



ASHRAE 62.2 and Ventilation Philosophy



Overview

- Why Do We Add Ventilation?
- ASHRAE 62.2 – Policy
- ASHRAE 62.2 – Mechanics
- ASHRAE 62.2 – Calculation
- RTF Standard vs. ASHRAE 62.2
- Methods of Complying with 62.2
- ASHRAE 62.2 – Summary

Why Do We
Add Ventilation?



Reasons for Ventilation

- Indoor Air Quality
 - Fresh air, carbon monoxide, radon, cigarette smoke, pet dander, etc.
- Moisture
 - Especially in the Pacific Northwest
- Inadequacy of Passive Ventilation
 - Only provides adequate airflow under rare conditions



Indoor Air Quality – Common Pollutants

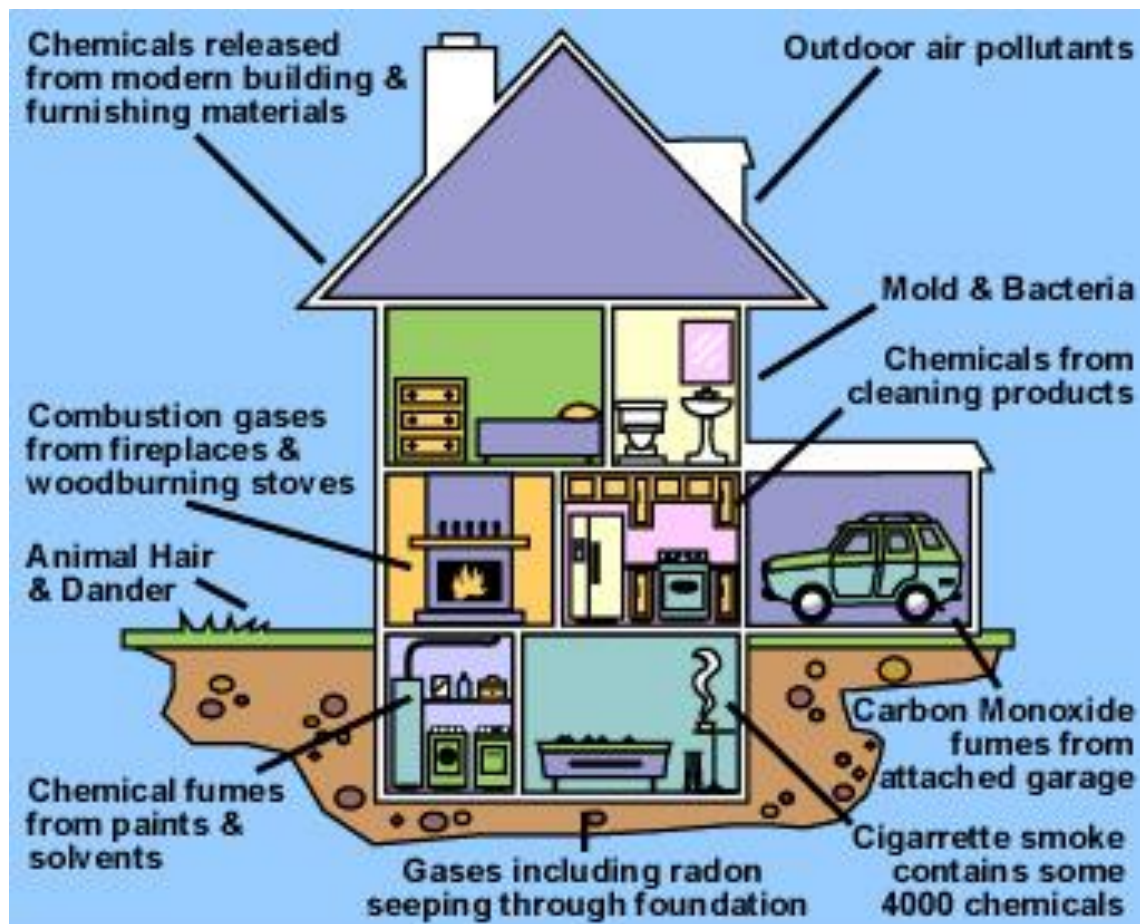


Illustration courtesy of EPA

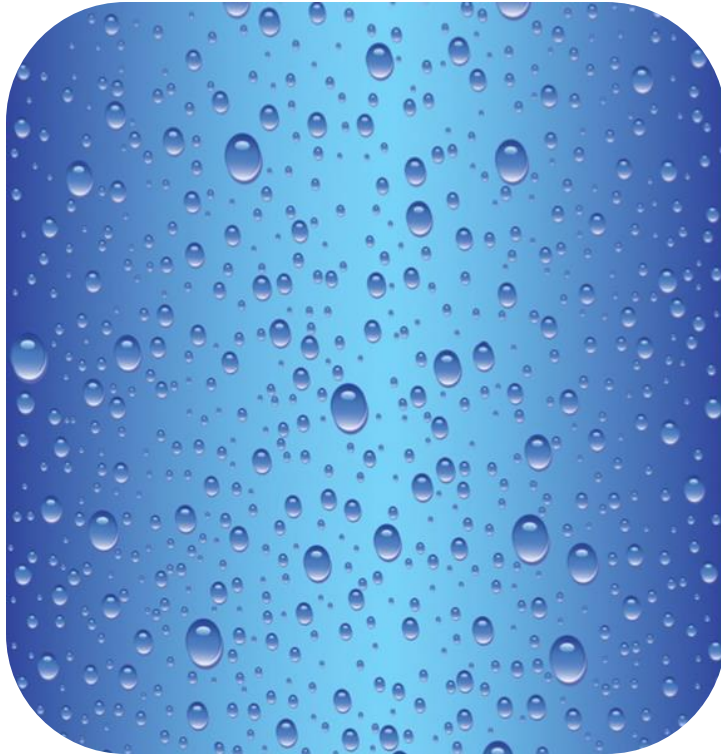


Reasons for Ventilation

- Ventilation cannot remove the source of pollutants, only lessen the presence of pollutants.
- Be sure to treat the source of IAQ pollutants *before* adding ventilation.



Moisture



Ventilation is critical to the maintenance of healthy moisture levels in all homes.

This is especially true in Oregon's climate west of the Cascades.



Controlled vs. uncontrolled ventilation

All buildings need ventilation, and some of this ventilation is provided by natural airflow.

