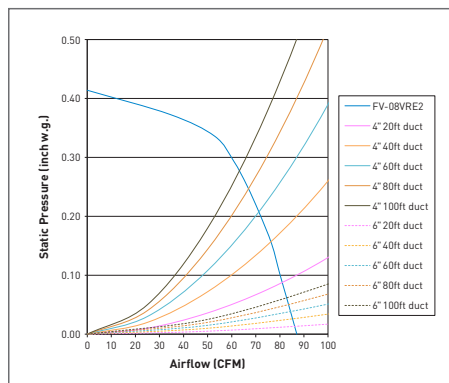


FV-15VQL6 150 CFM 6" Duct

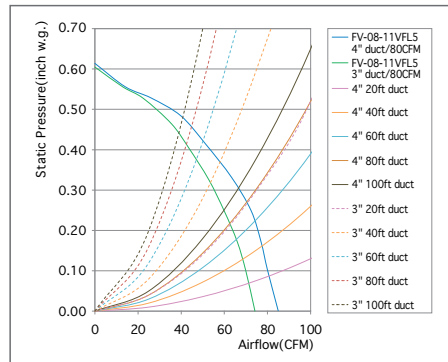


WhisperRecessed LED™
VENTILATION FAN

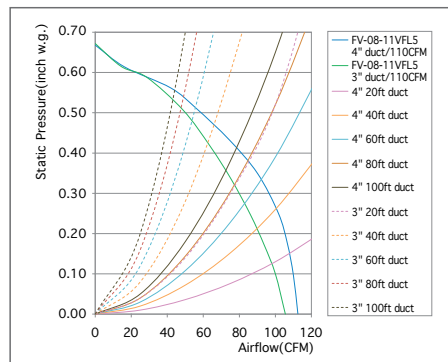
FV-08VRE2 80 CFM 4" or 6" Duct



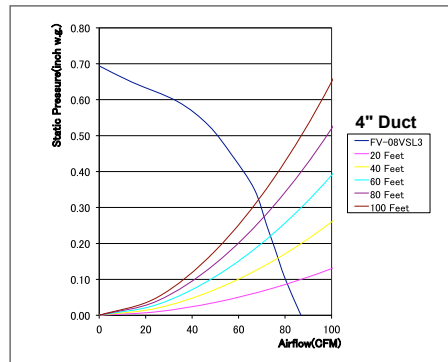
FV-08-11VFL5 80 CFM 4" or 3" Duct



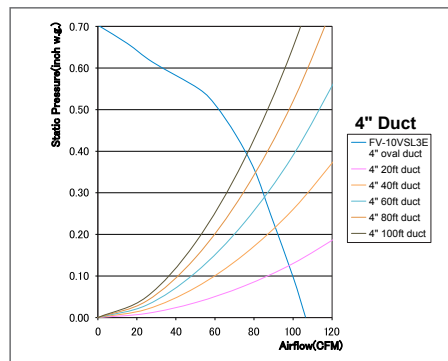
FV-08-11VFL5 110 CFM 4" or 3" Duct



FV-08VSL3 80 CFM 4" Oval Duct



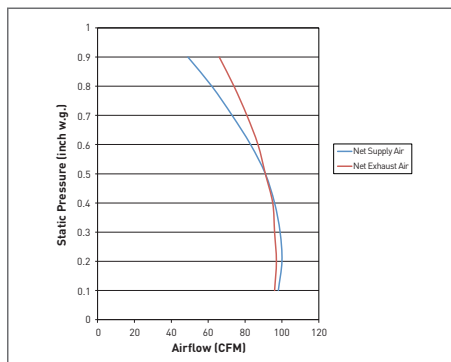
FV-10VSL3E 100 CFM 4" Oval Duct



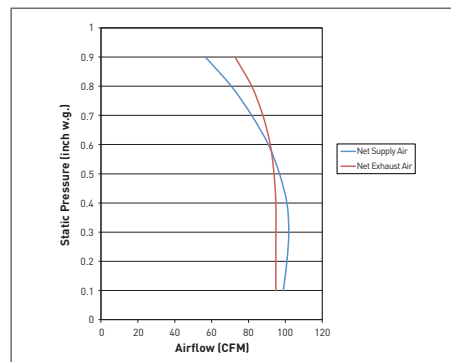
Energy Recovery Ventilator/Specialty Fans — Performance Curves

