

Kitchen Range Hoods

A kitchen range hood must move more air than a bathroom fan, about 50 to 140 L/s (100 to 300 cfm). As a result, they are noisier, with the lowest rating about 4.5 sones, although they can be relatively quiet on low speed.

The most useful units have a low noise rating, an energy-efficient fan, fluorescent lights, sound insulation, anti-vibration mounts and duct connections. For heavy duty use, select non-corrosive materials such as aluminum or stainless steel. High quality hoods may have heat sensors and a safety shut-off.

Kitchen exhaust systems should discharge outdoors. Recirculating range hoods rely on filters to capture some odours and grease. The filters are generally made of carbon which must be replaced frequently to be effective. Grease will coat carbon, making it ineffective. With recirculating fans, cooking moisture and odours will usually remain in the house.

Positioning

Range hoods are most effective when they extend out over the stove surface and are close to the stove top. Island units are less effective than wall units.

Cleaning

Range hoods usually have washable, aluminum-mesh grease filters. Better quality filters have a smaller diameter mesh over a larger surface area and can be cleaned in the dishwasher.

Fire

There is always the possibility of a grease fire with a kitchen range hood exhaust. Smooth metal ducting, preferably galvanized steel, is safer in a fire than lighter assemblies.

Installation

Install fans and exhaust systems so they make the least possible noise, vibrate as little as possible and leak as little air as possible.

Anti-vibration pads or foam tape can isolate the fan housing from wood joists and drywall. You can wrap fan housings and some duct sections in rubber or vinyl noise barrier mats.

Ducts

Install exhaust systems according to the building code and manufacturer's recommendations. Straight, short duct runs, with few turns, will result in the highest fan flow.

For bathroom fans, use duct with a diameter of at least 100 mm (4 in). For long runs, use larger, 150 mm diameter (6 in.) to improve air flow. It is usually best to avoid fans with 75 mm (3 in.) exhaust ports and ducts. Follow manufacturer's instructions for kitchen exhaust duct sizes.

Seal all duct joints and connections with aluminum duct tape or duct mastic (available at contractors, supply shops) to prevent air, moisture and noise leakage. Standard cloth duct tapes tend to dry out and fall off.

Seal and then insulate all ductwork running through unheated areas to avoid moisture problems. The best practice is to slant horizontal runs of duct down toward the exterior outlet to drain any condensation outside.

Exhaust air should not be released into the attic, into a wall or ceiling cavity, crawl space, basement or in the roof soffit. These locations can promote condensation damage and mold growth.

Weather Hoods, Grills and Backdraft Dampers

Even when fans are off, stack effects and wind loads may cause outside air to enter or inside air to exhaust through fan ducting. Fans are equipped with backdraft flaps, usually in the fan box exhaust port. Check the flaps from time to time to make sure they are clean and working. The exterior exhaust flap or louvres should be clean and in good repair to maintain unobstructed airflow and reduce air infiltration. Most exhaust ducts are fitted with a single flap exhaust hood or triple louvre aluminum or plastic exhaust grill. Use weather hoods that lie flat on the wall in driveways and other places where hood-type units could be damaged.

Plastic hoods break down over time and need to be replaced. Clean exhaust hoods of lint and nesting materials seasonally to ensure that the flap or louvres are not blocked or stuck open.

Some Dangers

Chimney Connections

Some older bathrooms have static exhausts which look like upside down funnels on the ceiling. If these exhausts are hooked into the furnace chimney, disconnect them from the chimney, seal the hole in the chimney with hydraulic (expanding) cement, and install a new powered exhaust. If these static exhausts go directly outside, they can still be used, but a good fan will be more energy efficient and less drafty.

High Capacity Systems

High capacity, industrial or oversized exhaust fans, and range-top barbecue fans can cause chimney backdrafting. Backdrafting occurs when air is drawn down the chimneys, bringing dangerous combustion exhaust gases into the house. Avoid backdrafting by selecting sealed combustion heating appliances. If you have appliances with chimneys in your house, and you

wish to install high capacity exhaust fans, you will need a matching supply air fan to balance house pressures.

Many ventilation contractors or salespeople are unaware of the effects of large exhaust fans on other house appliances. Make sure that your system is properly installed with supply air. At the very least, make sure that you have smoke alarms and carbon monoxide detectors to warn you if you have severe chimney backdrafting.

For More Information

Fact sheets and product ratings are available from the Home Ventilation Institute at:

Home Ventilating Institute

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<http://www.hvi.org>

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