Indoor Air Quality

NANTUCKET BUILDERS ASSOCIATION

January 25, 2022

Flynn & Reynolds Agency, Inc.
Manufacturers' Representative

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a systemair company

Residential Ventilation & Filtration

Fantech IAQ Series - Part 1

Lets talk numbers...

79

Current life expectancy of the average American

70

Years the average American will spends indoors

50

Years the average American will spend inside their home

90 Percent of your time is spent indoors!

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Why is it so important to ventilate?

- New homes are built tighter - some as low as <1 ACH..

- Indoor air on average is 10 times worse than outdoor air. Some homes have reported indoor air is 100x more polluted than the worst outside air *

- 50% of all illnesses are caused by poor indoor air quality *

- EPA ranks indoor air quality as one of top 5 threats to our health *

- Pediatric asthma has increased nearly 73%. Asthma ranks as the leading chronic illness of children and is linked to poor indoor air quality *

- Delayed effects from indoor air pollution can be severe, even fatal to the elderly, children, and those with weakened immune systems *

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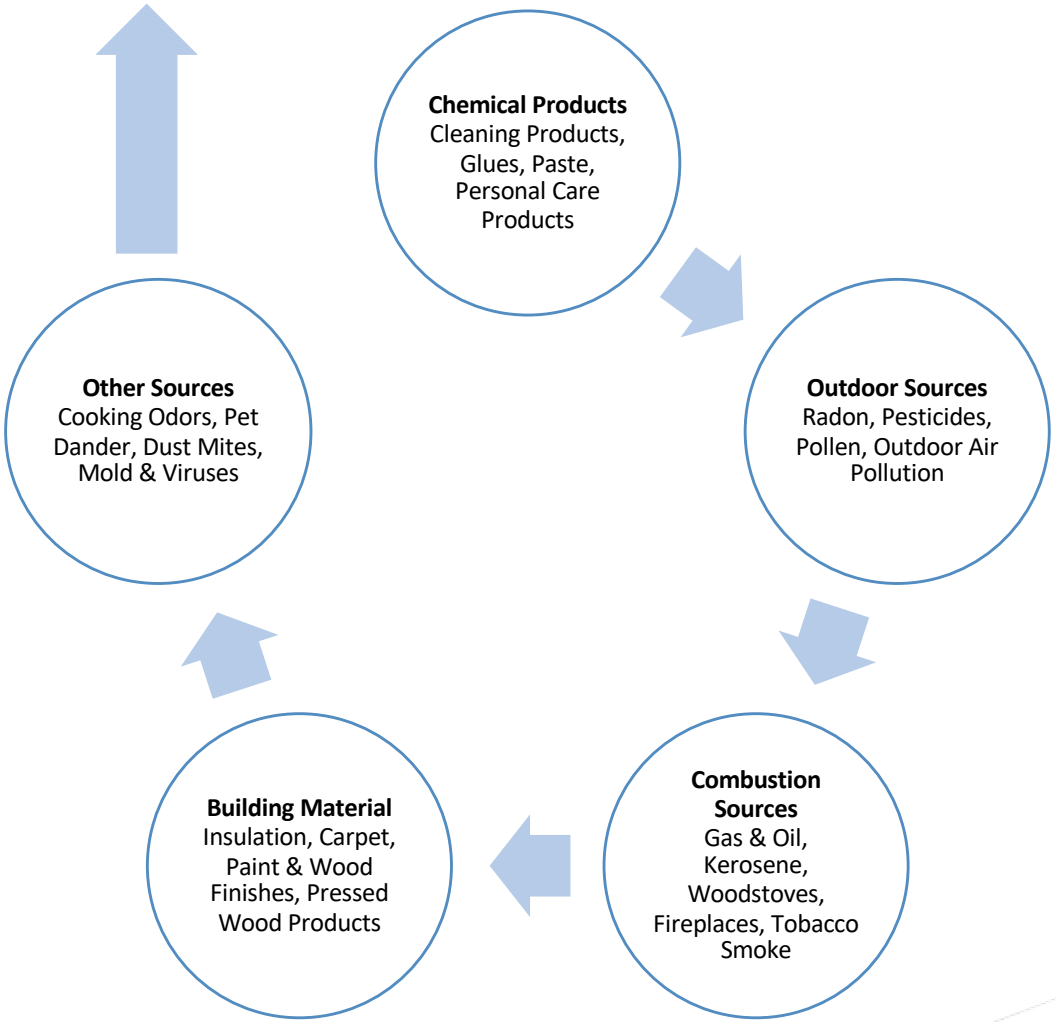
* Based on EPA & CDC Data

Top sources of indoor air pollution

- Chemical Products
- Outdoor Sources
- Combustion Sources
- Building Materials
- Other Sources



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What can you do to improve indoor air quality?

Ventilate - Let your home breath

Filtration - Filter the air you breath

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Considerations for tight homes

Tight Home Pros

- Energy Efficiency – Tight Homes are less expensive to heat & cool.
- Comfort – Tighter Homes allow for better control of heating and cooling with minimal draft caused by natural infiltration
- Control – Tighter Homes allow you to have more control over indoor air supply and quality.

Tight Home Cons

- Home stays in negative pressure
- Kitchen & Bath exhaust fans
- Combustion Sources – Fireplaces, gas appliances, etc.

Balanced ventilation is important for tight homes!

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What are your ventilating options?

Open some windows..

Simple, but not very practical

Exhaust Only Ventilation

- Kitchen Exhaust Fan
- Bathroom Exhaust Fans
- Make-up air must come from natural infiltration - doors, windows, attic, etc.
- Home stays in negative pressure

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Why Ventilate?

- Required by Code
  - 50 CFM on-demand or
  - 20 CFM continuous
- Mold / Mildew
- Remove odor
- Eliminate fog on mirrors
- Protect investment

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Why Fantech?

- Premium solution
- No noise
- Aesthetically pleasing
- Options for every Space
- Small footprint
- Spot ventilation

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What Size Fan Do I Need?

Under 100 Square feet

IF your bathroom is 100 sq.ft. or smaller. According to the guidelines of HVI (Home Ventilating Institute) baths that are 100 sq.ft. or smaller require 1 CFM per square foot of bathroom or a minimum 50 CFM of fresh airflow. To find the square footage simply multiply the length of the bath by the width. For proper airflow in typical installations (when duct losses aren't calculated), use the 0.4" static rating point for correct fan selection.

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What Size Fan Do I Need?

Over 100 Square feet

IF your bathroom is over 100 sq.ft. Ventilation for baths over 100 sq.ft. is calculated based on the fixtures in the bath. Allow 50 CFM for each standard toilet, shower or tub. Whirlpool and jetted tubs are calculated at 100 CFM. Add up the CFMs for all fixtures and you will have calculated the total CFMs required. We recommend that steam showers use a separate fan on a timer so that the fan may be shut off during shower use and then run afterward to dry the shower stall.

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PB Series

- Unobtrusive, ultra quiet , remote mount, inline bath fan
- Superior CFM at higher static pressure
- Rated for continuous duty
- UL Listed for Wet location
- 100% speed controllable
- Works with VT20 controls
- 7 year warranty

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PB Series – Single Grille

- Powerful, efficient 110 CFM fan
- Remote mount fan ensures quiet operation
- Available with LED or Halogen lighting
- Unobtrusive grille makes for better aesthetics
- UL approved for steam

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PB Series – Dual Grill

- Powerful, efficient 270 CFM fan
- One fan, two grille locations
- Remote mount fan ensures quiet operation
- Available with an LED or Halogen lighting

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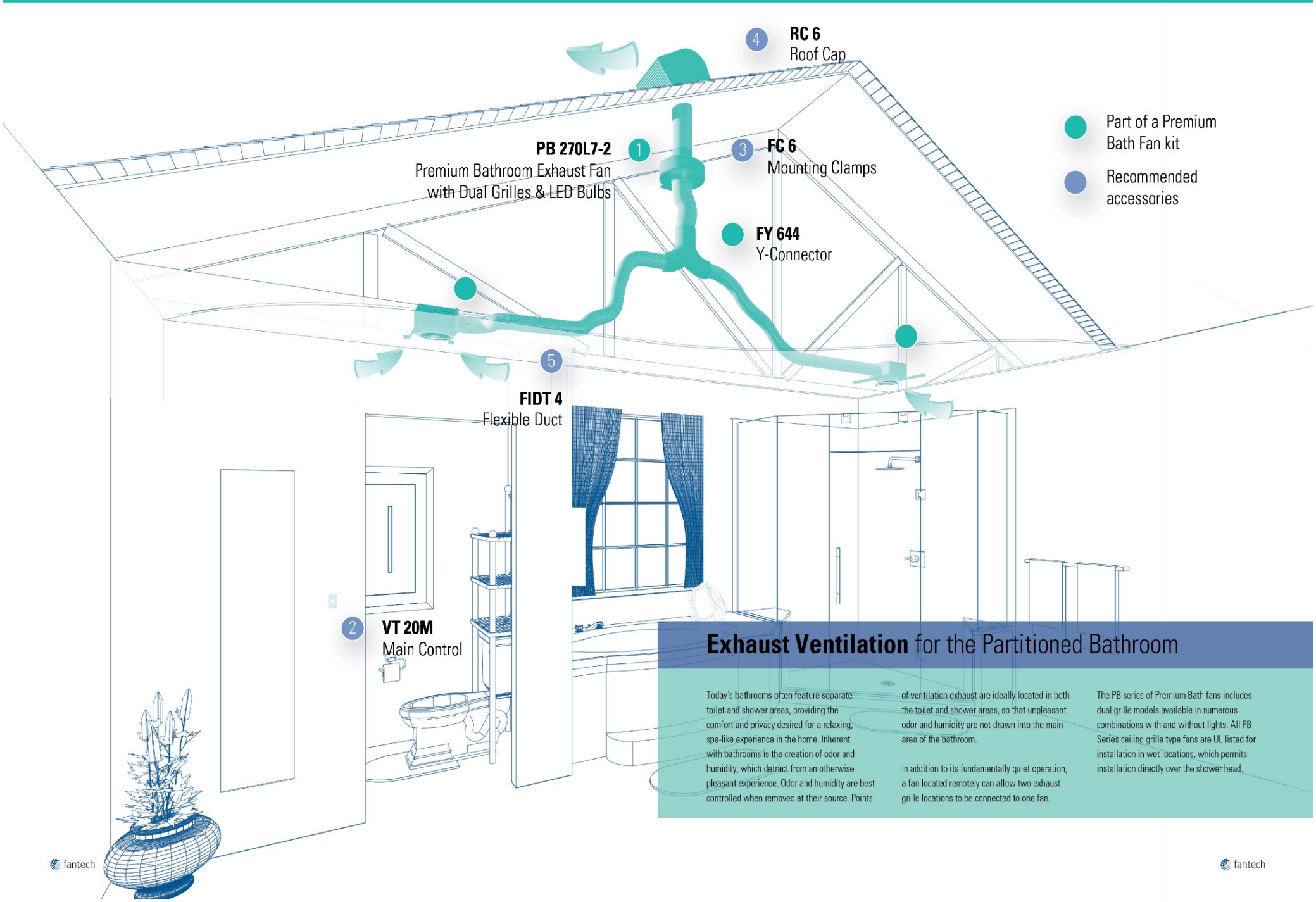

Exhaust Ventilation for the Partitioned Bathroom

Today's bathrooms often feature separate toilet and shower areas, providing the comfort and privacy desired for a relaxing, spa-like experience in the home. Inherent with bathrooms is the creation of odor and humidity, which detract from an otherwise pleasant experience. Odor and humidity are best controlled when removed at their source. Points of ventilation exhaust are ideally located in both the toilet and shower areas, so that unpleasant odor and humidity are not drawn into the main area of the bathroom.

In addition to its fundamentally quiet operation, a fan located remotely can allow two exhaust grille locations to be connected to one fan.

The PB series of Premium Bath fans includes dual grille models available in numerous combinations with and without lights. All PB Series ceiling grille type fans are UL listed for installation in wet locations, which permits installation directly over the shower head.

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Retrofit Kit - BFRK

- Powerful, efficient 110 CFM
- ENERGY STAR® rated
- Inline fan with a mounting bracket
- VT 20M Main Control
- Insulated 4" flex duct
- Duct adapters 3" to 4"
- Roll of duct tape
- Electrical wire & wire connectors

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Exterior Mount PBW Series

- Powerful, efficient 110 CFM fan
- Remote mount fan ensures quiet operation
- Available with an LED or Halogen bulb
- Unobtrusive grille makes for better aesthetics
- First Floor Installation

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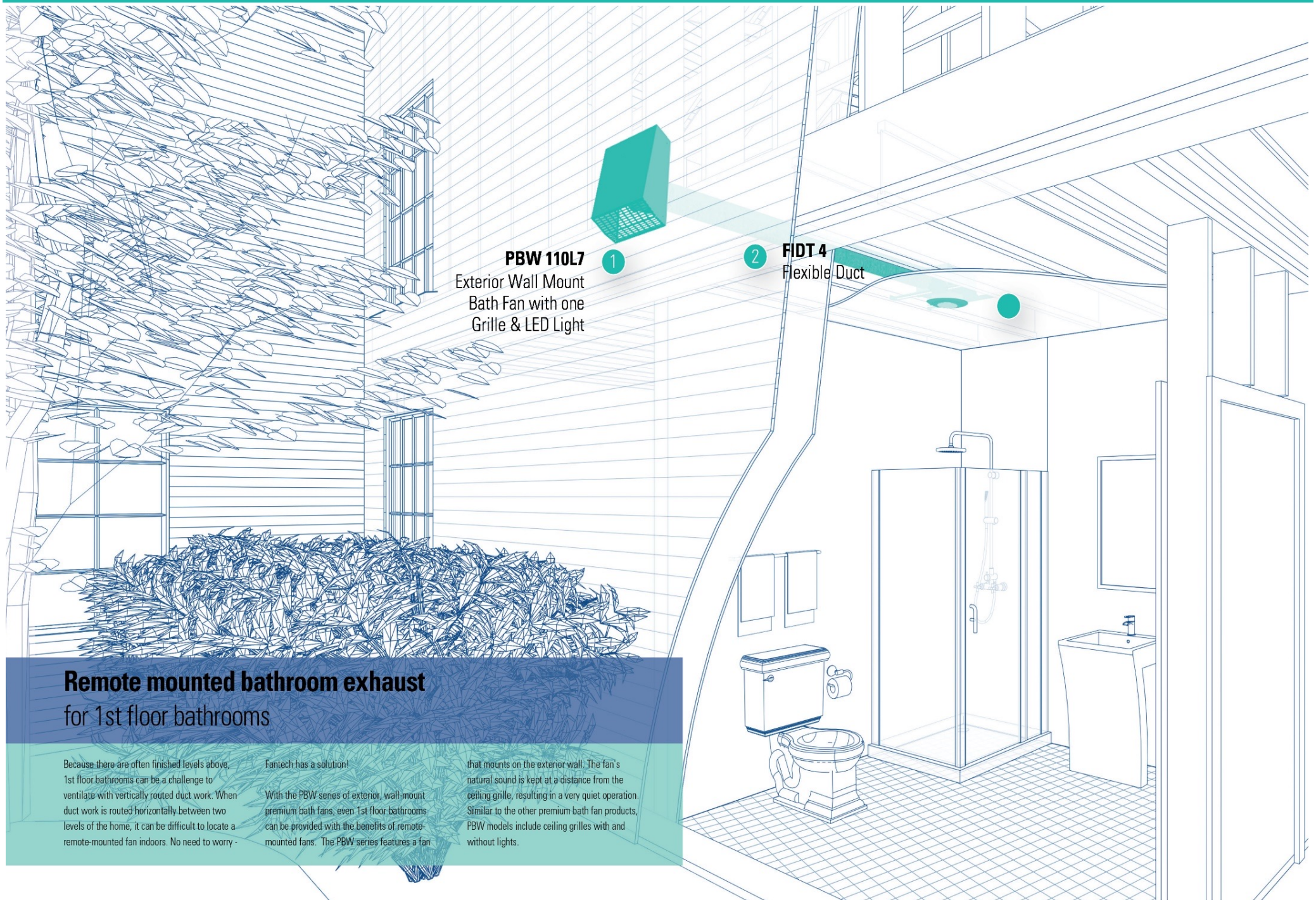