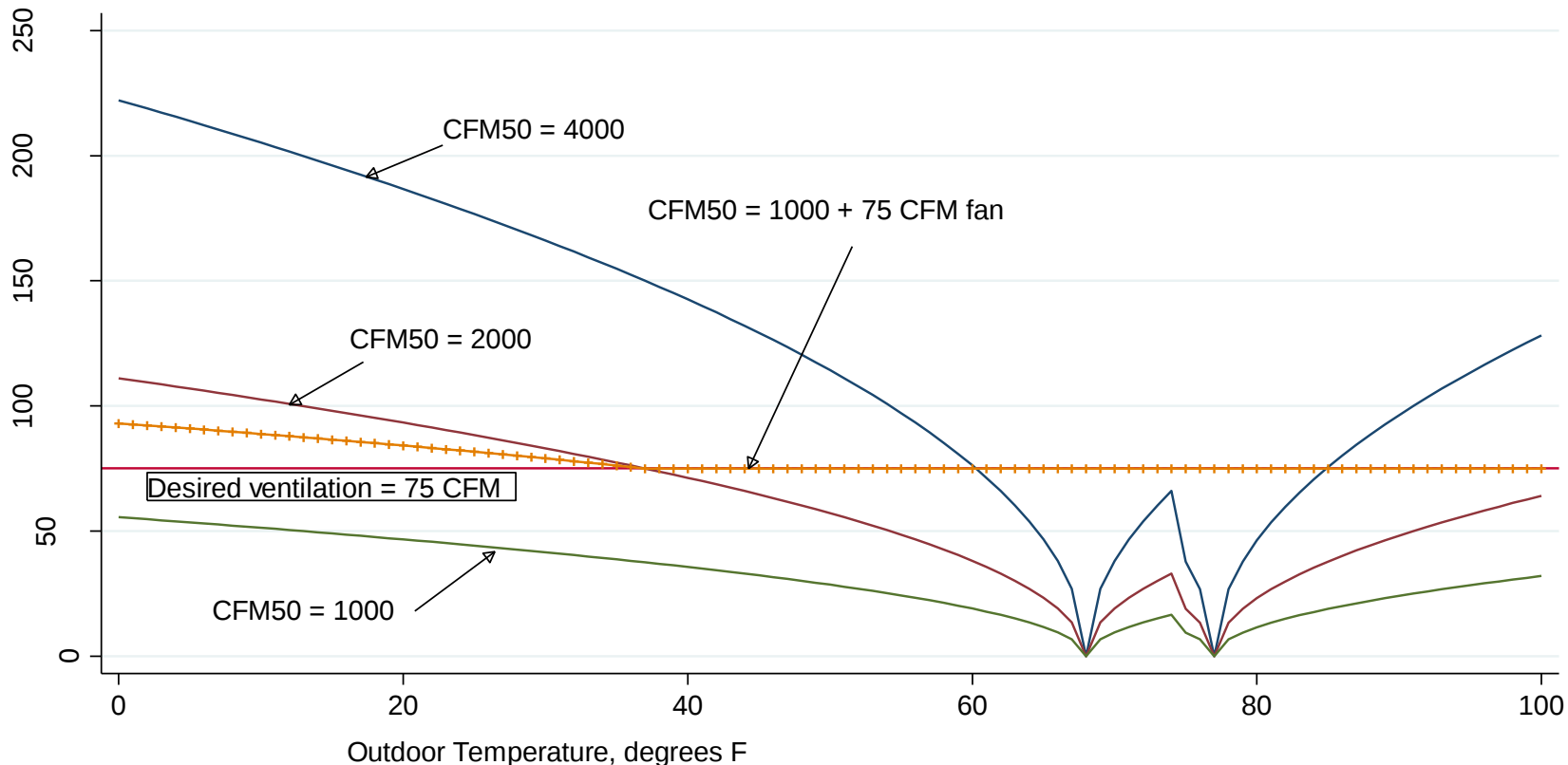
Natural airflow (CFM) is driven by the difference between inside and outside temperatures (ΔT), and the leakiness of the building shell (CFM₅₀).

The following table illustrates how unreliable natural airflow can be, given these variables.



Controlled vs. uncontrolled ventilation

Based on single-story 1,500 ft² house





Controlled vs. uncontrolled ventilation

ASHRAE 62.2 is designed to avoid the use of passive ventilation to meet a home's Indoor Air Quality needs.

Continuous mechanical ventilation is the best way to maintain good Indoor Air Quality.

The goal of 62.2 is provide one piece of information: the continuous CFM requirement for a house.

ASHRAE 62.2 – Policy



What is ASHRAE 62.2?

ASHRAE Standard 62.2-2010, [Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings](#), is the national ventilation standard of design for all homes and up to three-story multifamily buildings. 62.2 allows exhaust, supply or balanced ventilation, meaning that a simple exhaust fan or supply fan can be used, or these flows can be balanced with both a supply fan and an exhaust fan, with or without heat recovery. It is up to the designer or builder to decide if filtration, tempering or dehumidification is required, based on where the house or building is built.

-www.ASHRAE.org

KEEP IN MIND – THIS IS NOT DESIGNED TO BE AN ENERGY EFFICIENCY STANDARD



ASHRAE 62.2

- New national ventilation standard designed for all homes.
- Sets minimum airflow and performance criteria for all exhaust fans.
- Allows exhaust, supply or balanced ventilation.
- Up to the designer or builder to decide how best to implement in a house.



ASHRAE 62.2 Overview

62.2 is being embraced throughout the country as the ventilation standard for all energy-efficiency programs, including existing homes programs.

Energy Trust of Oregon has yet to adopt 62.2, and may instead adopt a competing standard developed by Bonneville Power Administration's Regional Technical Form (RTF).



Why Change Ventilation Standards?

- Accordance with industry standards
- Adapting programs to reflect evolving building science
- Protecting healthy living conditions in homes



How Would 62.2 Affect Trade Allies?

Implementing 62.2 would likely affect the Energy Trust Existing Homes program tracks that already follow ventilation standards:

- Home Performance with ENERGY STAR
- Savings Within Reach
- Existing Mobile Homes



How Would 62.2 Affect Trade Allies?

Complying with 62.2 would require Trade Allies in these program tracks to:

- Perform a Blower Door test on each project
- Alter existing ventilation, or add new ventilation, to comply with 62.2's continuous CFM requirement

ASHRAE 62.2 – Mechanics



Ventilation options

- Exhaust-only
 - Multiple spot ventilation fans
 - Balanced multiple intake – single fan, single exhaust system
- Supply-only
 - Into return side of HVAC system
 - Direct through-the-wall fan
- Balanced
 - Fan-driven air in/air out
 - Heat Recovery (HRV)

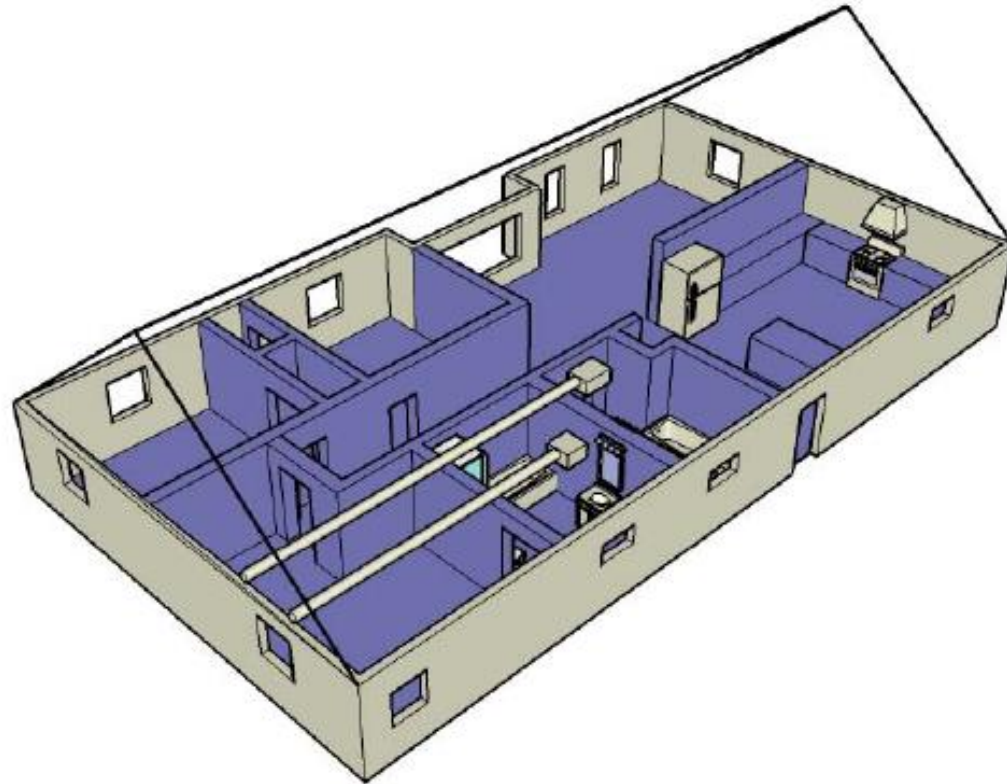
Slide content from ASHRAE 62.2 for WAP.DOE



Commonly venting systems

- Two exhaust fans can be added together
- An exhaust and an ERV/HRV can be added together
- Exhaust and supply systems cannot be added together

