



BROAN[®]

Ventilation Solutions

Exhaust

Balanced

HEPA + Balanced

August 2008

Today's tightly constructed homes seal in more than you think.

Attic: Insulation fibers, construction dust

Bedroom: Dust and dander on sheets and carpets, CO₂, odors, formaldehyde off-gassing, fumes from dry cleaning, and other solvents

Bathroom: Odors, CO₂, window condensation, mold and mildew, formaldehyde, and aerosol fumes



Living Room: Dust and dander on furniture and carpets, CO₂, carpet cleaning fumes and particles, fireplace smoke and ash, and formaldehyde off-gassing

Kitchen: Cooking pollutants, carbon-monoxide from gas cooktops, waste bin odors, cleaning chemical fumes



Broan has ventilation options for every home and budget.

1. Exhaust:

Expel stale air automatically. Ventilation fans that once worked independently can now be coordinated in an economical, integrated system called Broan SmartSense®.

2. Balanced:

Blend fresh outside air with indoor air. Step up to Balanced Ventilation to replace stale air with fresh, outside air.

3. HEPA* + Balanced:

Blend in fresh outside air and continuously filter. Our best solution filters microscopic particles as small as 0.3 microns from incoming fresh air and indoor air. For comparison, a human hair is 150 microns thick.

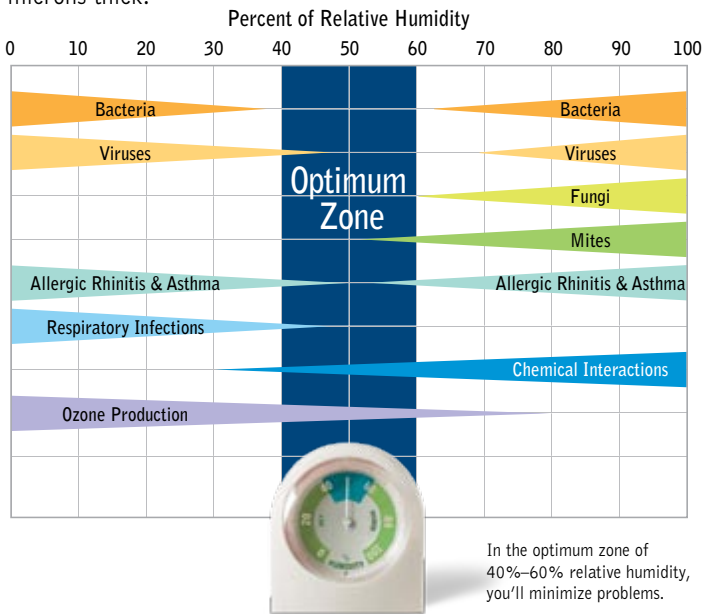
Eliminating or minimizing sources of indoor air pollution. Awareness and information are the keys to better understanding indoor air quality. Eliminating smoking indoors and regularly cleaning and maintaining your HEPA* filtration equipment are good first steps to removing contaminants in your home.

Intermittent and Whole-house ventilation.

Proper ventilation has two main components. Intermittent ventilation removes pollutants at the source through locally operated bathroom fans and kitchen range hoods. Rapidly eliminating humidity and contaminants at the source lessens the possibility of dissipation throughout the home. Continuous whole-house ventilation continually removes and dilutes pollutants not captured by intermittent ventilation. This constant exchange of fresh air provides for a more healthy and comfortable home.

Filter incoming outside air with a whole-house air cleaning system. Using a HEPA* filtration system with antimicrobial protection will lower the airborne concentration of dust, pollen and other particulates. HEPA* is different from electronic air cleaners that typically produce ozone, which itself is classified as a pollutant. And, portable air cleaners have been cited as ineffective by leading consumer safety organizations.

Control indoor humidity. While humidity is not a pollutant, it can create a range of problems, from health concerns to structural problems. Maintain indoor relative humidity between 40 to 60 percent to minimize mold, mildew and other possible hazards.



*High Efficiency Particulate Air

Ventilate your home intelligently.

