



Outside Air Solutions

TD In-Line Fan Series - Premium CHOICE Exhaust Fan Series - TR Energy Recovery Ventilator Series - reFresh Filtered Supply Fan



Advancing Ventilation®

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Indoor Air Quality (IAQ)

Today’s construction practices have created structures that are tighter and more energy efficient than ever. Vapor barriers, caulking, high R value insulation, better windows and tighter joints have resulted in less air infiltration across the pressure boundary and more efficient spaces. As a result of the reduced ventilation from these modern building practices, indoor pollutants can attain higher concentration and can even exceed outdoor concentration levels. Two common categories of pollutants are particulate matter(dust) and VOCs. The first category, particulate matter is categorized by size and include PM10 and PM2.5. Sources of these particles can include cooking, candles, fireplaces, etc. PM2.5 is so small it has the ability to pass through cell walls and make its way directly into the bloodstream. Examples of adverse health effects from PM2.5 include birth defects, lung disease, emphysema, and/or lung cancer. The second category of pollutants are VOCs which are volatile organic compounds that off-gas at room temperature. Some examples of VOCs are Benzene, Formaldehyde, Toluene, etc. VOCs are commonly found in paints, wallpapers, glues, adhesives, varnishes, plywood, particleboard and the list goes on. Just like PM2.5, prolonged exposure to these compounds pose serious risk to our health.



Everyday activities such as showering, cooking, laundry and even breathing are ways that moisture is generated in your home (one gallon per person every day). High humidity in buildings leads to structural damage and can even accelerate VOC off-gassing. Signs of structural damage include heavy condensation on windows, sills, and mold forming inside the spaces.

Codes and Standards

The ASHRAE 62.2 standard sets the minimum requirements for mechanical ventilation systems to provide acceptable IAQ in residential buildings. Building codes such as the International Residential Code (IRC) and International Mechanical Code (IMC) amend and reference these requirements to ensure occupant health. There are 2 basic requirements:

1. Whole House Ventilation

Intended to dilute the unavoidable contaminant emissions from people, materials, and background processes. An exhaust fan, supply fan, motorized damper with outside air controller, Energy Recovery Ventilator (ERV), or combination thereof can all be used to meet the continuous or intermittent whole-house ventilation requirements illustrated by IRC 2012 through 2021. Newest code iterations such as IRC 2021 encourage balanced ventilation by reducing the outside air requirement by 30% if the whole house ventilation system is balanced and ventilation air is ducted to each bedroom along with one of the following rooms: Living Room, Dining Room or Kitchen.

2. Continuous Whole House Ventilation

Equation:

- Required Rate = $(0.01 \times \text{Floor Area}) + (7.5 \times (\text{Number of Bedrooms} + 1))$
- If the number of occupants exceeds the assumed 2 persons for the first bedroom and 1 for each additional bedroom, increase the ventilation rate as follows:
Number of additional occupants x 7.5 CFM

Ventilation Air Requirements Table (CFM)					
Floor Area (ft ²)	Bedrooms				
	0-1	2-3	4-5	6-7	> 7
< 1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
> 7500	105	120	135	150	165

Runtime percentage in each 4-hour segment	25%	33%	50%	66%	75%	100%
Factor	4	3	2	1.5	1.3	1.0

Intermittent Whole House Ventilation

Area To Be Exhausted	Exhaust Rates
Kitchens	100 CFM intermittently or 25 CFM Continuous
Bathrooms-Toilet Rooms	Mechanical exhaust capacity of 50 CFM intermittent or 20 CFM continuous

In addition to these 2 basic requirements, the 2021 International Energy Conservation Code (IECC) requires that the whole-dwelling mechanical ventilation system fan efficacy meets the requirements in the table below.

Fan Location	Air Flow Rate Minimum (CFM)	Minimum Efficacy (CFM/WATT)
HRV or ERV	Any	1.2 CFM/WATT
In-Line Supply or Exhaust Fan	Any	3.8 CFM/WATT
Other Exhaust Fan	< 90	2.8 CFM/WATT
Other Exhaust Fan	≥ 90	3.5 CFM/WATT
Air-Handler that is integrated to tested and listed HVAC equipment	Any	1.2 CFM/WATT

MDX-ES24VK Outside Air Motorized Damper Kits

The MDX-ES24VK from S&P allows fresh air to enter dwellings to satisfy building code and ventilation standards through a motorized damper controlled by a 24VAC temperature/humidity monitoring timer. The control can command the central HVAC blower to help distribute fresh air through the existing duct work if necessary.

The combination of the control and damper will help you meet ASHRAE 62.2 (2010/2019) and IRC (2012/2021) code and standard requirements.



