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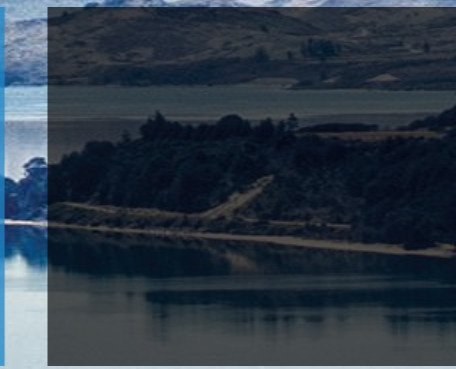
IAQ & ENERGY 2023 CONFERENCE



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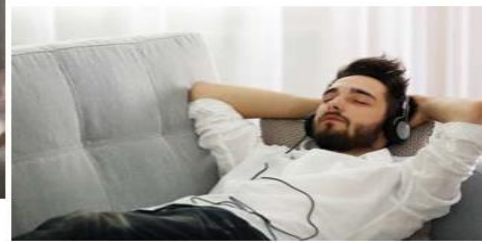
WHY VENTILATE?

ACCORDING TO THE EPA, WE SPEND MORE THAN **90%** OF OUR TIME INSIDE



THINGS THAT MAY CONTRIBUTE TO POOR INDOOR AIR QUALITY:

MOISTURE

OFF GASSING

PARTICULATES

COOKING

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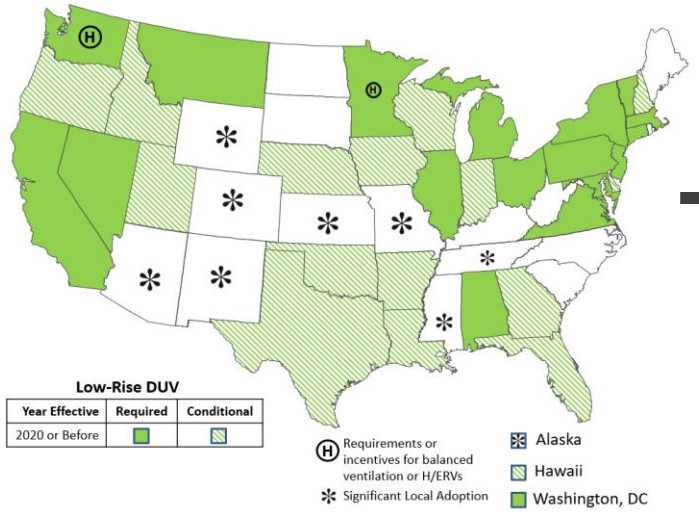
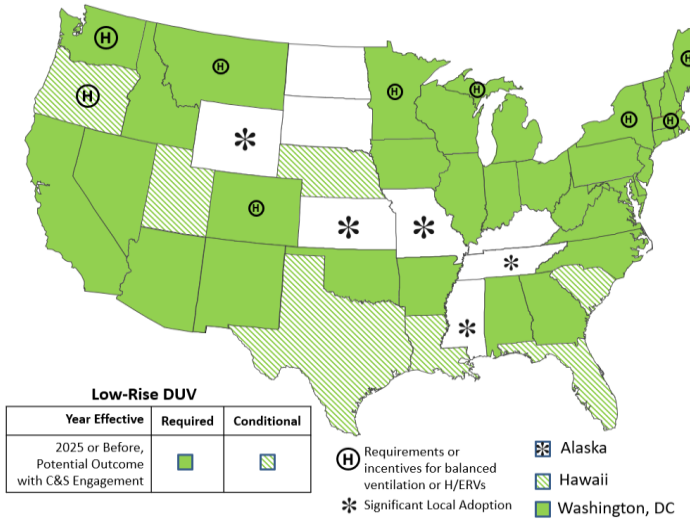
US BUILDING CODE LANDSCAPE & ENERGY PROGRAMS

LOW RISE

2020

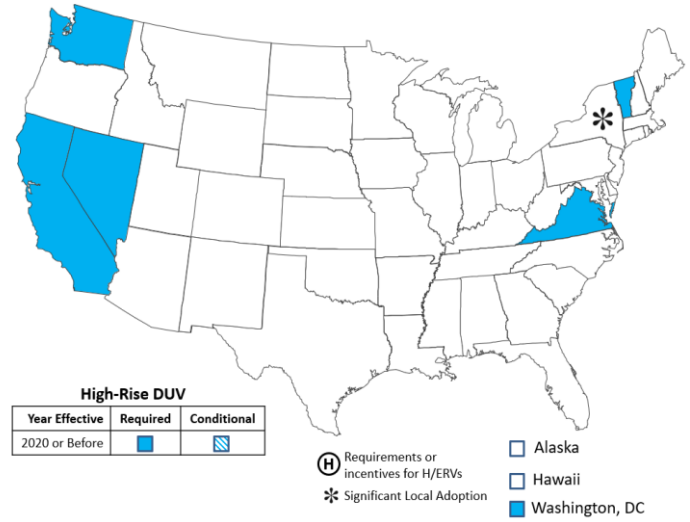


2025 POTENTIAL

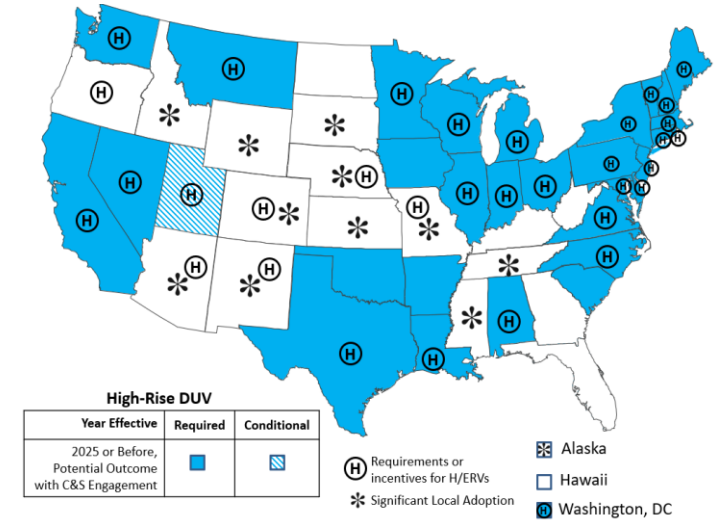


HIGH RISE

2020



2025 POTENTIAL



SELECTING THE PROPER WHOLE-HOUSE RESIDENTIAL VENTILATION SOLUTION.