Up to ten fans can be installed on one Broan SmartSense® Ventilation System. Broan SmartSense is the smart choice to meet ASHRAE Standard 62.2* and other related guidelines (including building codes derived from the ASHRAE standard).

Why do I need to ventilate all day?

Proper ventilation exhausts stale air and replaces it with fresh air. This minimizes mold and mildew growth, and helps remove gases and particles not trapped by filtration units. This automatic ventilation solution reduces indoor pollutants such as household cleaners, VOCs, carbon monoxide, and off-gassing formaldehyde from building materials, carpets and other furnishings.

Installs as easily as an exhaust fan.

Simply recess the fan housing in the ceiling, vent with 6" duct to the outside and connect the power wires. No separate control wiring is necessary. Then, program the controls to match the size of the home.

An economic alternative to other systems.

Broan SmartSense® utilizes exhaust ventilation fans normally installed in the home. It automatically adjusts total run-time based on square footage and number of bedrooms. Broan SmartSense® controls monitor manual fan operation, and adjust ventilation time to optimize energy usage. This system is more cost effective and energy efficient than other ventilation strategies that require the use of the home's air handler. With only one fan running at a time, Broan SmartSense® uses less than 40 watts during ventilation cycles.

For tightly built homes.

Consider using a Broan Make-up Air Damper to form a complete balanced ventilation system by linking with Broan SmartSense® ventilation fans and/or select Best® range hoods.

How does it work?

The Broan SmartSense® system monitors and activates Broan Ultra Silent™ fans 24/7 throughout the home. Broan Ultra Silent™ fans operate at a barely audible 0.3 and 0.7 sones, so they are ideal for any room that might require additional ventilation. Even in a bedroom, you'll never know they're running.

Use this chart to determine the recommended continuous ventilation rate in CFM (Cubic Feet per Minute) for homes of various sizes.













Number of Bedrooms		0-1	2-3	4-5
Home Square Footage	< 1500	 30	 45	 60
	1501 to 3000	 45	 60	 75
	3001 to 4500	 60	 75	 90
	4501 to 6000	 75	 90	 105

Chart numbers in Cubic Feet per Minute.
For more details see ASHRAE Standard 62.1-2004 and 62.2-2004.






