

Ovens for the 21st Century

Cooking technology has made quantum leaps in the past decade. Here are some guidelines you'll need to find the oven that's right for you.

BY ROE A. OSBORN

Birthdays are special at *Fine Homebuilding*. Our senior copy editor and cooking-school alumnus, Chris Hoelck, always conjures something incredibly delicious and then watches with glee as the staff passionately devours his handiwork. The main tool of Chris's trade is a standard nonconvection electric oven, which he uses as artfully as any craftsman wielding a hammer or saw. He chose this particular oven mainly for its 36-in. width, which accepts those extra-big baking sheets (thanks, Chris). But beyond size, there are several other criteria for choosing an oven.

First, choose your fuel

Ask most chefs the type of stove burner they prefer, and gas usually wins hands down (see *FHB* #127, pp. 90-95). But ovens are a different story.

In my research, I got conflicting answers when I asked about the difference between gas and electric ovens. The folks at DCS (Dynamic Cooking Systems; see "Oven Manufacturers," p. 75), which manufactures both gas and electric ovens, told me that there was no performance difference between the two.

However, the folks at Five Star and La Cornue offer ranges with dual ovens: one gas and one electric. They claim that gas heat is more moist because of the water vapor that is a natural byproduct of combustion. Moist heat is better for cooking meat without drying it out. On the other hand, the dry heat of an electric oven supposedly is superior for creating the perfect crust on your favorite casserole.

The one thing every manufacturer agreed on was that electric ovens deliver better overall performance. It's easier to regulate the heat in an

electric oven, and the air circulation needed for convection doesn't affect an electric element the way it affects a gas flame.

Delivering the fuel is another major difference between gas and electric ovens. A gas oven requires plumbing to connect it to its fuel source (either natural gas or propane), and also uses a standard 110v electrical circuit for its lights, clocks and ignition. Some gas ovens require no electricity at all. However, an electric oven requires a dedicated heavy-duty 220v circuit that can add to the upfront installation costs. Given that a plumber and an electrician probably charge the same amount per hour, the cost of flexible copper pipe and fittings needed for a gas installation is bound to be a lot cheaper per foot than the heavy-duty 220v cable for an electric oven—maybe the only advantage gas ovens have.

Still not convinced which fuel is better? Consider this: Many manufacturers out there make hybrid ranges that are equipped with gas cooktops and electric ovens. But as far as I know, no company makes a range with an electric cooktop and a gas oven.

The bottom element does the most work

Every electric oven I've ever used had the tell-tale exposed bottom element: a stiff, heavy wire that plugs in and glows red when the oven is in use (bottom photos). But I was surprised to find that many manufacturers, including KitchenAid, Jenn-Air, Amana, Gaggenau and Wolf, now make ovens with the bottom element concealed beneath the oven floor.

A concealed bottom element makes everyday cleanup easier, and it's also easier to sweep out the ash that's left after self-cleaning. But many companies like Frigidaire, Whirlpool and Viking expose their ovens' bottom elements to the elements. They claim that the difference in cleanup isn't that big a deal. Dacor uses an exposed element in a butterfly shape that, according to the company, spreads the heat more evenly. Dacor also maintains that an exposed element makes the oven heat up more quickly.

Top elements come in many shapes and sizes

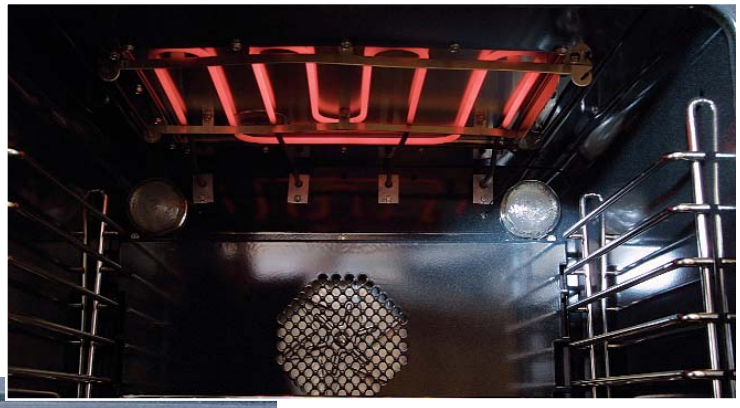
In most ovens, the top element is used in conjunction with the bottom element during baking, but the top element really shines when it comes to broiling (top photos).