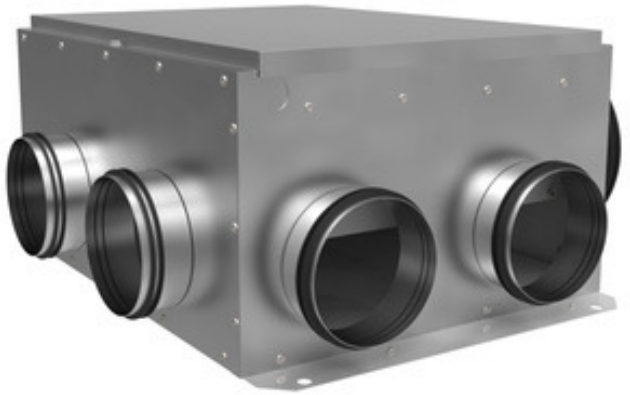
Remote mounted bathroom exhaust
for 1st floor bathrooms

Because there are often finished levels above, 1st floor bathrooms can be a challenge to ventilate with vertically routed duct work. When duct work is routed horizontally between two levels of the home, it can be difficult to locate a remote-mounted fan indoors. No need to worry - Fantech has a solution!

With the PBW series of exterior, wall-mount premium bath fans, even 1st floor bathrooms can be provided with the benefits of remote-mounted fans. The PBW series features a fan that mounts on the exterior wall. The fan's natural sound is kept at a distance from the ceiling grille, resulting in a very quiet operation. Similar to the other premium bath fan products, PBW models include ceiling grilles with and without lights.

CVS Multi-Port Ventilator

- Powerful, efficient 110 CFM
- ENERGY STAR® rated
- 3 sizes - 275, 300, & 400 cfm
- Inline fan remote ventilator with up to 4 ports
- Designed to fit in the attic or space between floors
- Perfect for home spa or multi-bath
- Use VT20M control to run at low speed for whole house ventilation



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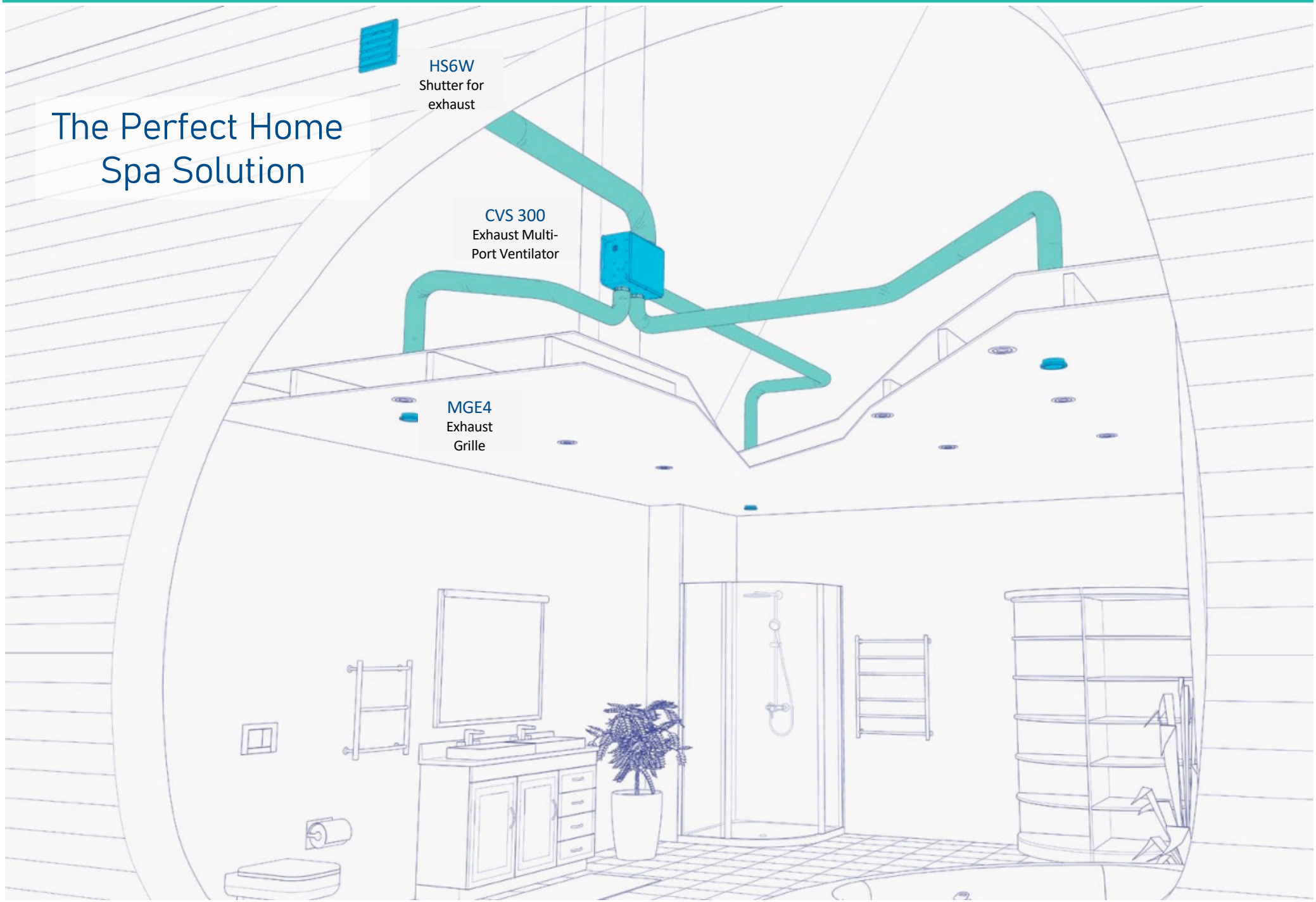
The Perfect Home Spa Solution



Inline Bath Fan Selection Program

https://bathfan.fantech.app/

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BATHROOM FAN SELECTOR

General information

Number of Bathrooms *

Number of Duct Elbows:

Estimated Duct Length (ft)

Choose your Grille Option *

- Lighted Grille(s)
- Unlit Grille(s)

Choose your exhaust point *

- Roof Cap
- Wall

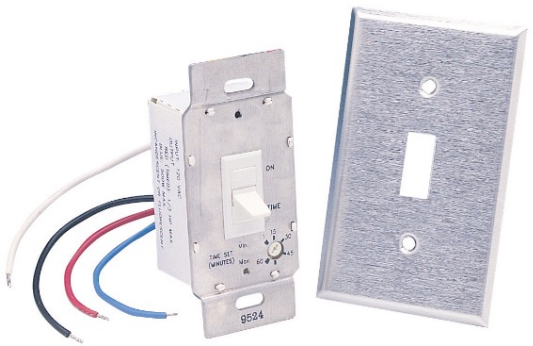
CALCULATE

Wall Controls

- VT20 Series
- IPHS55
- FLD60
- FD60 EM

VT20 M

IPHS55



FLD60

FD60 EM

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FLD60 Controller

- Make bath fans ASHRAE 62.2 compliant*
- Designed as a replacement for the bathroom fan and light switch.
- Using the Ventilation setting, the user is able to set the number of minutes per hour that the bathroom exhaust fan should run to achieve desired/required ventilation.
- Use the Delay settings to have the fan run on for up to 1 after the switch is turned off so that adequate ventilation can be met .

* When use with ASHRAE 62.2 compliant fans

FLD60

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IPHS55 Humidity & Fan Controller

- IPHS5 Humidity Sensor and Fan Control automatically detects excess humidity and activates the fan or fan / light combo until humidity levels are satisfied.
- The IPHS5 is compatible with bath fans rated at 120W and fan/light combinations with single load.
- Humidity sensor levels are adjustable.
- Air Cycle Mode automatically turns ON a ventilation fan for a set period of time and repeats the cycle hourly. (eg. 20 minutes ON/40 minutes OFF each hour). This will satisfy 62.2 compliance.
- Manual Operation - The user can manually switch the fan ON or OFF by pressing the fan icon.

IPHS55

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FD60EM Electronic Timer Switch

- Electronic push button timer
- Select from 10, 20, 30, and 60-minute timed operation of the fan
- Fits standard single gang box
- Ideal for switching locations
- Buttons available in 3 colors - white, light almond, and ivory

FD60EM

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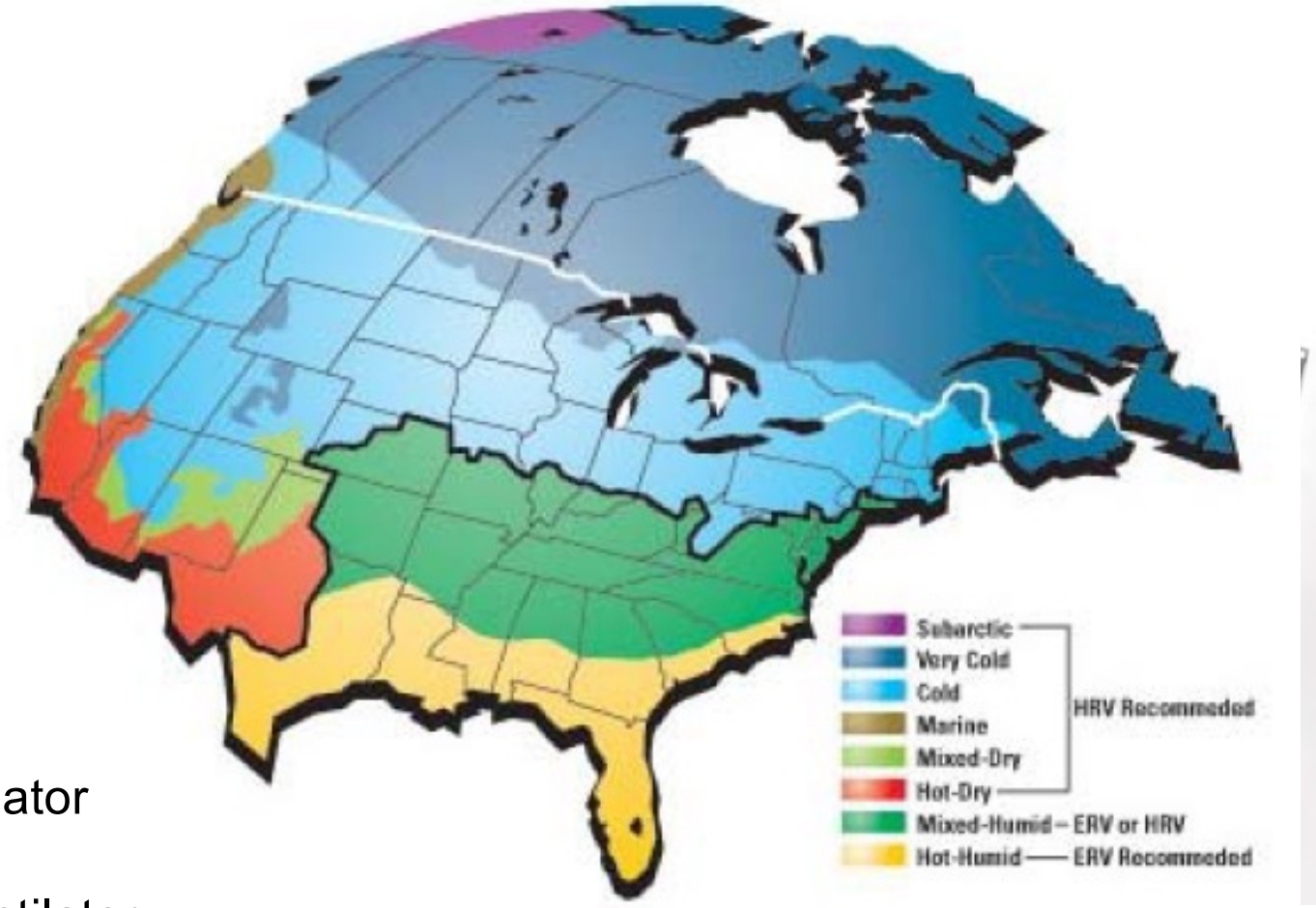
To ERV or not to ERV, that is the question..