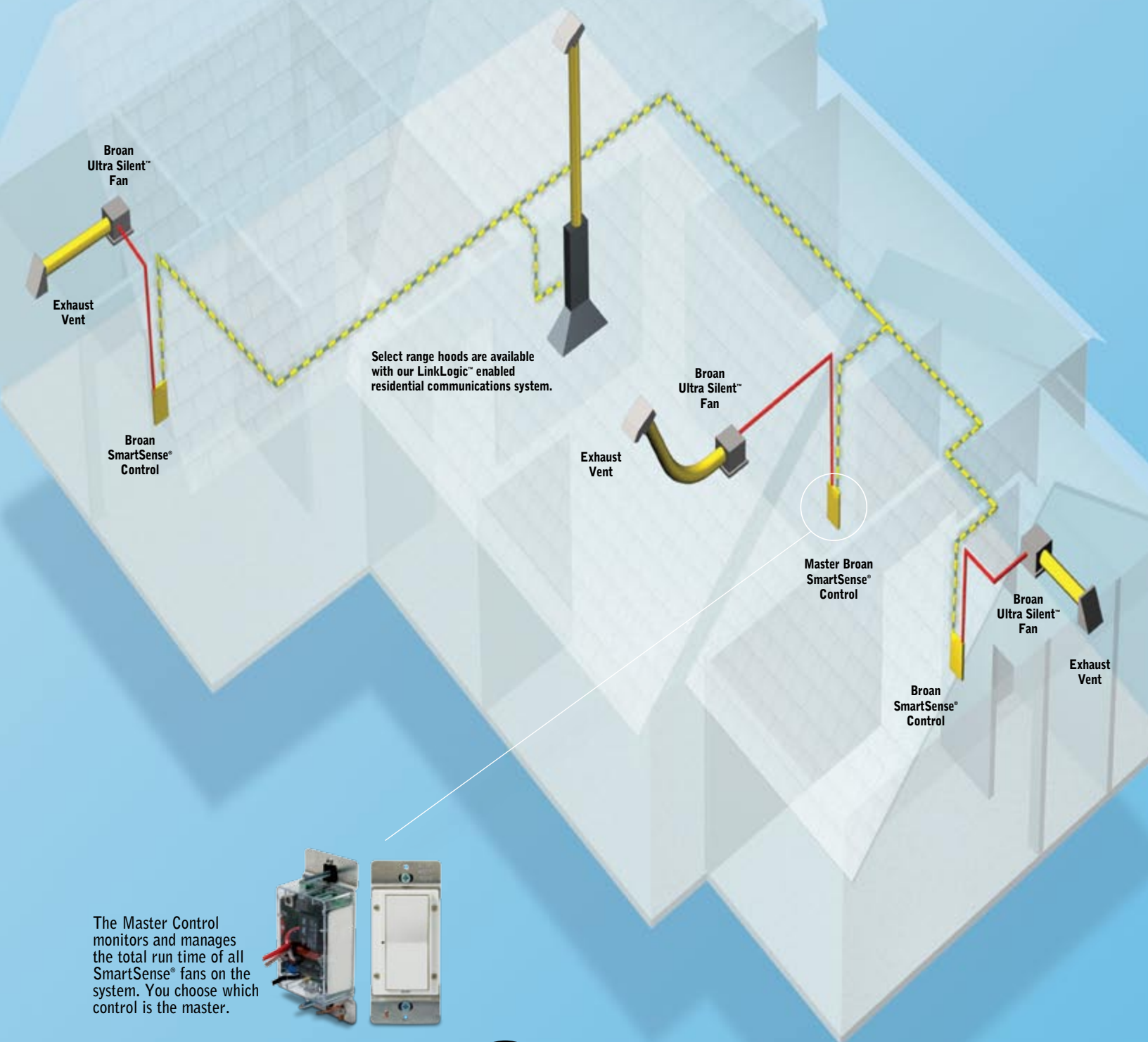
Model	CFM	Dimension
SSQTXE080	80	11-3/8 x 10-1/2 x 7-3/4
SSQTXE110	110	11-3/8 x 10-1/2 x 7-3/4



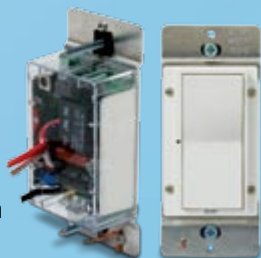
*American Society of Heating, Refrigerating and Air-Conditioning Engineers standard for ventilation and acceptable indoor air quality for low-rise residential building.

Broan SmartSense® and Ultra Silent™ ventilation fans now work together.

-  Digital communication over existing power wires
-  Exhaustion of stale air
-  Power to fan



The Master Control monitors and manages the total run time of all SmartSense® fans on the system. You choose which control is the master.



Broan SmartSense® is the smart choice to meet intermittent and whole-building ventilation requirements of green building programs such as Leadership in Energy Efficient Design (LEED), NAHB Green Building Guidelines and ENERGY STAR Indoor Air Package.



Residential balanced ventilation systems introduce fresh air alone, or include Heat Recovery (HRV) or Energy Recovery (ERV) features. Select the unit that best matches the square footage requirements of your home or small office.



**Fresh Air introduction up to 2,500 sq. ft.*
Model AE60**

Fresh air systems draw outside air in and expel stale indoor air. These units may be installed wherever it is convenient, or where ducting to individual rooms is simplified.

- 160–185 CFM
- Typically recommended for mild climates
- Flexible installation options—install mounted or suspended from chains



**Heat Recovery up to 3,500 sq. ft.*
Model HRV90H**

**Energy Recovery up to 3,500 sq. ft.*
Model ERV90HC**

For average-size homes, these models are available with either Heat or Energy Recovery options.

- Up to 96 CFM (see table, page 11)
- Available with side or top ports
- Flexible installation options—install mounted or suspended from chains



Heat Recovery up to 7,500 sq. ft.*

HRV100H for homes up to 4,500 sq. ft.*

HRV200H for homes up to 7,500 sq. ft.*

Energy Recovery up to 7,500 sq. ft.*

ERV100HC for homes up to 4,500 sq. ft.*

ERV200HC for homes up to 7,500 sq. ft.*

For larger homes and small offices, these models are available with either Heat or Energy Recovery options.