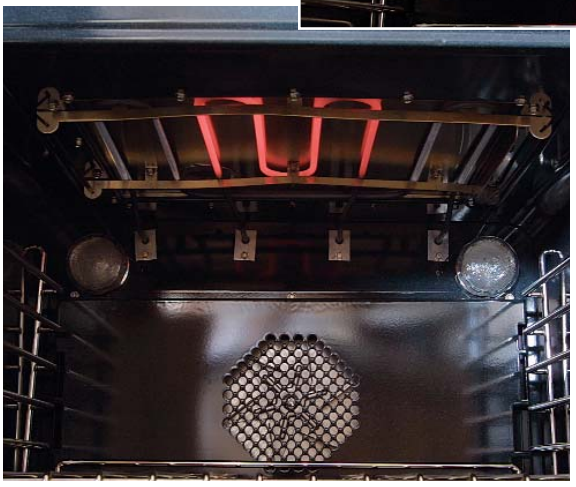
As with the bottom element, some manufacturers conceal the top, or broiler, element. Thermador says that its recessed broiler element is safer and allows more room in the oven. DCS has put its radiant-ribbon broiler behind glass, and Dacor's 36-in. oven uses the same radiant-ribbon technology with the broil-



TOP ELEMENTS

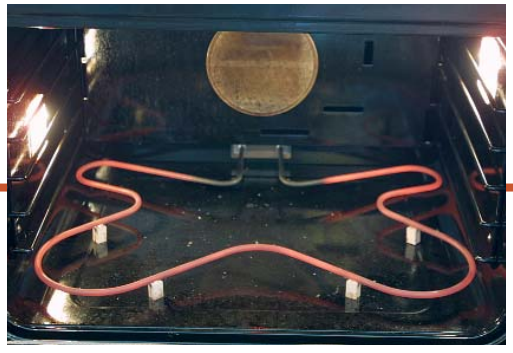
Broiler under glass. *The broiler in Dacor's 36-in. oven is actually a radiant ribbon element behind a Ceran cover. Concealed or recessed broiler elements provide more room and are less prone to burning the cook accidentally.*





Two-stage broiling. *The number of passes, or times the element wire goes back and forth, directly affects how evenly the broiler cooks. Viking's oven has an eight-pass element (photo above), but special controls allow you to use just the center passes for broiling smaller items (photo left).*