Intelli-Balance™
100

FV-10VEC1 50-80-100 CFM 4 x 4" or 6" Ducts

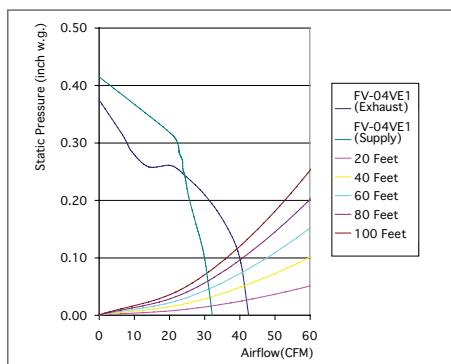


FV-10VE1 50-80-100 CFM 4 x 4" or 6" Ducts



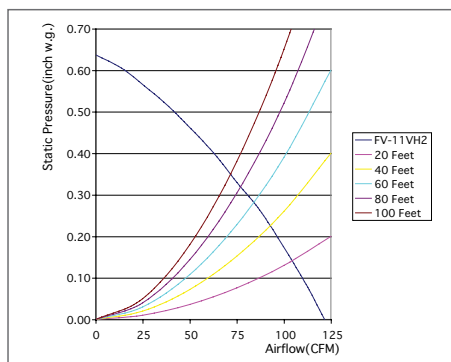
WhisperComfort™
VENTILATION FAN

FV-04VE1 40/20 CFM or 20/10 CFM 2 x 4" Ducts



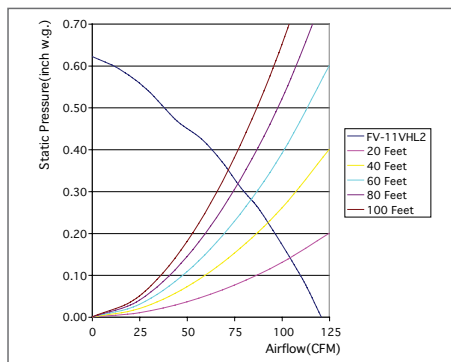
WhisperWarm™
VENTILATION FAN

FV-11VH2 110 CFM 4" Duct

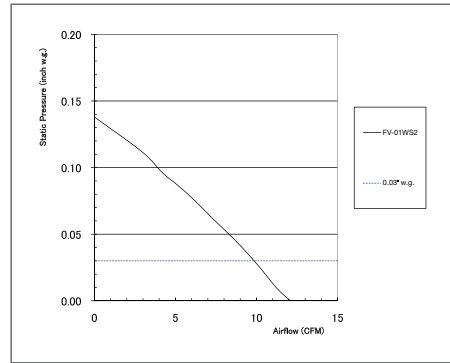


WhisperWarm Lite™
VENTILATION FAN

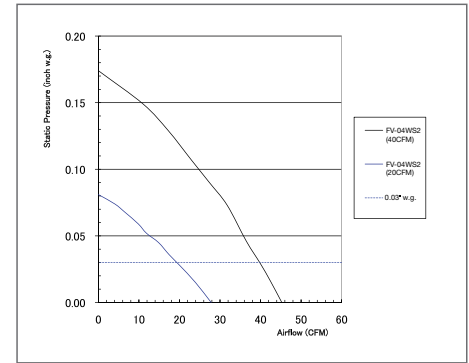
FV-11VHL2 110 CFM 4" Duct



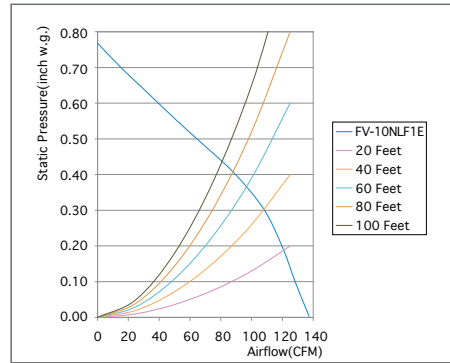
FV-01WS2 10 CFM 4" Duct



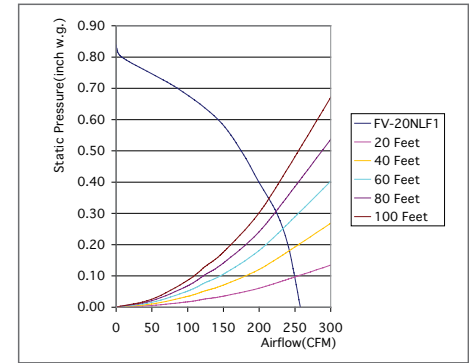
FV-04WS2 20 CFM & 40 CFM 6" Duct



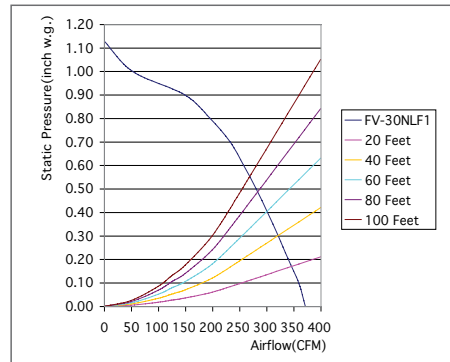
FV-10NLF1E 120 CFM 4" Duct



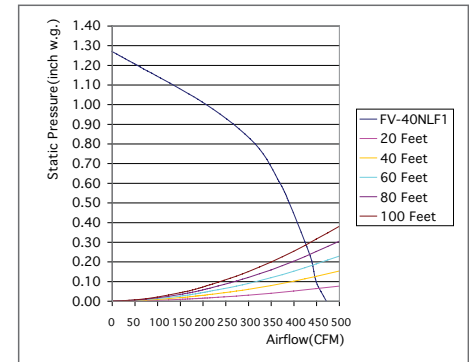
FV-20NLF1 240 CFM 6" Duct



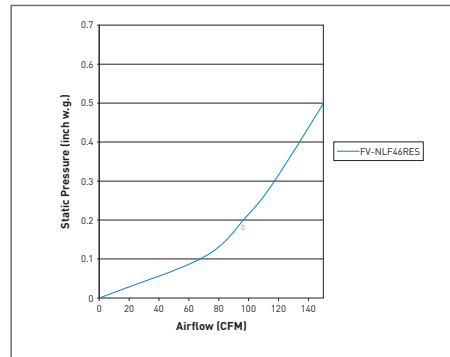
FV-30NLF1 340 CFM 6" Duct



FV-40NLF1 440 CFM 8" Duct



FV-NLF46RES 4" or 6" Duct (Resistance Curve)*

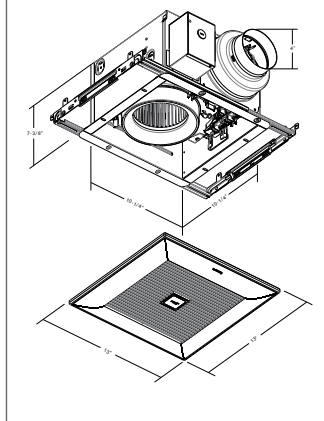


*Data is not HVI certified as there is no testing standard.