Exhaust-only – multiple spot ventilation fans

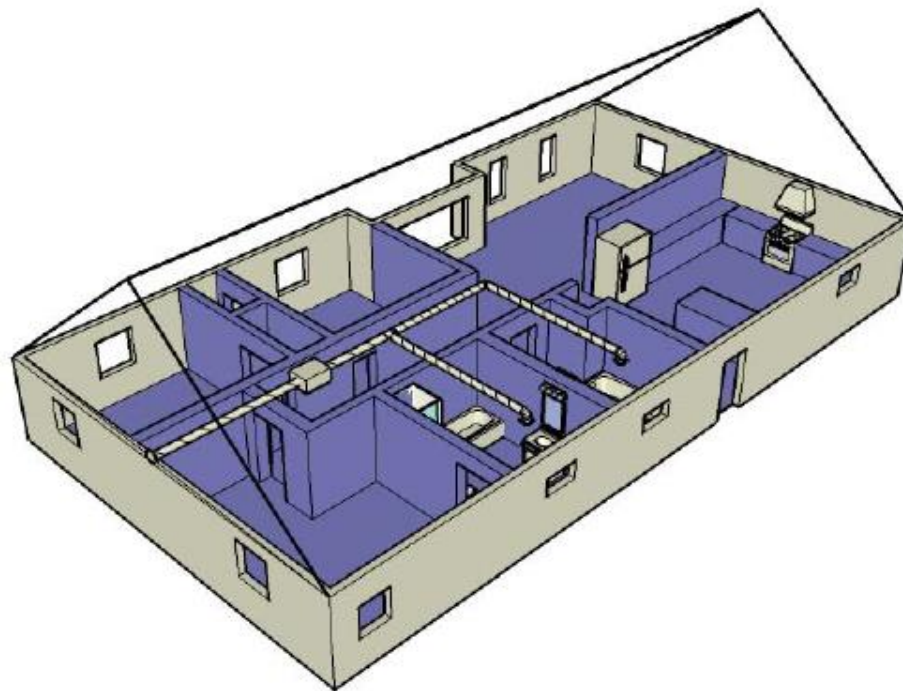


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Exhaust-only – single system, multiple intakes

Figure 4.8: Example exhaust-only ventilation system using a central inline exhaust fan with multiple pickups.



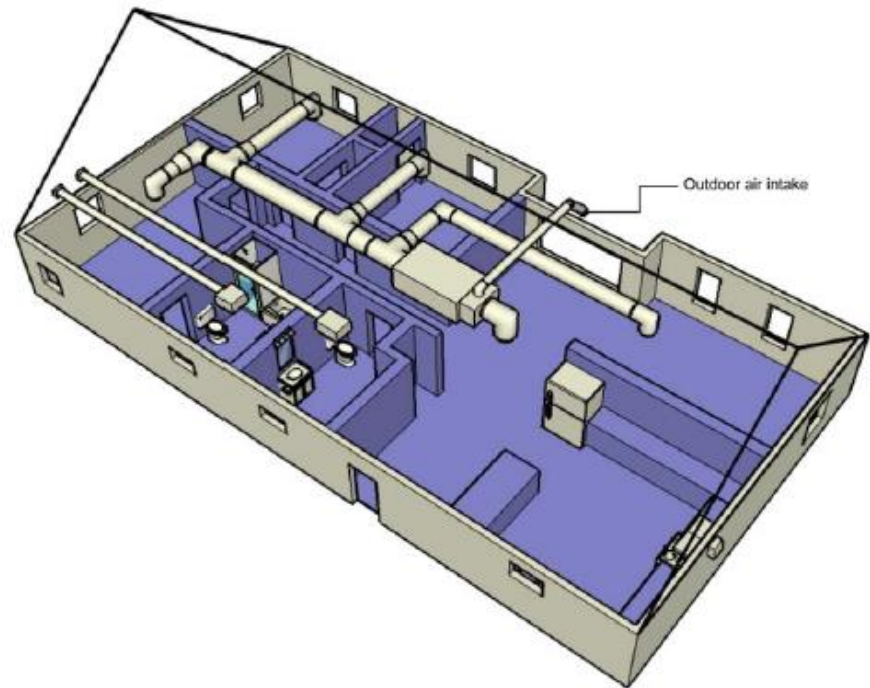
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Supply-only

- Supply-only could also be a direct through-the-wall fan.
- Illustration of a supply-only system with intake into the HVAC return ducting.

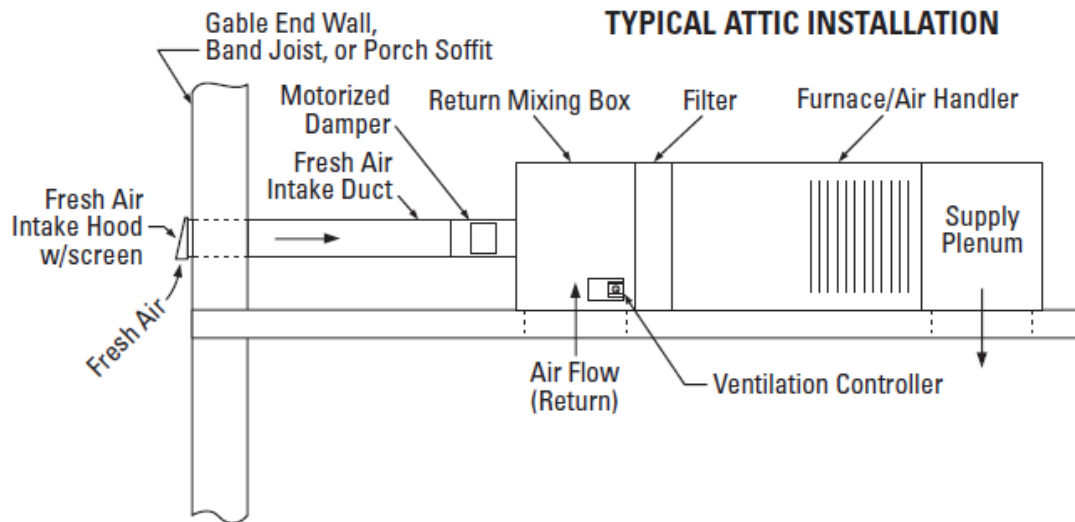


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Supply-only – Air Intakes

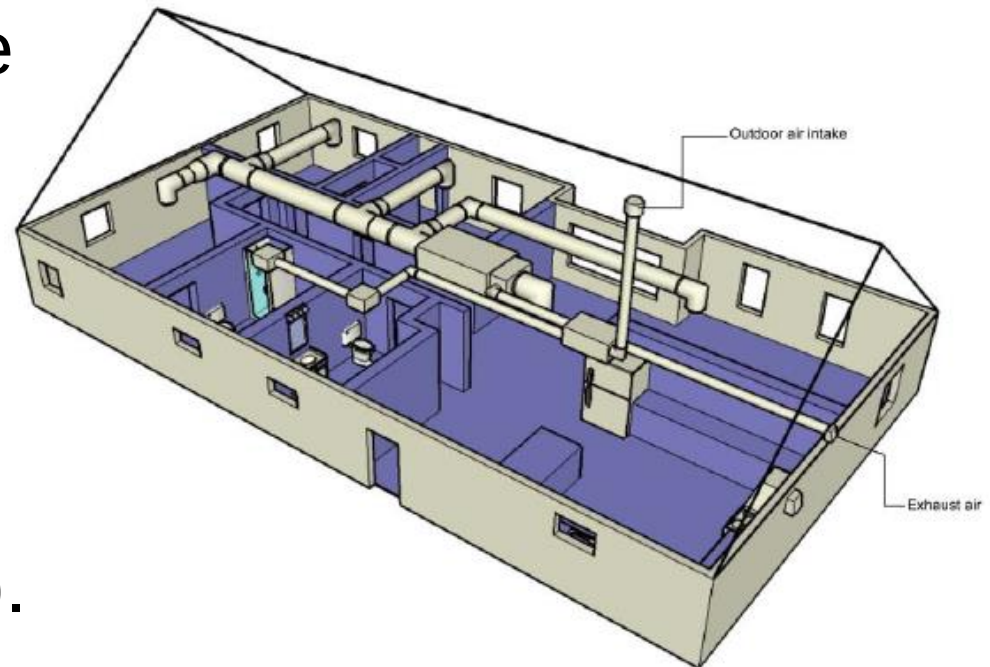


Supply-only (or supply-side, etc.) systems are designed to bring in air through a duct to the outside. When operating, they turn on the air handler and open a damper in the duct to outside. In some cases they may turn on a remote fan. In almost all cases they track fan time for heating and cooling and activate only when extra run time is needed to meet a ventilation standard.



Balanced ventilation system

- This example shows the intake as the roof
- This is not the best location for an air intake (hot asphalt shingles off-gas).

