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# Your Stove Just Needs to Vent

By ARIANNE COHEN

THE stovetop range hood may be the most underused and undervalued thing in the kitchen. It is designed to whisk away odors and health contaminants released by cooking, but most of us switch it on only when we burn something — and some of us don't even have one.

“Most clients think of the hood as a noisy light bulb,” said Ellen Cheever, a residential-kitchen designer based in Wilmington, Del. “They do not realize how important it is.”

Whenever food is heated in a pan, particles of grease, water, smoke and food are sent into the air, and they land everywhere, which explains the grime that accumulates on furniture, fabrics and floors, damaging finishes and surfaces, Ms. Cheever said.

Then there's the odor. “Clients plan all these wonderful open loft living spaces,” she said. “And if they don't pay attention to ventilation, they end up with a wonderfully open smelly space.”

There are also health concerns, said Richard Shaughnessy, Ph.D., director of research and manager of the Indoor Air Program at the [University of Tulsa](#) in Oklahoma. “Any time you're cooking or searing something in a pan, you're producing ultra-fine particles in the air that are not just particles, but coated with all sorts of other chemicals that you don't want to be breathing.”

And there's the nitrogen dioxide produced by many gas flames, said Shelly L. Miller, Ph.D., an indoor air quality expert and associate professor of mechanical engineering at the [University of Colorado](#) at Boulder.

“In complete combustion, you just get carbon dioxide and water,” said Dr. Miller, who tests natural-gas appliances. “But a lot of times you get incomplete combustion, and its byproducts. Nitrogen dioxide is the main one of concern. Elevated concentrations of nitrogen dioxide have been shown to cause respiratory problems, including elevated asthma and irritation.” This is especially true in children, Dr. Miller said.

The best way to vent a stove, said Dr. Shaughnessy, “is to vent to the outside. for a range hood that's going to sufficiently exhaust it right out of the home.”



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A good unit can cost \$150 to \$200 at home-supply stores, and installation should always be done professionally. Expect to spend about \$500 total, which should include the creation of outdoor ventilation, something that is typically done by the store that sells the units. Outdoor venting, usually through a duct in the wall, is feasible for any range within 20 feet of an exterior wall, including the roof.

The hood should be installed 24 to 30 inches above the stovetop, Ms. Cheever said. It should span the width of the stove, and most of the depth, up to at least half of the front burners.

“People get themselves into trouble with big, huge decorative mantel hoods,” she said. “Then the fan is way too high.”

Range hoods are rated by how many cubic feet of air they remove per minute, which should match a stove’s energy output.

Typically, 400 cubic feet per minute is sufficient for venting an electric stove.

The rule of thumb for gas stoves is that the range hood needs to remove 100 cubic feet per minute for every 10,000 BTU’s of burner output. (Gas ranges vary widely in energy output; consult your stove’s manual for the energy rating per burner, which will be in BTU’s, Dr. Shaughnessy said.) So a gas stove with 50,000 BTU’s of total burner output would need a range hood that can accommodate 500 cubic feet per minute. Err toward a stronger vent if you frequently do Asian-style or stir-fry cooking.

If you need a new hood, head to the home-appliance store with the measurements of the width and depth of your stove, as well as its burner energy ratings, and look for models certified by the Home Ventilating Institute. Many manufacturers, including GE, Thermador, Wolf and Jenn-Air, make range hoods; Broan, which specializes in ventilation, is a favorite of kitchen designers.

If your kitchen cannot accommodate outdoor venting, you are not alone. City dwellers share this challenge, said Robert Schwartz, a principal at St. Charles of New York, a high-end design firm specializing in Manhattan kitchens (read: small and not vented).

“Sometimes you can hide the duct in the ceiling and take it out a window, kind of like an air-conditioner,” Mr. Schwartz said. “But some of the finest new buildings in Manhattan are glass buildings, and you can’t vent, so you have to recirculate.”

Recirculating range hoods typically filter the air through grease and charcoal filters, and then reintroduce the air into the space. They are usually installed under microwaves or cabinetry, and should be at the same level as other hoods — 24 to 30 inches above the stove.

As Dr. Shaughnessy noted, “Recirculating units are certainly not going to address eliminating all of the problem contaminants and irritants, but they are better than nothing.”

Changing the filter is a must — at least every three months if you cook often. Filters, sold at appliance stores, can cost as much as \$40 each.

What if you have a stove on an island with no hood at all? Your local appliance store can arrange to have one installed.

Whatever model you choose, make sure to turn it on as soon as you begin cooking, Mr. Schwartz said, and clean the grease filter regularly. Some slide out and can fit on the top rack of a dishwasher.

“I’ve gone into kitchens 20 years old,” he said, “and people have never cleaned their filter.”

For those who dislike the jet-engine effect, a hazard of powerful range hoods, designers have solutions. Fans can be placed farther down the duct line, or below the oven, as in down-draft models that suck in air from vents behind the stove and pump it out at foot level or outside.

“They’re very popular in suburban homes,” Mr. Schwartz said. “Some are pretty cool. You hit a button, and the little filter rises six to eight inches. And when it sinks, it looks like a flat piece of stainless steel.”

Just remember to turn it on.