Pall/Winter 2024 Fall/Winter 2024

Natural gas: The natural choice for a better environment



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naturalNews

Ready for the cold? Getting your home winter-ready

By Drew Robb

his winter was mild compared to previous years. Except for a week or so of severe cold in January, temperatures didn't plummet. Southern Wisconsin was 95°F above normal for December 2023, 3.5°F above normal for January 2024 and 11°F above normal for February 2024.

"This was the warmest winter in the past 132 years at a vast majority of locations throughout Wisconsin, Minnesota, northeast Iowa and most of northern Michigan," said Steve Ackerman, a professor in the University of Wisconsin–Madison department of atmospheric and oceanic sciences.

Many other states reported mild winter weather. Most of New York state, for example, received half as much snow this year compared to the norm for the last 15 years.

But when a winter is mild, the next one is often severe. Therefore, homeowners are urged to take steps to winterize their properties. This not only safeguards them from the worst repercussions of bad weather, but it also lowers energy bills by raising efficiency and eliminating waste.

WINTERIZATION RECOMMENDATIONS

Here are a few actions and projects homeowners can take to ensure their homes are ready for the cold, regardless of what winter brings to your region:

- Prepare the exterior of your home. This includes cleaning the gutters, trimming back tree branches, inspecting your roof for any signs of damage or wear, and re-caulking/weather-stripping your windows and doorways as needed to eliminate drafts.
- 2 Check your pipes to look for any signs of backup, slowed drainage or blockage.
- 3 Add insolation to your hot water storage tank to prevent

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excessive heat loss during cold spells. Additionally, insulate exposed plumbing pipes or those in or beside exterior walls to protect them from the cold.

- If your boiler is more than 15 years old, it might be time to consider an upgrade. Older boilers tend to be only 50% to 60% energy efficient. Newer gas boilers and water heaters are often more than 80% efficient and some can exceed 90%. Gas heat pumps even offer efficiency levels greater than 100%.
- Bring in someone from the local utility or gas company to inspect gas furnaces, heat pumps, heating, ventilation and air conditioning, and other building systems.

"Furnace maintenance and repair should be done before the temperatures drop," said Kira Jordan, vice president of portfolio management at Spark Energy LLC. "In addition to circumventing heat loss when you need it most, doing so can reduce the wear on your furnace and even make it run more efficiently so energy is conserved."



The flicker of a flame

Natural gas provides optimal cooking environment and saves money

By Tonya McMurray

ooking with natural gas offers multiple advantages — including significant cost savings as well as optimal
control when preparing food.

"Professional chefs and home chefs alike often prefer the control that a gas oven provides, allowing them to adjust from a searing temperature to a traditional roasting/baking temperature when needed, or to rapidly adjust the oven temperature upward when a reverse sear is desired," said Jeff Essenburg, vice president of sales at Brown Stove Works Inc.

Natural gas stoves also allow for precise control, even temperature and quick adjustments when cooking on the range top.

"A gas flame on the range top enables the user to precisely control the desired heat to the bottom of the cooking utensil, especially when a double-valve burner is used to provide both inner and outer heat as needed," Essenburg said. "This flame control can provide a rapid boil or a delicate simmer that is often not possible with electric range tops."



Blue Flame Alliance, an organization that fosters a collaborative and knowledge-sharing environment.

The U.S. Department of Energy estimates that natural gas is 3.4 times more affordable than electricity and other residential fuels, saving families \$147 billion over 10 years.

A 2023 American Gas Association report, "Comparison of Home Appliance Energy Use, Operating Costs, and Carbon Dioxide Emissions," shows that a typical new home using natural gas has energy costs that are 49% lower than a comparable all-electric home.

The Residential Energy Calculator indicates that an average fourperson American household cooking most meals at home would spend \$47 a year cooking with natural gas compared to \$104 when cooking with electricity and \$107 when cooking with propane.

Not only is natural gas an economic winner, but it also is the cleanest burning fossil fuel, resulting in lower greenhouse gas emissions. According to a recent study titled "Comparison of Home Appliance Energy Use, Operating Costs, and Carbon Dioxide Emissions," homes using natural gas appliances have carbon emissions 21% lower than those using electricity.

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COST AND ENERGY SAVINGS

In addition to more precise cooking, cooking with natural gas costs about half as much as cooking with electricity. In addition, heat from natural gas is distributed more evenly, allowing food to cook quicker, which further reduces cooking costs, according to the

"A gas flame on the range top enables the user to precisely control the desired heat to the bottom of the cooking utensil, especially when a double-valve burner is used to provide both inner and outer heat as needed."