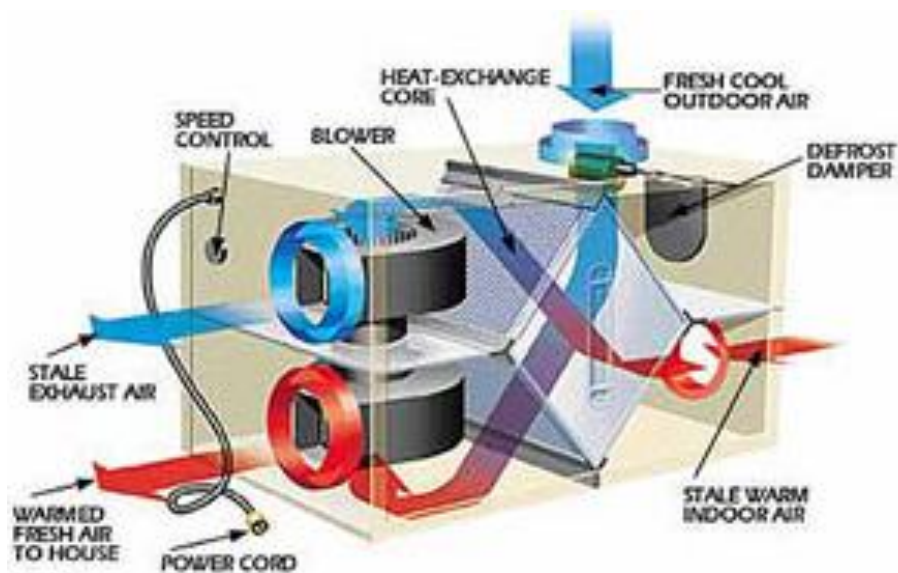


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HRV/ERV



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Other possibilities

- Exhaust or supply systems with passive make-up air inlets or outlets
- Exhaust or supply systems with active (fan-powered, hopefully balanced) make-up air inlets or outlets
- Supply or exhaust fans tied to HVAC systems



Powered air inlets come in many shapes and sizes. The one shown here is from Panasonic.

Slide content from ASHRAE 62.2 for WAP.DOE

There is a mandate to inspect and test



Necessary ducting for existing fans must be properly installed to bring air into or out of the dwelling.

Fan controls, like the one shown at right, must be installed to insure proper run times.



Slide content from ASHRAE 62.2 for WAP.DOE

Beyond fan CFM requirements review

Remember, ASHRAE 62.2 2010 also includes the following:

- Clothes dryers must be vented to the exterior
- All duct joints outside conditioned space must be sealed
- Fans must comply with some rating requirements
- All combustion equipment must be installed to code
- Whole-house fan airflow must be verified



Slide content from ASHRAE 62.2 for WAP.DOE

Beyond fan CFM requirements review

Remember, ASHRAE 62.2 2010 also includes the following:

- Kitchen & bath exhaust requirements
- If NOT designated as a whole house ventilation fan, then:
- Bath fans must be 50 CFM intermittent or 20 CFM continuous and 3 sones or less
- Kitchen fans must be 100 CFM or 5 ACH of the kitchen volume intermittent
- OR, if you don't meet these standards, then Plan B (we'll get to that)



Slide content from ASHRAE 62.2 for WAP.DOE



Consider best distribution of airflow

Distribution of airflow is left for contractors to determine. Some situations to consider:

- Will a Ductless Heat Pump or ERV alone provide satisfactory air circulation?
- What if occupants shut bedroom doors at night and there's not a return in each room?
- Will a fan cyclor for intermittent mechanical ventilation of the supply or exhaust ducts meet the requirement?



Treating natural-draft appliances

If natural-draft HVAC equipment remains in the house, ASHRAE 62.2 includes a prescriptive requirement to avoid appliance backdrafting:

- Determine the combined exhaust CFM of the 2 most powerful fans in the house.
- This combined exhaust CFM cannot exceed 15 CFM per 100 ft².

Example: A 2000 ft² house's 2 largest fans' combined exhaust cannot exceed 300 CFM if natural-draft appliances remain in the home.



Methods of Complying with 62.2

- Make sure to quantify the CFM of all fans (existing and proposed)
- May use supply, exhaust or balanced fan systems
- Whole-House Ventilation controls may be used to comply with 62.2 effortlessly
- Up to the remodeler or contractor to determine the best strategy for a house

ASHRAE 62.2 – Calculation



The Calculation (*the “E” in ASHRAE is for “Engineer” ... not “Easy”*)

New construction is easy. Just 1 step:

Required CFM for Whole-House Continuous Ventilation:

$$\text{CFM} = .01 \times \text{Floor area} + 7.5 \times (\text{\#bedrooms} + 1)$$

Example:

2500 square foot house with 2 bedrooms

$$\text{CFM} = .01 \times 2500 + 7.5 \times (2 + 1) = 25 + 22.5 = \mathbf{47.5 \text{ CFM}}$$



Other requirements

In addition to Whole-House Ventilation, local exhaust fans must be installed in the Bathroom(s) and Kitchen:

- Bathrooms
 - 50 CFM on-demand, or 20 CFM continuous
 - 3 sones or less
- Kitchen
 - 100 CFM on demand, or 5 ACH based on kitchen volume



Whole-house ventilation requirement

Based on ASHRAE 62.2, Table 4.1a (I-P)

Ventilation Air Requirements, cfm

Based on: ASHRAE 62.2, Table 4.1a (I-P)

Floor Area (ft ²)	Number of Bedrooms				
	0-1	2-3	4-5	6-7	>7
≤1500 ft ²	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 ft ²	105	120	135	150	165

OR USE:

Required continuous cfm = Floor Area x .01 + ((# bedrooms + 1) x 7.5)

Example:

2,000 sq.ft. house with 3 bedrooms.

$(2,000 \times .01) + ((3 + 1) \times 7.5) = \text{cfm}$ | $20 \text{ cfm} + 30 \text{ cfm} = 50 \text{ cfm}$

This quick reference table can be used to determine if a fan provides enough CFM.

It assumes local ventilation meets requirements, and there is no customer-facing on/off switch.



Non-continuous ventilation

If you *don't* want to use a continuous fan:

1. Determine the fan's Cycle Time (on+off), and the fraction of that time the fan is on (f).
2. Multiply your CFM requirement by the number from this table.

TABLE 4.2: Ventilation Effectiveness for Intermittent Fans

Fractional On-Time, f	Cycle Time, T_{cyc} (hr)			
	0-4	4-8	8-12	12-24
0.10	1.00	0.79	Not Allowed	Not Allowed
0.20	1.00	0.84	0.56	Not Allowed
0.30	1.00	0.89	0.71	Not Allowed
0.40	1.00	0.92	0.81	0.20
0.50	1.00	0.94	0.87	0.52
0.60	1.00	0.97	0.92	0.73
0.70	1.00	0.98	0.96	0.86
0.80	1.00	0.99	0.98	0.94
0.90	1.00	1.00	1.00	0.99
1.00	1.00	1.00	1.00	1.0



Ventilation air requirements

Based on ASHRAE 62.2, Table 4.2

This chart estimates the required CFM need for non-continuous ventilation systems.

Non-Continuous Run Time Multipliers				
Based on ASHRAE 62.2, Table 4.2: This chart estimates the required cfm need for non-continuous ventilation systems				
% on During Cycle	Cycle Time (Hrs); On + Off Time			
	0-4	4-8	8-12	12-24
10%	10.0	12.7	n/a	n/a
20%	5.0	6.0	8.9	n/a
30%	3.3	3.7	4.7	n/a
40%	2.5	2.7	3.1	12.5
50%	2.0	2.1	2.3	3.8
60%	1.7	1.7	1.8	2.3
70%	1.4	1.5	1.5	1.7
80%	1.3	1.3	1.3	1.3
90%	1.1	1.1	1.1	1.1
100%	1.0	1.0	1.0	1.0

STEPS:

- 1) Calculate required continuous rate
- 2) Determine cycle time
- 3) Determine % on during cycle
- 4) Apply multiplier from table to continuous ventilation rate

EXAMPLE:
The required continuous ventilation rate for a house is 50 cfm.
The cycle time is 6 hrs.
The % on during cycle is 50%.
 $50 \text{ cfm} \times 2.1 = 105 \text{ cfm}$



Existing Home calculations for continuous CFM

Step 1: Calculate the **Whole-House Ventilation Requirement**. (*Same as new construction*)

Step 2: If the bath fans/kitchen fans DON'T meet the standard, then a **Local Ventilation Deficit** must be added to the continuous ventilation rate.