BOTTOM ELEMENTS

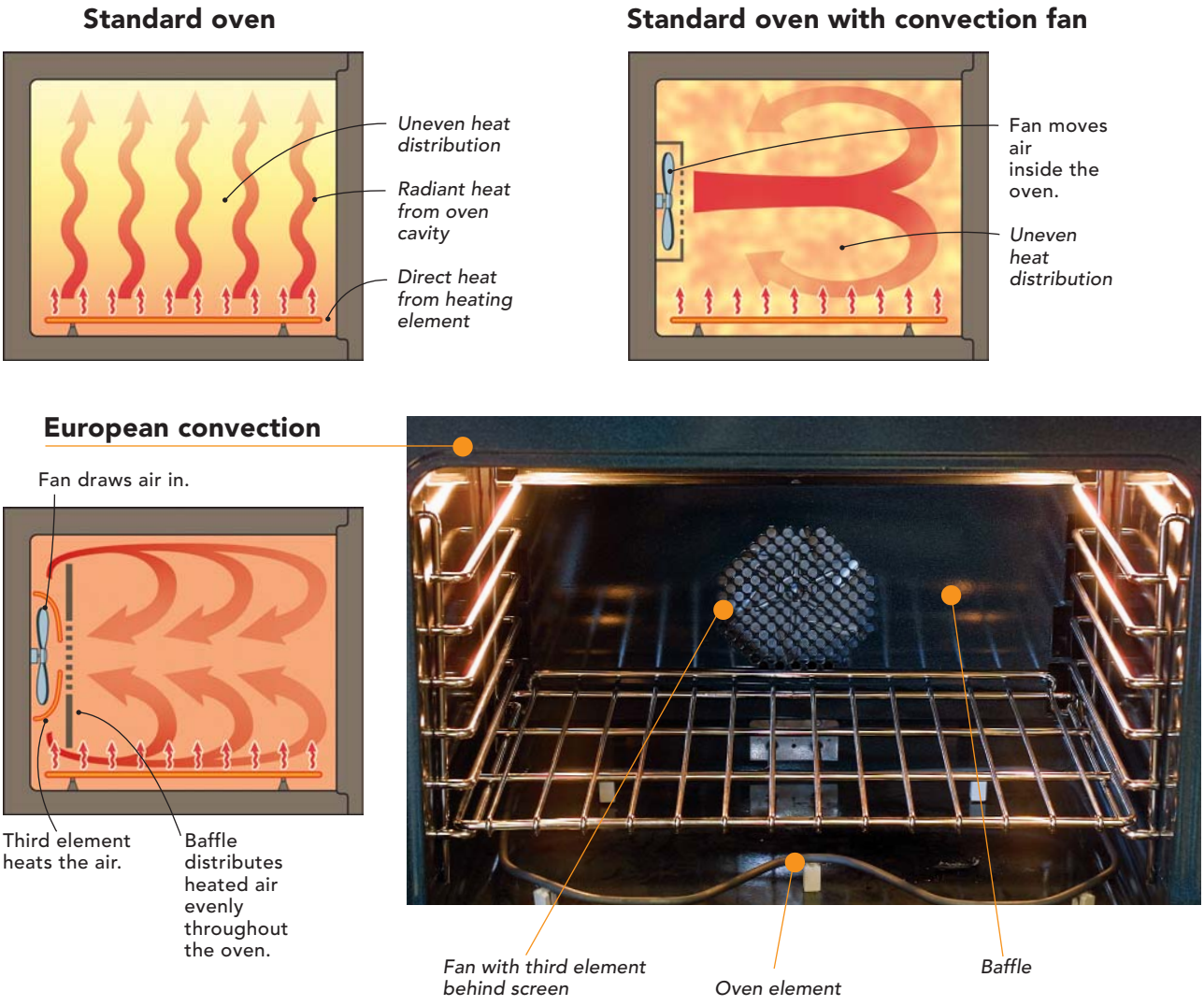


Now you see it, now you don't. *The butterfly-shaped element in Dacor's oven has more wire to heat more quickly (photo above). Most electric ovens have an exposed bottom element, but several companies put the element below the oven floor (photo left), which makes cleanup easier.*



WHAT IS A CONVECTION OVEN?

Ovens heat directly from the element at the bottom of the oven. They also heat radiantly when the inside of the oven is "preheated" (drawing top left). The convection feature in some ovens uses a fan mounted inside the oven that moves the air and cooks the food more quickly (drawing top right). The most efficient, even cooking comes from European or "true" convection (bottom drawing). Here, the oven air is sucked through a fan in the rear of the oven, heated via a third element around the fan and then pushed back into the oven from around a baffle.



er element behind a Ceran cover. Broiler elements are only as effective as the number of passes, or the number of times the element's wire loops back and forth over the food. More passes mean more even broiling. KitchenAid and Viking both use a two-stage broiling system. The Econo-Broil setting on the KitchenAid (Mini-Broil on the Viking) uses just the middle passes of the top element for broiling smaller items.

Broiler controls can be either fixed or adjustable. If your broiler has an adjustable temperature, instead of lowering the oven racks to change the broiler intensity, you can simply lower the temperature of the element. KitchenAid's Superba line features adjustable broiler temperature in addition to the two-stage broil. Dacor's narrower ovens feature an eight-pass broiler with variable-temperature broil.

Several companies have added different cooking technologies to the broiler element. General Electric's Advantium combines microwave technology with halogen cooking that supposedly cooks meals in one-eighth of the time. While Advantium may offer one of the fastest ways to cook, it doesn't offer the option of using the oven in a standard mode. Thermador's CM is a convection oven that also microwaves, while KitchenAid's Ultima Cook combines a quartz element with microwave and convection for 60% faster cooking. Both of these microwave-enhanced ovens can be used as standard ovens as well.