— Jeff Essenburg, vice president, sales, Brown Stove Works Inc.

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SAFE, RELIABLE AND EFFICIENT

Another advantage of natural gas stoves, Essenburg said, is that they are typically less susceptible to power disruptions.

"If a home is located in an area that is prone to power disruptions or outages, a gas- cooking product could prove to be beneficial since many gas surface burners can be manually lit during a power outage by following the manufacturer's instructions in the use and care manual," he said. "There are also gas-cooking products available with battery ignition systems that do not require any electrical outlets.

To ensure safety, consumers should always follow all information in the use and care manual and should never leave surface burners unattended. It's also important to ensure proper ventilation in the kitchen when using any cooking appliance, Essenburg said.

Exhaust fans eliminate normal byproducts of cooking such as steam,

SAUSAGE AND HERB STUFFING

Serves: 8 to 10 Prep: 30 minutes Cook: 1 hour 30 minutes

INGREDIENTS

- 1 (1-pound) loaf sourdough or Italian bread
- 2 medium yellow onions
- 3 stalks celery
- 1 medium or large sweet-crisp apple, such as Honeycrisp
- 4 cloves garlic
- 1/4 cup fresh parsley leaves
- 1 tablespoon fresh sage leaves
- 1 tablespoon fresh thyme leaves
- 6 tablespoons (3/4 stick) unsalted butter
- 1 1/2 teaspoons kosher salt
- 1/4 teaspoon freshly ground black pepper
- 1 lb. uncooked mild or sweet Italian sausage
- 3 cups low-sodium chicken broth, divided
- 2 large eggs

DIRECTIONS

- Arrange a rack in the middle of the oven and heat it to 275°F. Coat a 9x13-inch or 3-quart baking dish with cooking spray.
- ² Tear or cut 1 loaf bread into small, 1/2inch pieces (about 10 cups). Arrange the bread in an even layer on a rimmed

baking sheet. Bake until the bread is dry, about 30 minutes. Meanwhile, prepare the aromatics and herbs.

- Dice 2 medium yellow onions (about 2 cups) and 3 celery stalks (about 1 cup). Peel and dice 1 apple (about 1 cup). Mince 4 garlic cloves. Finely chop the following and place in a large bowl: 1/4 cup parsley leaves, 1 tablespoon sage leaves and 1 tablespoon thyme leaves.
- ³ Melt 6 tablespoons unsalted butter in a large skillet over medium-high heat. Add the onions, celery, apple, 1 1/2 teaspoons kosher salt, and 1/4 teaspoon black pepper and sauté until softened and lightly browned, 10 to 12 minutes. Add the garlic and sauté for 1 minute. Transfer to the bowl with the herbs.
- When the bread is ready, transfer to the bowl with the herbs and toss to combine.
- 6 Increase the oven temperature to 350°F.
- Return the pan to medium-high heat and remove the casings from 1 pound Italian sausage. Add the sausage to the pan and cook, breaking up the meat with a wooden spoon, until browned and no longer pink, 6 to 8 minutes.
- 3 Add 1/2 cup of the chicken broth to the pan and scrape with the wooden



smoke, grease and heat. Traditional overhead exhaust fans run through a

wall or ceiling and vent to the outside. Consumers can also use downdraft

exhaust systems that use a fan to draw cooking byproducts down from the

cooking surface to the outdoors. Downdraft exhaust systems are often

used when equipment is installed in an island and the homeowner does

The American Public Gas Association (APGA) recommends making

sure gas ranges, ovens and cooktops are installed according to local in-

stallation codes and design certified to the ANSI Z21.1 standard, which

includes requirements for proper operation and limits on emissions.

order and inspected periodically by a qualified contractor. To maxi-

mize the efficiency of natural gas stoves and range tops, APGA recom-

mends consumers use the appropriate pot or pan size when cooking

and avoid lining the oven bottom cavity with aluminum foil.

To ensure safety, gas ranges should be maintained in good working

not want a traditional exhaust hood in the center of the room.

spoon to loosen any brown bits from the bottom of the pan. Transfer the sausage and any remaining liquid to the bowl of bread and toss to combine.

Whisk 2 large eggs and the remaining 2 1/2 cups chicken broth together in a medium bowl; then, pour over the stuffing mixture. Stir until evenly moistened. Transfer the stuffing to the prepared baking dish. Cover tightly with aluminum foil and bake for 15 minutes. Uncover and continue to bake until browned on top and heated through, about 15 minutes more.