Fans with Built-in Controls — Dimensional Drawings

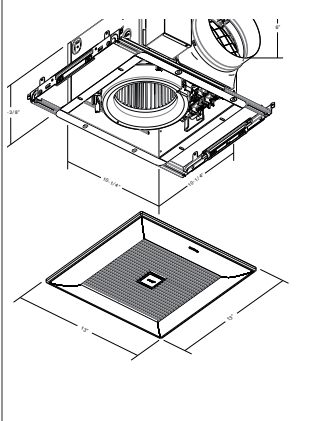
WhisperGreen^{Select} VENTILATION FAN

4" or 6" Duct



FV-05-11VKS1

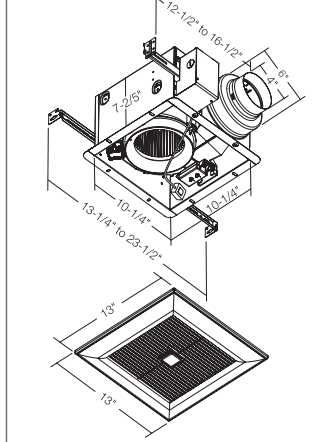
6" Duct



FV-11-15VKS1

WhisperSense[™] VENTILATION FAN

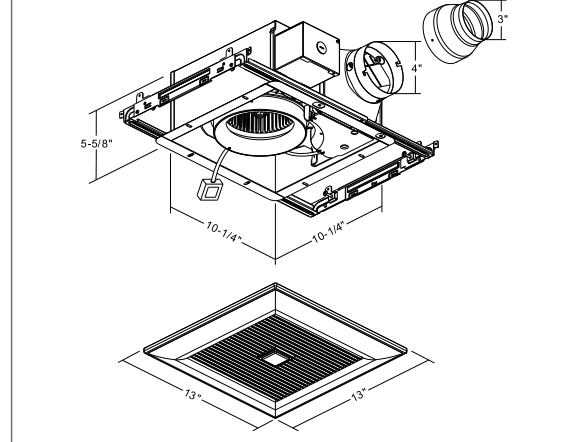
4" or 6" Duct



FV-08VQC5 / FV-11VQC5

WhisperFit^{E2} VENTILATION FAN

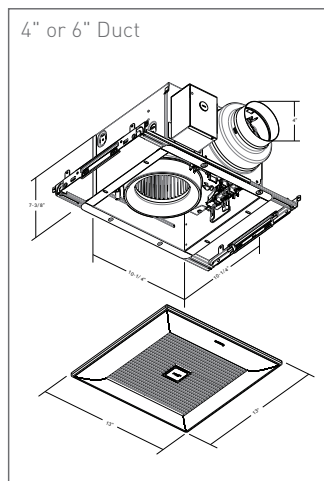
4" or 3" Duct



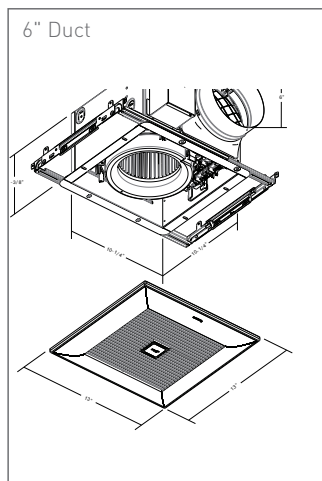
FV-08-11VFM5

Single Speed Fans — Dimensional Drawings

WhisperGreen^{Select} VENTILATION FAN

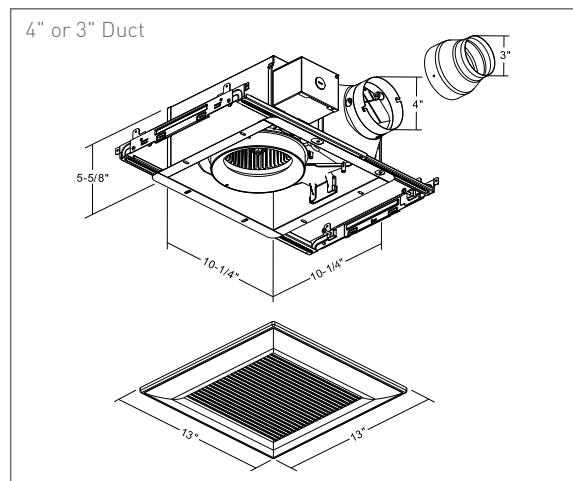


FV-05-11VK1



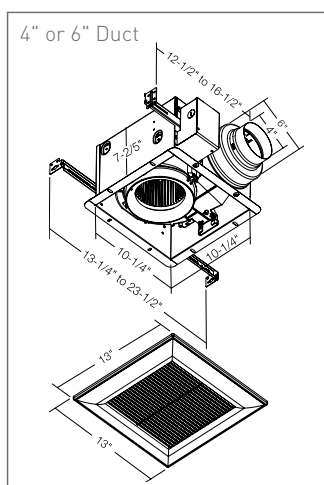
FV-11-15VK1

WhisperFit^{E2} VENTILATION FAN

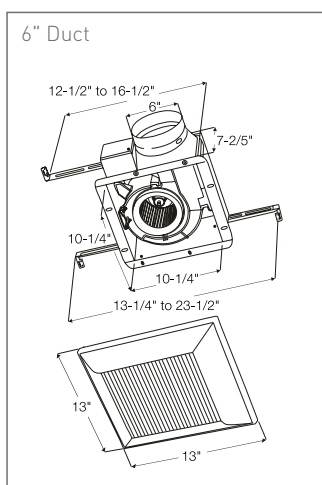


FV-08-11VF5

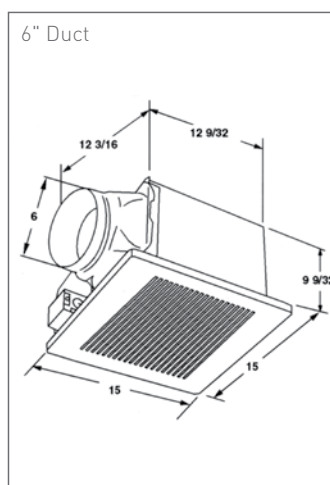
WhisperCeiling[™] VENTILATION FAN



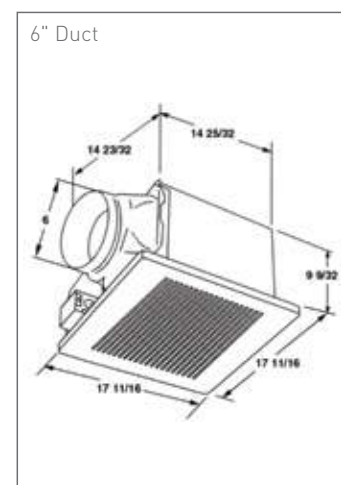
FV-05VQ5 / FV-08VQ5 / FV-11VQ5



FV-15VQ5



FV-20VQ3 / FV-30VQ3

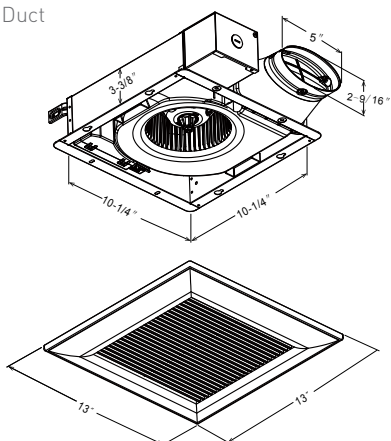


FV-40VQ4

Single Speed Fans — Dimensional Drawings

WhisperValue[®] DC™
VENTILATION FAN

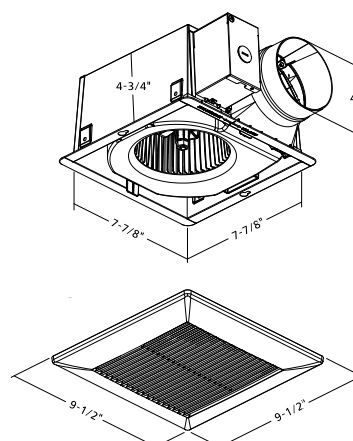
4" Oval Duct



FV-0510VS1

ecovent™

4" Duct

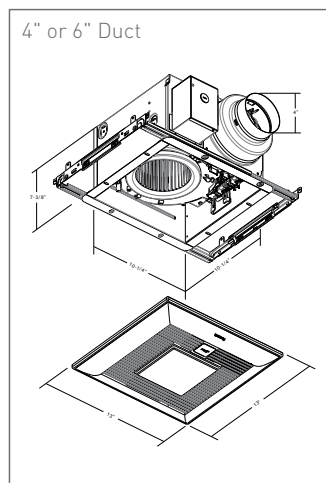


FV-07VBA1 + FV-07VBB1

Fan/Lights with Built-in Controls — Dimensional Drawings

WhisperGreen[®] Select™
VENTILATION FAN

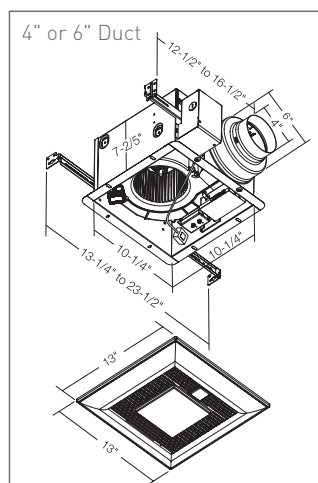
4" or 6" Duct



FV-05-11VKSL1

WhisperSense[®] Lite™
VENTILATION FAN

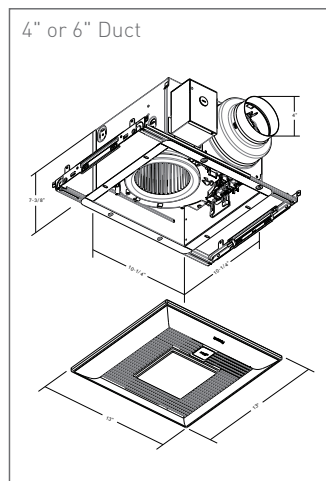
4" or 6" Duct



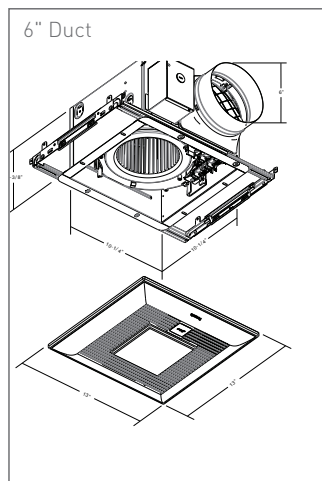
FV-08VQCL6 / FV-11VQCL6

Single Speed Fans with Lights — Dimensional Drawings

WhisperGreenSelect™ VENTILATION FAN

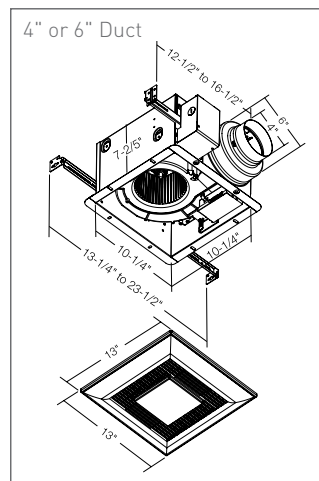


FV-05-11VKL1

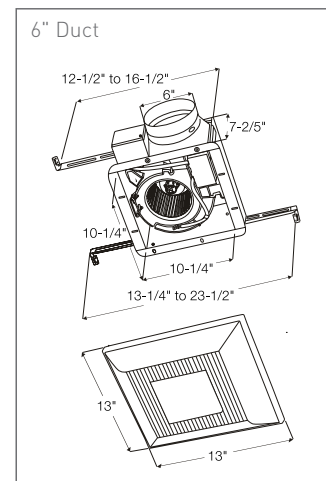


FV-11-15VKL1

WhisperLite® VENTILATION FAN

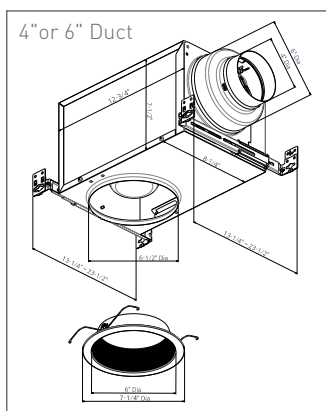


FV-08VQL6 / FV-11VQL6



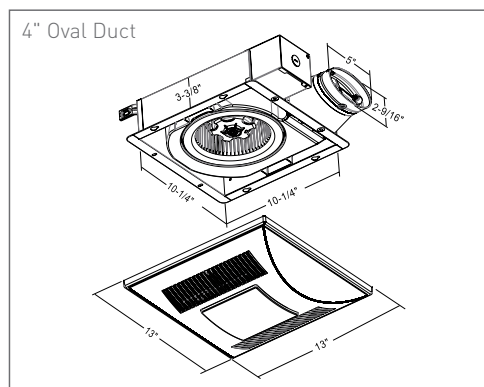
FV-15VQL6