There are two basic types of convection ovens

Without a doubt, the biggest buzzword in oven technology is *convection*, which refers to the movement of air inside the oven chamber (drawing above). As the air moves, the heat becomes more even, and because moving air increases the heat-transfer rate, food cooks more quickly in a convection oven. Most manufacturers circulate oven air with a fan, usually mounted in the rear of the oven. Only La Cornue, with its patented arch-roof design, claims to create convection naturally without a fan.

According to Susie Middleton, the executive editor of *Fine Cooking*, the best type of convection is European convection, so named because it was first popularized overseas. The biggest difference between Euroconvection and other so-called convection is that European convection works by pulling oven air through a fan in the back of the oven (drawings above). The air then passes over a third heating element, which vaporizes smoke and odors, so a tray of cookies and a roast can share the oven at the same time without sharing odors and

Drawings: Mark Hannon

taste. The heated and cleaned air circulates behind a baffle, then back into the oven.

Less-sophisticated types of convection just blow heated air around inside the oven. This brand of convection creates less-dependable heat distribution in the oven. Almost every manufacturer has gone to some form of Euroconvection, especially on their top-shelf models.

Dacor uses what it calls four-stage convection. This system draws in air through a filter screen that takes out the heaviest particulate matter. The screen removes easily and can be washed in the dishwasher. The next stage is the fan, then a double-loop element that heats the air more efficiently. Finally, a system of baffles and chambers re-distributes heated air.

Known primarily for the revolutionary dishwasher-in-a-drawer, Fisher & Paykel has designed a new line of Euroconvection wall ovens. Heated air vents from all sides of the rear baffle—the top and bottom as well as the sides—for more even cooking heat. Fisher & Paykel ovens also have a catalytic converter to remove smoke and odors.

Perhaps the most radically different convection system is Thermador's CJ oven. The *C* stands for convection, and the *J* stands for jets. Instead of using a large low-pressure fan, the CJ oven shoots air through high-pressure jets in the form of multiple small holes in the bottom of the oven and larger holes in the top for fast, even cooking. The CJ oven creates a stirring action in the air that prevents food in the direct path of the jets from being overcooked. Like Thermador's CM oven, the CJ is equipped with a microwave that, combined with the jet convection, lets you cook in only 25% of the time.

Several companies, such as Jenn-Air and Viking, offer different convection settings for roasting and baking. With Viking's convection/bake setting, the third element stays off for less-intense heat for cookies or cakes. On the convection/cook setting, the third element delivers the extra punch needed to cook a roast.

How big should the oven be?

My mom had a big, blue enameled roasting pan that she used almost exclusively for the holiday turkeys she'd cook for her five kids and our extended families. She also had a double wall oven installed way back in the mid-'60s. It was the first one I'd ever seen. The biggest test for that oven before we bought it was the blue roasting pan: It fit.

Manufacturers now offer a large selection of oven sizes. In this bigger-is-better SUV age, standard-size wall ovens have grown from 24 in. and 27 in. to a whopping 36 in. wide. Some of these ovens could be used as spare bedrooms. But bigger isn't necessarily better. If you have your eye on one of the larger ovens, make sure that it comes with all the features you need. And remember that just as SUVs guzzle more gasoline, it takes more energy to fire up and run a larger oven than it does a smaller unit.

Behind door No. 1

Most oven doors swing down, and in most kitchens, door swing isn't a big deal. However, if you have a small galley-style kitchen, a side-swing door might be your best option (top photo). You don't have to reach over this type of door, so you have better access to the oven. But because side-swing doors open the full width of the oven, they are practical only on narrower models. Gaggenau offers the most complete line of ovens with side-swing doors.

Wolf, meanwhile, manufactures ovens with down-swing doors that support the bottom oven rack (bottom photo). That way, you can slide the rack all the way out safely, even with the heaviest dish on it.

By the way, the maximum oven-door temperature to qualify for listing by Underwriters Laboratories (UL) is 165°F, which is medium-well done for a roast beef. Most companies don't like to talk about door temperature, but Dacor brags that its ovens have the coolest door. Their system circulates air through a superinsulated door to keep it at a cool 85°F.