Sizing your solution is a factor of square footage and the number of bedrooms in the dwelling to meet requirements. These charts are based on ASHRAE 62.2. Note that the 2010 and 2013 versions are different. Most states still operate under 62.2-2010 rates. Before specifying, check local building codes to verify ventilation requirements.

ASHRAE 62.2-2010 Required Continuous Ventilation Rate (CFM)

Floor Area Sq. Ft.	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

ASHRAE 62.2-2013 Required Continuous Ventilation Rate (CFM)

Floor Area Sq. Ft.	0–1 BR	2–3 BR	4–5 BR	6–7 BR	>7 BR
<500	30	40	45	55	60
500–1000	45	55	60	70	75
1001–1500	60	70	70	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

AN ALTERNATIVE FORMULA APPROACH TO THE TABLES GIVEN ABOVE.

An alternative formula approach to the tables given above also exists and typically results in a lower, more precise CFM requirement. Under the more common 62.2-2010 version, continuous CFM requirements can be calculated using a formula as follows.
CFM = .01 x floor area (in square feet) plus 7.5 x (number of bedrooms + 1).

Example: A 3,500 square foot home with 4 bedrooms would require 73 CFM
.01 x 3,500 = 35
7.5 x (4+1) = 38
Add together for a total of 73 CFM
(as compared to the 90 from the above table).

The 62.2-2013 version increases the multiplier for floor area from .01 to .03. Note however that infiltration credits can be taken if blower door testing is conducted.

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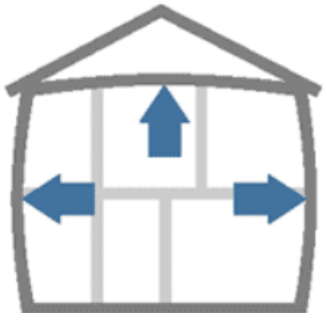
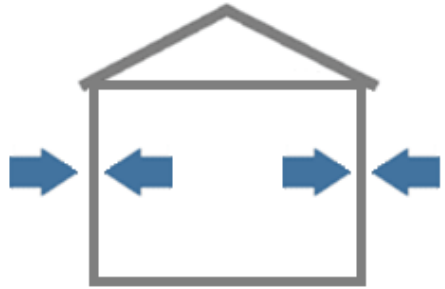
DWELLING UNIT VENTILATION STRATEGIES

EXHAUST

SUPPLY



BALANCED



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BALANCED VENTILATION

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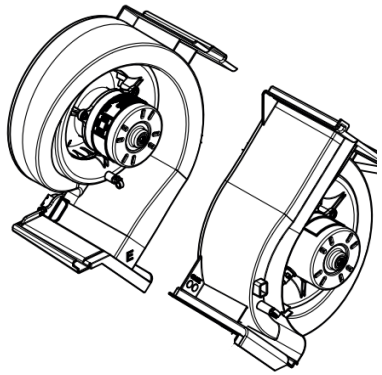
WHAT'S INSIDE?

FILTER



BLOWER FANS

RECOVERY CORE

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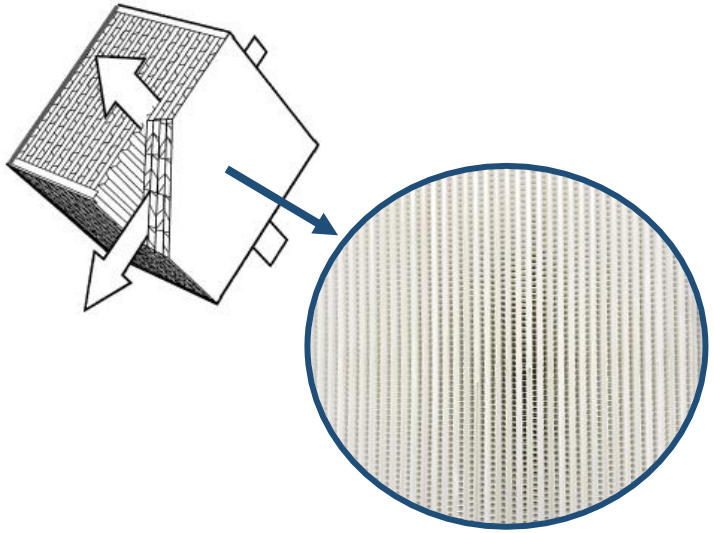
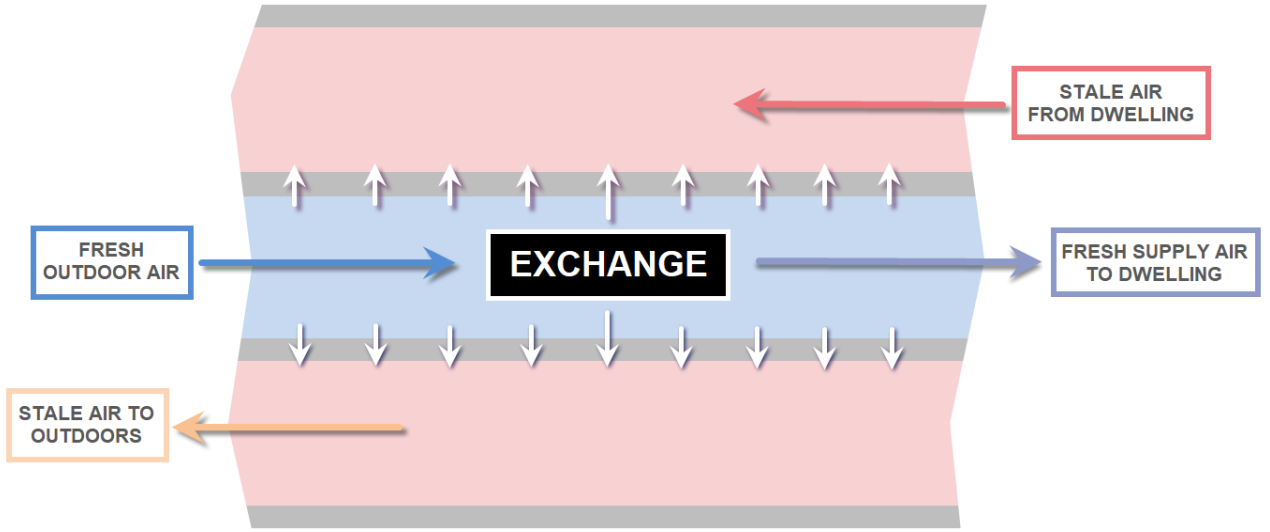
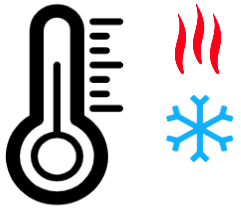
WHAT'S THE DIFFERENCE BETWEEN HRV & ERV?