WhisperRecessed LED™ VENTILATION FAN



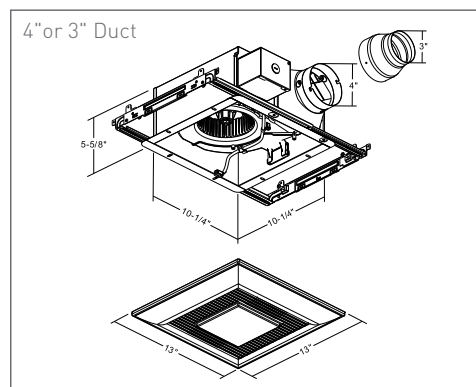
FV-08VRE2

WhisperValue Lite™ VENTILATION FAN



FV-08VSL3 / FV-10VSL3E

WhisperFit E2 VENTILATION FAN

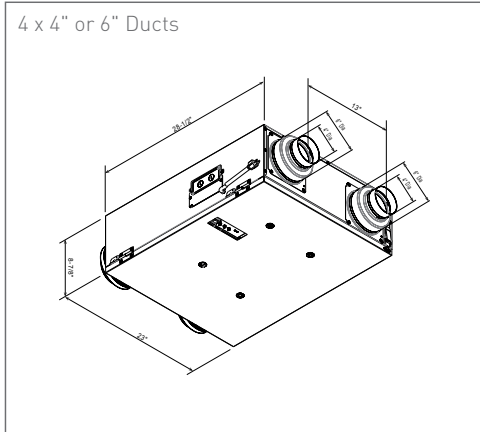


FV-08-11VFL5

Energy Recovery Ventilator/Specialty Fans — Dimensional Drawings

Intelli-Balance™
100

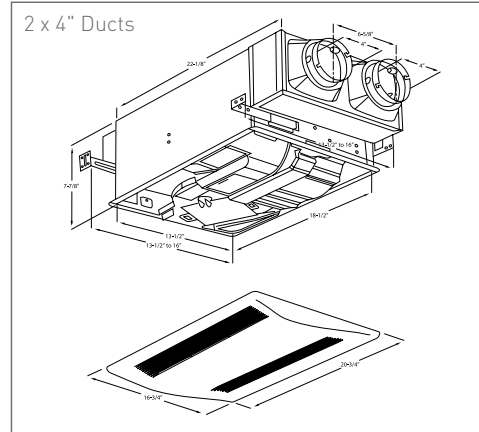
4 x 4" or 6" Ducts



FV-10VEC1 / FV-10VE1

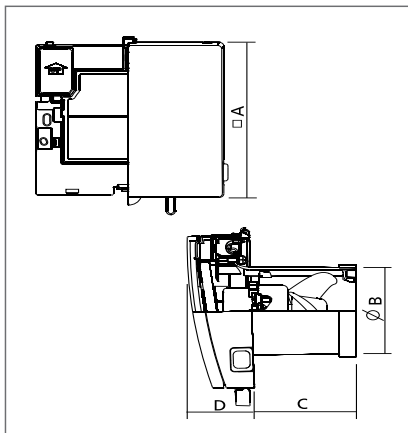
WhisperComfort™
VENTILATION FAN

2 x 4" Ducts

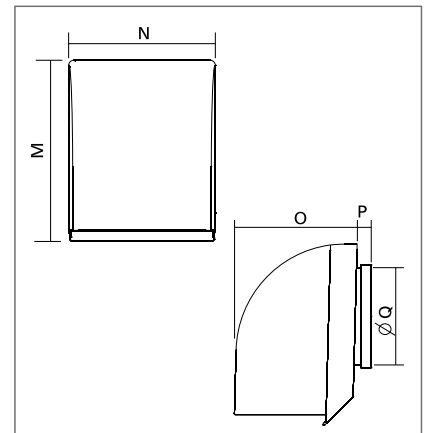
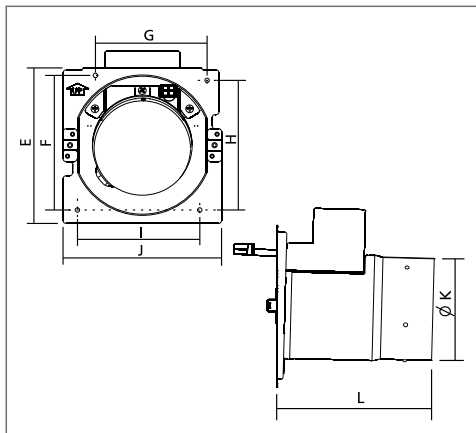


FV-04VE1

WhisperSupply Wall™
VENTILATION FAN

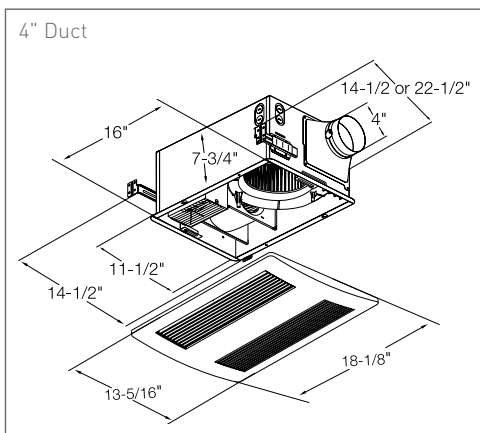


FV-01WS2 / FV-04WS2



WhisperWarm™
VENTILATION FAN

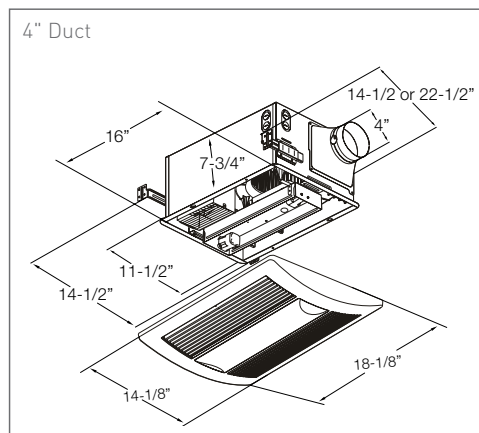
4" Duct



FV-11VH2

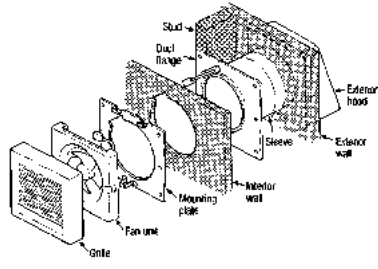
WhisperWarm Lite™
VENTILATION FAN

4" Duct

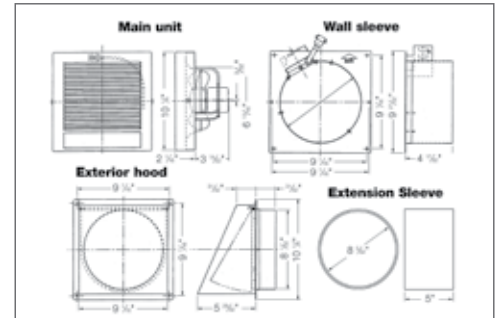
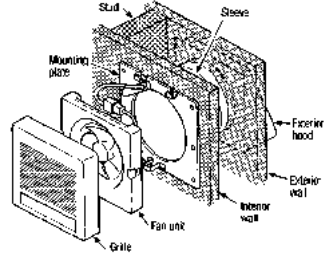


FV-11VHL2

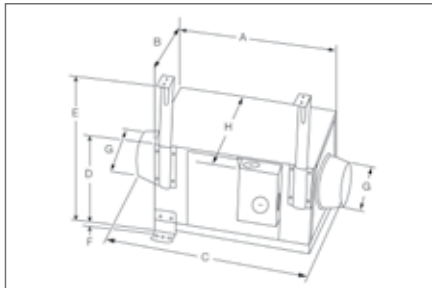
New Construction 8" diam. opening



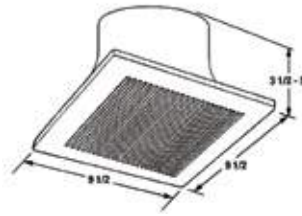
Remodeling



FV-08WQ1



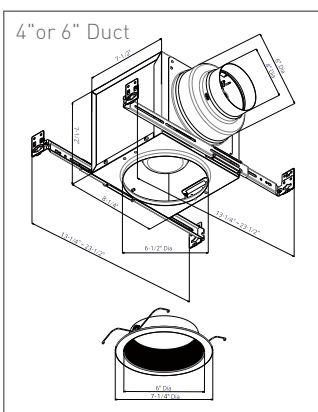
Inlet grille and 4" duct adapter height 3-1/2"
Inlet grille and 6" duct adapter height 5"



WhisperLine Installation Kits

Fan Model	A	B	C	D	E	F	G	H
FV-10NLF1E	13-3/8"	9-1/2"	17-5/16"	7-7/8"	12-5/8" - 22-3/4"	5/16"	4"	11"
FV-20NLF1	13-3/8"	9-1/2"	21-5/8"	9-7/16"	12-5/8" - 24-7/16"	5/16"	6"	11"
FV-30NLF1	15-11/32"	10-5/8"	23-5/8"	11"	12-5/8" - 26"	5/16"	6"	12-1/8"
FV-40NLF1	16-1/2"	13-3/8"	22"	11"	12-5/8" - 26"	5/16"	8"	14-7/8"

Recessed Inlet™



FV-NLF46RES



Sizing Information and Instructions

Equivalent Duct Length (EDL): The Equivalent Duct Length Table (Figure B) shows you how to calculate the equivalent straight duct length in order to overcome static pressure. The EDL chart helps ensure fan performs as expected under the airflow resistance caused by the listed components.