SOURCE: THEKITCHN.COM

SAFE AND EFFICIENT: GAS STOVES OFFER PRECISE COOKING WITH NO IDENTIFIED SAFETY RISKS

Natural gas stoves safely provide home cooks with precise control, cost savings and energy efficiency.

Despite scattered reports of potential health risks, no regulatory or advisory agency responsible for protecting consumer health and safety has documented any risk to respiratory health based on the use of gas stoves.

The Federal Interagency Committee on Indoor Air Quality (CIAQ), a group of two dozen federal agencies led by the U.S. Environmental Protection Agency (EPA), has not identified natural gas cooking emissions as a key factor in asthma or respiratory illness. Neither the EPA nor the U.S. Consumer Product Safety Commission list gas ranges as a health hazard or significant contributor to poor indoor air quality.

In fact, studies have consistently found that regular operation of natural gas cooktop burners and ovens produced nitrous oxide emissions below the regulated safety thresholds. "The Effects of Cooking on Residential Indoor Air Quality: A Critical Review of the Literature with an Emphasis on the Use of Natural Gas Appliances" — a review commissioned by the California Restaurant Association and the California Building Association and conducted by researchers at Lawrence Berkeley Natural Laboratory — evaluated dozens of peer-reviewed studies and government assessments. The review showed that researchers



have repeatedly found that the long-term concentrations in real-life cooking scenarios are well below established health thresholds.

In one study, researchers at Lawrence Berkeley National Laboratory sampled gas stove emissions in 70 California homes built between 2011 and 2017. All nitrogen dioxide concentrations measured during normal gas stove operation with the proper use of a range hood for ventilation were below the standard the EPA has determined to be protective of public health.

Studies have consistently found that regular operation of natural gas cooktop burners and ovens produced nitrous oxide emissions below the regulated safety thresholds.

"Cooking Fuels and Prevalence of Asthma: A Global Analysis of Phase Three of the International Study of Asthma and Allergies in Childhood" — which examined more than 500,000 primary and secondary school children in 47 countries — found "no evidence of an association between the use of gas as a cooking fuel and either asthma symptoms or asthma diagnosis."

Indoor air quality studies have consistently found that emissions from the cooking process — not from the burner or fuel source — are the primary contributors to emissions and indoor air quality concerns. Studies show that food type, use of oils and cooking temperature and time are the most critical factors impacting indoor air quality.

To reduce air quality concerns that come from the steam, smoke, grease and heat produced when cooking, the EPA recommends installing an exhaust hood that vents to the outdoors where feasible. If it is not feasible to install an exhaust hood, the agency recommends a recirculating hood with filtration to help reduce cooking byproducts. Opening windows can also help improve indoor air quality when cooking, according to the EPA.

naturallyBetter

Endless hot water

Efficient natural gas combi systems provide hot water, plus heating

By Monica Stavish Skaggs

t sounds like a dream come true: Endless hot water and consistent heat. That's what consumers can enjoy with a natural gas "combi boiler" — a combination boiler/hot water system.

Natural gas is an energy-efficient, environmentally friendly fuel that many homeowners are switching to from electricity to save money. Natural gas combi systems save both money and space. They are boilers with a built-in secondary heat exchanger that provides domestic hot water. The result is reliability, comfort and energy efficiency.

"You get heat and hot water from one small wall-mounted appliance," said Doug Dodds, sales director at Rheem Manufacturing Co. "With utility rooms getting smaller and smaller, there is a real space advantage to a combi, not to mention they are incredibly efficient and provide an endless source of domestic hot water."

A combi system is basically two appliances in one. It is a boiler that also serves as an instantaneous tankless water heater.

While conventional water heaters store hot water in a large tank, combi systems heat water in the same way as a tankless water heater. This is done via a second heating circuit, which supplies hot water when it's needed. This feature eliminates the need for a separate water heater and related pipework.

Installation of combi units is easier than traditional boilers because all parts of a combi system are within a single unit. Since they are more compact and fit into tight spaces, combi systems require less piping because they usually do not require a separate tank. Combi heaters can also provide endless hot water, like a tankless water heater.

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The Rheem[®] ThermaForce platform features unique wireless cascading capabilities to meet the most demanding space heating and domestic hot water needs.