Fantech IAQ Series - Part 2



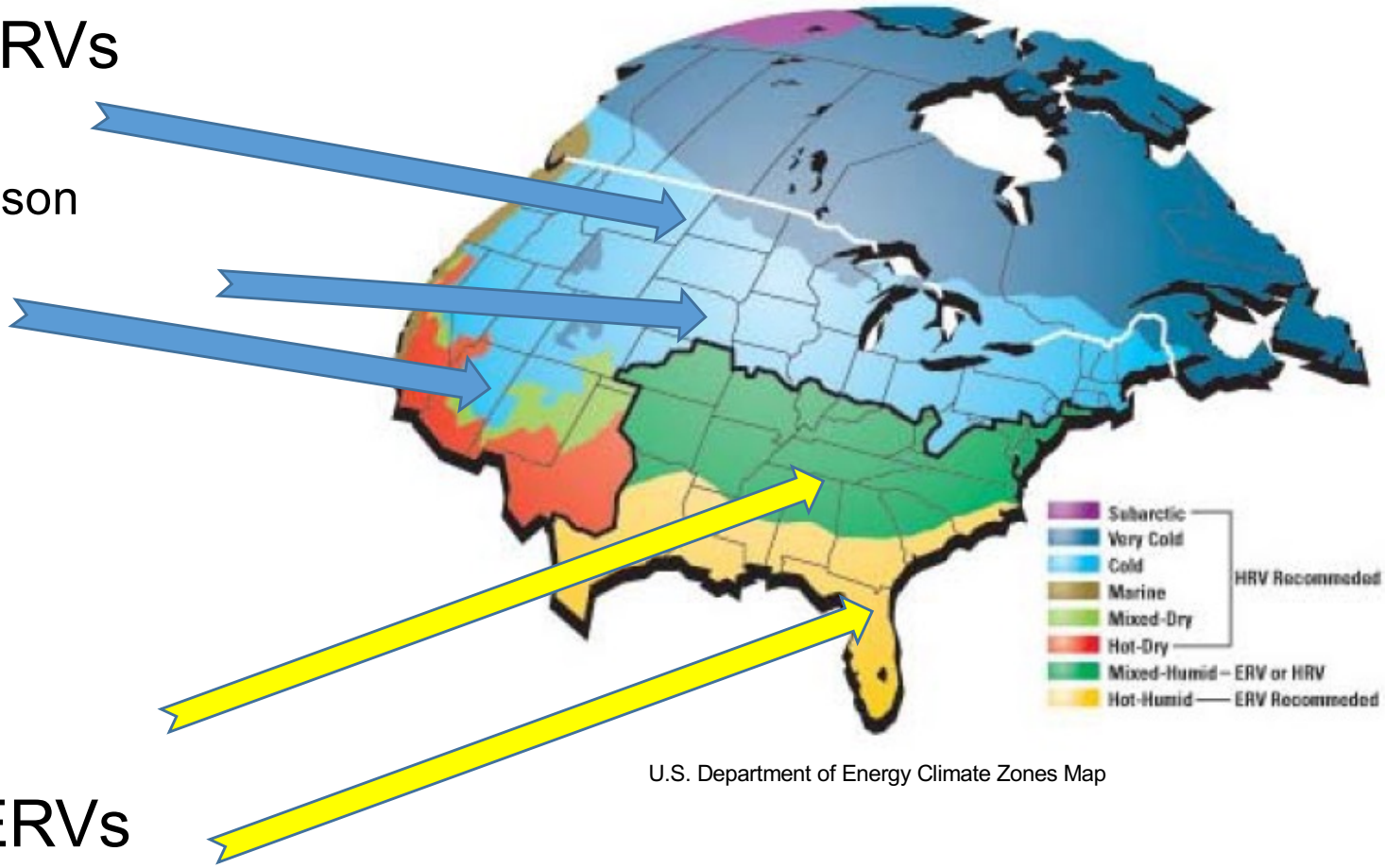
HRV = Heat Recovery Ventilator

ERV = Energy Recovery Ventilator

Traditional HRV and ERV Usage Map

HRVs

- Colder Areas
- Longer Heating Season
- Dryer outside



U.S. Department of Energy Climate Zones Map

ERVs

- Warmer more Humid areas
- Longer Cooling Season
- High outside RH

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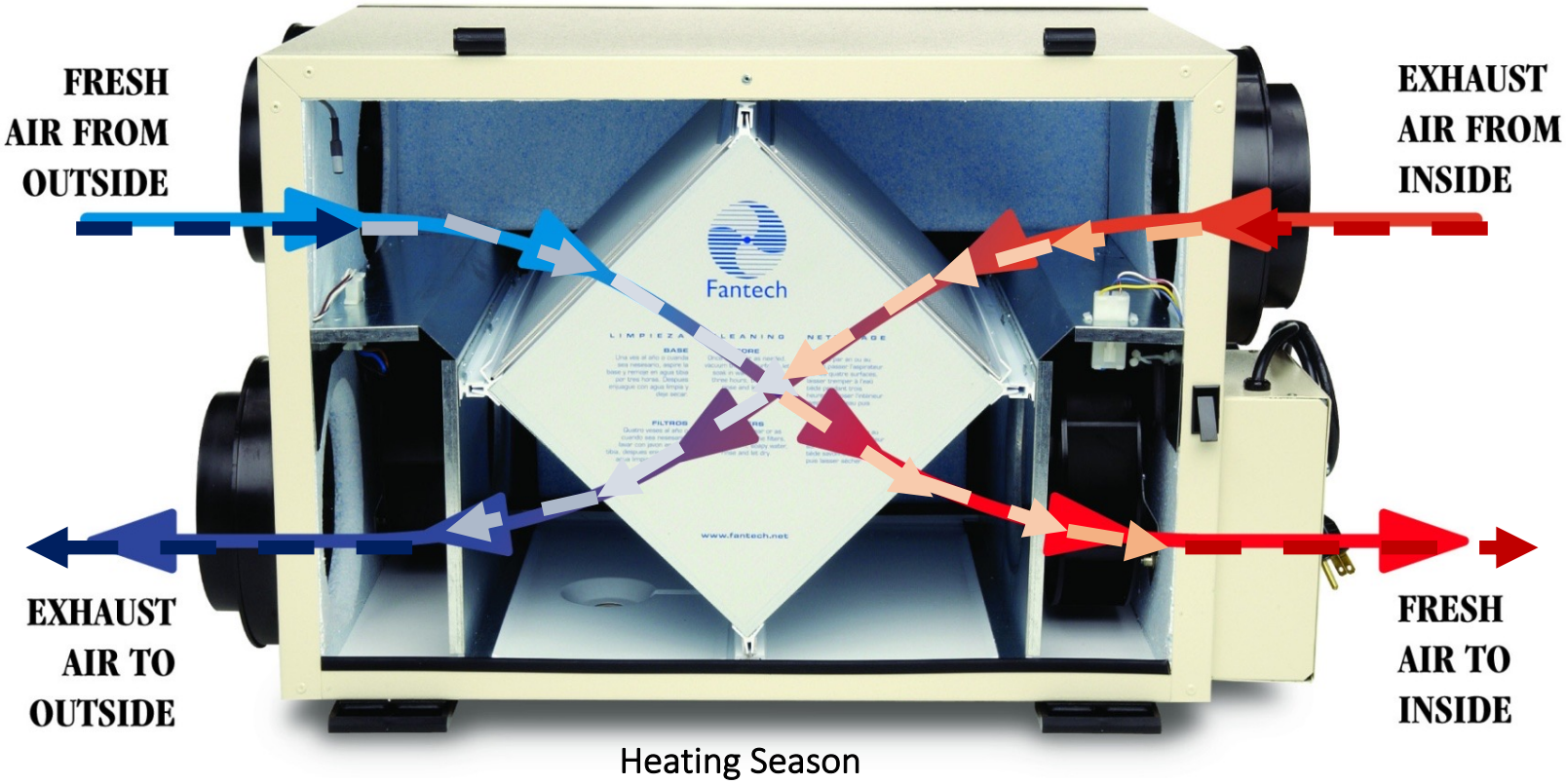
How does the an HRV work?



Heating Season

HRV - Sensible Heat Transfer Only

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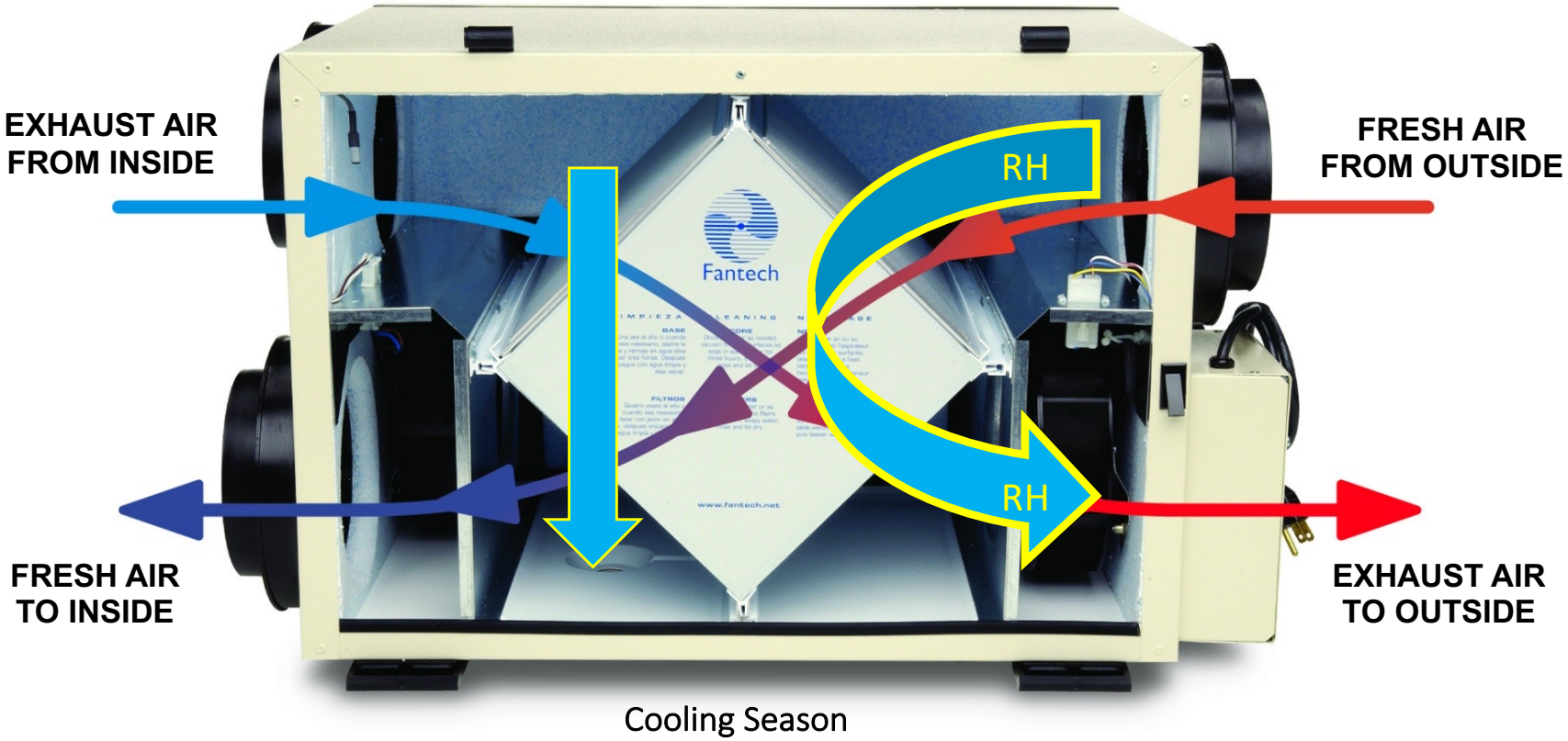
How does the an ERV work?



Cooling Season

Sensible and Latent Heat Transfer

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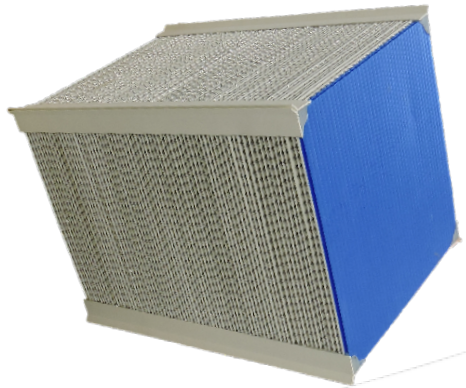
It's All About the Core..

HRV Heat Exchanger

- Aluminum or polymer material
- Good sensible heat transfer – no latent transfer
- Less expensive than ERV core
- Best choice for cold, dry climates
- Easy to clean and maintain

ERV Heat Exchanger

- Water vapor permeable polymer membrane
- Good latent and sensible heat transfer
- More expensive than HRV core
- Freeze tolerant, water washable!



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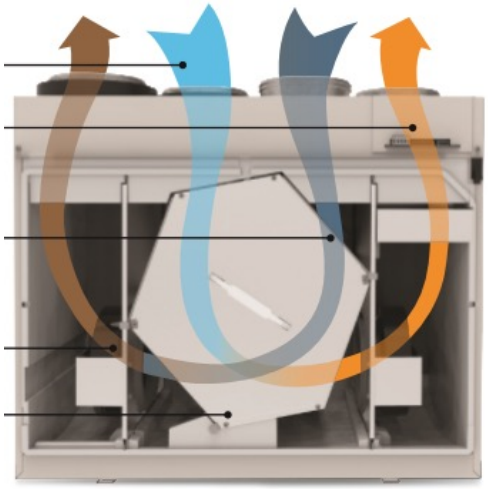
Pros & Cons of Heat Recovery Ventilators - HRV

HRV Pros

- HRV is typically more efficient
- HRV is typically less expensive
- HRV cores are washable for easy maintenance and cleaning
- HRV cores are more resilient in colder climates .

HRV Cons

- HRV requires a condensate drain
- HRV does not transfer moisture through the core. HRVs transfer only sensible heat



HERO high efficiency HRV with counterflow core

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Pros & Cons of Energy Recovery Ventilators - ERV

ERV Pros

- ERVs transfer moisture through the core to control humidity levels
- ERV does not require a condensate drain
- New polymer cores are washable for easy maintenance and cleaning
- New polymer cores allow for use in colder climates.