A ventilating fan's performance is plotted on a graph called a performance curve. The performance curve shows airflow in cubic feet per minute (CFM) along the horizontal axis and static pressure (resistance) along the vertical axis. Figure A shows how a performance curve works. The fan with a "Closed Duct" has high static pressure and no airflow; and the fan with "No Duct" has low static pressure and high airflow. In reality, an installed fan will be somewhere in between these two points.

Performance Curves are listed on **pages 58-65**.

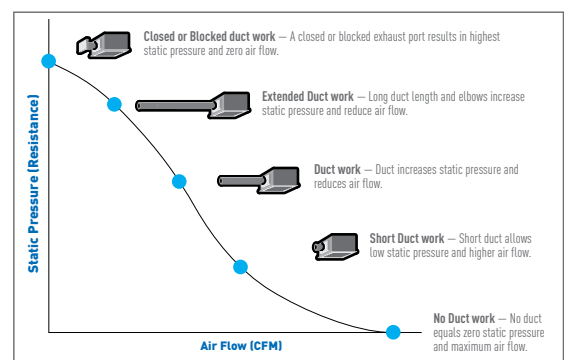


FIG. A

Equivalent Duct Length					
		Duct Diameter			
		3"	4"	6"	8"
Duct	Smooth Metal	Same as measured duct length			
Material	Flex Aluminum	1.25 x duct length	1.25 x duct length	1.5 x duct length	1.5 x duct length
	Insulated Flex	1.5 x duct length	1.5 x duct length	1.75 x duct length	1.75 x duct length
Terminal	Wall Cap	30 feet	30 feet	40 feet	40 feet
Device	Roof Jack	30 feet	30 feet	40 feet	40 feet
Elbow	Adjustable	15 feet	15 feet	20 feet	20 feet

FIG. B

Sizing and selecting a Ceiling Mounted Fan:

Proper sizing requires that you determine the needed CFM, the square footage of the room or home, and the length and type of duct.

Example: Sizing for an 8 ft x 10 ft x 8 ft ceiling bathroom using 12 foot long, 4 inch diameter aluminum flex duct, one elbow, one wall cap.

Step 1: Determine application

Bathroom = 1 CFM/square foot

Step 2: Calculate the area to be ventilated in square feet.

Assuming an 8 ft ceiling: room length x width =
area in square feet

8 ft x 10 ft = 80 sq.ft.

Step 3: Calculate your required CFM

1 CFM x 80 sq.ft. = 80 CFM

Step 4: Use the Equivalent Duct Length chart above to calculate duct run.

4a. 12 ft aluminum flex duct x 1.25 = 15 ft

4b. One elbow = 15 ft EDL

4c. One wall cap = 30 ft EDL

15 ft + 15 ft + 30 ft = 60 ft EDL

This is the equivalent duct length (or resistance) the fan must overcome to move air through the duct to the outside.

Step 5: Review models in catalog pages to find a model with desired feature. Features may include light fixture, heater or low-profile housing.

Note: Check with your local building inspector to confirm that these methods are accepted in your area.

Step 6: Use the EDL calculated in Step 4 to check on the performance curve for the fan selected in Step 5. Performance curves for all Panasonic fans can be found on pages 58-65. Compare your calculated EDL to the curves for different EDLs on the performance curve for your selected product. Where they cross will tell you what airflow to expect. For the 60 feet of EDL in the example, interpolate between the curve for 50 feet and the one for 75 feet.



Ventilation Controls

Selecting a suitable control that runs ventilation at the proper time and duration will ensure that both the occupant's health and building structure are protected.

There are several types of manual and automatic controls that can be applied to ventilation systems. Some controls are more suitable for intermittent or continuous ventilation. Select Panasonic fans incorporate built-in speed, delay and occupancy controls, making them ideal for both intermittent and continuous ventilation. However, note that for Panasonic's multispeed fans we do not recommend the use of any additional controls.

Manual controls: Manual controls require the occupant to activate the ventilation fan when needed. An example of a basic manual control is the Panasonic FV-WCSW21 On/Off rocker switch for light and fan control. There are other controls with functions available that may be more suitable to the occupant's lifestyle.

Manual timers: Electronic timers are more decorative and allow the occupant to select a time duration with the push of a button. Electronic timers do not produce the sometimes annoying ticking sound that crank timers are known for. WhisperGreen Select™ and WhisperSense fans incorporate quiet electronic controls.

Occupancy (motion) sensors: Occupancy sensors are suitable for intermittent ventilation. An advantage is that the ventilation system will operate without having to rely on the occupant's interaction. The ventilation system will remain "on" and continue working for a duration after the occupant has left the room, much like a delay off timer. WhisperGreen Select fans can be customized to include an occupancy feature with the SmartAction® Motion Sensor Plug 'N Play™ module. WhisperSense fans have occupancy sensors integrated in the fan grille.

Humidity and moisture sensors: Dehumidistats and Condensation Sensors can be used to turn a ventilation system on/off

when relative humidity reaches a certain level. These controls are most likely to be used in bathrooms to evacuate excessive moisture. Dehumidistats have a few disadvantages. One disadvantage is that seasonal changes in outdoor relative humidity necessitate seasonal readjustments to function optimally. Finally, it does not automatically remove odors. The new Panasonic FV-WCCS1 Condensation Sensor Plus features intelligent and advanced sensor technology that monitors humidity and temperature to anticipate dew point, automatically operating the fan to control moisture. It's built-in automatic seasonal adaptability with optional Moisture Sensitivity Selector also allows fine tuning for dry or moist environments. Panasonic's WhisperSense fans include both motion and humidity sensors for ultimate moisture control.

Automatic timers: Automatic timers operate fans at programmed times throughout the day. Typically a 24-hour programmable timer is used to run a fan in morning and evening hours when there is a high demand for ventilation. For continuous ventilation, the control can be programmed to operate throughout the day to help evacuate any accumulation of VOCs or other indoor air pollutants.

Controls can also be used in combination with each other to provide both intermittent and continuous ventilation. For example, a programmable timer may be used to cycle the fan on and off throughout the day to address overall indoor air quality. WhisperGreen Select fans with multi-speed capability, either pre-installed in or through the Plug 'N Play module, have been designed as an ideal double-duty fan providing both intermittent and continuous ventilation with a DC motor activated by built-in speed, delay and occupancy controls. *The key to selecting the right control or combination of controls is to first understand the occupant's lifestyle and ventilation needs. Then select a control that provides proper ventilation with little or no involvement by the occupant.*



ENERGY STAR®	Min.	Max.	Min.	Rated
Specifications	CFMs/Watt	Sones	Warranty	Airflow (0.25 in. w.g.)
Bath Fans – 10 to 89 CFM	1.4	2.0	1 year	60%
Bath Fans – 90 to 130 CFM	2.8	2.0	1 year	70%
Bath Fans – 140 to 500 CFM	2.8	3.0	1 year	70%
In-line Fans	2.8	N/A	1 year	N/A

ENERGY STAR®

www.energystar.gov

The **ENERGY STAR®** program was created by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) to help customers identify products that can save them money and protect the environment by saving energy. When it comes to ventilation fans, ENERGY STAR® certified products feature super-quiet operation (low sone levels) and high CFM to Watt efficiency. As an ENERGY STAR® Partner of the Year for 2010, 2011, 2012, 2013, 2014, 2015 and 2016, almost all Panasonic ventilating fans exceed ENERGY STAR® standards where guidelines exist and have been labeled accordingly. Panasonic ventilation fans may qualify for

an energy saving rebate. Rebate programs are often provided by local utility companies and based on ENERGY STAR® guidelines. Check with your local utility company or state ENERGY STAR® Homes Program for details.