- Up to 235 CFM (see table, page 11)
- Flexible installation options—install mounted or suspended from chains

*Dependent on local ventilation rate requirements.

Light commercial balanced ventilation systems for high-rise dwellings, commercial facilities or offices are available with Heat Recovery (HRV) or Energy Recovery (ERV) features. Now, a single unit can be installed in place of multiple units, reducing installation time and materials, maintenance time and costs, and space requirements. These green solutions capture up to 70% of the heat already paid for and transfers it to the fresh air entering the space. Select the unit that best matches the CFM requirement of your installation and other special needs.



**Heat Recovery for small facilities
up to 750 CFM**

Model HRV650

- 500–750 CFM
- Efficient centrifugal blower
- May be installed suspended by chains to minimize sound and vibration
- Side removes for easy maintenance access; all connections on one side
- Meets ASHRAE 62.1 requirements



**Moisture Reduction and Heat Recovery
in extreme environments**

Model HRV700

- 500–800 CFM
- Sealed centrifugal blower
- Engineered for use in high-humidity locations, such as hotel pool rooms
- Powdercoat finish resists chemicals found in corrosive environments
- Side removes for easy maintenance access; all connections on one side
- Meets ASHRAE 62.1 requirements



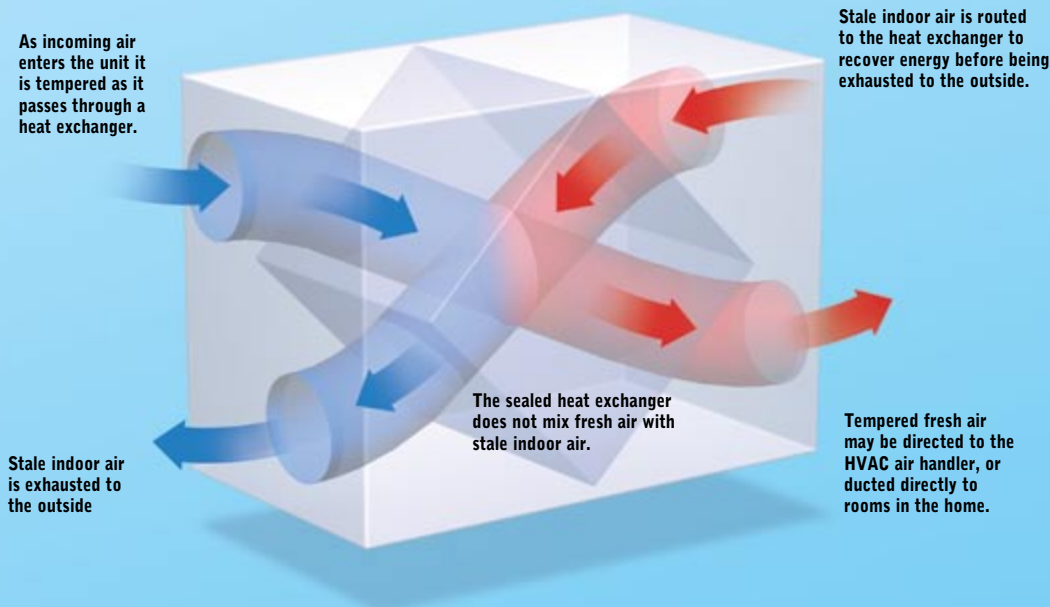
**Heat Recovery for larger facilities
up to 1250 CFM**

Model HRV1150

- 700–1250 CFM
- Powerful centrifugal blower
- Side removes for easy maintenance access; all connections on one side
- Meets ASHRAE 62.1 requirements