HEAT RECOVERY VENTILATOR (HRV)

SENSIBLE TRANSFER
(TEMPERATURE)



ENERGY RECOVERY VENTILATOR (ERV)

SENSIBLE & LATENT TRANSFER
(TEMPERATURE & WATER VAPOR)

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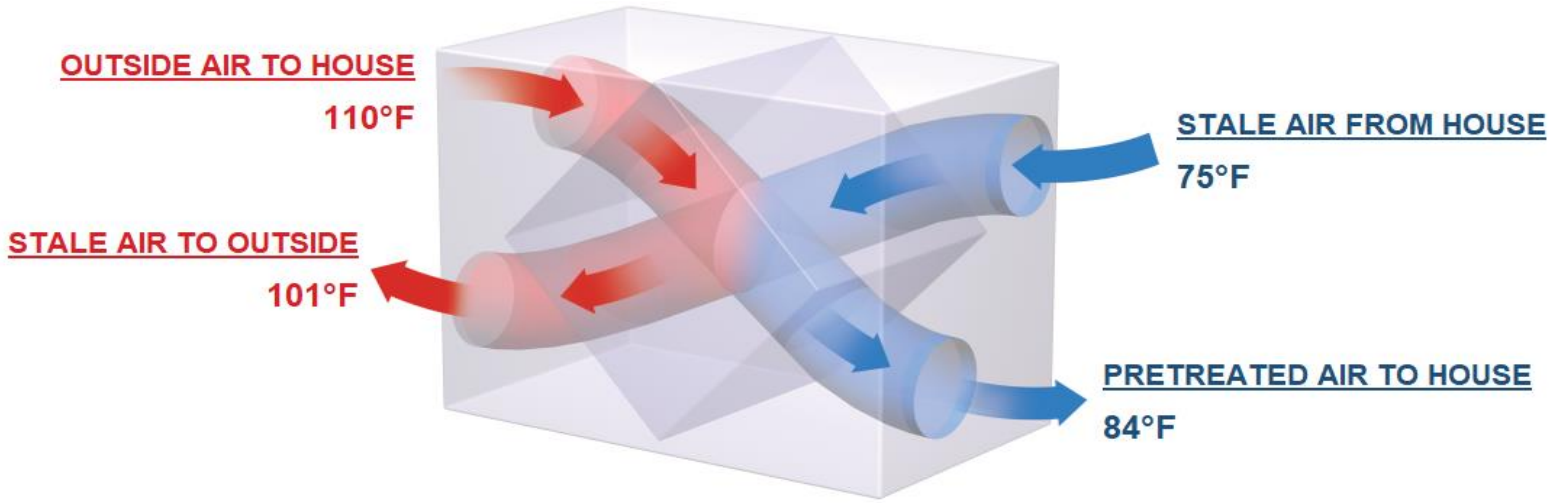
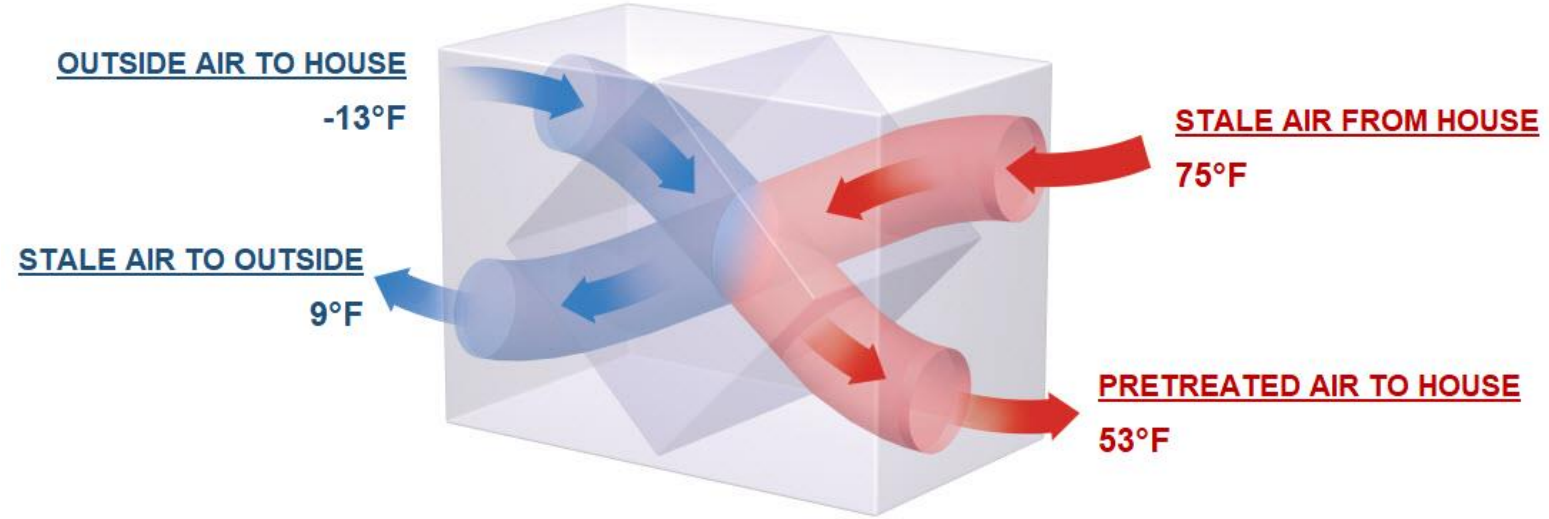
TEMPERATURE MANAGEMENT