Panasonic WhisperGreen Select fan only products have also been awarded ENERGY STAR®'s 2017 Most Efficient. This distinguished award recognizes these ventilation fan only models as being some of the most energy efficient among those that qualify for ENERGY STAR®.



Home Ventilating Institute

www.hvi.org

All Panasonic ventilation fans are tested and certified by the Home Ventilating Institute (HVI). The HVI label is your assurance that the certified airflow and sound rating of Panasonic ventilation fans are the results of testing by an independent laboratory.

HVI is a non-profit association comprised of manufacturers of home ventilation products. HVI offers a variety of services including, but not limited to, test standards, certification programs for airflow, sound and energy performance. For more information about HVI contact:

Home Ventilating Institute - HVI
 Email: hvi@hvi.org
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 1000 North Rand Road, Suite 214
 Wauconda, IL 60084
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Installation

A practical guide to Panasonic fan installation

Proper fan installation is necessary to optimize performance. The following points outline installation techniques to help achieve optimum performance.

IMPORTANT: In order to reduce elbows and optimize fan performance, install the fan with the exhaust port pointed in the direction of the termination point. Be sure to use the duct diameter size specified for the selected fan. Reducing the duct diameter (at any point in the duct run) will create substantial static pressure and reduce the fan's performance by as much as 90%. Increasing the duct size almost always improves both sound and airflow performance.

Selecting Duct: A smooth surface duct allows for optimum airflow. See Figure C. For best results, use galvanized sheet metal or possibly PVC. Flexible aluminum duct is durable, easy to install and often used. However, the ridges in aluminum flexible duct increase static pressure and can reduce air flow and fan performance. This results in lower CFMs, higher noise levels and higher energy consumption. The degree to which performance is affected depends on the length of duct, number and degree of elbows.

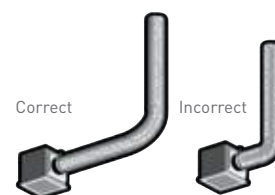
Sagging or weaving a fan duct will also increase static pressure and reduce a fan's performance. When using a flexible aluminum duct, support the entire length of the duct with braces or hangers to keep it as straight as possible for the entire run. If the duct lies across the attic, do not allow it to sag between each joist. Also, avoid weaving duct through trusses.

Using dryer duct connectors made of nylon or vinyl is not recommended due to high static pressure caused by its ridges and curvature. Insulated flexible duct must be fully extended to avoid added resistance.

Elbows: Rule number one is to avoid elbows and bends whenever possible. However, the fact is that many installations require at least one elbow, as shown in Figure D. There are two precautions you can take when installing elbows to achieve optimum airflow.

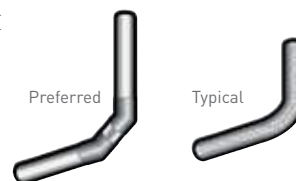
First, allow a 2-3 foot straight run out of the fan before the first elbow. This allows airflow to be uniform before passing through the first elbow. An installation that has a 90-degree elbow immediately after the fan exhaust port will cause air to flow back into the fan. This will reduce fan performance and increase noise. (Figure D)

FIG. D



Second, use a long radius angle, as shown in Figure E, to help ensure optimum airflow and minimum airflow noise.

FIG. E

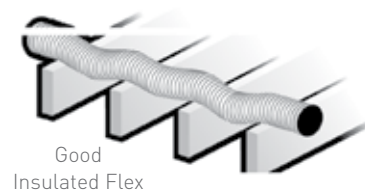
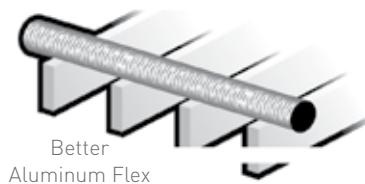


The shortest, smooth inner surface duct with the least number of elbows will provide optimum fan airflow

Troubleshooting Advice:

1. During fan installation, the tape on the duct connector holding the damper shut must be removed.
2. Confirm with your contractor if screws were used to attach the duct to the fan. The damper may not open if obstructed by screws.
3. Check that the backdraft dampers on wall caps and roof jacks are able to move freely. Routine inspections are recommended as birds and other pests may inhabit these areas.
4. Ductwork must be connected securely to wall caps and roof jacks.

FIG. C



*A straight run over joists is better than the duct 'dipping' into each joist bay which will increase static pressure and, eventually, deposit water in the 'dips'.

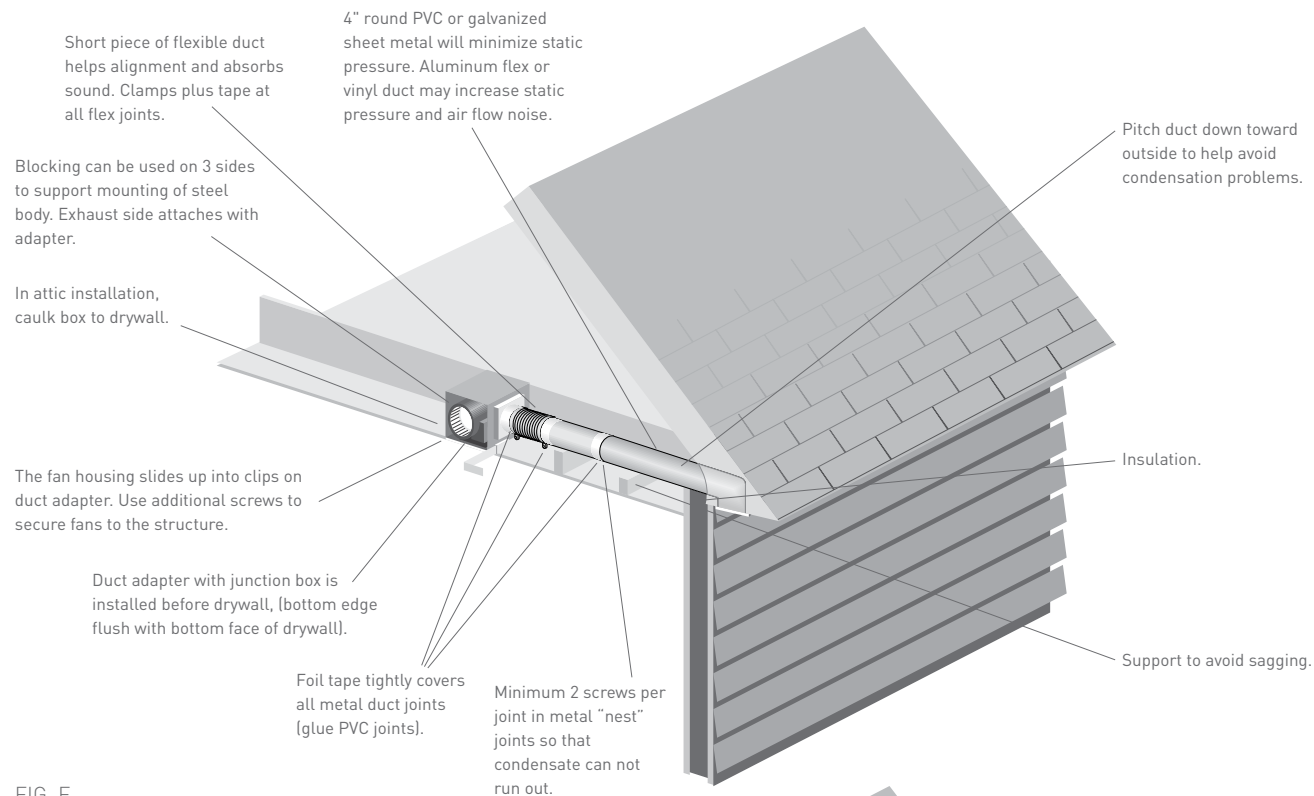
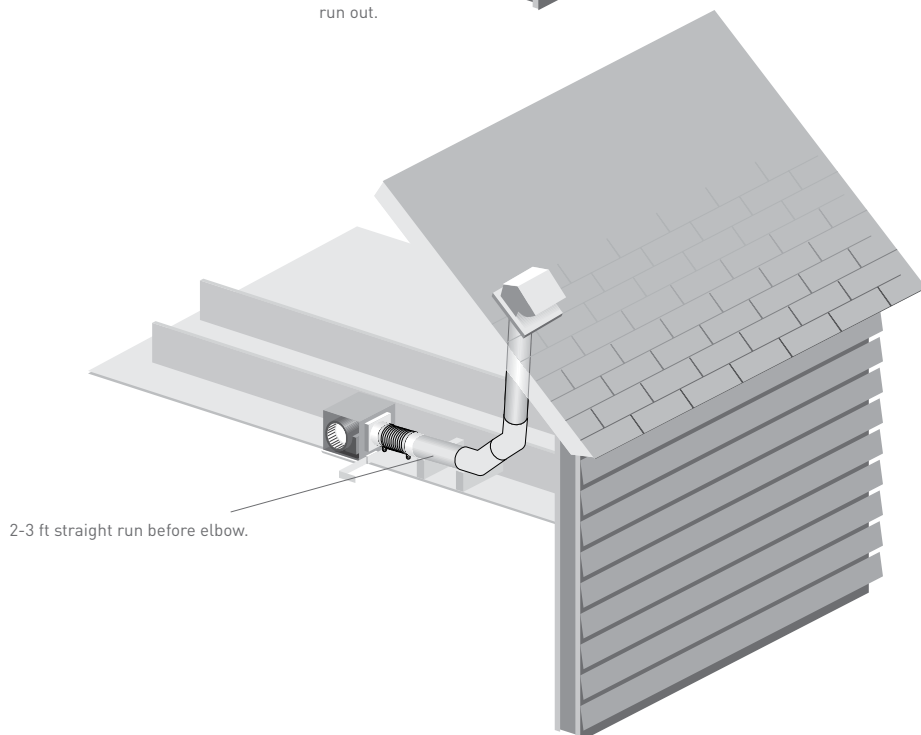