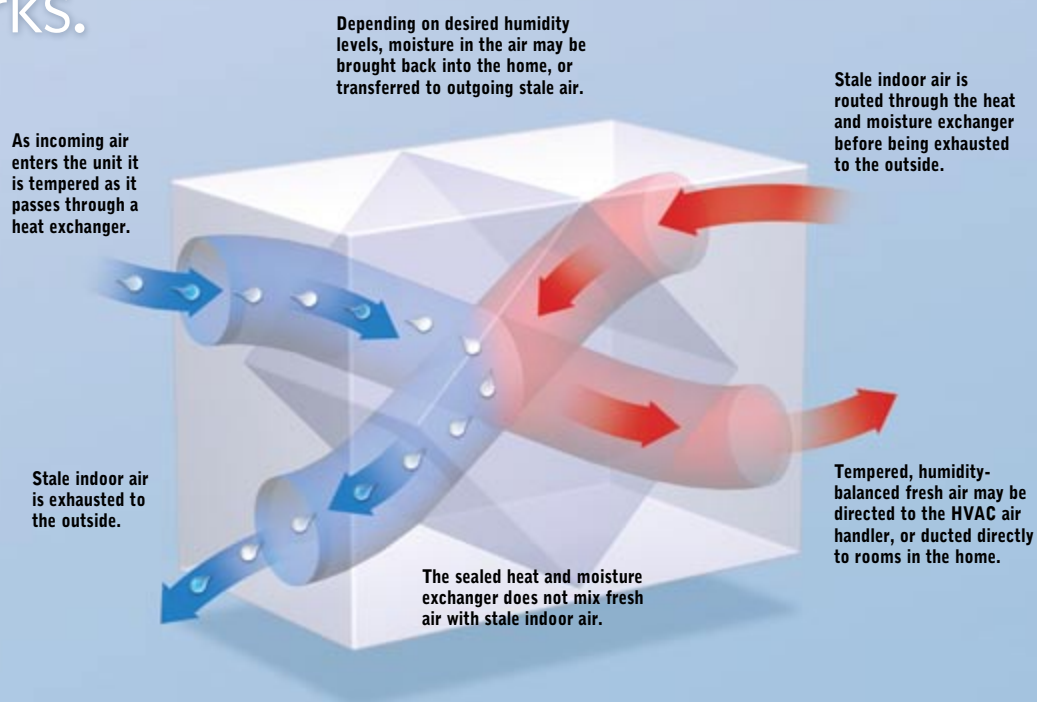
How heat recovery works.

Heat Recovery Ventilators (HRV) reclaim energy from exhausted stale indoor air to temper incoming fresh air—heat is retained during cooler seasons, and removed during warmer seasons. These systems capture about 70 percent of the energy already expended to temper incoming air. Broan HRV systems are designed to be ducted, whole-house solutions. They will meet ventilation needs based on square footage of the structure and maintain recommended air changes per hour. Refer to the map on page 11 to determine if an HRV system is recommended for your geographic location.



How energy recovery works.

Energy Recovery Ventilators (ERV) from Broan are typically recommended for use in warmer climates where it is desired to remove humidity from incoming fresh air. While not a dehumidifier, ERV systems transfer moisture from incoming, humid air to the stale indoor air that is being vented to the outside. Broan ERV systems are designed to be ducted, whole-house solutions. They will meet ventilation needs based on square footage of the structure, and maintain recommended air changes per hour. Refer to the map on page 11 to determine if an ERV system is recommended for your geographic location.



Choosing a HEPA* Filtration plus Balanced Ventilation System

Heat Recovery Systems capture the heating or cooling energy you have already purchased and transfer it from the stale, outgoing air to the incoming fresh air.

Energy Recovery Systems provide the additional benefit of humidity management. In humid climates, excess moisture from incoming fresh air is transferred to the outgoing stale air. In cold climates, desirable humidity from the outgoing stale air is transferred to the dry, incoming fresh air.



The electronic wall control for the GSEH3K and GSHH3K provides superior functionality in manual and programmable modes. The stylish, backlit LCD displays mode, outdoor temperature, pre-filter, HEPA* and core filter maintenance requirements, and provides four operating modes using simple buttons and icons.

HEPA Filtration plus Balanced Ventilation Systems provide year-round air filtration, plus energy saving features matched to any climate. HEPA (High Efficiency Particulate Air) with antimicrobial protection is the most effective filtration available, capturing 99.97% of airborne particles including dust, allergens and pet dander.