COOLING SEASON



HEATING SEASON



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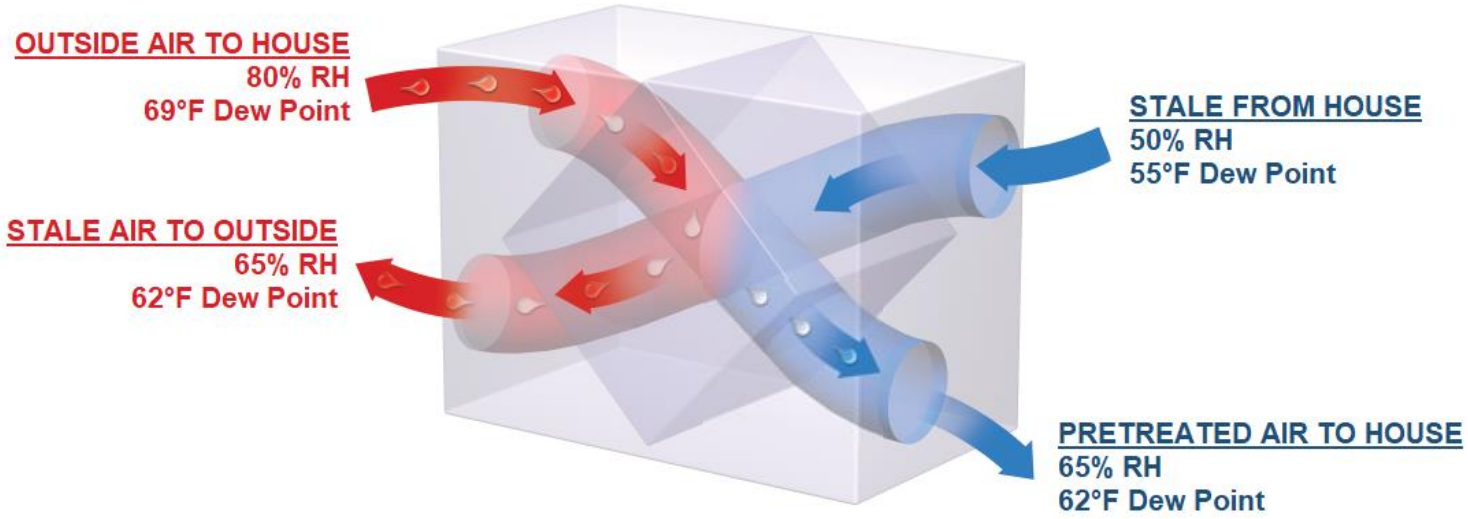
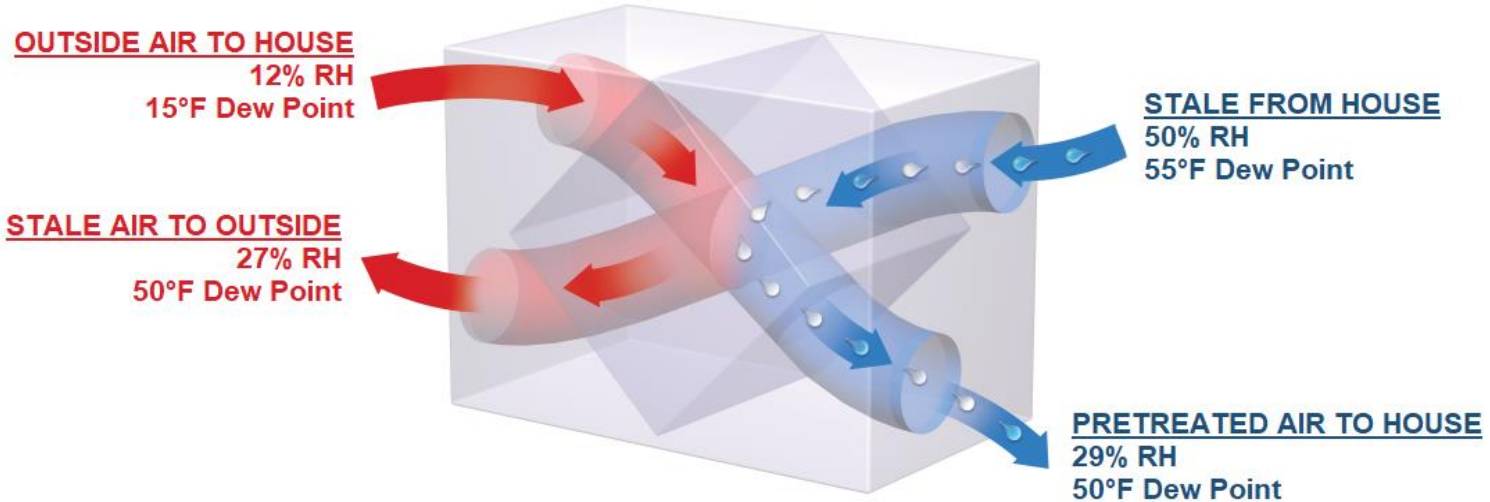
HUMIDITY MANAGEMENT