Step 3: Calculate the **Natural Infiltration Credit** and subtract it from the total of the first two steps.

(Whole-house Ventilation Requirement + Local Ventilation Deficit) - Natural Infiltration Credit = Required Additional CFM



Local Ventilation Deficit

Local Ventilation Deficit is a wordy description for the following concepts:

- How good are my existing fans?
- If I have windows, how are those helping my fans?

Kitchen requires 100 CFM on demand or 5 ACH continuous, based on kitchen volume.

Bathroom requires 50 CFM on demand or 20 CFM continuous. (Not required in ½ baths.)



Local Ventilation Deficit

Operable windows in those rooms reduce deficit by 20 CFM. Only one operable window credit is available per room.

The Local Ventilation Deficit cannot drop below zero.

Sum all deficits and credits and divide by 4.

Add the result to the continuous Whole-Building Ventilation CFM Requirement.



Local Ventilation Deficit calculation

	ASHRAE 62.2 SPEC		Measured CFM		Operable Window Credit (max of 1 per fan)		Deficit / Credit
Bath 1	50	-	20	+	0	=	30
Bath 2	50	-	25	+	20	=	5
Kitchen	100	-	50	+	20	=	30
Total							65
Divided by 4							16
The result: add 16 CFM to the Continuous Ventilation Requirement							



Natural infiltration credit

62.2 allows you to consider “natural infiltration” (as measured by a Blower Door) as part of your required continuous CFM.

N=20		CONDITIONED FLOOR AREA OF HOME (ft ²)																		
		500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000
MEASURED INFILTRATION (CFM@50pa)	500	8	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	750	14	11	9	6	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	1000	20	18	15	13	10	8	5	3	0	0	0	0	0	0	0	0	0	0	0
	1250	26	24	21	19	16	14	11	9	6	4	1	0	0	0	0	0	0	0	0
	1500	33	30	28	25	23	20	18	15	13	10	8	5	3	0	0	0	0	0	0
	1750	39	36	34	31	29	26	24	21	19	16	14	11	9	6	4	1	0	0	0
	2000	45	43	40	38	35	33	30	28	25	23	20	18	15	13	10	8	5	3	0
	2250	51	49	46	44	41	39	36	34	31	29	26	24	21	19	16	14	11	9	6
	2500	58	55	53	50	48	45	43	40	38	35	33	30	28	25	23	20	18	15	13
	2750	64	61	59	56	54	51	49	46	44	41	39	36	34	31	29	26	24	21	19
	3000	70	68	65	63	60	58	55	53	50	48	45	43	40	38	35	33	30	28	25
	3250	76	74	71	69	66	64	61	59	56	54	51	49	46	44	41	39	36	34	31
	3500	83	80	78	75	73	70	68	65	63	60	58	55	53	50	48	45	43	40	38
	3750	89	86	84	81	79	76	74	71	69	66	64	61	59	56	54	51	49	46	44
	4000	95	93	90	88	85	83	80	78	75	73	70	68	65	63	60	58	55	53	50
	4250	101	99	96	94	91	89	86	84	81	79	76	74	71	69	66	64	61	59	56
	4500	108	105	103	100	98	95	93	90	88	85	83	80	78	75	73	70	68	65	63
	4750	114	111	109	106	104	101	99	96	94	91	89	86	84	81	79	76	74	71	69
	5000	120	118	115	113	110	108	105	103	100	98	95	93	90	88	85	83	80	78	75

Values determined are the home's Allowable Infiltration Credit (CFM)

Steps 1 and 2: calculate the required CFM

		Existing CFM
House Sq. Footage ($1/100 = \text{CFM}$)	1800	18
Number of Bedrooms (+1, $\times 7.5 = \text{CFM}$)	3	30
Whole-House Ventilation Requirement		48
		Existing CFM Needed CFM
Kitchen Fan (100 CFM required)	50	50
Operable Kitchen Window?	Yes	-20
1st Bathroom Fan (50 CFM required)	25	25
Operable Bathroom Window?	Yes	-20
2nd Bathroom Fan (50 CFM required)	60	0
Operable Bathroom Window?	No	0
Fan & Window Total		35
Local Ventilation Deficit (Fan & Window Total $\div 4$)		7.5
Required Continuous Ventilation (Whole-House Ventilation Requirement + Local Ventilation Deficit)		55.5



Step 3: Calculate Natural Infiltration Credit

House Sq. Footage	1800
Blower Door CFM@50Pa	2000
"n" Factor of location	20
Natural Infiltration Credit	33

Required Continuous Ventilation	55.5
Natural Infiltration Credit	33
Continuous Ventilation to be Added	22.5



ASHRAE 62.2 Calculation

- Area and number of occupants determines Whole House Ventilation Needs
- Kitchen fans, bath fans and windows determine Local Ventilation Needs
- Ventilation Needs are adjusted to actual air leakage (CFM50)
- Required airflow is *continuous*

RTF Ventilation Standard (Compared with ASHRAE 62.2)



Regional Technical Forum standard

- RTF is a Policy Advisory Committee for the NW Power & Conservation Council
- RTF has developed a ventilation standard based on ASHRAE 62.2
- For use throughout public utility-serviced Pacific Northwest
- RTF made 6 adjustments to 62.2 in an effort to better ensure energy savings, cost effectiveness, ease of use, and conformity w/ IAQ building science



RTF Ventilation Standard (ASHRAE 62.2 with alterations)

1. Untested operable spot ventilation may receive 25 CFM (bath) and 50 CFM (kitchen) credit.
2. If the continuous Whole-House Ventilation Requirement is less than 20 CFM, no addition ventilation is required.
3. Installed equipment cannot exceed 150% of the standard's requirement.



RTF Ventilation Standard (ASHRAE 62.2 with alterations)

4. Replace code compliance of gas venting and chimneys with CAZ testing & visual inspection
5. Whole-House Ventilation Requirement related to house size reduced by 25% (from .01 to .0075 CFM/ft²)
6. Instead of assigning a default credit for air tightness, Blower Door measurement may be used



RTF Ventilation Standard Summary

- Based on ASHRAE 62.2, but adjusted for Pacific Northwest public utilities
- May use default CFM numbers instead of on-site airflow measurements
- Eliminates requirement to add ventilation when >20 CFM is needed
- May be adopted instead of ASHRAE 62.2 throughout Pacific Northwest

Methods of Complying With ASHRAE 62.2



Methods of Complying with ASHRAE 62.2

- Measuring CFM of existing fans
- Examples of compliant fans:
 - ECM fans
 - WhisperGreen/WhisperSense fans
- Examples of ventilation system controls:
 - Whole House Ventilation/IAQ Controls
 - Thermostats



Measuring: Exhaust Flow Meter



This tool, when combined with a manometer, estimates the CFM of an exhaust fan based on pressure difference.



Measuring: Determining flow rate

If it's not possible to properly measure CFM (such as with an Exhaust Fan Flow Meter), the pressure and duct length can be used to estimate CFM.

CHART 2

Airflow Delivery (CFM) vs. Negative Static Pressure as Measured for Return Duct or Plenum (in. WC)

DUCT LENGTH	0.05		0.10		0.15		0.20		0.25		0.30	
	FLEX	PIPE	FLEX	PIPE	FLEX	PIPE	FLEX	PIPE	FLEX	PIPE	FLEX	PIPE
10 FT	60	65	85	90	105	110	120	125	135	140	150	160
20 FT	56	60	80	85	100	105	115	120	130	135	140	150
30 FT	50	55	75	80	95	100	110	115	125	130	130	140



Measuring: Manufacturer's data

- It is also possible to determine CFM by consulting the HVI directory
- Lists fans by manufacturer and model number
- www.hvi.org/proddirectory/index.cfm

HVI TESTED/CERTIFIED

Static Pressures: Direct Discharge Fans (Non-Ducted) @ 0.03 in. wg
Ducted Fans @ 0.10 in. wg; 0.25 in. wg (optional)
Inline Fans @ 0.20 in. wg; two additional (optional) for static pressure)

Fan Operating Speeds: BS+ = BOOST SPEED
HS+ = HIGH SPEED
LS+ = LOW SPEED

HOME VENTILATING FANS

- Bathroom - Exhaust Fans
- Downdraft Kitchen Exhausters
- Inline Fans (all models)
- Integrated Supply & Exhaust Ventilators
- Kitchen Fans
- Kitchen Range Hoods – Ducted & Convertible
- Other Rooms – Exhaust Fans
- Powered Attic Ventilators
- Remote Exterior Mounted Ventilators
- Whole House Comfort Ventilators

HVI Tested/Certified air delivery ratings are in Cubic Feet Per Minute (CFM).
HVI Tested/Certified sound emission ratings are in sones (S).