ERV Cons

- ERV is typically less efficient than same size HRV
- ERV is more expensive than HRV

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Appliance Installation Best Practices

Fantech IAQ Series - Part 2 cont'd

Heat & Energy Recovery Ventilators

Sizing Your Unit

Our units range from 70 to 1400 cfm

Use ASHRAE or IRC standards for ventilation

Always follow local code

TABLE M1505.4.3(1)
CONTINUOUS WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM AIRFLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (square feet)	NUMBER OF BEDROOMS				
	0 – 1	2 – 3	4 – 5	6 – 7	> 7
	Airflow in CFM				
< 1,500	30	45	60	75	90
1,501 – 3,000	45	60	75	90	105
3,001 – 4,500	60	75	90	105	120
4,501 – 6,000	75	90	105	120	135
6,001 – 7,500	90	105	120	135	150
> 7,500	105	120	135	150	165

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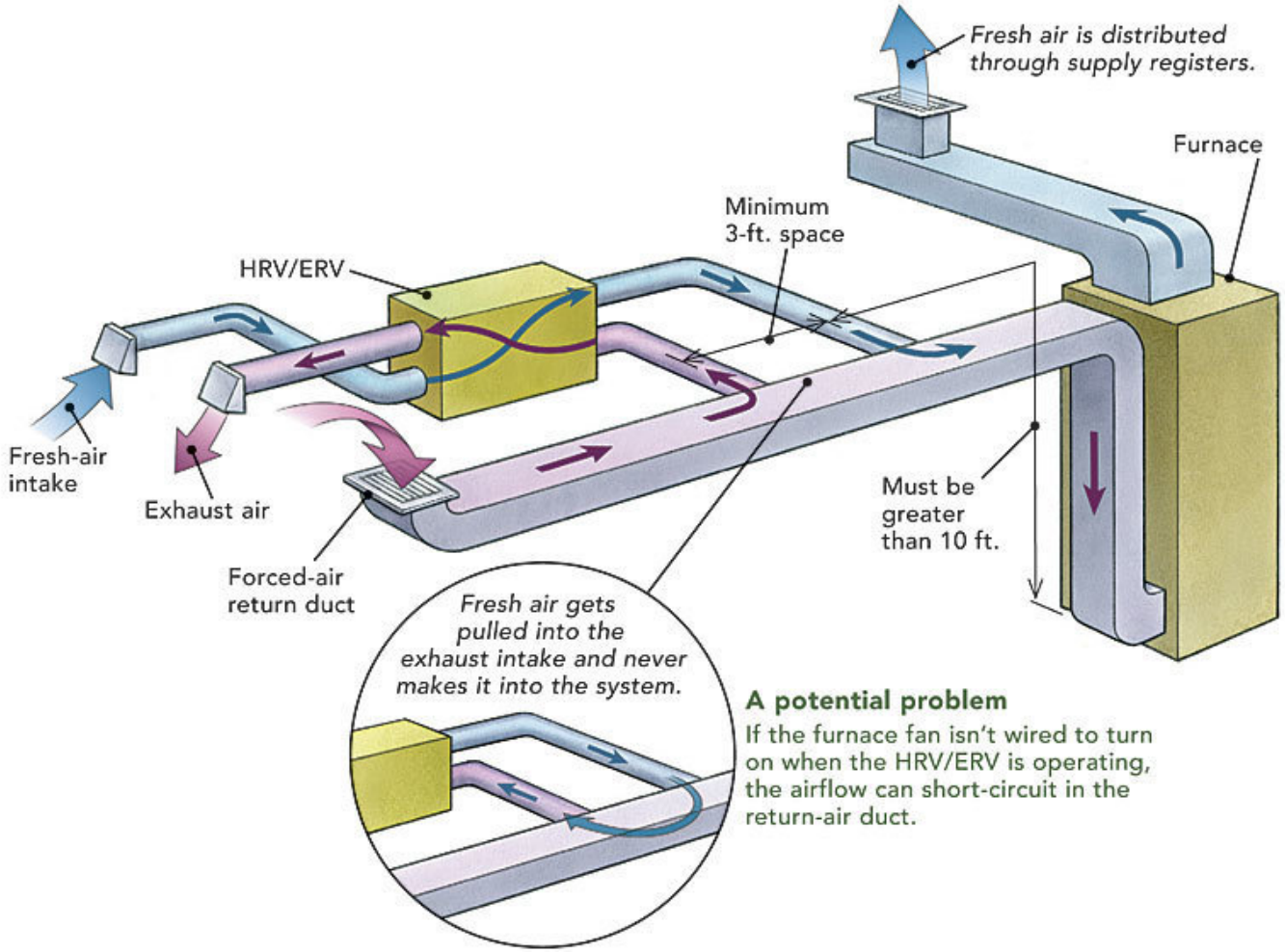
Installation Best Practices - Simplified Installation



Fresh Air Appliances

Exhaust - Ducted Installation

Good for existing or new construction

Furnace / Air Handler add on

Least expensive installation

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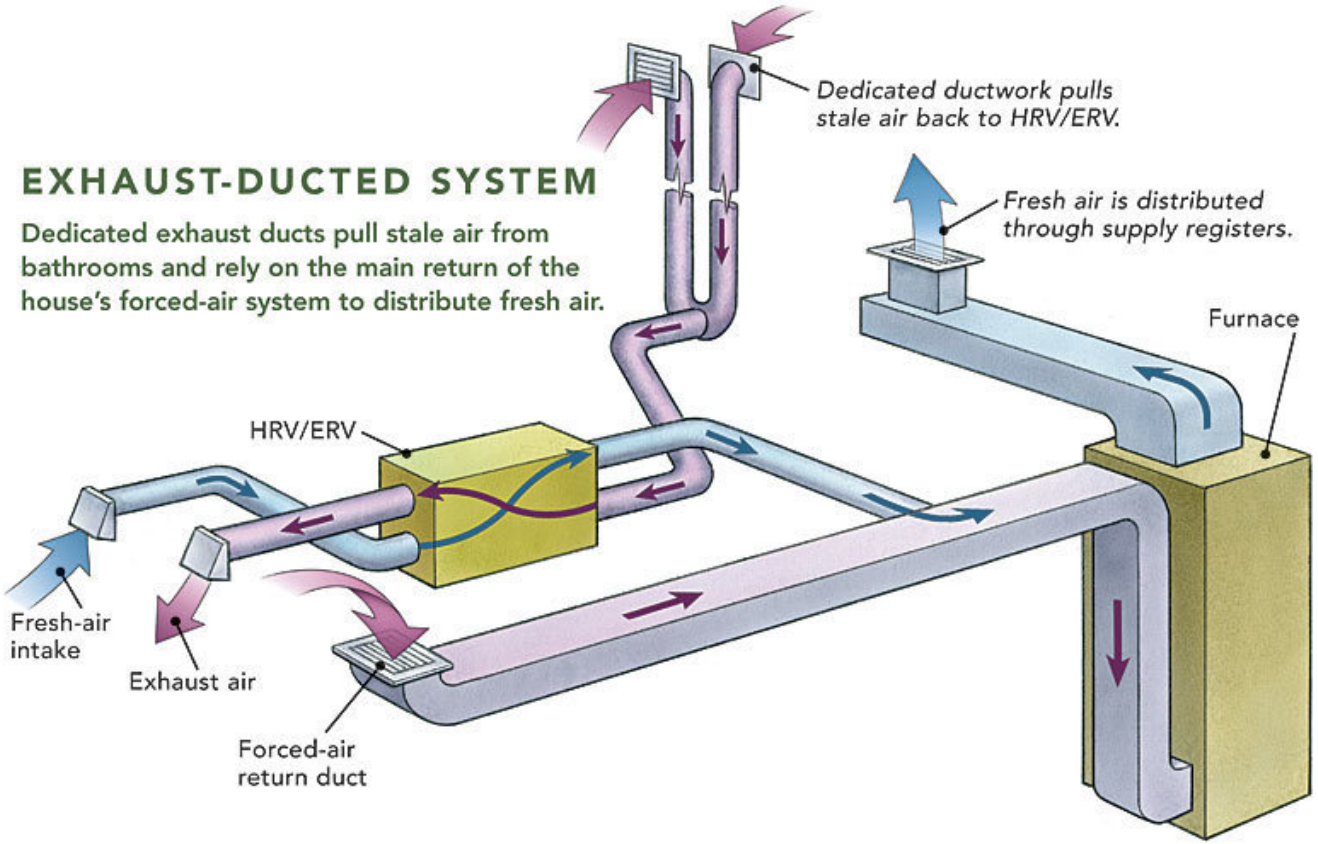
Installation Best Practices - Exhausted Ducted



Fresh Air Appliances

Exhaust - Ducted Installation

Conditions the fresh air and distributes through furnace / air handler

Exhausts the bathroom and kitchen air

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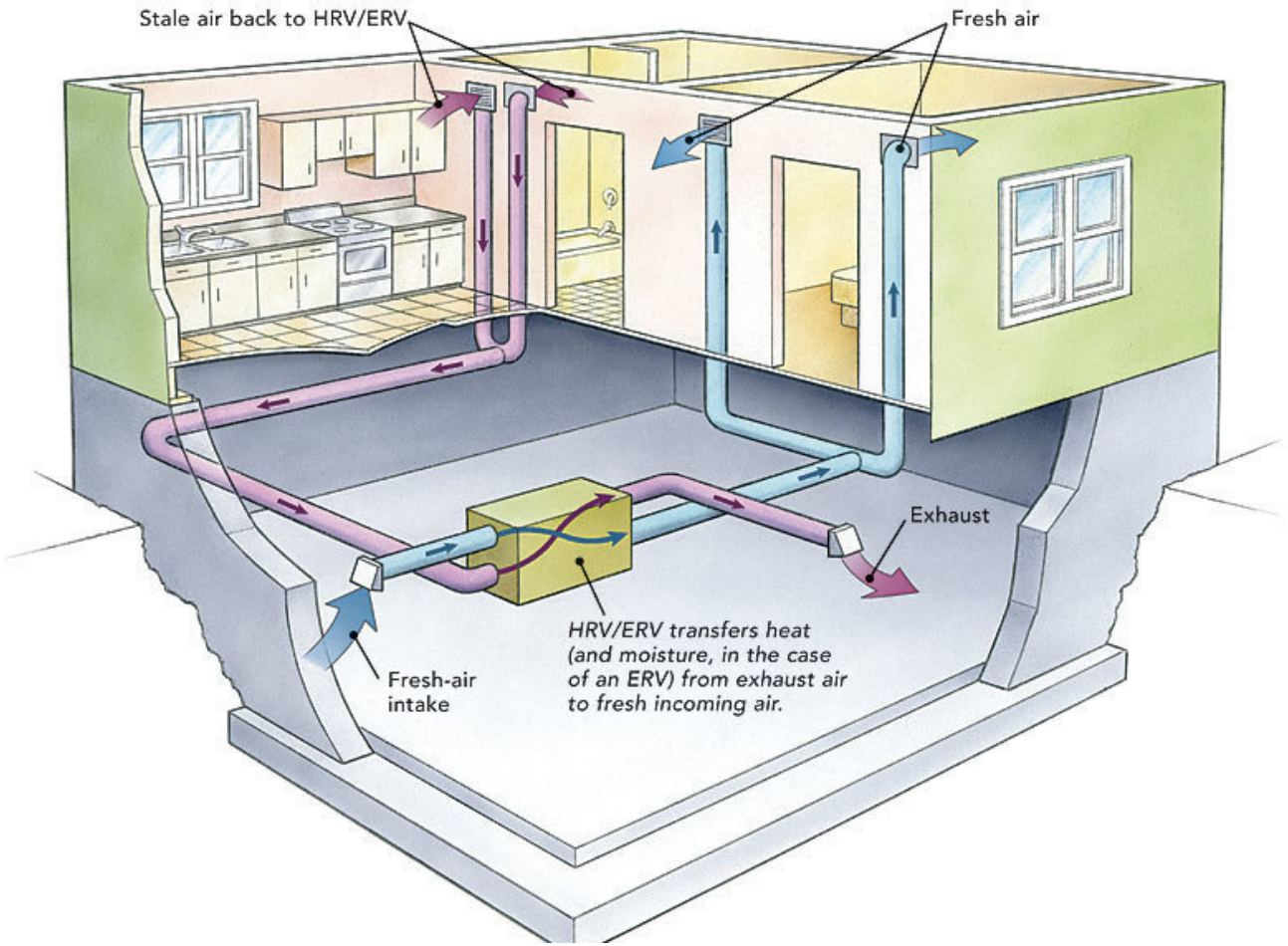
Installation Best Practices - Fully Dedicated System



Fresh Air Appliances

Fully Dedicated Installation

Provides the best fresh air distribution

Lowest operation cost

Furnace /Air Handler not needed

Not typical for hot, humid climates

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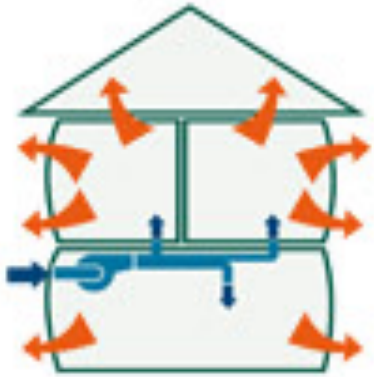
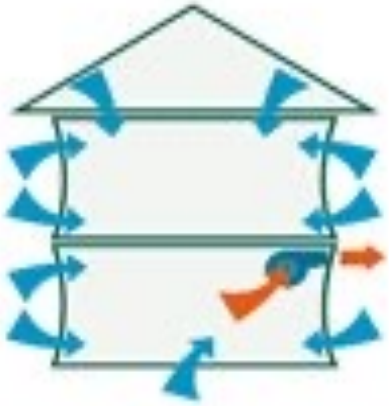
Installation Best Practices - Balancing the System

Positive Air Pressure



Negative Air Pressure



Balanced Air Flow

Fresh Air Appliances

Balancing your fresh air appliance

Why do I have to balance my ERV / HRV?

If the house is under positive pressure, you will be pushing moist air into the wall cavities where it can lead to mold problems

If the house is under negative pressure you will be pulling unconditioned air through windows, doors, attics, and basements. This can create moisture problems, hot and cold spots in the living area, and negatively affect indoor air quality

When the house has balanced air flow, the supply air (CFM) is equal to the stale air exhaust (+/- 10%)

All fresh air appliances should always be balanced unless specified otherwise.

Use Fantech's EcoTouch IAQ or commissioning kit for balancing all of Fantech fresh air products.

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Installation Best Practices - EcoTouch IAQ Control

Radio Frequency

Up to 50 ft

New

ECO-Touch IAQ

Updated appearance

VOC-sensing

4-wire installation

New, optional

RTS-W

Wireless override timer

20 / 40 / 60 minutes

Only w/ ECO-Touch IAQ

EcoTouch IAQ Controller

One controller does it all!

Manual Mode:

Offers 5 speeds from which to choose:
Low speed 20 minutes per hour
Low speed 40 minutes per hour
Low speed continuous
Medium speed continuous
High speed continuous

Eco Mode:

With just one touch, the unique ECO Mode will reference your preferred daytime and night time settings to automatically choose the best operating mode based on your home's current conditions. By sensing indoor Relative Humidity (RH), volatile organic compounds (VOCs), and outdoor incoming temperature, the ECO-TOUCH IAQ will find the right balance between good air quality and lower energy consumption. VOC sensing overrides all pre-sets.

Max Mode:

Gives you the extra ventilating power you need to quickly clear the air by taking advantage of the system's powerful fans temporarily for 20, 40, or 60 minutes at the maximum ventilation rate.