Keeping the door cool keeps the electronic controls above the door cool as well. Most ovens have built-in fans to keep these controls cool

DOOR-SWING CONSIDERATIONS



Side-swinging doors. *Because you don't have to reach over them, side-swing doors allow better oven access. But because they open the full width of the oven, side-swing doors are not practical for wide ovens.*

Rack support. *Some down-swing doors such as Wolf's are designed to support the bottom oven rack when it's pulled out.*



while the oven is on. Jeff Ingerman of Zemel's TV & Appliance in Danbury, Conn., said that one of the biggest complaints he gets is about the noise from the cooling fan when it runs after cooking is finished.

Wall ovens vs. range ovens

One thing my mom loved about her double wall oven was not having to stoop down to look inside. The top oven was at eye level, and the bottom could be checked easily without straining. What made a wall oven practical was the large size of my folks' kitchen.



DOUBLE-OVEN RANGES

Double-wide range. *To get a double oven in a range, you usually have to go with a 48-in. wide range. In this configuration, one oven is full size, and the other is much smaller and may not have all the features of its companion.*



Stacked-range ovens. *Maytag's Gemini ranges have a small oven on top of a full-size oven. The small oven heats up more quickly and is big enough for most meals. It even has a toasting feature for those morning bagels.*

Because ranges put both the cooktop and the oven in the same linear space, they tend to be a better choice for smaller kitchens. But a clever designer can find ways of fitting wall ovens into even the smallest of kitchens.

Most manufacturers offer single wall ovens in a variety of sizes, but beyond that, wall-oven configurations are almost endless. In addition to the single oven, most companies allow you to mix and match a microwave, a warming drawer or an additional oven all in the same stack.

To get a double oven in a range, you usually have to go with at least a 48-in. wide range (top photo). Frigidaire, DCS and Dacor are just some of the companies that offer wide ranges with dual ovens, a 30-in. one next to an 18-in. one. Be sure to check the features of the smaller ovens carefully. Of the side-by-side range ovens I've seen, Dacor is the only company to offer convection and self-cleaning in both ovens.

Only Maytag squeezes two ovens into a standard-size range (bottom photo). Maytag's Gemini models have a 1.2-cu. ft. oven stacked on top of a larger 4-cu. ft. oven. The company says that its Gemini customers use the smaller oven 90% of the time because it heats up more quickly and even boasts a toasting feature.

Oven, clean thyself

Electric ovens now outnumber gas ovens almost 3:1, and one of the biggest reasons for their popularity is self-cleaning.

Self-cleaning works by heating the oven to a point where any food waste is incinerated. What's left is usually a small pile of carbon dust that can be either swept out or vacuumed after the oven returns to room temperature.

Gas ovens are less likely to be self-cleaning. Whirlpool, Jenn-Air and Viking are among the companies that make self-cleaning gas ovens. Five Star's gas oven has the bottom element under the floor for easier cleaning even though the oven does not have a self-cleaning setting per se.

Although most electric ovens offer a self-cleaning feature, Joe Edelmann of Edelmann Kitchen & Bath in Bethel, Conn., told me that his customers seldom use the feature in European-convection ovens. Most of the food waste in these ovens is incinerated as air circulates past the third heating element.

A Ph.D. to run your oven

In a simpler time, before convection and multiple elements, you set the oven temperature, turned on the timer and waited for the ring—or the smell of burning cookies. Now you need to worry about whether you want to use standard cooking, convection or a mix of the two for customized cooking. As with a lot of things in life, too many choices isn't necessarily ideal.

Some companies have anticipated this control problem. Thermador's Cooksmart automatically blends its built-in microwave with convection. GE's convection conversion allows you to enter a standard time/temperature recipe; the oven then automatically adjusts the recipe. KitchenAid's Easy Convect does the same thing, but you choose among baked goods, meats or other foods before it converts the recipe. If you have trouble programming a VCR, make sure that you can handle the complexities of using whichever oven you choose.