HEPA + Fresh Air + Energy Recovery

Model GSEH3K provides heat recovery and the additional benefit of moisture management. Outgoing air tempers incoming fresh air while the system automatically manages humidity levels. This model is best suited for humid climates, and features defrost capability for use in cooler climates.

- 270/165 CFM
- Electronic wall control
- Homes up to 6,000 sq. ft.



HEPA + Fresh Air + Heat Recovery

Model GSHH3K tempers incoming fresh air with outgoing stale air to minimize energy expenditures. The closed system transfers the heat without contaminating the fresh air. This model is best suited for cooler climates.

- 270/165 CFM
- Electronic wall control
- Homes up to 6,000 sq. ft.



HEPA + Fresh Air

Model GSVH1K brings fresh air in and continually filters air throughout the home. This model is best suited in mild climates.

- 270/165 CFM
- Homes up to 6,000 sq. ft.



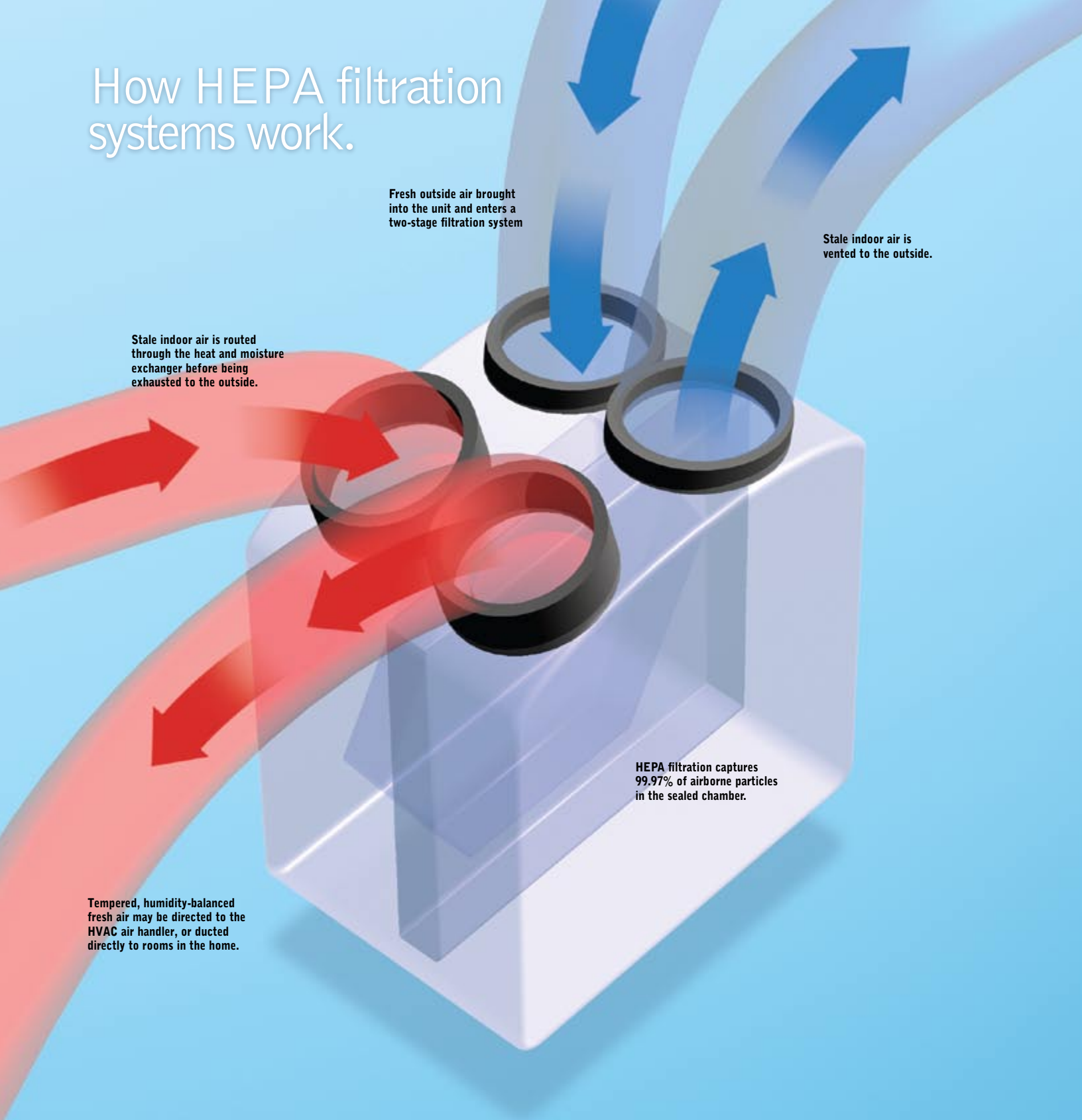
HEPA only

Model GSFH1K is a supplemental whole house filtration system that continually filters indoor air.

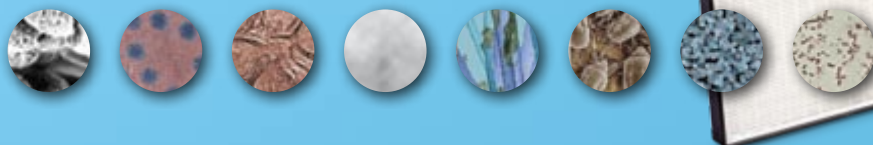
- 270/165 CFM
- Homes up to 6,000 sq. ft.