FEATURES & CONSTRUCTION

- Off, On or Eco modes allow for off, continuous or intermittent operation based on user programming
- Outdoor temperature and humidity monitoring enables ventilation rates to be minimized when readings are outside the high or low user set lockouts while still meeting code requirements
- Can be programmed to satisfy ASHRAE 62.2 - 2010 and IRC (2012 thru 2021) outside air requirement even during high/low temperature limit lockouts
- Auxiliary terminals for optional duct heater, motorized damper, Fan Control and T-Stat integration accessories and functionality



TD In-line Mixed Flow Duct Fan

S&P's best selling product worldwide! The TD-MIXVENT & TD-Silent series are in-line duct fans specially designed to maximize the airflow performance with minimal noise levels in a small, compact housing. This makes the TD-MIXVENT and/or TD-Silent series the ultimate solution for residential and light commercial applications which require a high airflow to pressure ratio and occupy minimum space (e.g., false ceiling voids, cabinets, mechanical closets and many other limited space environments).



FEATURES & CONSTRUCTION

- Mixed flow impeller combines high air flow rates of axial fans with the high pressure capability of centrifugal fans
- Integral mounting bracket allows for a removable center blower assembly for quick inspection or replacement without disturbing the duct connections
- Low Profile housing is ideal for applications where space is limited
- TD-MIXVENT exhausts or supplies air to 3,124 CFM with static pressure capabilities exceeding 1" w.g. in some instances
- TD-silent exhausts or supplies air to 530 CFM with static pressure capabilities up to 1" w.g. in some instances



TD-125XS, TD-150S, TD-200S, TD-100X1, TD-125, TD-150 and TD-200 are ENERGY STAR® qualified.

PC - Premium CHOICE AC Motors

Available in 4 sizes with single speed motors (PC50XP, PC80XP, PC110XP, and PC150XP) the Premium CHOICE AC Standard Models, as the name suggests, is all about the CHOICE! The fans are engineered to accept S&P's PC plug-&-play options: speed control module, VOC sensing module, motion/humidity sensing kits and lighted grille options. One fan can be modified to be the exact fan needed. You even have the CHOICE to add a control or change the grille after the initial installation.

FEATURES & CONSTRUCTION

- Extremely quiet operation <0.3 to 0.5 Sones
- Totally enclosed condenser motor for long life - rated for 30,000 hours continuous operation
- Built-in back-draft damper
- Robust steel housing and decorative grille



PC50XP



PC80XP • PC110XP • PC150XP



PCD - Premium CHOICE DC Motors

PCD fans feature the most efficient DC motors available to help improve indoor air quality and increase your home's durability by quickly exhausting contaminants and excess moisture that can cause health issues, mold growth, and structural damage. With built-in control boards, the PCD models allow you to CHOOSE your airflow. The DC fans are available with humidity sensing and motion sensing (motion sensing grille purchased separately)

FEATURES & CONSTRUCTION

- Extremely quiet operation <0.3 to 1.5 sones
- Rated airflows range from 80 CFM to 140 CFM at .1" w.g.
- Brushless DC motor for long life
- Motor rated for 60,000 hours continuous operation
- High/Low speed delay timer
- 6" duct connector with built-in back-draft damper
- 4" duct connector with built-in back-draft damper (PCD80XH only)
- Robust steel housing and decorative grille



PCD80XH



PCD110XP



PCLPXP - Premium CHOICE Low Profile XP Series

The Premium CHOICE Low Profile Ventilation fans feature ultra-low profile housings suitable for installations in the tightest wall cavities and congested ceiling spaces. The low profile fans are available with humidity sensing, speed control, lighted grille and radiation damper options.

FEATURES & CONSTRUCTION

- Low profile housing design for easy wall or ceiling installation
- Quiet operation 0.7 to 1.5 sones
- Rated airflows range from 80 CFM to 100 CFM at .1" w.g.
- Totally enclosed condenser motor for long life
- Built-in back-draft damper
- Robust steel housing and decorative grille



PCLPD100XHP - Premium CHOICE Low Profile DC Motors

The Premium CHOICE Bathroom/Exhaust Fan model PCLPD100XHP is built for today's demanding requirements featuring seamless Plug-&-Play integration and a redesigned blower for a quiet, energy efficient performance. The PCLPD100XHP features an ultra-low profile that allows easy installation into a wall, eliminating the need for a radiation damper to meet fire-resistance requirements in building code. The PCLPD100XHP also features AUTOFLO™ technology maintaining the selected CFM across a wide range of static pressures.