Contractor Mode:

Contractor mode allows for easy set up and balancing of your new Fantech fresh air appliance.

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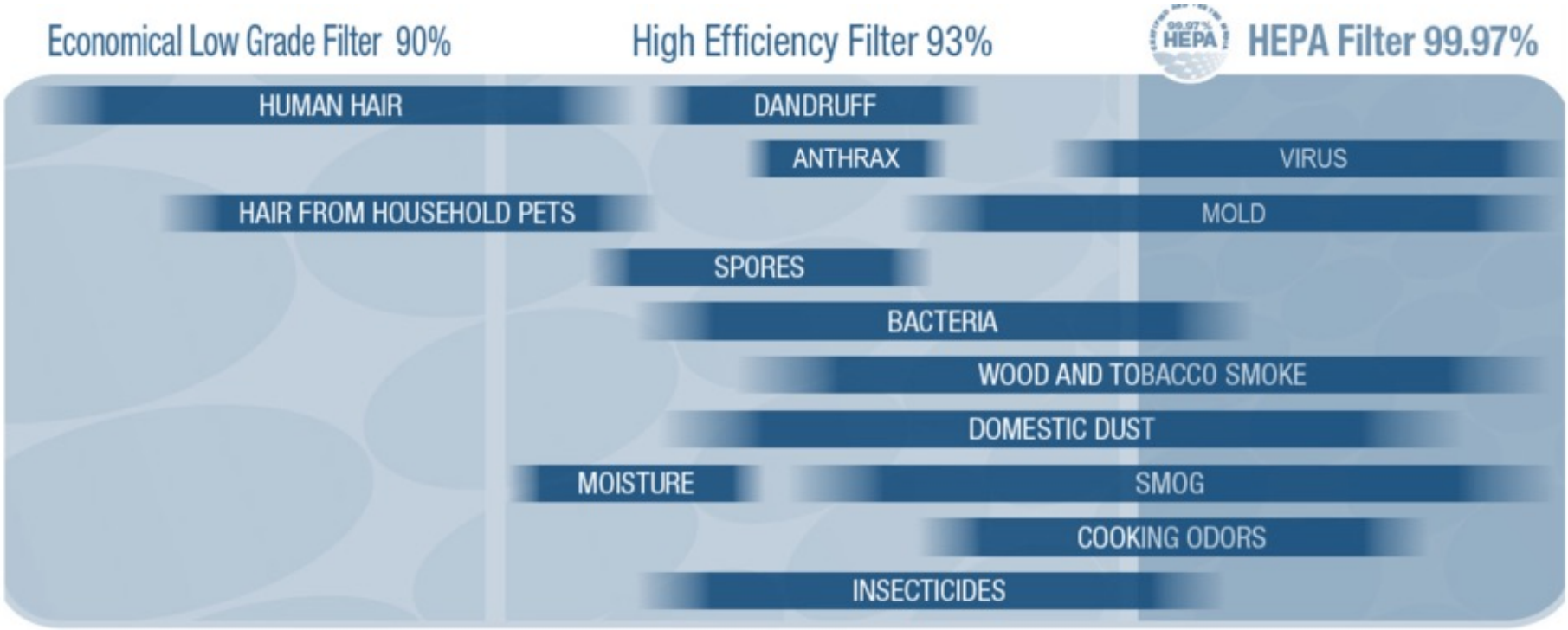
Filtration

Fantech IAQ Series - Part 3

Major Particles Found in the Home

HEPA media is **certified 99.97%** at capturing particles 0.3 microns and smaller – particles that represent the greatest health concerns for our respiratory system.



MERV 8
Up to 20% 1 to 3 microns
Up to 85% 3 to 10 microns

MERV 10
Up to 65% 1 to 3 microns
Up to 85% 3 to 10 microns

MERV 14
Up to 84% .3 to 1 microns
Up to 90% 1 to 3 microns

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HERO HS300 Whole House HEPA System

Fully insulated cabinet

- Reduced ambient sound
- Suitable for non-conditioned spaces

Dual Speed Operation

- 200 cfm at low speed
- 300 cfm at high speed

Three Step Filtration

- MERV 8, Carbon, Certified HEPA filters

Simplified Installation

- Direct plenum mount
- Ducted with top and bottom collars

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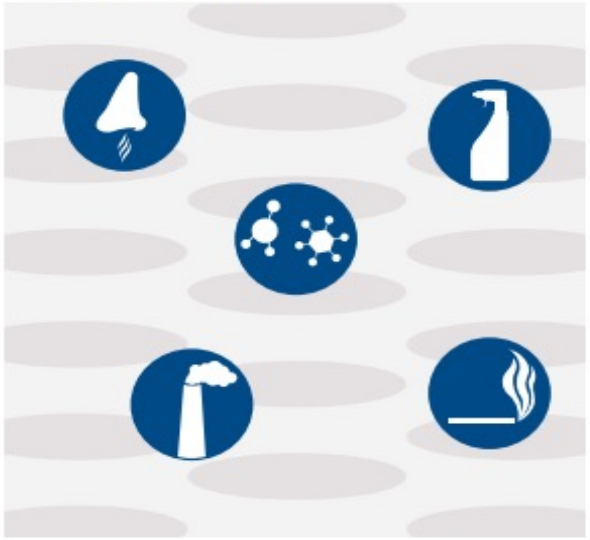
3 Step Filtration - Every Breath You Take is Clean Air

More than 10,000 compounds can be classified as VOCs, and there are numerous products within our homes that expose us to them

Activated Carbon Filter

Removes gaseous compounds such as odors and VOCs

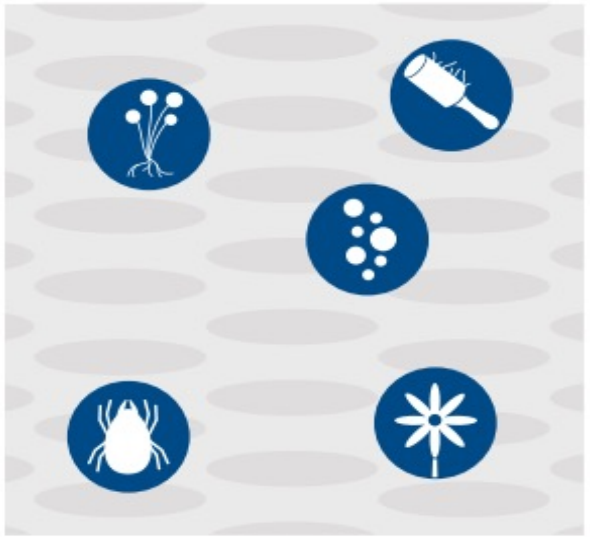
- Smoke
- Gases
- Cleaning Chemicals
- Odors
- VOCs (volatile organic compounds)



MERV 8 Filter

Collects particles as small as 3 microns

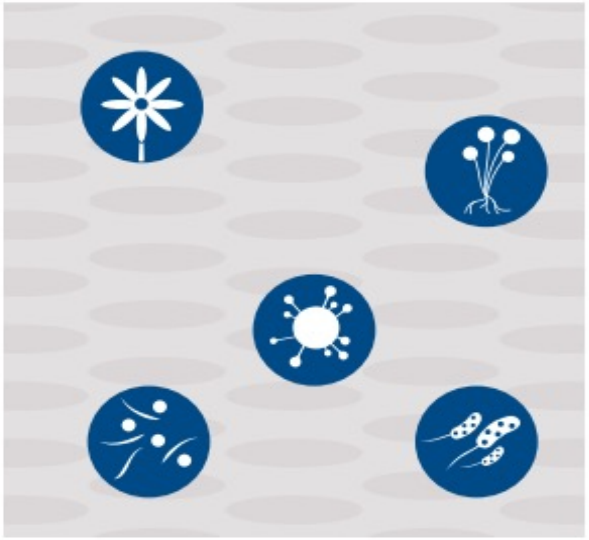
- Dust
- Dust Mites
- Lint
- Pollen
- Mold



HEPA Filter

Traps 99.997% of airborn particles

- Viruses
- Bacteria
- Allergens
- Pollen
- Mold



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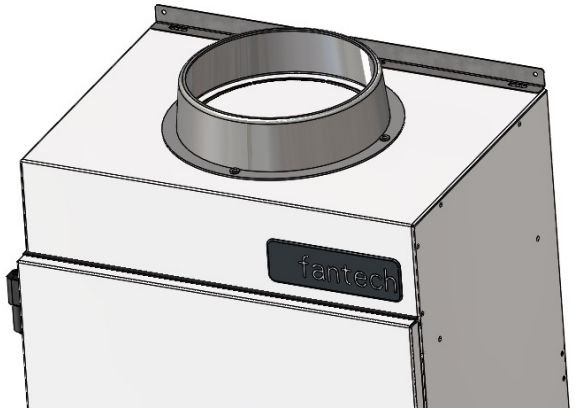
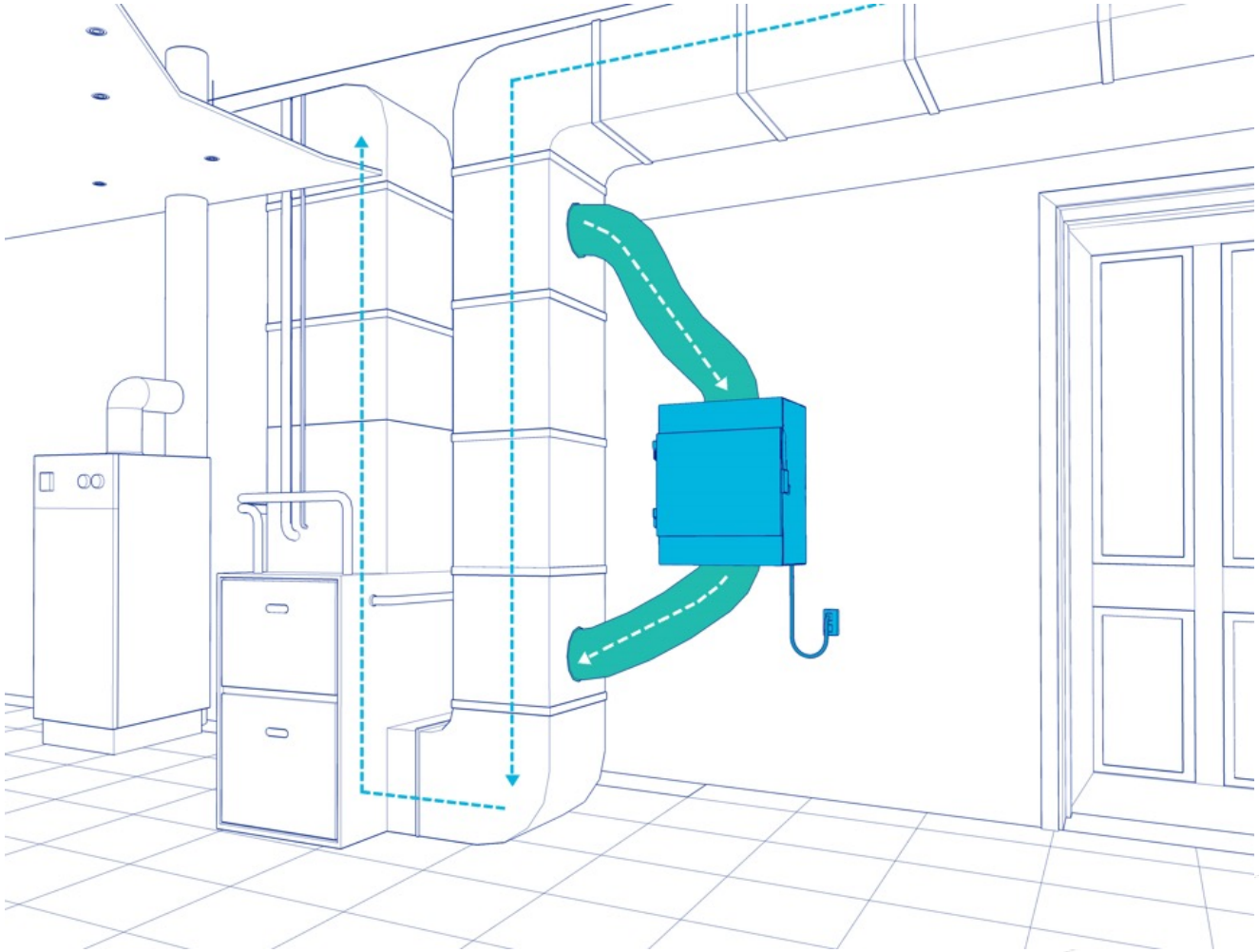
Best Installation Practices

Wall Mount Collared Installation





HS300 comes complete with collar kit, mounting brackets, and hardware

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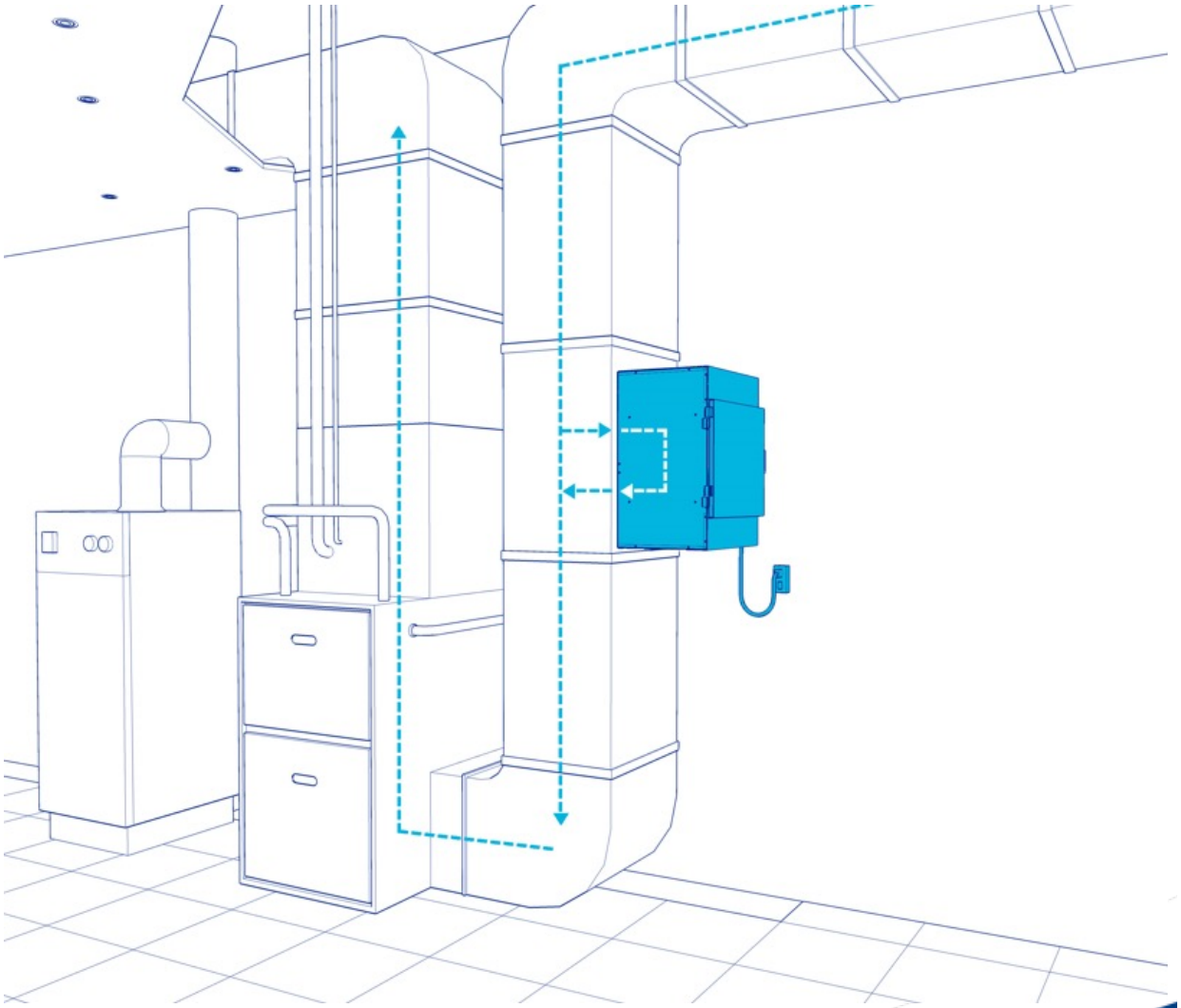
Best Installation Practices

