

## Getting to Know Your Ventilation Systems

### *Exhaust Type- Whole House*

#### **Our Mission**

To advance environmental and economic well-being by providing unmatched energy services, products, education and information based on world-class research.

#### **About Us**

Our staff of nearly 100 people (energy engineers, energy specialists, technical experts, software developers, energy research librarians, and more) work out of our Olympia, Spokane and satellite offices. Operating similar to a consulting firm, the WSU Energy Program is a self-supported department within the University.

#### **Within WSU**

We are part of the College of Agricultural, Human and Natural Resource Sciences. We report directly to the WSU Vice President of Agriculture and Extension.

#### **Contact**

Gary Nordeen  
Senior Building Science Specialist  
360-956-2040  
[NordeenG@energy.wsu.edu](mailto:NordeenG@energy.wsu.edu)  
[www.energy.wsu.edu](http://www.energy.wsu.edu)

Your new home was designed and built to meet the requirements of the 2012 Washington State Codes. The Code specifications help your home use energy efficiently and will contribute to the maintenance of a healthy indoor environment.

The ventilation systems in your new home contribute to maintaining that healthy environment by exhausting pollutants, excess moisture, odors, chemical by-products and other contaminants, and replacing stale air with outside air.

As a homeowner, you are responsible for making sure your ventilation systems will do their job. These instructions will teach you how to operate and maintain your ventilation systems.

The key components of your ventilation systems are the local exhaust fans, the whole house fan, and timers or other controls.

#### **Local Exhaust Fans**

Local exhaust fans, like the bath fan shown here, remove moisture, odors or other pollutants that are produced in kitchens, bathrooms, and laundry rooms.



If you are tempted not to use these fans because you think they are unnecessary, or too noisy, think again:

- Removing moisture and pollutants at their source is far more effective than allowing them to dissipate over time.
- Controlling moisture reduces the cause of many molds and protects the finishes of your home.

- Controlling odors and chemical by-products reduces health hazards that may be associated with these substances.

It is particularly important to operate your kitchen fan if you have a gas or propane range. In addition to removing moisture and odors created by cooking, your kitchen exhaust fan removes the unhealthy by-products of combustion, including carbon monoxide and nitrogen oxides.

## Operating your local exhaust fan

1. **Turn the fan on** whenever moisture, odors, household chemicals or combustion by-products are present in the room, such as during showering, washing clothes or cooking.
2. **Run the fan for a minimum of 15 minutes** and up to 60 minutes after you have completed the activity that produced the moisture, odors or combustion by-products because they tend to linger.

## Whole House Fan

Your home has undergone a detailed air sealing regimen, with the goal of keeping outside air outside and conditioned air inside, saving you money on heating and cooling. Because your house is well sealed, outside air cannot easily enter your home through uncontrolled drafts. A whole house fan is needed to control the intake of air into your home to replace the stale air that has accumulated.



## Let your whole house fan run 24/7

Your whole house fan was designed to bring in a certain volume of outside air (measured in cubic feet per minute) to meet stringent requirements for air flow and sound control. It is equipped with a control, which can be a standard ON/OFF switch or a programmable timer. It is recommended that you operate the fan 24 hours a day.

Your whole house fan capacity was selected based on the size of the house, the number of bedrooms. The table below shows required continuous ventilation rates (in CFM) for homes of various sizes.



In many cases, a bathroom fan may do double-duty as the local exhaust *and* the whole house fan. These fans may have a control that sets the continuous operation ventilation rate (in CFM) and a sensor that ramps the fan up to a higher CFM when the room is occupied. This sensor can be set to run the fan for a specific period of time after the occupant leaves the room before it ramps down to the lower CFM rate.

## Cost of Operation

You may be concerned about the energy costs to operate the whole house fan and the loss of heat when air is exhausted 24/7. A house with a standard gas furnace (80% efficient) using an exhaust fan for continuous ventilation will cost about \$120 per year.

While this cost is not insignificant, it is important to remember that your ventilation system is designed to ensure the best possible indoor air quality. Without this system, you may develop problems caused by moisture or air pollutants, leading to potential health and safety issues and which can produce increased maintenance and potential for health and safety issues.

For more information on the Washington State Energy Code or ventilation requirements, visit: [www.energy.wsu.edu/code](http://www.energy.wsu.edu/code)

Required Ventilation Rates (in CFM) Based on House Size					
House Size (ft <sup>2</sup> )	Bedrooms				
	0-1	2-3	4-5	6-7	>7
<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