USE OF HVI LABEL

Companies whose products have been certified by HVI shall affix appropriate Labels to those products



Measuring: Manufacturer's data

Rev. 11/01/2012

CERTIFIED VENTILATING FAN PRODUCTS

Section 1-57

MODEL OR SERIES	DETAILS	STATIC PRESSURE**	* CFM**	SONES	WATTS	MODEL OR SERIES	DETAILS	STATIC PRESSURE**	* CFM**	SONES	WATTS
FV-08VKM2	80 CFM speed	@ 0.25" SP	80	<0.3	10.7	FV-08VKSL3	80 CFM speed	@ 0.25" SP	80	<0.3	7.4
			81	0.7	16.4				79	0.6	12.4
	70 CFM speed	@ 0.25" SP	70	<0.3	8.7		70 CFM speed	@ 0.25" SP	70	<0.3	6.0
			71	0.7	14.2				78	0.6	11.6
	60 CFM speed	@ 0.25" SP	60	<0.3	7.2		60 CFM speed	@ 0.25" SP	60	<0.3	5.3
			60	0.6	11.7				60	0.5	9.0
	50 CFM speed	@ 0.25" SP	50	<0.3	6.3		50 CFM speed	@ 0.25" SP	50	<0.3	4.2
			50	0.5	10.4				52	0.5	7.8
FV-08VKM3	40 CFM speed	@ 0.25" SP	40	<0.3	5.6		40 CFM speed	@ 0.25" SP	40	<0.3	3.8
			40	0.5	9.2				42	0.5	6.7
	30 CFM speed	@ 0.25" SP	30	<0.3	4.6		30 CFM speed	@ 0.25" SP	30	<0.3	3.5
			32	0.5	8.2				35	0.5	6.2
	80 CFM speed	@ 0.25" SP	80	<0.3	7.0	FV-08VQ5		@ 0.25" SP	80	<0.3	14.7
			79	0.4	11.0				62	0.4	14.5
	70 CFM speed	@ 0.25" SP	70	<0.3	5.4	FV-08VQC5		@ 0.25" SP	80	<0.3	15.8
			75	0.4	10.1				59	<0.3	15.6
FV-08VKM3	60 CFM speed	@ 0.25" SP	60	<0.3	5.0	FV-08VQCL5		@ 0.25" SP	80	<0.3	17.5
	50 CFM speed		59	0.3	8.7				62	0.4	17.6
			50	<0.3	4.3						



Compliant fans: ECM fans

- Efficient motors (less than 10 watts)
- Designed to run continually
- Quiet, less than one sone
- Can increase CFM when motion sensor is activated