Duct Flair Mount for Rigid Duct



HS300 comes complete with duct template, duct seal, and mounting hardware

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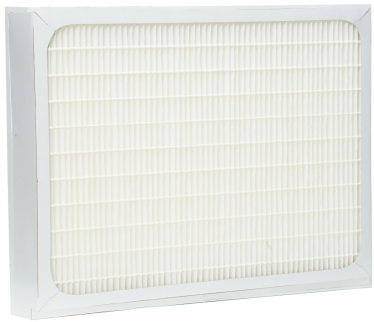
HS300 Product Details

MFG#	DESCRIPTION
463870	HS300 Whole House HEPA System - 5 Year Warranty
463046	Replacement Carbon Pre-filter - 4-12 Month Filter
463048	Replacement HEPA Filter - 2-5 Year Filter

463870 HS300 HEPA

463046, Pre-filter + Activated Carbon

463046, HEPA Filter



Note: The Pre-Filter with activated carbon in combined into one filter

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PHS300 Portable HEPA System

Designs and Features

Built-in fan
The system is equipped with a fan and motor that prevent any adverse effect on your forced-air system.

Plug & Play
HERO PHS300 comes with a 5-ft power cord and 3-prong plug. With easy-to-reach filters, service and maintenance is simple.

99.97% Efficient
Mold spores, pet dander, cooking odors, dust, dust mites and their by-products are all captured in a series of three filters. The pre-filter collects the largest particles while the carbon filter absorbs odors. The third filter is a true, certified HEPA filter, which collects 99.97% of particles down to 0.3 microns.

For new and renewal
All units are perfectly designed for both new and retrofit construction.

Technical Specifications

Average airflow 170 M/s, 240 H/s) @ 0" Ps	170/240 cfm (132 L/s,
Voltage / Phase (V/~)	120V / 1~
Duct connection size	6" (152 mm) round collar
Rated power (W)	180 W
Max current (A)	1.5 amps
Height (in (mm))	24 (608)
Depth (in (mm))	12 (307)
Width (in (mm))	13 (328)
Shipping weight (lbs (Kg))	28 lbs (12.7 Kg)

MFG#	DESCRIPTION
463885	PHS300 Whole House HEPA System

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HERO PHS300 Applications

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HERO PHS300 Applications

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Make Up Air for Residential Dwellings

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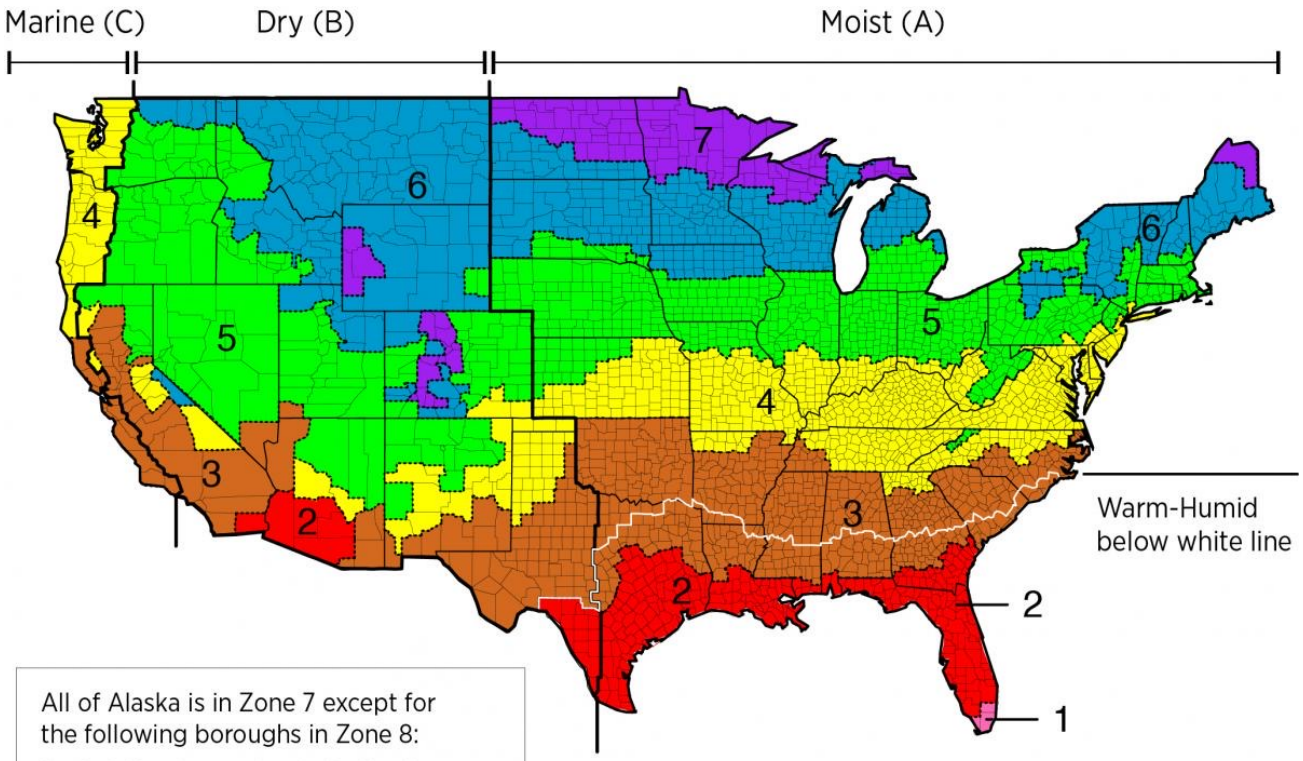
IECC – 2012 Building Tightness

Climate Zone	2009 IECC	2012 IECC
1 - 2	< 7 ACH	≤ 5 ACH @ 50 pascals
3 - 8	< 7 ACH @ 50 pascals	≤ 3 ACH @ 50 pascals

Table 1: 2009 vs. 2012 IECC Comparisons

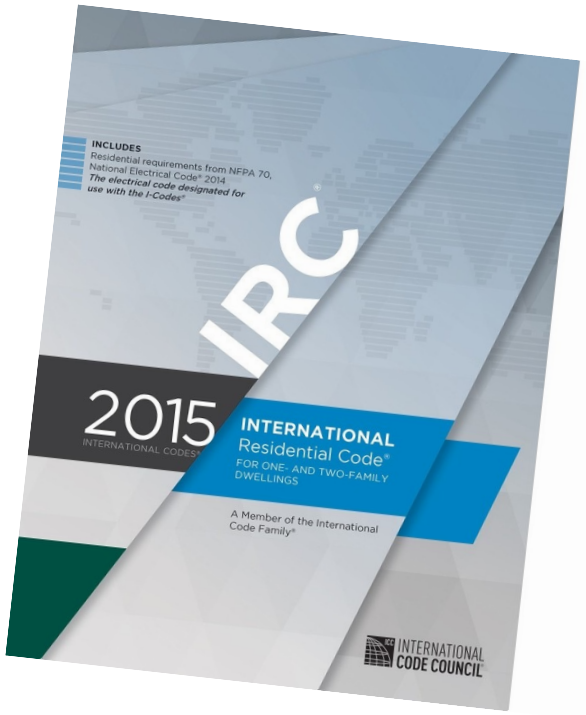


Building Codes and Standard


A MEMBER OF THE INTERNATIONAL CODE FAMILY
IRC
INTERNATIONAL RESIDENTIAL CODE
FOR ONE- AND TWO-FAMILY DWELLINGS
2009
2012
INTERNATIONAL RESIDENTIAL CODE
FOR ONE- AND TWO-FAMILY DWELLINGS
A Member of the International Code Family
IRC

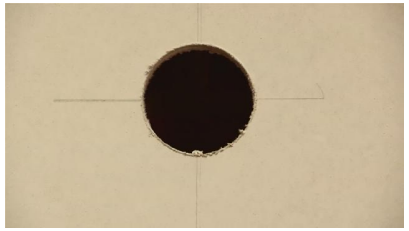

400+
400+

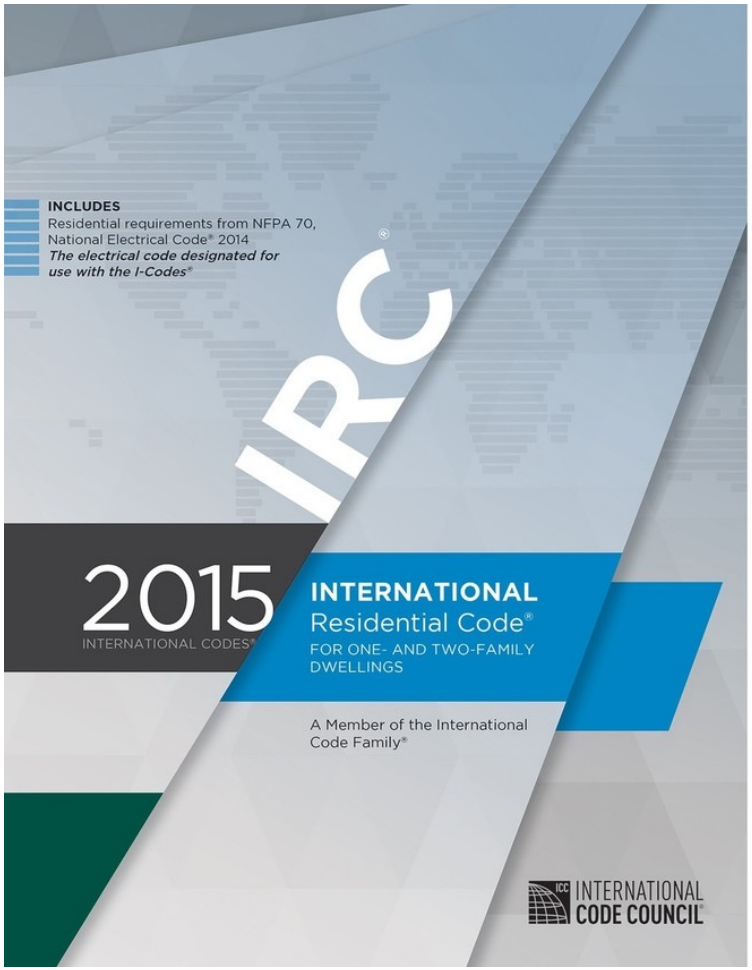
M1503.4 Makeup air required. *Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m³/s) shall be provided with makeup air at a rate approximately equal to the exhaust rate. Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.*


INCLUDES
Residential requirements from NFPA 70, National Electrical Code® 2014
The electrical code designated for use with the I-Codes®
IRC®
2015
INTERNATIONAL CODES
INTERNATIONAL
Residential Code®
FOR ONE- AND TWO-FAMILY DWELLINGS
A Member of the International Code Family®
INTERNATIONAL CODE COUNCIL

400+

400+

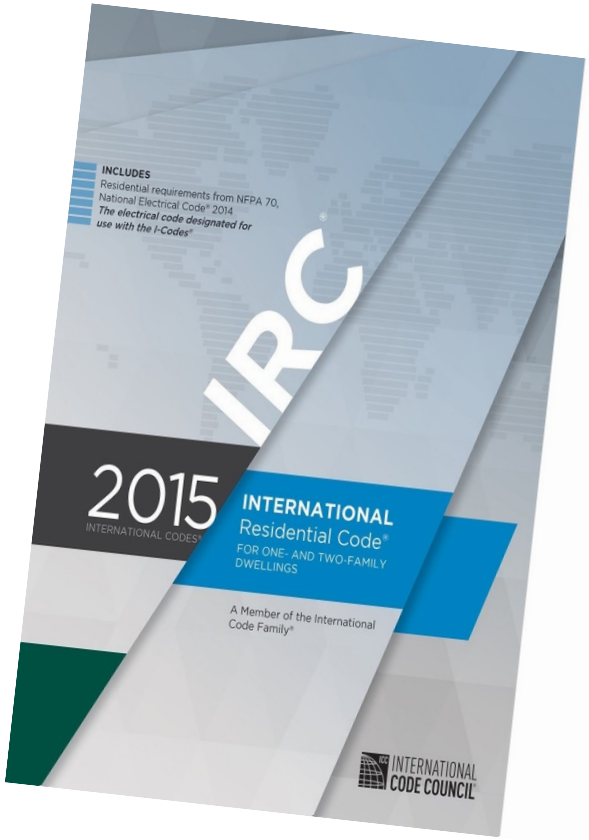




M1503.4 Makeup air required. *Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute (0.19 m^3/s) shall be provided with makeup air at a rate approximately equal to the exhaust rate. Such makeup air systems shall be equipped with not less than one damper. Each damper shall be a gravity damper or electrically operated damper that automatically opens when the exhaust system operates. Dampers shall be accessible for inspection, service, repair and replacement without removing permanent construction or any other ducts not connected to the damper being inspected, serviced, repaired or replaced.*

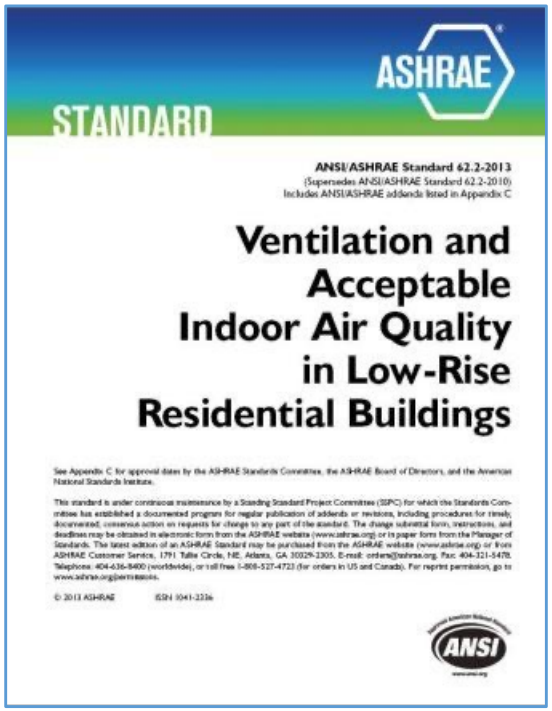
M1503.4.1 Location. *Kitchen exhaust makeup air shall be discharged into the same room in which the exhaust system is located or into rooms or duct systems that communicate through one or more permanent openings with the room in which the exhaust system is located. Such permanent openings shall have a net cross-sectional area not less than the required area of the makeup air supply openings.*

IRC Chapter 24 – Fuel Gas



G2439.4 (614.5) Makeup air. Installations exhausting more than 200 cfm (0.09 m^3/s) shall be provided with makeup air. Where a closet is designed for the installation of a clothes dryer, an opening having an area of not less than 100 square inches (0.0645 m^2) for makeup air shall be provided in the closet enclosure, or makeup air shall be provided by other approved means.