*High Efficiency Particulate Air

How HEPA filtration systems work.



Broan HEPA filters include anti-microbial protection to control mold and bacteria growth to ensure improved Indoor Air Quality. Indoor pollutants like dust, pollen and bacteria can be removed with HEPA filtration, but fumes from cleaners, new building materials, carpets, and paints may release gasses for years and must be ventilated. Broan's Balanced Ventilation plus HEPA filtration systems solve these problems.



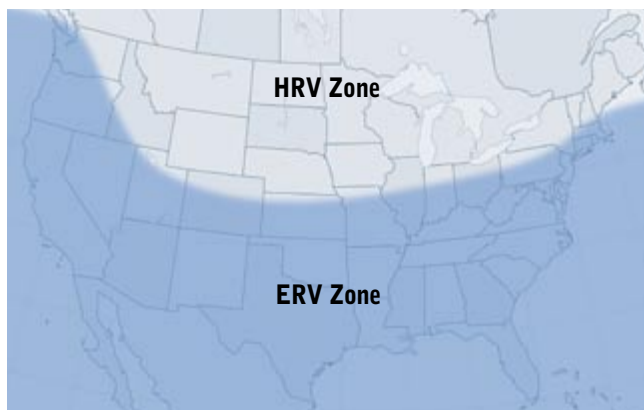


Model	AE60	HRV90H	HRV100H	HRV200H	ERV90HC	ERV100HC
sq. ft.	2,500	3,500	4,500	7,500	3,500	4,500
Length	23	12.81	21.1	21.1	12.8	21.1
Width	12.25	22.56	34.6	34.6	22.56	34.6
Height	15	19.81	13.25	13.25	19.81	13.25
CFM	160–185	45–96	64–146	108–235	45–99	60–142
Volts/Watts	120/140	120/150	120/147	120/202	120/150	120/150
Amps	1.2	1.3	1.4	1.9	1.3	1.4
	N/A*	34	28.005	24.5	500-750	120/456
Weight	40	39	65	73	45	65
Fresh Air	•	•	•	•	•	•
Heat Recovery		•	•	•		
Energy Recovery					•	•
HEPA Filtration						

* Refer to ASHRAE Standard 62.1-2007 – Ventilation for Acceptable Indoor Air Quality (Commercial and High-Rise)