HUMID CLIMATE



DRY CLIMATE



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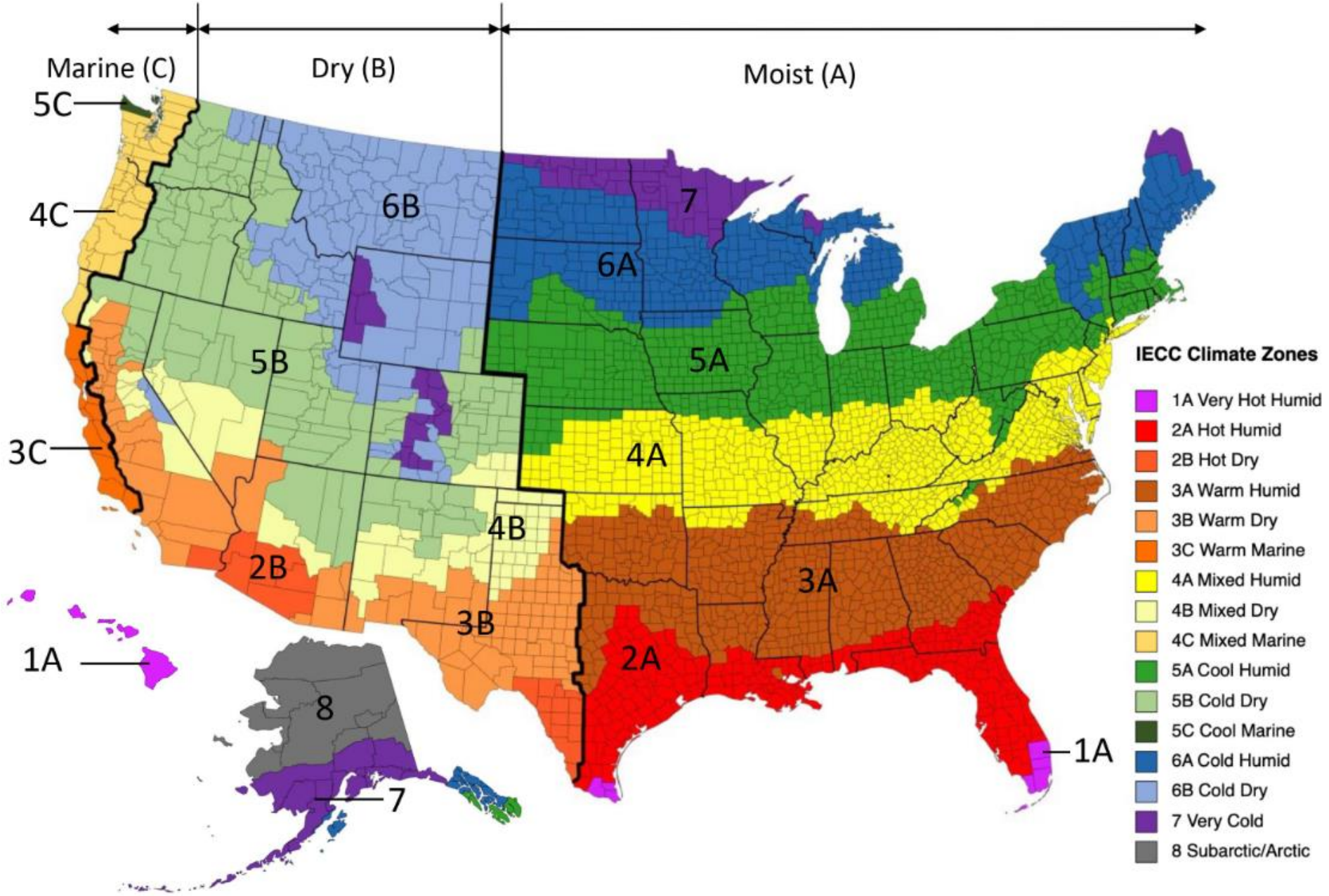
CLIMATE REGIONS - US



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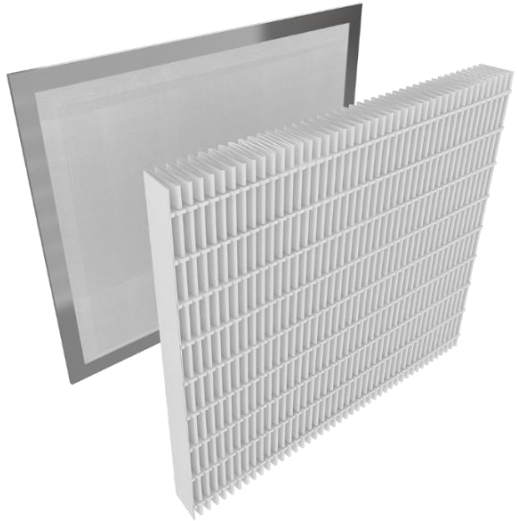
SUPERIOR
AIR QUALITY



PPI
- INSECTS

MERV8
- INSECTS
- LINT
- HOUSEHOLD DUST
- POLLEN
- DUST MITE DEBRIS
- MOLD SPORES

MERV13
- INSECTS
- LINT
- HOUSEHOLD DUST
- POLLEN
- DUST MITES DEBRIS
- MOLD SPORES
- PET DANDER
- SMOKE
- SMOG
- COUGHING / SNEEZING
- BACTERIA
- VIRUS CARRIERS

HEPA
99.97% 0.3 µm
- INSECTS
- LINT
- HOUSEHOLD DUST
- POLLEN
- DUST MITES DEBRIS
- MOLD SPORES
- PET DANDER
- SMOKE
- SMOG
- COUGHING / SNEEZING
- BACTERIA
- VIRUS CARRIERS