FEATURES & CONSTRUCTION

- Ultra-low profile design to fit in the smallest wall cavities
- Ultra-Quiet Operation of 1.2 sones
- DC Motor for high efficiency with AUTOFLO™ technology
- Built-in Humidity Sensing, continuous low speed capability and 20 minute time delay
- Rated high speeds of 50, 80 & 100 constant CFM



RF - reFresh Series

Low profile, all-in-one units to introduce fresh air from outside into the residence. The reFresh is specifically engineered to meet building and energy codes that call for ASHRAE 62.2 CFM requirements. Low profile housings with integral filter slots allow quick installation in the tightest conditions such as congested interstitial spaces between floors, mechanical closets, and tight attic spaces. The reFresh Low Profile AC and EC units have rated airflows ranging from 20 to 140 CFM while the Full Size reFresh Units are rated from 40 to 180 CFM. Rated performances are available with and without MERV 13 filters.

RF8 - reFresh Low Profile

FEATURES & CONSTRUCTION

- Models with and without ES24V control
- 6" duct connectors
- Test port for easy air flow measurement
- Integral mounting tabs allow mounting in any orientation
- Speed controllable (Standard Feature), AC or EC motor, 120 VAC 60 Hz
- 6' power cord
- EC motor models are ENERGY STAR qualified
- Integral filter slot accommodating a MERV 8 or 13 filter (Filters sold as accessories)
- Acoustical lining for quiet operation



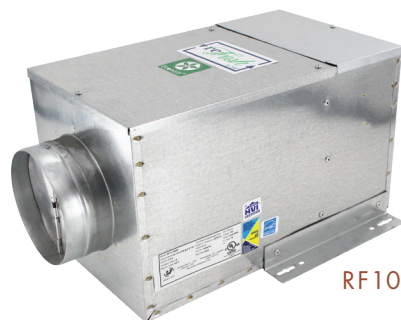
RF8



RF10 - reFresh Full Size Units

FEATURES & CONSTRUCTION

- Models with and without ES24V control
- 6" duct connectors with integral back-draft damper
- Integral back-draft damper
- Test port for easy air flow measurement
- Integral mounting tabs allow mounting in any orientation
- Speed controllable (Standard Feature), AC or EC motor, 120 VAC 60 Hz
- Models with and without 6' power cord
- EC motor models are ENERGY STAR qualified
- Models with UL 2043 plenum rating
- Integral filter slot accommodating a MERV 8 or 13 filter (Filters sold as accessories)
- Acoustical lining for quiet operation



RF10



RFV8 - reFresh Value Model

FEATURES & CONSTRUCTION

Basic model, with the following modifications:

- No insulation
- No speed control
- No impeller guard
- No filter slot
- New 1 piece lid w/ 4 screws (no latch)
- With back-draft damper
- With 6' power cord
- With mounted/wired ES24V control/relay



RFV8



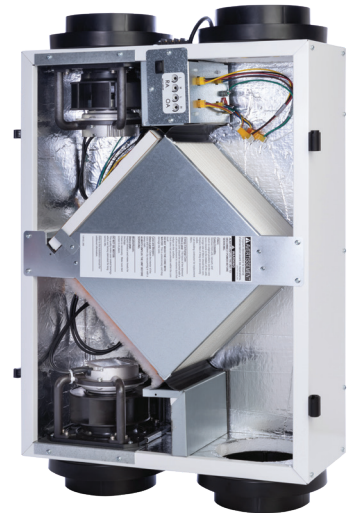
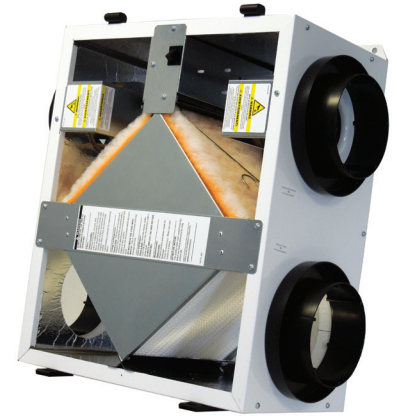
TR - Total Recovery Energy Recovery Ventilators (ERVs)

To protect valuable investments of your life, your home, and your family, improving indoor air quality is key. With S&P's Total Recovery ERV Series, stale room air is exhausted, and the fresh outdoor air is brought back into the house. With this line of ERVs (Energy Recovery Ventilators) these two air streams are directed through a highly developed "air-to-air" energy exchange core. The air streams are physically separated by many layers of "plates" so there is no mixing or contamination of the fresh air. The plates are made of an engineered "resin" material that simultaneously transfers heat by conduction and humidity by attracting and moving water vapor from one air stream to the other.