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> Doug Dodds, sales director, Rheem Manufacturing Co.

naturalChoice

Reliable technology

Natural gas heat pumps provide greater than 100% efficiency

By Drew Robb

ome appliance stores are chock-full of a variety of energy-efficient products. Some units will only be 65% efficient, and others will be more than 80% efficient. A few may even boast of more than 90% efficiency. As efficiency rises, the appliance requires less energy to operate. This equates to lower operating costs while providing a more environmentally friendly unit.

So, how about a natural gas appliance that provides much more energy efficiency than the levels typically seen in big-box stores, i.e., more than 100% efficiency? Such numbers are achievable with the latest generation of natural gas heat pumps.

Scott Reed, vice president of sales and marketing for Anesi Gas Heat Pumps, explained that as gas heat pumps draw in additional energy from the outside air, this results in an energy output level for the appliance that is above 100%.

He added that a heat pump can exploit the abundant energy available in natural sources such as outside air even at lower temperatures. This boosts its efficiency beyond 100%.

"Gas heat pumps offer higher heating efficiency as the main input is primary energy and not electricity," said Scott Ward, operations manager at Robur Corp.

"Gas heat pumps cost a lot less to operate than electric heat pumps. They have no substantial impact on your home's existing infrastructure, and they will deliver the warmth and comfort experience that gas heating customers are accustomed to."

> Scott Ward, operations manager, Robur Corp.



This Anesi gas heat pump is available in sizes suitable for residential units.

LOWERING YOUR HEATING BILL IN COLD CLIMATES

When electric heat pumps are used for heating in winter, their efficiency drops as the mercury heads downwards. This is why operating costs are often higher than the furnaces and boilers they replaced. In contrast, the reliability of gas heat pumps as cold-weather heating devices ensures that efficiency stays high and running costs remain low all winter.

Why? Gas heat pumps are designed to extract heat from the outside air. Even when it is cold, they still can draw in heat which supplements the energy generated by natural gas combustion. Result: energy efficiency beyond 100% and plenty of warm air to heat the entire premises. In addition, gas heat pumps offer lower costs compared to electric heat pumps, which draw heat from outside but are hard-pressed to keep up with demand when temperatures fall below 40°F, according to Reed.

"Gas heat pumps cost a lot less to operate than electric heat pumps," he said. "They have no substantial impact on your home's existing infrastructure, and they will deliver the warmth and comfort experience that gas heating customers are accustomed to."

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GAS HEAT PUMP OPTIONS

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A few years ago, gas heat pumps were primarily used in the commercial market as well as in large residential complexes. Recently, though, new models have been introduced that work well in small and mid-sized homes.

"Most residential customers should be able to utilize gas heat pump technology," Reed said.

The Anesi Heat Pump System for single- family homes consist of three parts: the outdoor gas heat pump unit, an indoor air-handler and an optional domestic water storage tank. It can replace an old furnace and gas water heater, resulting in a reduction in energy usage by an estimated 30% to 50% while lowering emissions, according to Reed. Thus, it can keep a home comfortably warm even when the outside temperature drops as low as minus 40°F.

"The gas heat pump is a reliable technology that is going to save you money," said Barry Allen, who replaced a gas furnace with an Anesi gas heat pump at his home in Kelowna, British Columbia.



This Robur gas heat pump provides abundant heating in winter and cooling in summer with an energy efficiency rating of greater than 100%.

"As a nonprofit, we have to make sure the money from our donors is well spent. We were spending an enormous amount on heating oil, and this Robur unit is really going to help us reduce our fuel costs. As it includes cooling as well as heating, we can now better serve our community on hot summer days when temperatures can reach 100°F."

Kevin Kitner, interim executive director, New Horizons for New Hampshire Inc.

"Since we've installed the system, we've seen a substantial drop in our gas consumption."

Another option is a Robur gas heat pump. By using natural gas as the primary energy source, this gas heat pump can supply hot water up to 140°F and provide both heating in the winter and cooling in the summer. Energy efficiencies of 129% and above are available and savings of up to 40% are common when compared to a traditional gas-fired boiler.

For example, a homeless shelter known as New Horizons for New Hampshire Inc. recently installed a Robur GAHP AR heat pump at its facility in Manchester, New Hampshire.

"As a nonprofit, we have to make sure the money from our donors is well spent," said Kevin Kitner, interim executive director for New Horizons. "We were spending an enormous amount on heating oil, and this Robur unit is really going to help us reduce our fuel costs. As it includes cooling as well as heating, we can now better serve our community on hot summer days when temperatures can reach 100°F."