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INSTALLATION

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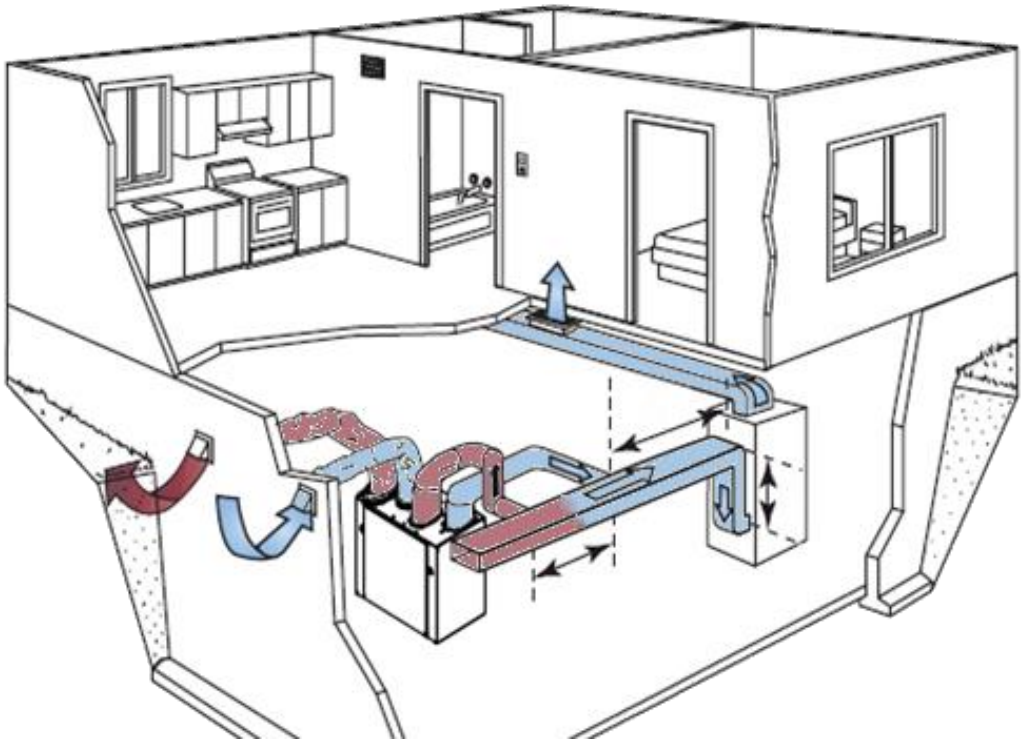
SIMPLIFIED INSTALLATION



The H/ERV ductwork is configured to extract stale air from the main return duct of the forced-air system and distribute fresh air from the H/ERV into the same return duct at least 3’ downstream. This install configuration requires the central fan to run when the H/ERV is running

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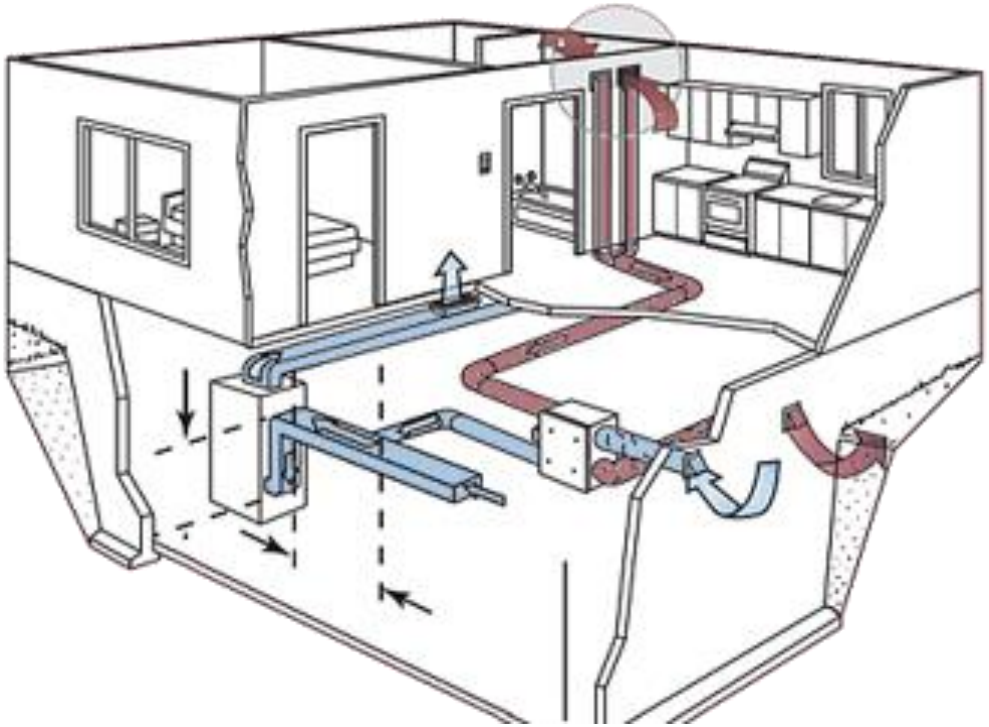
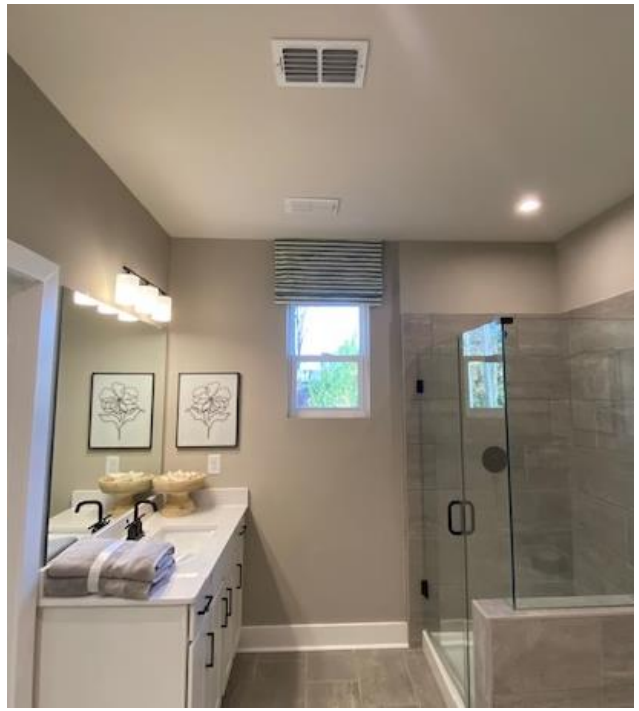
DEDICATED EXHAUST INSTALLATION



Fresh air from the H/ERV is distributed to the return side of the forced air system and the stale air is typically extracted from high polluted areas of the home (e.g. bathroom, kitchen, laundry room) via dedicated duct(s) to & from the H/ERV