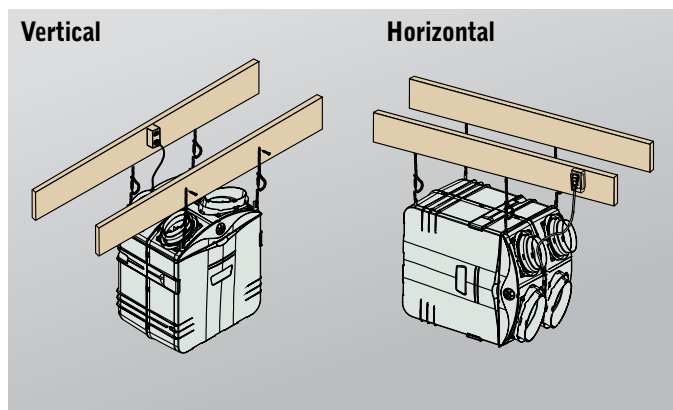
Determining if you need an HRV or EVR solution.

HRV systems are typically found in cold weather climates. ERV systems are typically specified in warm, humid climates. Use this map to guide your product selection.



Installation flexibility.

Most Broan Indoor Air Quality systems can be installed vertically or horizontally to best fit the space and ducting direction. Chain mounting (shown below) is recommended to minimize vibration and noise transmission.





HRV650

HRV700

HRV1150

GSEH3K

GSHH3K

GSVH1K

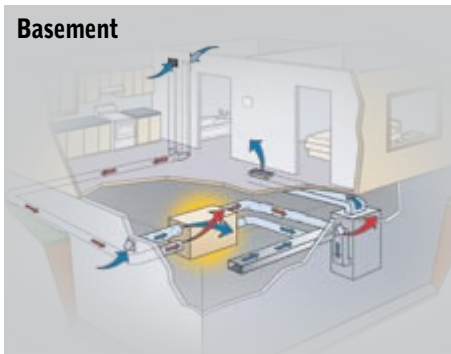
GSFH1K

N/A*	N/A*	N/A*	6,000	6,000	6,000	6,000
34	47	34	29.4	29.4	29.4	29.4
28.005	20.75	41.206	22.9	22.9	22.9	22.9
24.5	37	24.5	17.8	17.8	17.8	17.8
500-750	500-800	700-1250	270/165	270/165	270/165	270/165
120/456	120/300	120/708	120/152	120/152	120/220	120/180
3.8	2.5	5.9	2	2	1.9	1.5
	148	•	•			
148	211	186	50	42	42	35
•	•	•	•	•	•	
•	•	•		•		
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			•	•	•	•

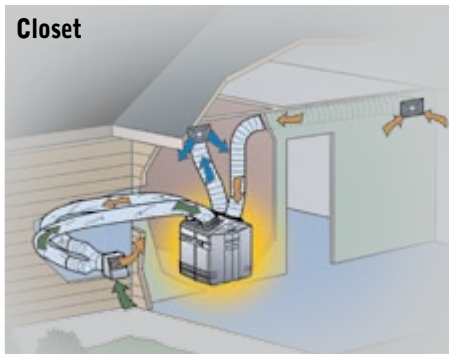
Position your IAQ System anywhere.

Balanced ventilation systems can be installed in basements, attics, closets or utility rooms—they do not need to be tied into the HVAC ductwork.

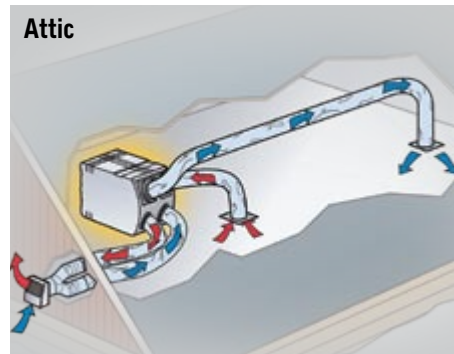
Basement



Closet



Attic



Broan. The leader in residential ventilation.



Broan® is America's leading brand of residential ventilation products including range hoods, decorative backsplashes, ventilation fans, heater/fan/light combination units, Indoor Air Quality (IAQ) Fresh Air Systems, built-in heaters, whole-house fans, attic ventilators and trash compactors.

NuTone® is America's leading brand of residential built-in convenience products including door chimes, central vacuum systems, stereo intercom systems, ceiling fans, home theater speakers, bath cabinets, ironing centers and ventilation fans.

BROAN®

www.Broan.com

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