FIG. F



Note: If duct is in the attic, to avoid possible condensation problems, be sure it is either under loose fill insulation or it is fully insulated to minimum of R-6 with duct wrap.

FIG. G

Green Building Programs & Green FAQs

Green Building Programs

Green building is the practice of increasing energy efficiency and health for people and their environment. Effective green building can reduce operating costs through less energy consumption; improve occupant health by enhancing indoor air quality and lessening the impact on the environment.

ASHRAE 62.2-2010 and 2013

There are several green building programs within the United States and nearly all adhere to the standards set by the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) for the HVAC industry. ASHRAE Standard 62.2 is the national ventilation standard of design for low-rise and mid-rise multi-family buildings. 62.2 requires continuous mechanical ventilation for the entire house to be 7.5 CFM per person (master bedroom x 2) plus 1 CFM per 100 sq.ft. with some level not to exceed 1.0. Panasonic's full line of ventilation fans including WhisperGreen Select™ and

WhisperComfort are affordable and are an efficient way to meet this ventilation standard.

USGBC and LEED for Homes

The US Green Building Council (USGBC 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. USGB does not offer specific product certification, but LEED for Homes requires using mechanical ventilation to meet ASHRAE Standard 62.1 for commercial projects or 62.2 for residential projects.

ENERGY STAR® Homes Program

The US Environmental Protection Agency (EPA) manages the ENERGY STAR® Homes Program. This program offers certification of the home as energy efficient based on an evaluation of energy use and construction features. Both the ENERGY STAR® Homes program and the Indoor airPLUS (IAP) require meeting ASHRAE Standard 62.2 – 2010.

California Title 24

As the required code for California Title 24 is the shorthand name for the Building Energy Efficiency Standards for Residential and Non-Residential Buildings. Developed by the California Energy Commission and first published in 1978, the standards were recently updated for 2012 and will be effective in 2014, including the requirement to meet ASHRAE Standard 62.2.

National Association of Home Builders (NAHB) Green Building Standard

A voluntary standard developed by NAHB to provide a design guide and rating system for houses. Similar to ENERGY STAR® for Homes program but less stringent, it has both required and optional measures that can give a house a third-party certification. This program does not require meeting the ASHRAE 62.2 Standard though it can be worth 'points' in the program. However, most Local Codes require meeting some level of indoor mechanical ventilation, usually that means meeting ASHRAE 62.2. The more options utilized such as fulfilling ASHRAE 62.2 provides a higher rating.

2010 Required Continuous Ventilation Rate (CFM)

Floor Area	0-1 BR	2-3 BR	4-5 BR	6-7 BR	>7 BR
<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

2010 Sizing Example (based on ASHRAE 62.2):

Two Bedrooms at 1600 sq.ft.

Master Bedroom (7.5 CFM x 2)	=	15.0 CFM
Second Bedroom	=	7.5 CFM
1600 sq.ft. x 0.01	=	16.0 CFM

Total 38.5 CFM

To comply with ASHRAE 62.2, a WhisperGreen Select FV-05-11VKS1 set at 40 CFM provides the ideal solution. Or to keep air pressure balanced inside the home, WhisperComfort provides supply air and complies with 62.2 by setting the exhaust fan at 40 CFM. For larger homes or whole house ventilation, a combination of WhisperComfort and/or WhisperGreen Select continuous ventilation fans can be utilized to fulfill the standards set by ASHRAE 62.2.

2013 Required Continuous Ventilation Rate (CFM)

Floor Area	1	2	3	4	>5
<500	30	40	45	55	60
500-1000	45	55	60	70	75
1001-1500	60	70	75	85	90
1501-2000	75	85	90	100	105
2001-2500	90	100	105	115	120
2501-3000	105	115	120	130	135
3001-3500	120	130	135	145	150
>3501	135	145	150	160	165

2013 Sizing Example (based on ASHRAE 62.2):

Two Bedrooms at 1600 sq.ft.

Master Bedroom (7.5 CFM x 3)	=	22.5 CFM
Second Bedroom	=	7.5 CFM
1600 sq.ft. x 0.03	=	48.0 CFM

Total 70.5 CFM

The 2013 edition of 62.2 increases that calculation to 3 CFM per 100 sq.ft. In areas where 62.2-2013 has been adopted, multifamily units must use that higher rate but single family homes can deduct the calculated leakage rate obtained by a blower door test.

Green FAQs

Programs like LEED for Homes and ENERGY STAR®, all require various levels of insulation, use of renewable building and finishing products. They also require compliance with the ventilation requirements of 62.2. ASHRAE 62.2 allows the designer or builder to choose the method that fits their project, climate, or budget. It only sets the whole house 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, but it still cannot exceed 3.0 sones. The easiest way to meet the requirements is to use a WhisperGreen Select 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. ASHRAE 62.2-2013 and many local programs require field measurement of the airflow. So WhisperGreen Select with either pre-installed multi-speed or with the multi-speed Plug 'N Play module is the preferred choice.

Where is my make-up air coming from if the house is airtight?

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. Ideally, the house will be 'tight' and not have much infiltration but will have mechanical exhaust and supply so the air can be 'controlled' by the occupant.

While not required by 62.2, through-the-wall inlets from Panasonic and others can be installed to ensure some of the leakage happens through those inlets.

Am I creating a negative pressure when exhausting air all the time?

The low exhaust rates required by 62.2 will seldom 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. Building Performance Institute (BPI) sets a limit based on the potential for backdrafting of combustion appliances may occur within the home.

What makes a WhisperGreen Select fan a Green product?

The Green concept is a combination of energy efficiency, sustainability, improved interior environment (IAQ), and operating cost. The 'green' of WhisperGreen Select is the energy efficiency, low noise and long term warranty which means the fan will be running for very little cost for a very long time to insure the occupants live in a healthier indoor environment.

If the fan is running all day, aren't I wasting electricity?

The WhisperGreen Select fan features a DC motor, which makes very efficient use of electricity. Your fan, operating at 50 CFM continuously, uses 6.6 Watts of electricity. Using the national average kWh rate of \$.1105, it costs \$6.39 per year to have a fan that provides indoor air quality.

What does the SmartAction® motion sensor Plug 'N Play module plugged into WhisperGreen Select models do?

When the SmartAction® motion sensor Plug 'N Play module senses motion, or

when the switch is turned on, the fan boosts from its low, continuous ventilation speed to its high "spot" ventilation speed. The WhisperGreen Select fan has a high speed of 50-80-110 or 110-130-150 Cubic Feet per Minute. When the fan is in this mode it is operating as a traditional bathroom exhaust fan.

When I turn my switch to the "on" position or when the motion sensor is blinking green, I don't hear a big boost in speed.