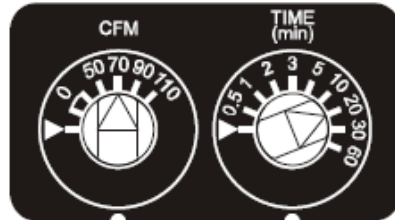




Compliant fans: ECM fans

SWITCH INDICATION

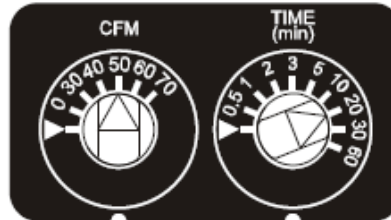
FV-13VKM3
FV-13VKS3



Switch indications
on blower unit

Low speed air-volume preset switch positions

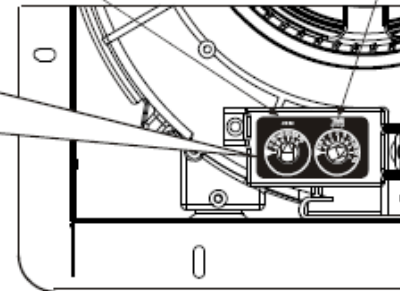
FV-08VKM3
FV-08VKS3



Switch indications
on blower unit

Low speed air volume
preset switch

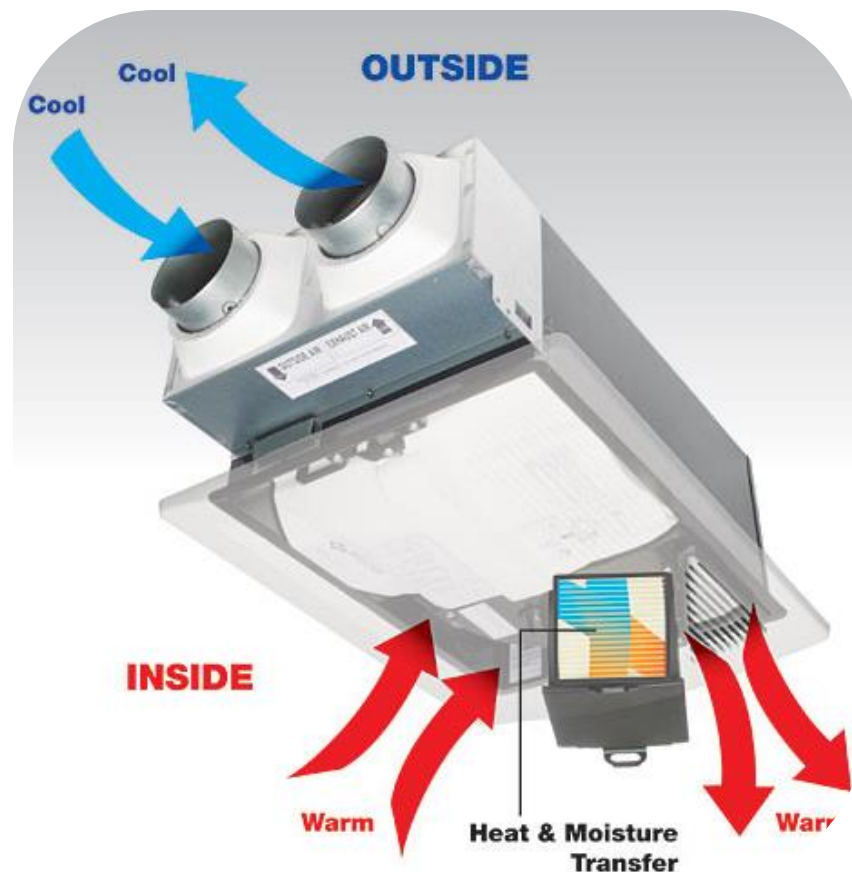
High/Low delay time
preset switch



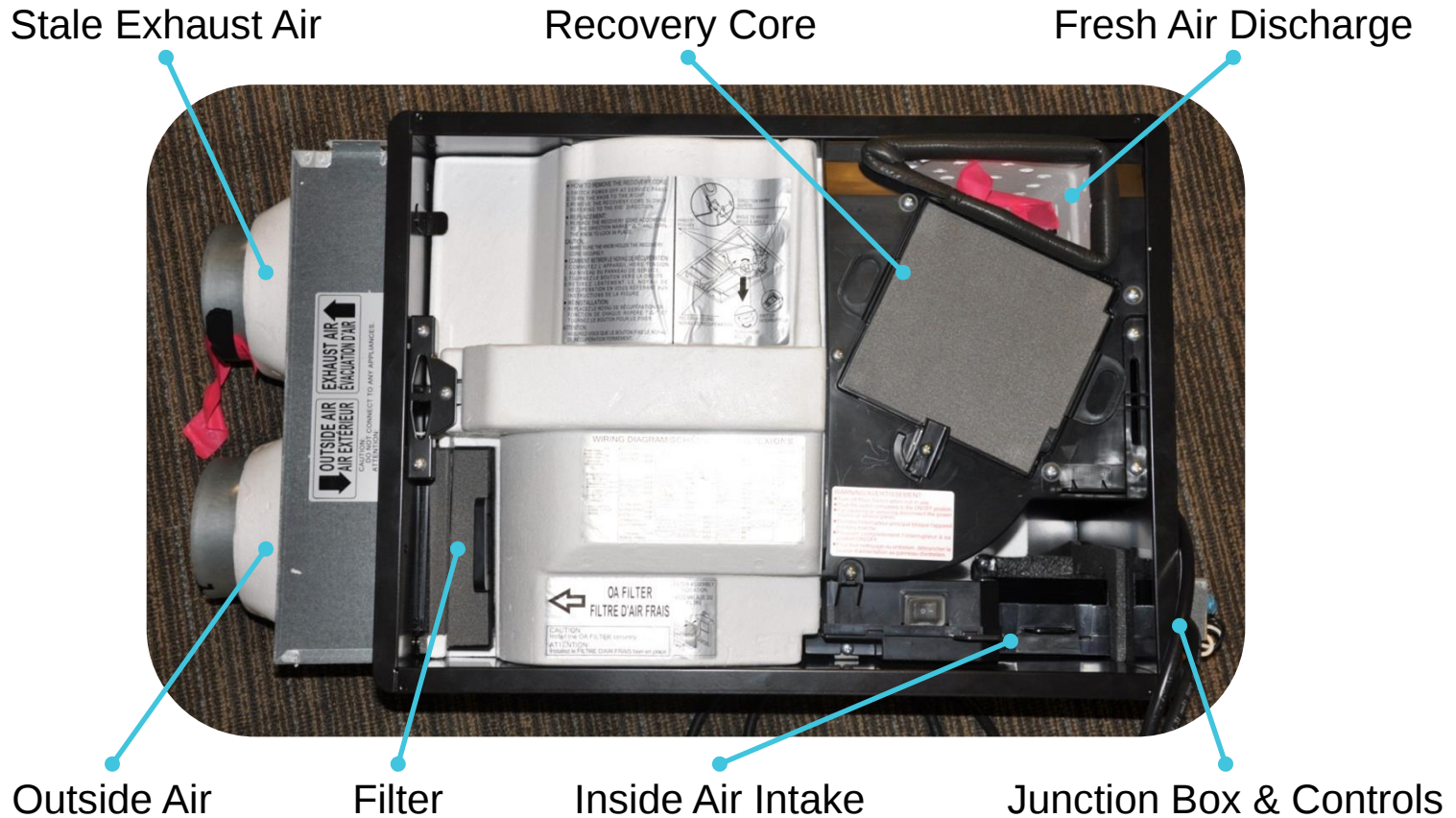
The time switch refers only to the length of time the fan runs when a motion sensor or manual call detects a high demand for ventilation.

Compliant fans: Panasonic Spot ERV, “Whisper Green”

Provides balanced ventilation while maintaining indoor comfort



Compliant fans: Panasonic Spot ERV, “Whisper Green”





Compliant fans: Panasonic Spot ERV, “Whisper Green”

ERV CFM settings (at .10 in. WC):

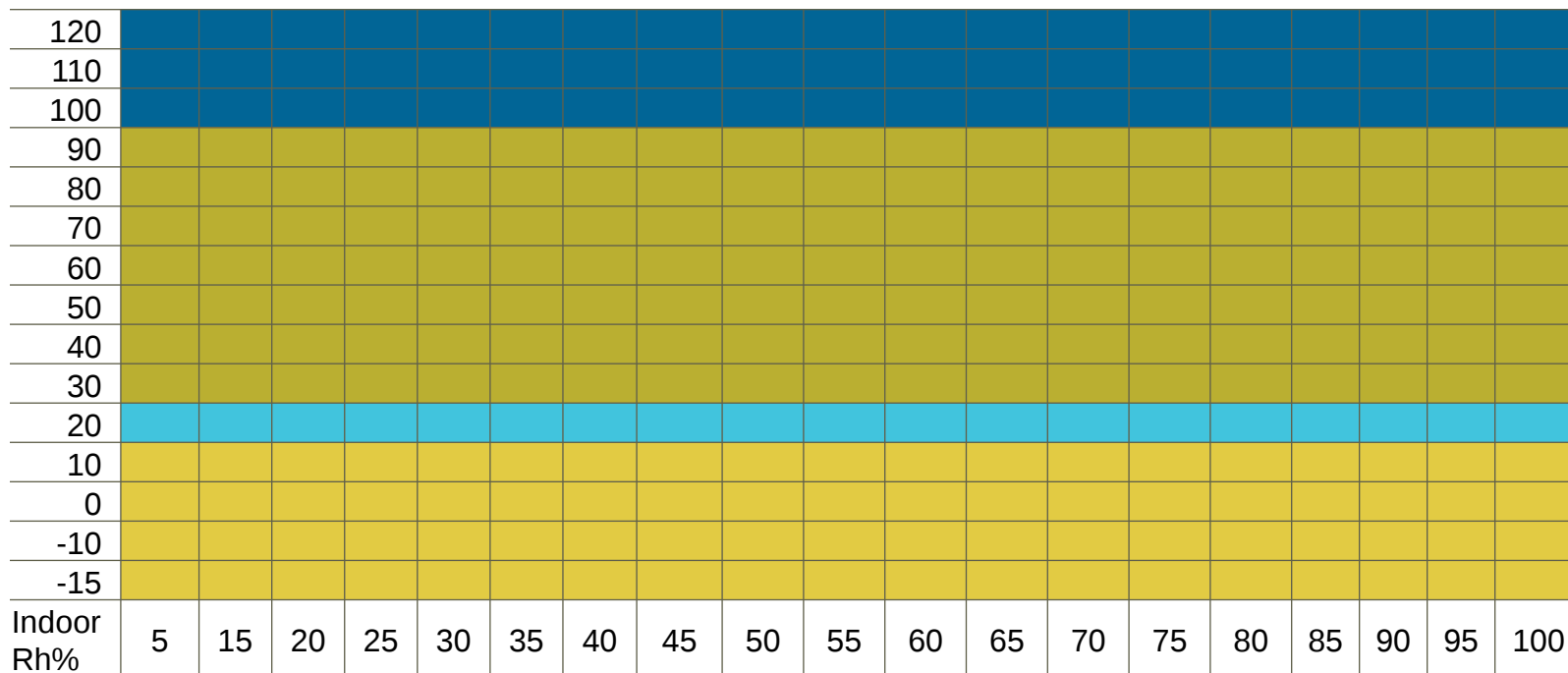
Speed	Exhaust (cfm)	Supply (cfm)	Watts
High	40	30	24
Low	20	20	21

Speed	Exhaust (cfm)	Supply (cfm)	Watts
High	20	20	21
Low	10	10	17



Compliant fans: Panasonic Spot ERV, “Whisper Green”

Outdoor Temp F



Exhaust Only



Defrost between 20F & 32F



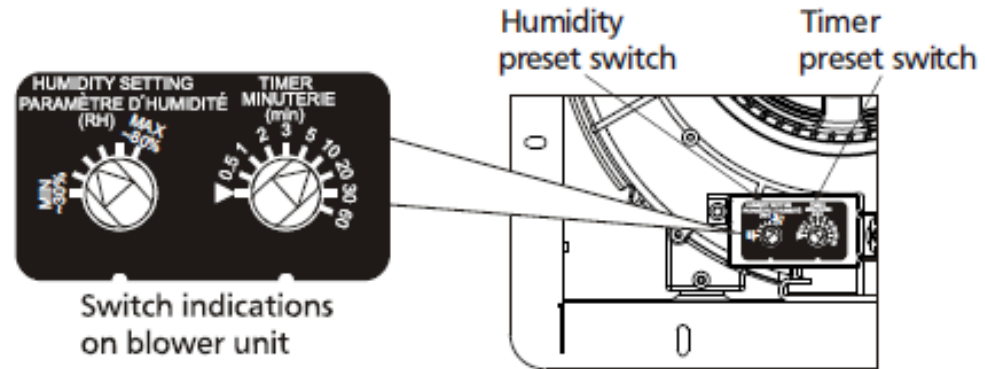
Full ERV mode



Not recommended for above 104F

Compliant fans: Panasonic WhisperSense

Has controls for humidity and motion:



Humidity preset switch positions (Tolerance: $\pm 10\%$)

MIN~MAX	~30%	~40%	~50%	~60%	~70%	~80%
---------	------	------	------	------	------	------

Factory setting: ~50% RH ("~" means "about")

Timer preset switch positions

Timer [min]	►	0.5	1	2	3	5	10	20	30	60
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Factory setting : 10 minutes.