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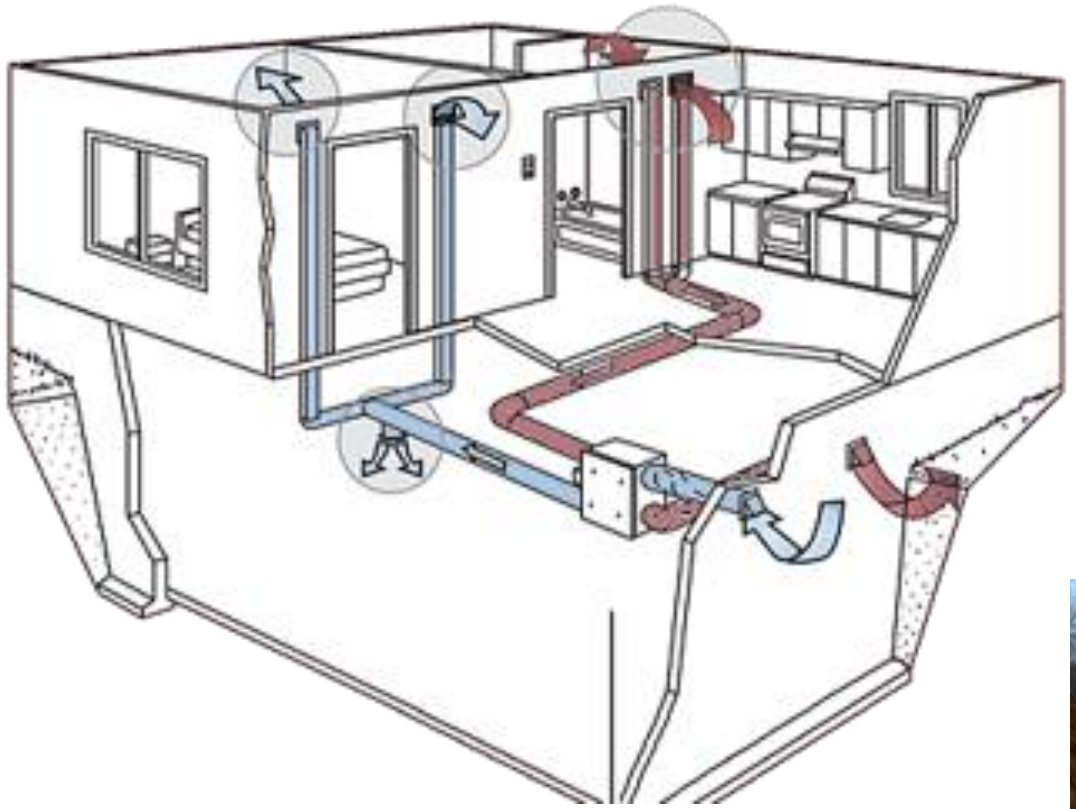
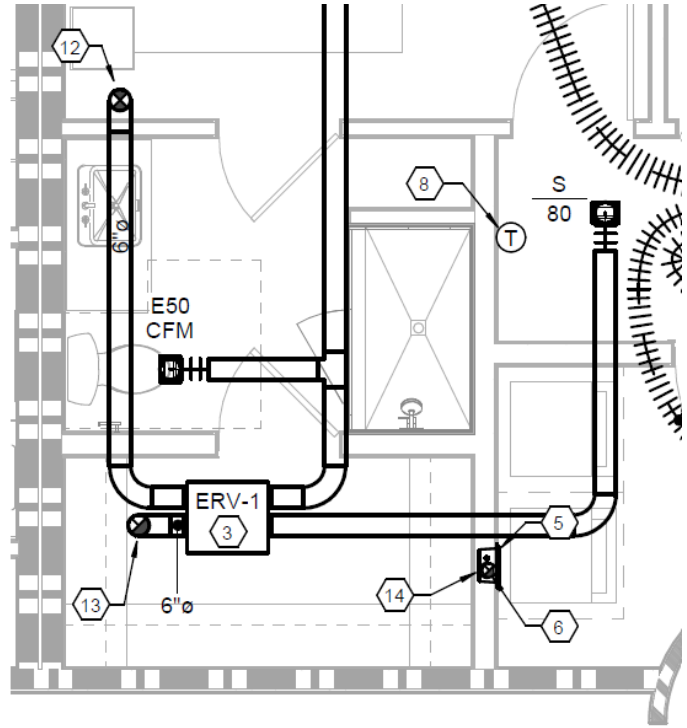
FULLY DUCTED INSTALLATION





Independent ductwork system that distributes fresh air from the H/ERV to main living spaces in the home & extracts stale air from high polluted areas of the home through the H/ERV

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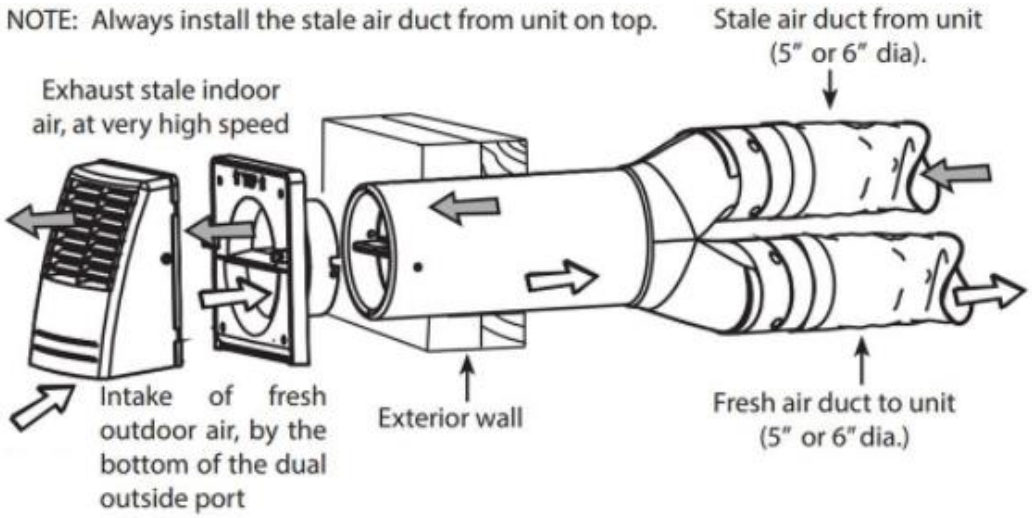
EXTERIOR TERMINATIONS