Another feature of the WhisperGreen Select fan is "SmartFlow" technology. Static pressure, the resistance that lies within the duct system and point of exhaust, can severely inhibit a standard bath fan's performance. For example, a fan designed to deliver 50 CFM of airflow at 0.1 inch of pressure might only be operating at 31 CFM due to high static pressure. "Smart Flow" technology allows the DC fan motor to react to higher static pressure situations so that when the fan is set at 50 CFM, you get 50 CFM. When the motion sensor "sees" movement or the boost switch is turned on, the fan slowly boosts to the 80 CFM or 130 CFM maximum airflow, so you may not hear a big increase in noise.

When I turn the switch to the "off" position or when the motion sensor Plug 'N Play module is not in use, why doesn't the fan slow down right away?

Each WhisperGreen Select Plug 'N Play module activates a 20 minute fan features a delay-low timer when plugged in. This allows the fan to operate at the higher speed for a longer time to help remove excess moisture from the bathroom, after a shower.

FAQs

Frequently Asked Questions

1. What is a sone?

A sone is an internationally recognized measurement of sound output. The smaller the sone, the more quiet it is. Likewise, the higher the sone, the louder the sound. According to HVI, one sone is equivalent to the sound of a quiet refrigerator.

2. What is CFM?

CFM, or Cubic Feet per Minute is a measurement of rate of air flow. The larger the CFM, the more powerful the fan.

3. What is static pressure?

Static pressure is a measure of the resistance against flow as the fan pushes air through a duct. Static pressure is measured in inches of water column or water gauge (w.g). It is expressed as 0.1" w.g. or 0.25" w.g. to show that the resistance is equal to a column of water one-tenth or one-quarter of an inch tall. Most bath fans sold in North America are rated and certified at 0.1" w.g. by the Home Ventilating Institute (HVI).

4. Why are Panasonic Fans so quiet?

Tip Speed.

Fan noise comes from the amount of the blower wheel blade tip speed – the tip speed is in proportion to the revolutions per minute (RPM) of the wheel or fan blade. A small wheel turning very fast will create more noise than a large wheel turning more slowly for a given airflow. Panasonic fans use a compact blower wheel with aero dynamic blades that moves a large amount of air at reduced RPMs. The Panasonic blower wheel is designed more efficiently than most competitor models, so it turns at lower RPMs, reducing tip speed and noise.

Quiet Motor.

Panasonic is the first ventilation fan manufacturer to incorporate a DC motor in residential mechanical ventilation fans. Panasonic WhisperGreen Select series features a removable, permanently lubricated, plug-in DC motor. The totally enclosed DC brushless motor technology is rated for continuous run and are designed for extremely quiet, energy efficient operation. Panasonic DC motors consume 30% less energy than AC motors and each one comes equipped with a thermal cutoff fuse for added protection and safety.

All other Panasonic fan series incorporate a totally enclosed four-pole condenser AC motor, which is an advanced version of a Permanent Split Capacitor (PSC) motor. These are among the most energy efficient fan motors made. The four-pole design helps the fan to rotate smoothly and evenly due to a more stable electrical field that keeps the fan shaft turning more evenly than shaded-pole motors used in mid-range fans or C-frame motors used in inexpensive fans.

5. What makes Panasonic Fans so highly energy efficient?

The input wattage readings on the Panasonic fans are among the lowest in the industry. This means that for a given airflow, Panasonic fans will use fewer kilowatt hours and cost less to operate than other fans. This lower wattage draw is accomplished in a number of ways:

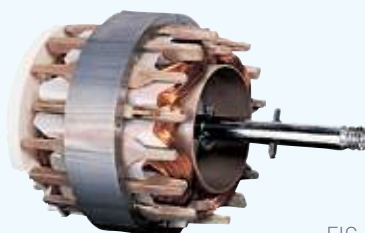


FIG. 1

Unique Motor Design.

Panasonic's DC brushless motor provides unparalleled energy efficiency with its magnetic rotor and printed circuit board. The magnetic rotor prevents energy loss while standard AC motors that utilize aluminum die cast rotors expend energy. Also, Panasonic's DC motor is the only one to incorporate a print circuit board containing a unique IC chip which monitors and directs the RPM of the fan blade. The combination of these two unique features allows the DC motor to have higher energy efficiency than an AC motor.

Panasonic uses a four-pole condenser motor, which is composed on a main coil and a sub coil. The coils in a motor are essentially small electromagnets that are turned on and off to create an electrical field to "pull" the fan shaft around, making the fan blower wheel turn. The condenser is connected with the sub coil, which helps with rotation. The condenser acts like a capacitor to store electrical energy and deliver it quickly and in exact amounts to the coil. This improves the electrical efficiency of the motor and reduces power draw.

Selective Application.

Panasonic builds its own motors and components, which means tight control over quality. Panasonic engineers also optimize efficiency by matching the exact motor characteristics with the desired performance of the fans.

6. Why do Panasonic Fans have such a long life?

Panasonic fans are designed to give the consumer trouble-free continuous operation for many years. These fans utilize high quality components and permanently lubricated motors. This leads to fans that provide a

long operational life because their components wear very slowly. That is why Panasonic stands behind its products with one of the longest warranty periods in the industry.

Motor Production.

Panasonic motor production is fully automated, with an automatic defect detecting system. The quality assurance program is exemplary, leading to a defect rate of less than 0.0006%.

ISO 9001 and ISO 14001 plant.

The production facilities that build Panasonic fans have earned the distinction of being recognized by the International Standards Organization (ISO) under the ISO 9001 and 14001 Quality Assurance program. Meeting ISO 9001 and 14001 means that these factories have met the highest quality standards in the world.

Fan Housing.

The fan housing is made of heavy-gauge zinc-galvanized steel and painted to protect it from rust. Built-in metal flange provides blocking for penetrations through drywall as an air barrier, and assists with the decrease in leakage in the building envelope during blower door testing.

7. Can insulation material be used over fans installed in the ceiling?

YES. Loose fill or batt insulation can be placed directly over the fan housing in the attic. Panasonic fans and fan/light combination units do not create excessive heat that is a common problem with recessed light fixtures or some competitors' fan/light combinations. Our efficient, cool-running motors and our fluorescent bulbs do not create enough ambient heat to be subject to these limitations.

8. Can a Panasonic fan be used over a bathtub and in showers?

YES. All Panasonic fans, with the exception of heater and Spot ERV models, are listed by Underwriters Laboratories for installation over tubs and showers, provided they are protected by a Ground Fault Circuit Interrupter (GFCI). GFCI is mandated by the National Electrical Code. While not specifically listed by UL as an application, the fan can also be installed in a steam shower enclosure. Keep in mind, however, that any ventilation device located in a damp environment such as a shower enclosure may have a reduced life due to the high humidity and potential for corrosion. Fans installed in a high humidity environment should be operated for longer periods of time to ensure the removal of the moisture and to reduce the potential for condensation in the fan body or ducting.

9. Can a Panasonic fan be used above a kitchen range?

No. Panasonic fans are not currently rated by UL for above-range installation since it was not designed to handle both grease and high temperature. However, Panasonic fans can be used to provide auxiliary kitchen ventilation. An approach that works well in large kitchens is to use a ducted range hood or downdraft exhaust and a Panasonic ventilation fan to exhaust the general odors and moisture in the greater kitchen area.

10. Why are Panasonic fans not required to be IC rated?

Fans are not required by UL to be IC (Insulation Contact) rated because they do not have high temperature sources like recessed can lights. The Panasonic fan/light combo units use fluorescent lamps that are mounted in a light kit

that is considered to be surface mounted, so they do not create high temperatures within the fan housing that would require an IC rating.

11. What's better, a motion sensor or humidity sensor?

While the humidity sensor checks the amount of moisture at the ceiling, a motion sensor "sees" the occupant coming into the room. The humidity sensor has to be set to either Rate of Rise or Relative Humidity. Depending on how the fan is set up, it may or may not turn on in certain conditions. For instance, if set for Rate of Rise (how quickly moisture builds up in a room), it might not turn on at all when there is a slow, steady build up of humidity over time. On the other hand, a motion sensor will go on once it senses motion to capture both moisture, odors and contaminants from the cleaners and chemicals that may be kept underneath the sink. Panasonic's WhisperSense fans include both motion and humidity sensors for ultimate moisture control.

"Panasonic's Condensation Sensor Plus is a more sensitive way to control a fan to avoid condensation because it measures both relative humidity and air temperature."

NOTES

NOTES

Panasonic

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