Position "►" : refer to 0.5 minute

Ventilation Control: Honeywell Whole-House W8150



This controller will calculate fan run time need to meet various ventilation requirements.

Ventilation Control: Honeywell Whole-House W8150

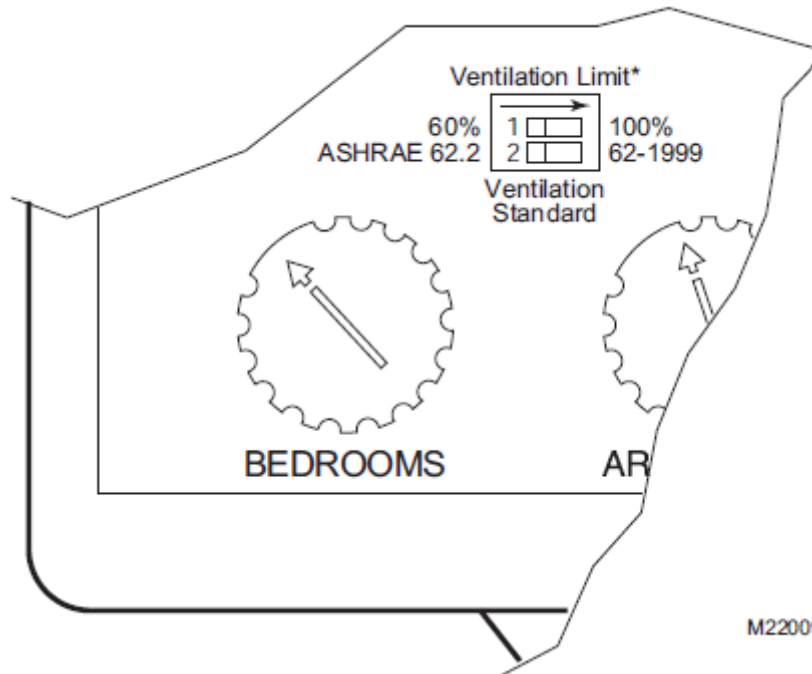


Flashing **green** light indicates *compliance* with chosen standard.



Flashing **red** light indicates *non-compliance* with chosen standard.

Ventilation Control: Honeywell Whole-House W8150



To meet ASHRAE 62.2 the upper dip switch must be moved to the right and the lower dip switch to the left.

Ventilation Control: Honeywell Whole-House W8150



ON: The controller will operate the system as programmed.

OVERRIDE: The controller will turn the system on regardless of programming.

OFF: The controller will not turn air handler on, will not open damper but will turn on a remote exhaust fan.

Ventilation Control: Honeywell Whole-House W8150



Set bedroom, area and MEASURED flow rate on the three bottom dials:

1. Bedrooms
2. Area
3. CFM

Ventilation Control: Honeywell TrueIAQ





Ventilation Control: Honeywell TrueIAQ

62.2 Functions

120	Vent Operation	0=Vent forces HVAC fan on 1=Vent operates independent of HVAC fan
125	Programmed Vent	0=OFF; 1=ON
130	Program Start Time (appears only if ISU125=1)	15 min increments 5:00 PM
135	Program End Time (appears only if ISU125=1)	15 min increments 9:00 AM
140	ASHRAE: # of Bedrooms	1-6 bedrooms; 2
145	ASHRAE: Home's Sq. Ft.	10=1,000 Sq. Ft. ; up to 50=5,000 Sq. Ft.

Ventilation Control: Honeywell TrueIAQ

Setup Functions		Settings & Options (Factory Default in Bold)
150	ASHRAE: CFM Setting	3=30 CFM ; 4=40 CFM, up to 20=200 CFM
155	Maximum Vent	30%-60%; 50%
160	Vent Shut-offs	0=Auto Vent Regardless of Outdoor Conditions 1=Off at 75°F Dew Point or 99°F Air Temp 2=Low Speed at 65°F Dew Point or 85°F Air Temp. Off at 75°F Dew Point or 99°F Air Temp <i>Note: If option 1 or 2 is selected, then ASHRAE 62.2 Standard will not be met.</i>
165	Dehumidification via Fresh Air Ventilator	0=Do Not Use Ventilation for Dehum 1=Allow Vent for Dehum Per Outdoor Conditions With Dehum installed, control to setpoint. Without Dehum installed, control to the Hum setpoint +10% (max 60%).

Ventilation Control: Honeywell Vision Pro IAQ



Ventilation Control: Honeywell Vision Pro IAQ

0400	Ventilation Control	0 No Ventilation 1 Ventilation Always Allowed 2 Ventilation Not Allowed During Sleep Period
0401	Number of Bedrooms	2 Two Bedrooms [Other Options: 1 to 6]
0402	Size of House	10 1,000 Square Feet [Other Options: 11 to 50 (1,100 to 5,000 Square Feet)]
0403	Ventilation Level	160 CFM (Cubic Feet per Minute) [Other Options: (30 to 195 CFM)]
0404	Max. Ventilation % Limit	50 50% Ventilation Limit [Other Options: 30% to 60%] P Meets ASHRAE 62.2 Standard F Does Not Meet ASHRAE 62.2 Standard
0405	Ventilation Fan Action	1 Ventilation On Forces Fan On 2 Ventilation Does Not Force Fan On
0406	Ventilation in High Humidity	1 On (Heat Mode Only) 0 Off

Ventilation Control: Honeywell Prestige Thermostat



- Windows-like operating environment
- Programming in English, not code
- Remote access - it's its own website
- Flexibility in allowing under what environmental conditions ventilation is allowed to operate



Ventilation Control: Honeywell Prestige Thermostat

Advance Through Installer Options to 10000		
10000	Ventilation Type	B
10020	Terminals Wired to Ventilator/Fresh Air Damper	B
10050	Ventilation Control Method	B
10060	Ventilation Fan Control	B
10090	Number of Bedrooms	R
10090	Size of House	R
10100	Ventilation Level (CFM)	R
10120	Ventilation Percent on Time	B



Methods of Complying with ASHRAE 62.2 – Summary

- Multiple ways to determine CFM of fans, whether existing or new
- Many existing fan products comply with ASHRAE 62.2 requirements for CFM, sound rating, and continuous operation
- Many stand-alone or thermostat-integrated ventilation controls are already capable of operating fans to comply with ASHRAE 62.2 requirements

ASHRAE 62.2– Summary



ASHRAE 62.2-2010 Summary

- New standard being implemented nationally
- Requires elevated level of mechanical ventilation over previous standards
- Energy Trust will implement a form of this, such as RTF ventilation standard
- Contractors will have options in implementing requirements
- Variety of techniques/products exist to comply with standard



Next Steps

- As of May 2013, no specific date has been set for implementing a new standard
- Energy Trust welcomes trade ally feedback
- Will align with national standards while continuing to provide cost-effective energy savings
- Any upcoming change will be messaged in:
 - [Trade Ally Roundtable events](#)
 - [Trade Ally Insider](#)



ASHRAE Reference Materials

- [ASHRAE: 62.2 User's Manual](#)
- [WAPTAC: ASHRAE 62.2 Curricula](#)
- ["BPI Postpones Referencing ASHRAE 62.2-2010 Standard"](#)
- [Saturn Resource Management: ASHRAE 62.2 2010 Ventilation Standards Technical Reference Sheet](#)
- [ResVent 62.2: ASHRAE calculation app for iPhone](#)



RTF Reference Materials

- [Regional Technical Forum \(RTF\) Weatherization Specifications](#)
- [Regional Technical Forum Whole-House Ventilation Calculator \(located under “Reference Documents”\)](#)
- [Regional Technical Forum Weatherization Subcommittee Meeting – June 1, 2011](#)



For Additional Information:

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