ASHRAE Standard 62.2 – 2013 & 2016



Section 6.4 Combustion and Solid-Fuel Burning Appliances

Where atmospherically vented combustion appliances or solid-fuel-burning appliances are located within the pressure boundary, the total net exhaust airflow of the two largest exhaust fans (not including a summer cooling fan intended to be operated only when windows or other air inlets are open) shall not exceed 15 cfm per 100 ft² (75 L/s per 100 m²) of occupiable space when operated at full capacity. If the designed total net flow exceeds this limit, the net exhaust flow must be reduced by reducing the exhaust flow or providing compensating outdoor air. Gravity or barometric dampers in non-powered exhaust makeup air systems shall not be used to provide compensating outdoor air. Atmospherically vented combustion appliances do not include direct-vent appliances.

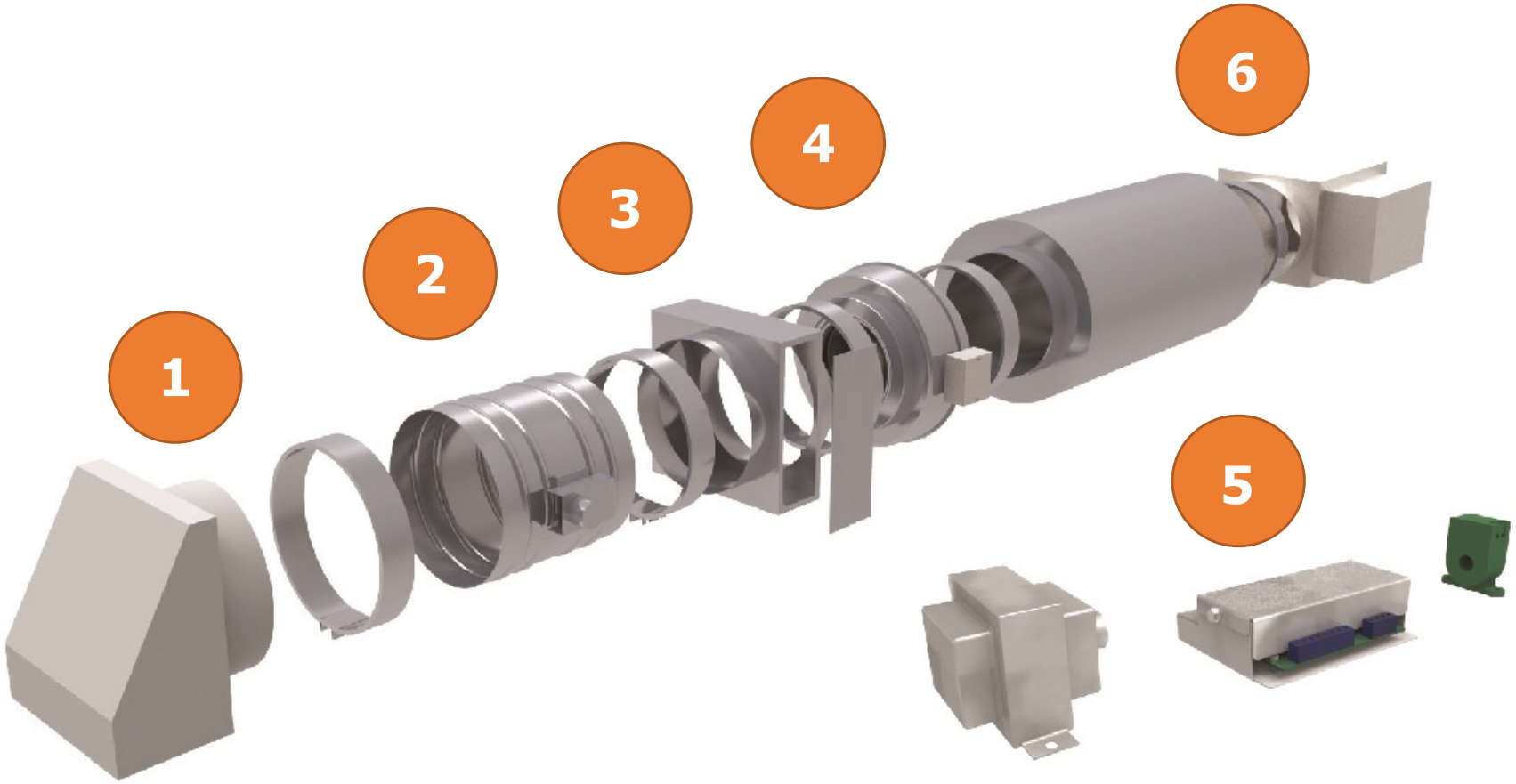
2500 ft² = 15 cfm x 25 = 375 cfm

Natural or Depressurization-Induced Infiltration as Makeup Air

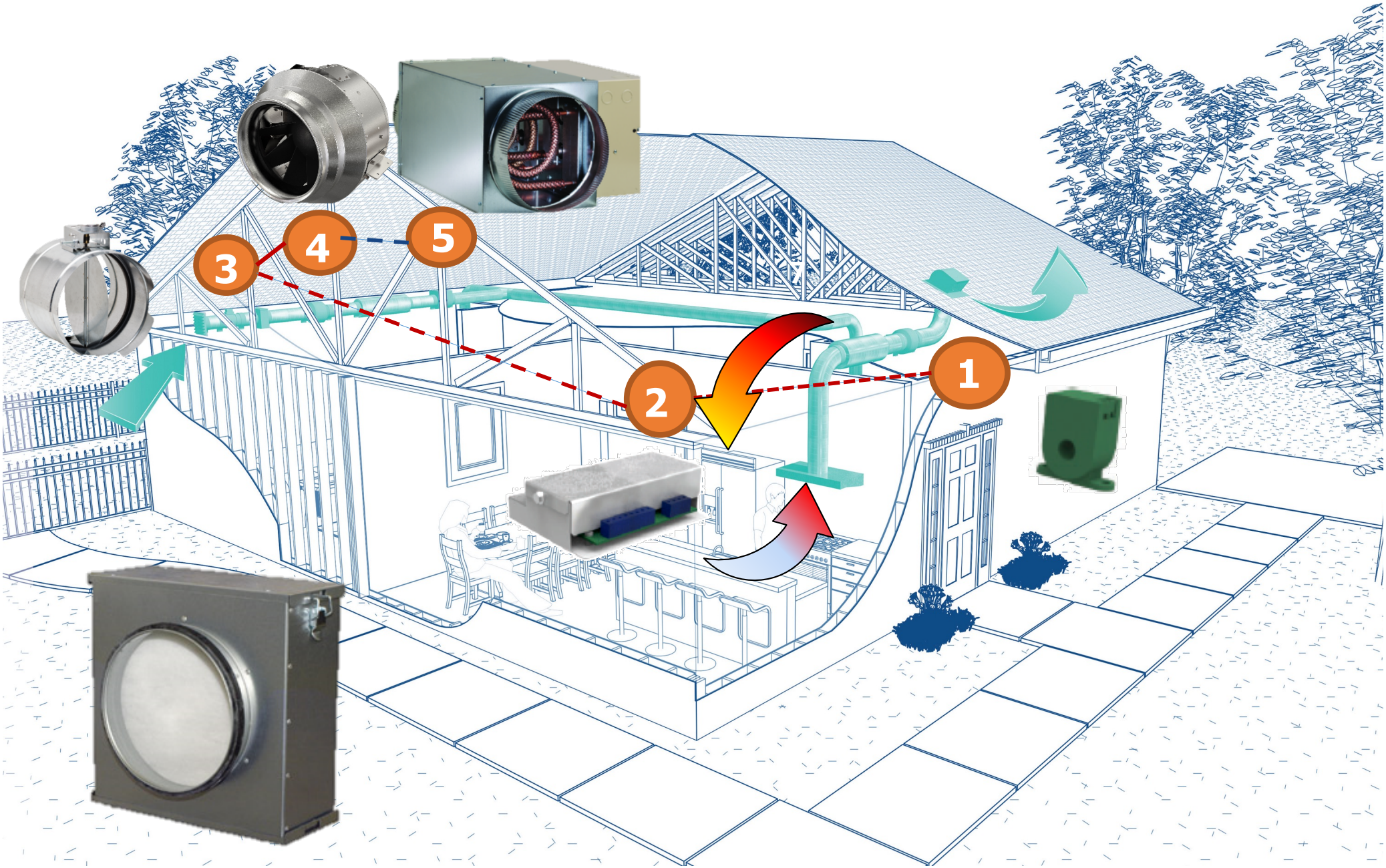
How it works:

Supply rate is directly proportional to the pressure difference across the enclosure.

True Makeup Air



How it should work



Makeup Air Delivery – Cold Climate

Tempering of outdoor air with indoor air to keep mixed temperature above 55°F

Indoor setpoint temperature:	70 F							
	Mixed Air Dry-bulb Temperature (F)							
	At listed tempering ratio of inside air to outside air							
Outside Air Drybulb Temp (F)	6.00	5.00	4.00	3.00	2.50	2.00	1.50	1.00
	At listed outside air fraction							
	0.14	0.17	0.20	0.25	0.29	0.33	0.40	0.50
55	[illegible]	68	67	66	66	65	64	63
50	67	67	66	65	64	63	62	60
[illegible]	66	66	65	64	63	62	60	[illegible]
40	66	65	64	63	61	60	58	55
35	65	64	63	61	60	58		
30	64	63	62	60	59			
25	64	63	61	59				
20	63	62	60	58				
15	62	61	59					
10	61	60	58					
5	61	59						
0	60	58						
-5	59	58						
-10	59							
-15	58							
-20	57							
[illegible]	[illegible]							
-30	56							