- TANDEM EXTERIOR TERMINATIONS SIMPLIFY INSTALLATION WITH A SINGLE EXTERIOR PENETRATION & IMPROVE OVERALL AESTHETICS
- PROVIDES LOCATION FLEXIBILITY IN THE OVERALL SYSTEM DESIGN



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HVI – IMPORTANCE OF LISTED PRODUCTS

VERIFY YOUR PRODUCT SELECTION HAS BEEN HVI CERTIFIED

- LOGO ON SPEC SHEETS, PRODUCT LABELS, ETC.
- LISTED ON [HVI CERTIFIED DIRECTORY (CPD)]

2021 IECC MECHANICAL VENTILATION REQUIREMENT:

2021 International Energy Conservation Code (IECC) BASIC Upgrade to Premium

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

Second Version: Sep 2021

R403.6.2 Whole-dwelling mechanical ventilation system fan efficacy. P

Fans used to provide whole-dwelling mechanical ventilation shall meet the efficacy requirements of Table R403.6.2 at one or more rating points. Fans shall be tested in accordance with HVI 916 and listed. The airflow shall be reported in the product listing or on the label. Fan efficacy shall be reported in the product listing or shall be derived from the input power and airflow values reported in the product listing or on the label. Fan efficacy for fully ducted HRV, ERC, balanced, and in-line fans shall be determined at a static pressure of not less than 0.2 inch w.c. (49.85 Pa). Fan efficacy for ducted range hoods, bathroom and utility room fans shall be determined at a static pressure of not less than 0.1 inch w.c. (24.91 Pa).

Premium Code Insights : Code Change Details Hearing Videos

TABLE R403.6.2 WHOLE-DWELLING MECHANICAL VENTILATION SYSTEM FAN EFFICACY[a]

FAN LOCATION	AIRFLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)
HRV, 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

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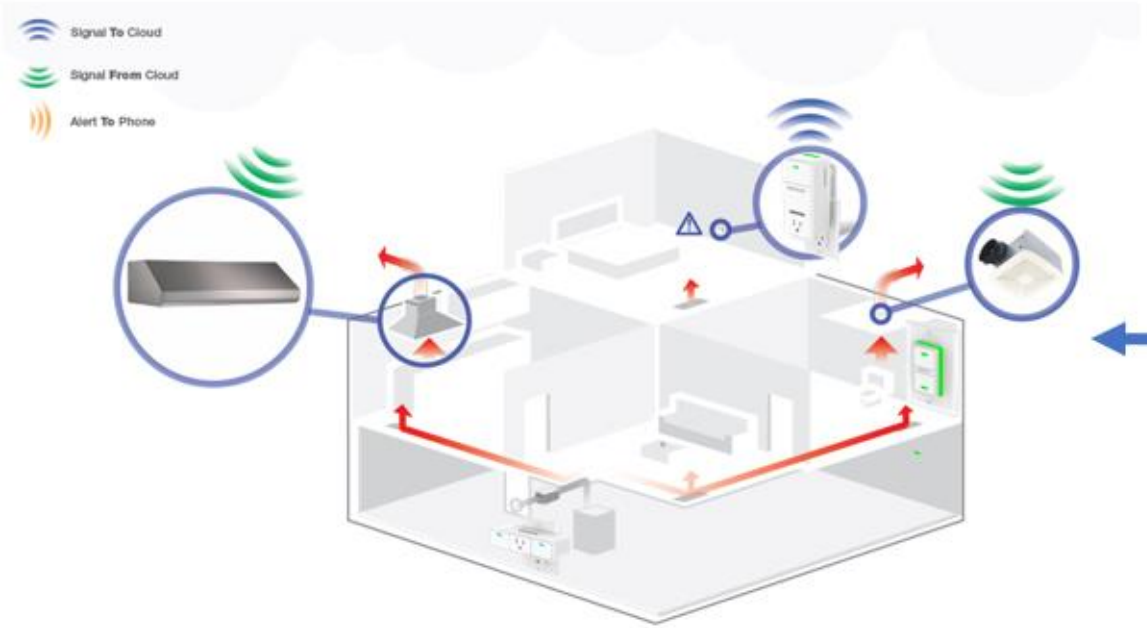
WHAT'S NEXT IN IAQ?

Monitor & Manage Indoor Air Conditions

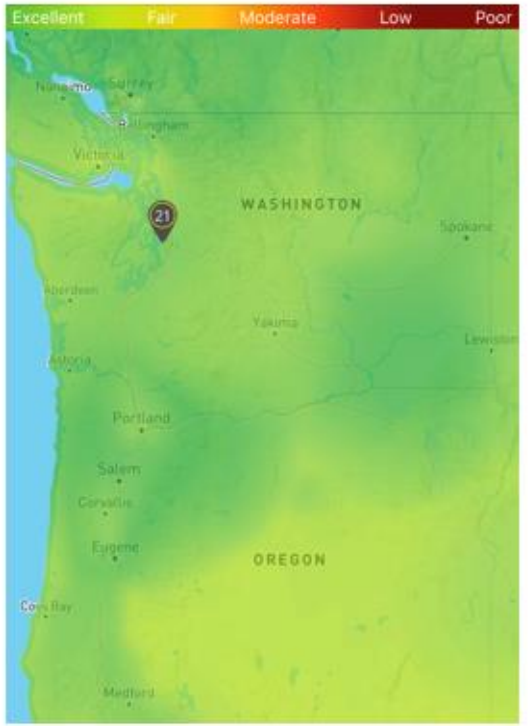


Automatically improves IAQ

Smart & connected

Manages the whole home

Connect & Adjust to Outdoor Air Conditions



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QUESTIONS

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