Top photo, facing page: Courtesy of Whirlpool



The coolest oven out there

No discussion of ovens for the next millennium would be complete without mentioning Whirlpool's Polara range. Described as "a crock pot on steroids," it's an oven that doubles as a refrigerator. Put that casserole in the Polara and turn it to refrigerator mode before you leave for work. At 2 p.m., the fridge becomes an oven and cooks the casserole. It's held on warm until 7 p.m. Your son's game goes into extra innings, and you decide to get a quick dinner out. No problem. The oven turns back into a fridge, and you just need to transfer the cooked casserole to your real refrigerator when you get home. Is this a good idea? Who knows. The good thing is that companies such as Whirlpool are pushing the envelope of appliance design. By the way, this oven with a split personality sells for $1,800 to $1,900.

—R. A. O.

NEAT RACKS

Most cookies per cubic inch. *Because of Gaggenau's pure convection system, the ovens have solid racks in place of conventional racks. These racks are like baking sheets, but can be used for all types of cooking, including cookies.*

Rolling racks. *DCS installed roller guides on the oven walls that fit into channels on the sides of the racks for a whisper-smooth glide.*

Bottom photo this page: Brian Pontolillo

Each manufacturer seems to have come up with a different twist for the controls. Bosch's 7 Series puts touch controls under glass for easy cleaning. The touch of a finger selects a menu; then a retractable dial turns to make the selection or to adjust the temperature. Bosch's 4 Series uses knobs instead of a touch screen for a more traditional look. Wolf's new wall oven features minimalist controls. With the push of a button, the control panel flips out of sight.

Other oven ingredients

Convection ovens allow you to cook on many levels at once, but you still need to see what you're cooking. That little bulb under a grease-laden glass cover just doesn't do the trick. Many manufacturers strategically place the oven lights to monitor cooking progress on every level.

Not all oven racks are created equal. DCS's racks slide on ball-bearing rollers so that they never stick (bottom photo). Fisher & Paykel's racks have dual rails so that they fit either over the guides or between them, for 13 different positions. Dacor and Gaggenau have implemented a pure convection system that permits solid baking sheets, instead of conventional oven racks, for all types of cooking (top photo). Now you can bake more cookies per cubic inch than any other scout leader.

Meat probes are standard issue. Insert the meat probe into a roast or a turkey, and the oven shuts off when the temperature inside the meat reaches a preset level. Another feature available in some ovens is a baking stone, great for cooking pizza. Gaggenau's baking stone has an integral element that plugs into the back wall of the oven, while Wolf's special bake-stone element plugs into the back of the oven and the stone itself rests on top.

The bottom line

Oven prices vary incredibly. A basic oven can cost less than $300 as part of a free-standing range. Single wall ovens start at around $450. The rule of thumb for entry-level ovens is to add $150 for self-cleaning and another $150 for convection.





For most of the ovens discussed in this article, plan on spending well over $1,000. Add a few features, and that price can double or triple faster that you can say Toll House cookie. Then come the real heavyweights. My choice for the snazziest oven is the La Cornue, and for as little as $11,000, I could have one of them in my house.

But for folks who worry about writing a big check, my advice is to shop around. Free-standing ranges may be the cheapest way to go, but variables such as the type of cooktop can alter the price substantially. And going with a wall oven means that you'll also have to buy a cooktop. □

Roe A. Osborn is managing editor of *Fine Homebuilding*.
Photos by the author, except where noted.

OVEN MANUFACTURERS

Amana
(800) 843-0304
www.amana.com

Bosch
(800) 866-2022
www.boschappliances.com

Dacor
(800) 793-0093
www.dacor.com

DCS
(800) 433-8466
www.dcsappliances.com

Fisher & Paykel
(800) 863-5394
www.fisherpaykel.com

Five Star
(800) 553-7704
www.fivestarrange.com

Frigidaire
(800) 374-4432
www.frigidaire.com

Gaggenau
(800) 828-9165
www.gaggenau.com

General Electric
(800) 626-2000
www.geappliances.com

Jenn-Air
(800) 688-1100
www.jennair.com

KitchenAid
(800) 422-1230
www.kitchenaid.com

La Cornue
(800) 892-4040
www.lacornue.com

Maytag
(800) 688-9900
www.maytag.com

Thermador
(800) 656-9226
www.thermador.com

Viking
(888) 845-4641
www.vikingrange.com

Whirlpool
(800) 253-1301
www.whirlpool.com

Wolf
(800) 366-9653
www.wolfrange.com