55°Limit for Gas Furnaces

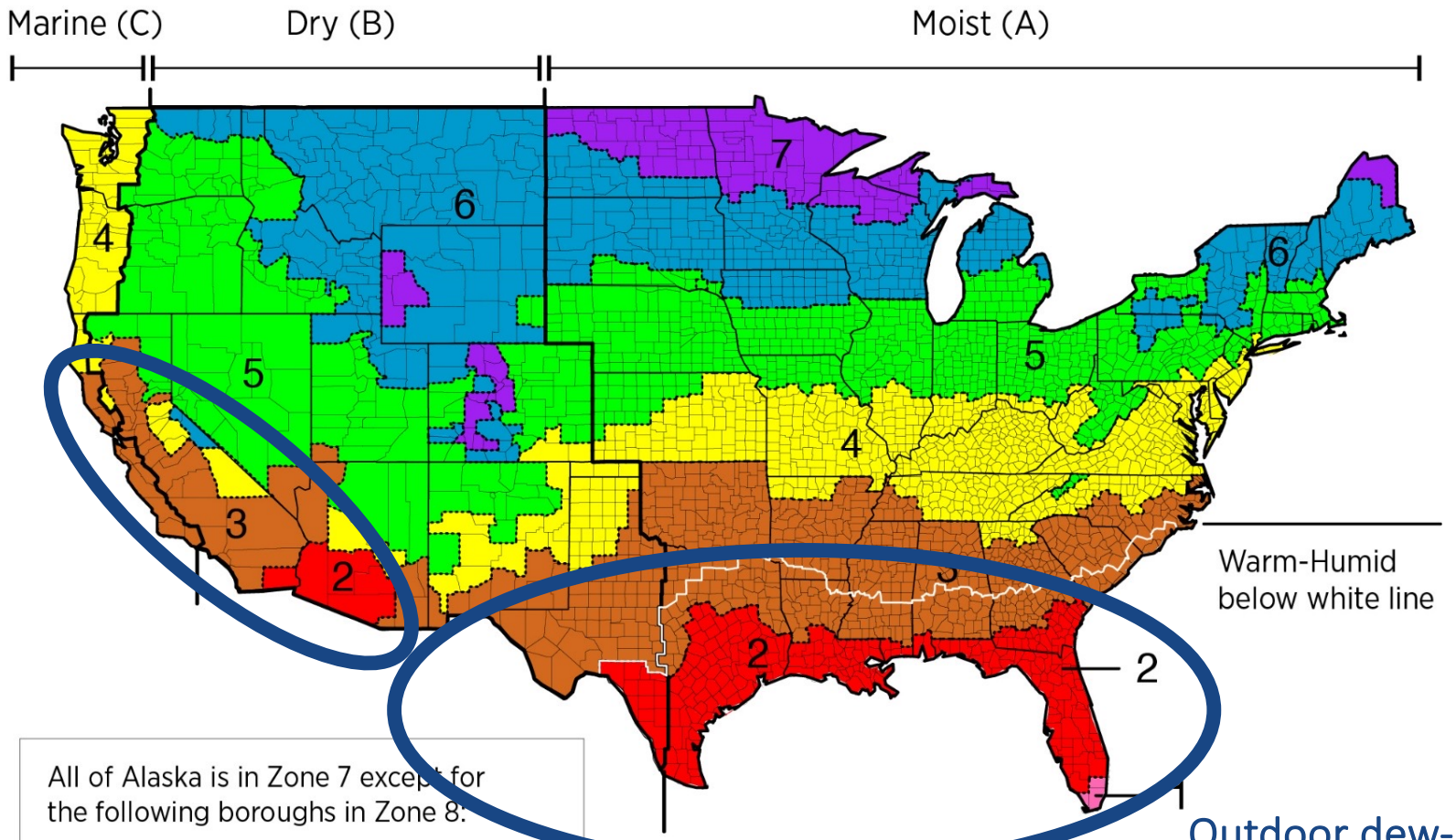
Makeup Air Delivery – Humid Climate

Tempering the moisture level of outdoor air by mixing with indoor air

OAT 70ºF
RH 50%
DAT 55ºF

Max airflow – 250 cfm

Makeup Air Delivery – Humid Climate



Outdoor dew-point temp's
75-78°F

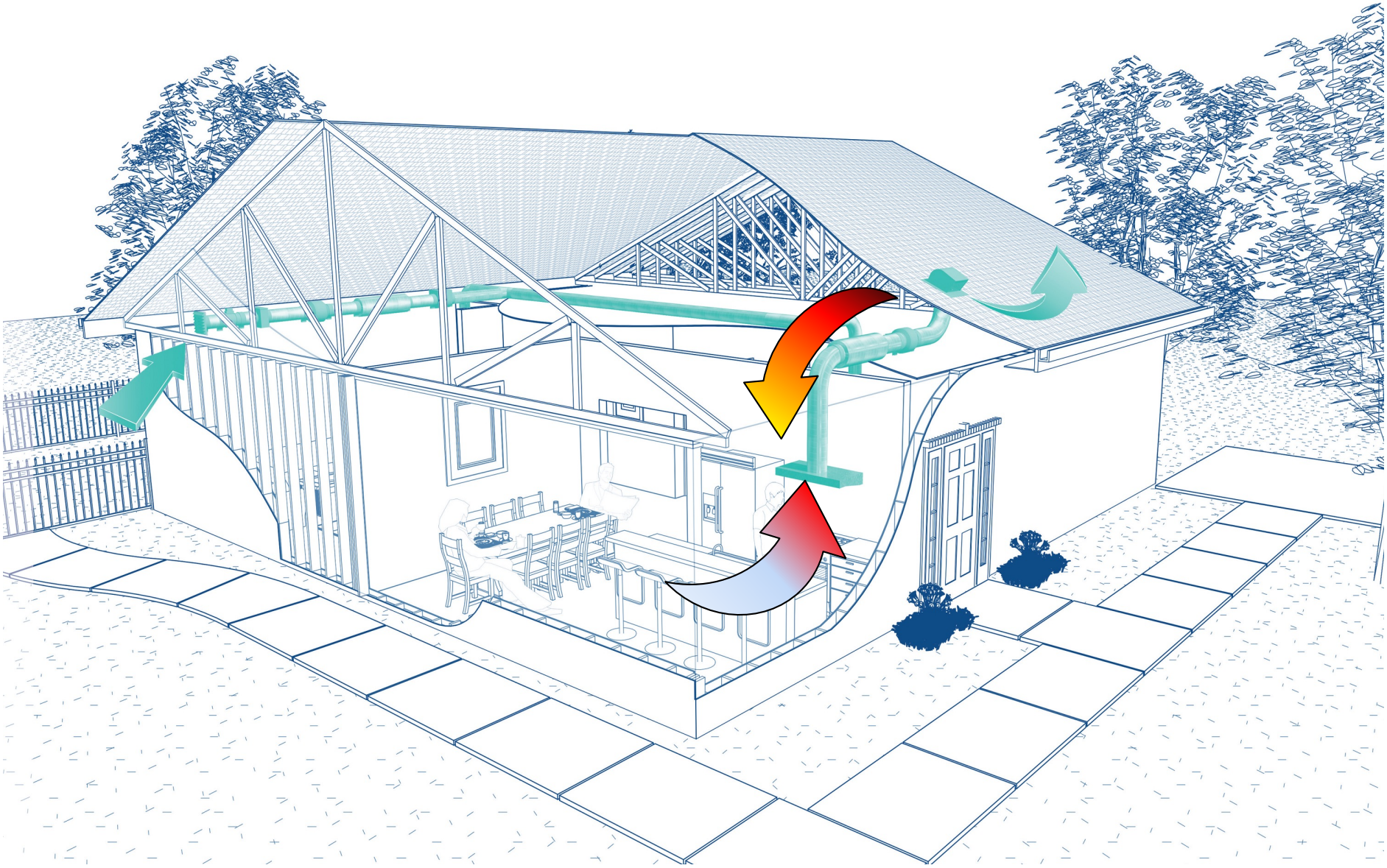
Makeup Air Delivery – Humid Climate

Tempering the moisture level of outdoor air by mixing with indoor air

Parts inside air:	1.0	2.0	3.0	6.0	9.0
Parts outside air:	1.0	1.0	1.0	1.0	1.0
OA fraction:	0.50	0.33	0.25	0.14	0.10

	Mixed Air Dew-point Temperature (F)				
Outside	At Indoor Dew-point Temperature				
Dew-point	(75F/50%)	(75F/50%)	(75F/50%)	(75F/50%)	(75F/50%)
(F)	**55**	**55**	**55**	**55**	**55**
80	68	63	61	59	58
79	67	63	61	58	57
78	67	63	61	58	57
77	66	62	61	58	57
76	66	62	60	58	57
75	65	62	60	58	57
74	65	61	60	58	57
73	64	61	60	58	57
72	64	61	59	57	57
71	63	60	59	57	57
70	63	60	59	57	57
69	62	60	59	57	56
68	62	59	58	57	56
67	61	59	58	57	56
66	61	59	58	57	56
65	60	58	58	56	56

Makeup Air Delivery – Humid Climate

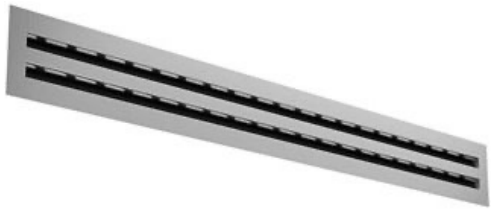


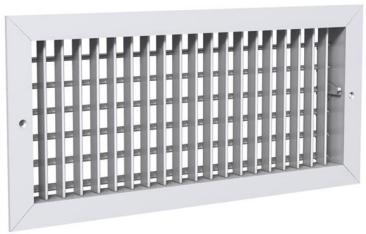
Supplying Makeup Air to the Kitchen

Guidelines

- Don’t disturb the thermal plume

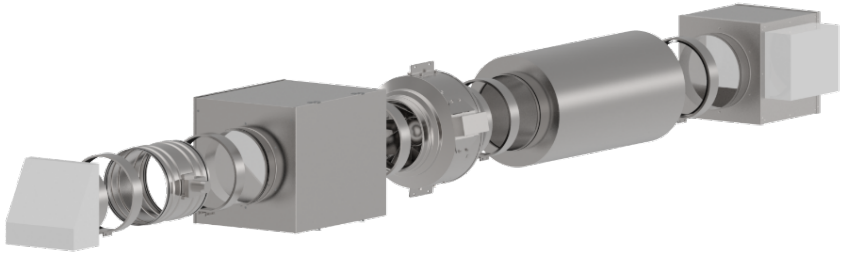
Guidelines





Guidelines

Conclusions



- Mechanical fan forced compensating True Makeup Air (TMUA) is a practical solution
- Proportionally controlled it delivers the right amount of TMUA to balance hood exhaust and is superior to single speed on/off control of the fan
- Eliminates depressurization
- TMUA can be delivered to where the exhaust air is taken from per IRC-2015
- TMUA can be conditioned
- TMUA can be filtered (required by ASHRAE 62.2 if MUA is conditioned)

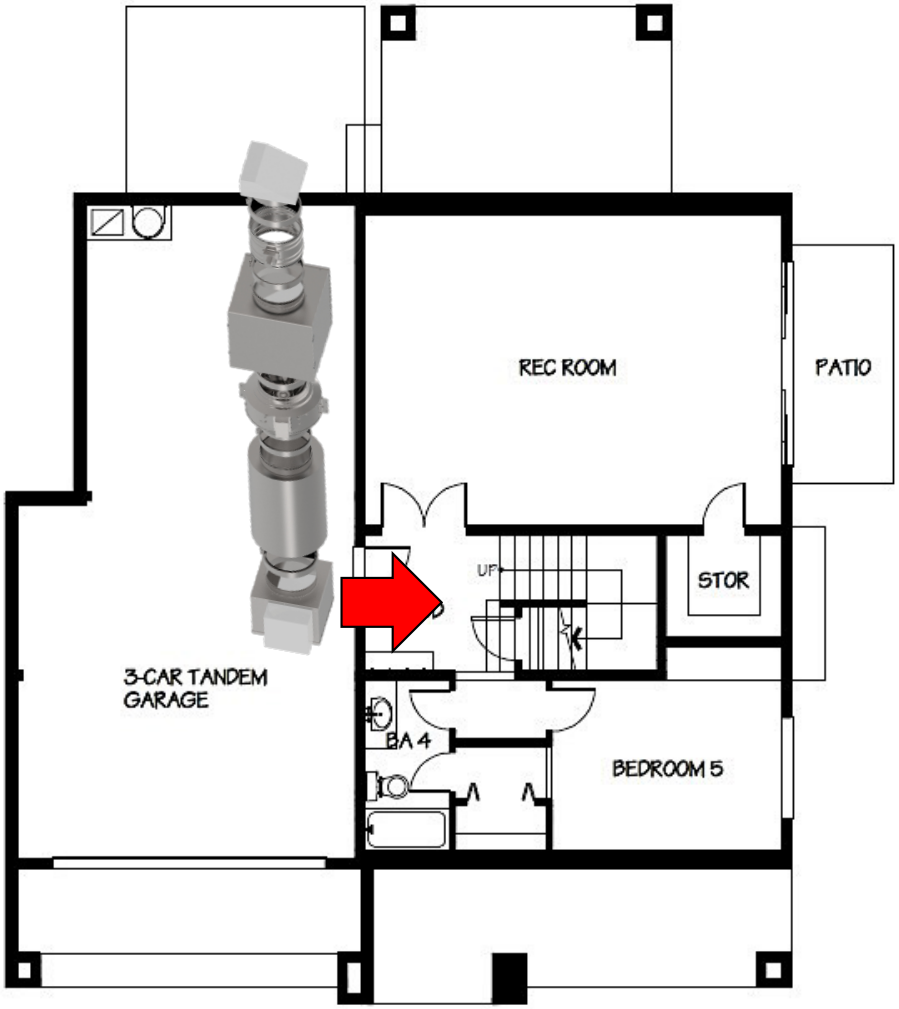
Case Study

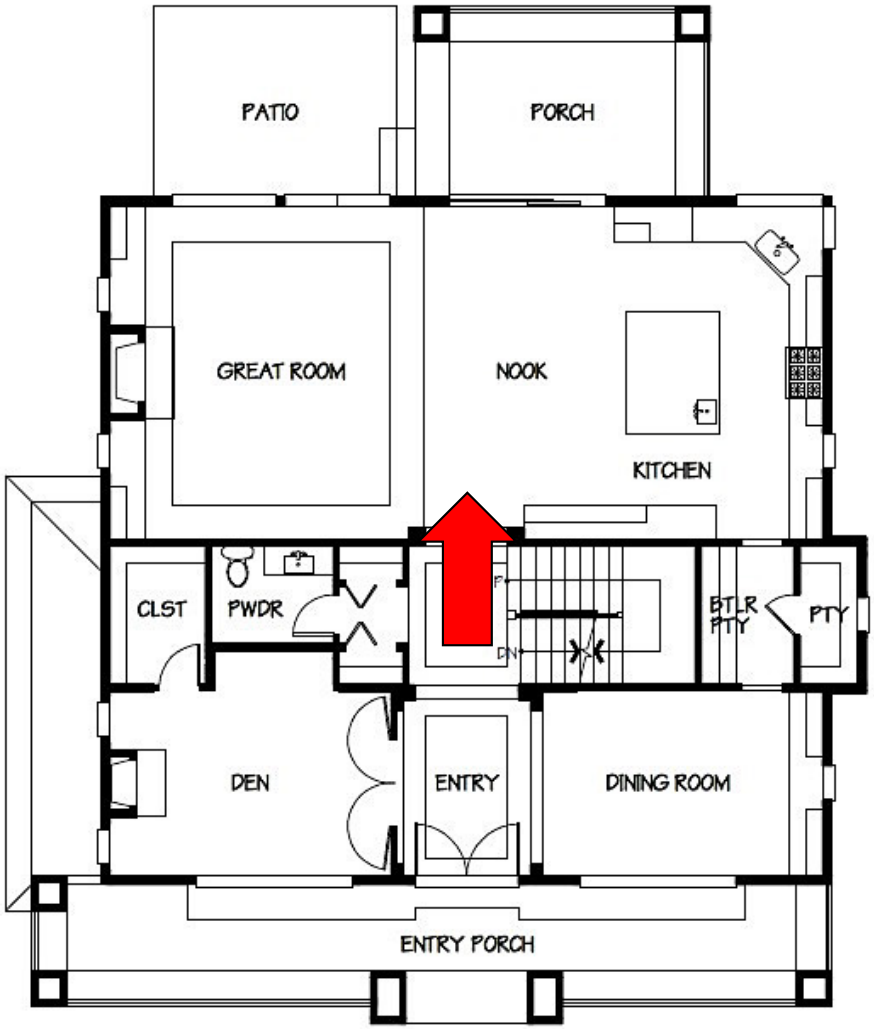
- Date of build: 2014
- Location: Mercer Island, WA
- Square Ft: 4,322
- No Bedroom: 5
- No Bathrooms: 4.5
- No Stories: 3
- Garage: 3 Car
- Radiant Floor Heating

FRONT ELEVATION

Mercer Island, WA

Mercer Island, WA





Installation

- Modulating electric heater
- Sound attenuator
- ECM supply fan
- Electric damper
- Wall cap
- Control system

Mercer Island, WA

http://www.fantech.net/globalassets/downloads/leaflets/english/e1583-muas-case-study-bobs-heating-wa.pdf