FEATURES & CONSTRUCTION

- TR90 thru TR300 airflow ranges from 40 - 311 CFM depending upon system static pressures
- MERV 8 filters with MERV 13 available as add-on accessories
- Less than 1 watt stand-by power consumption
- Transformer/relay package allowing simple on/off control
- Plastic double collars for 6" or 8" direct duct connection (TR300 is 8" only)
- TR90, TR130 and TR300 have single speed, painted case, low voltage control and 3' power cord
- TR90G has galvanized case, line voltage and no line cord
- All models can be installed in any orientation. Factory supplied mounting hardware varies per model
- Large cores for high efficiency
- No condensate pan or drain required
- TRe200, TRe300, TRLPe110 and TRLPe110H have ECM motors with speed controllable low speed and boost mode operation available
- Airflow range of TRe200 and TRe300 units are 18 - 288 CFM at .1" of static pressure
- Airflow range of TRLPe110 and TRLPe110H units are 30 - 130 CFM at .1" of static pressure



FT622 - ASHRAE 62.2 Bath Fan Ventilation Control

The FT622 is designed to replace bathroom fan and light switches and provide both functions with one easy operation. By using a microprocessor to monitor and control operation, the FT622 delivers a precise amount of ventilation, and is a simple solution to meet ASHRAE 62.2 in conjunction with an S&P fan, specifically a TD-MIXVENT or PC Premium Choice Fan.



There are only two settings on the FT622: VENTILATION and DELAY. The VENTILATION setting allows the user to set the number of minutes per hour the fan should run. The DELAY setting allows the user to set the number of minutes the fan should run after the bathroom light has been turned off. The VENTILATION setting provides additional run time for the fan to complete the remaining necessary ventilation after use.

FT247 - Programmable Fan Timer

S&P offers the FT247 with easy programming for your bathroom fan ventilation needs. Simply set what time you want the fan to turn on and off and what day or days you want the fan to run. S&P recommends using the FT247 with a TD-MIXVENT Fan or PC Premium Choice Fan.



- Provides 7 ON and 7 OFF events per day
- LCD display
- Rechargeable battery back-up
- Push button activation
- Note: Do not use with fluorescent lamp ballasts

ES24V - Environsense Ventilation Control

The ES24V control can be used with our RF-reFresh, TD-MIXVENT, TD-SILENT, PV-POWERVENT, or TR-ERVs. When paired with S&P fans the ES24V provides fully controllable fresh air into a residence. With three modes (Off, On, and Eco-Mode) the ES24V ensures compliance with today's outside air codes.

- "Off" allows for manual override as required by the code
- "On" allows for continuous operation
- "Eco-Mode" allows homeowner to set humidity and/or temperature minimum and maximums. When temperature and/or humidity readings are outside the minimum and maximum user set limits the control reverts to a check procedure to bring in minimum outside air amounts to satisfy code requirements. When the outside air is within the min and max range the fan will operate at the set time limit or continuously to meet the code requirements, i.e. 20 minutes every hour



Product Applications and Arrangements












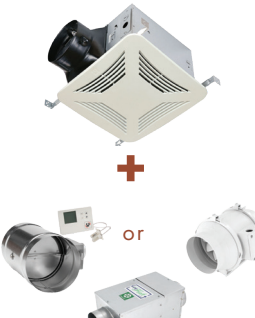



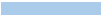







MDX-ES24VK - Use the MD line of motorized dampers for Central Fan Integrated (CFI) outside air supply applications.

TD-MIXVENT or TD-Silent - Use the TD line of in-line mixed flow fans for outside air supply or exhaust applications.

PC - Use the PC line of bathroom exhaust fans as part of a balanced outside air solution.

reFresh - Use the reFresh Filtered Supply Fan for outside air supply applications.

TR/TRLPe - Use Total Recovery ERVs for balanced outside air applications.

	MD6-ES24VK Outside Air Motorized Damper Kit	TD In-line Mixed Flow Duct fans	PC Premium CHOICE Bathroom Exhaust Fans	reFresh Filtered Fresh Air Supply In-line Fans	TR Total Recovery ERVs
Good	 Supply Only - Central Fan Integrated	 Supply Only or Exhaust Only	 Exhaust Only	 —	 —
Better	 +  or  Balanced Solution	 +  or  Balanced Solution	 +  or  Balanced Solution	 Supply Only - Filtered	 —
Best	 —	 —	 —	 +  or  Balanced Solution - Filtered	 Balanced Solution - Filtered with Energy Recovery



**ADVANCING
VENTILATION®**

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