KNOW BEFORE YOU GO

Reed recommends that interested homeowners ask their heating, ventilation and air conditioning contractor to perform a heat load calculation to establish the appropriate equipment size suitable for their house. This prevents them from buying a unit that is either too large or too small for their property. With the right size of gas heat pump installed, homeowners can look forward to warm and cozy nights throughout even the harshest winters.

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Units are available from a variety of providers. The Rheem[®] ThermaForce platform, for example, features unique wireless cascading capabilities to meet the most demanding space heating and domestic hot water needs. The ThermaForce wireless cascade system is easy to set up, flexible and improves system efficiency and individual unit life.

Along with saving space and money, providing continuous hot water

and heating the entire home, combination systems offer the potential for rebates from local utilities and government programs.

When considering a natural gas combi-heater, consumers should look for one that has high efficiency ratings, a proven track record and is supported by a reputable company, Dodds said.

"All high-efficiency products should be serviced annually to ensure they are operating at their peak performance and efficiency," he said. \blacksquare

SMALL BUT MIGHTY: NATURAL GAS COMBI SYSTEMS SAVE SPACE AND MONEY

It's hard to believe such a small package could deliver so much. While today's high-efficiency natural gas combination boiler system stands less than 3-feet tall, it packs a wallop in terms of providing hot water and consistent central heat.

The compact size of a combi-boiler makes it ideal for small to medium-sized homes and other properties with limited space. They are also popular in regions where homes do not have basements.

A combi unit combines a central heating boiler and water heater into one unit, bypassing the need for separate tanks. Combi-boilers are energy efficient and only heat water when it's needed, unlike conventional systems that store hot water in a large tank.

Instead of a large boiler or furnace taking up space in a basement or garage, one combi unit can provide all the heat and hot water for a residence. In addition, far less piping, venting and wiring are needed for a combi-boiler

"A combi-boiler modulates its gas input based on outdoor weather conditions and only burns enough fuel to satisfy a call for heat. That means no overfiring, no short cycling, no waste. And it only uses gas for domestic hot water when there is a need or demand."

> Doug Dodds, sales director, Rheem Manufacturing Co.

than a traditional boiler and home heater.

There are other efficiencies with a combination boiler.

"A combi-boiler modulates its gas input based on outdoor weather conditions and only burns enough fuel to satisfy a call for heat. That means no overfiring, no short cycling, no waste," said Doug Dodds, sales director at Rheem Manufacturing Co. "And, it only uses gas for domestic hot water when there is a need or demand."

The Rheem[®] ThermaForce platform is one combination unit that saves space and is easy on the budget. Its wireless cascade system is simple to set up, flexible and improves system efficiency and individual unit life. The ThermaForce's dimensions are 10.88 inches deep, 32.5 inches in height and 17.69 inches in width, making it ideal for properties with limited space.

Saving space notwithstanding, combi-boilers also make sense budget-wise when it comes to investing in such a system. The units not only operate efficiently but help prevent utility bills from rising sharply.

"Over a conventional, non-condensing on/off boiler and tank-type water heater, consumers can save a minimum of 35% and typically much more," Dodds said. "With efficiencies as high as 96%, there is no more efficient way to burn gas to heat your home, hydronically, than with a combi-boiler. And with gas emissions fewer than 20 ppm [parts per million], it is environmentally friendly."

Combining hot water and home heating can be very efficient. When purchasing a natural gas combi-heater, consumers should do their research. Be sure to look for a unit that has high efficiency ratings and is backed by a reputable provider.



Holiday cheer

Cost-saving hacks to spruce up your home for the holiday season

By Tonya McMurray

reating a festive home for the holidays doesn't have to be complicated or expensive. One key to decorating on a budget is finding creative uses for items you already have at home, according to Home and Garden TV (HGTV), a Warner Bros. network focused on home improvement and real estate.

Decorators and home interior experts recommend the following ideas for simple but elegant holiday decorating:

- Use leftover scraps of wrapping paper: Cut paper to size and use it to line serving dishes or place it under dishes or décor as a holiday doily.
- Display nuts and candies: Fill festive dishes, candle holders or vases with whole nuts or individually wrapped candies.
- Create your own garland and tree decorations: String together dried orange slices, popcorn, inexpensive grocery greenery, cranberries and cinnamon sticks to create your own garland. Add pinecones as tree decorations.
- Think beyond the tree for ornaments: If you've got more ornaments than will fit on your tree, hang them around the house. Hang them from stair railings, windowsills or doorways. Or fill a basket, large vase or hurricane lantern with ornaments.
- Add glitz to backyard finds: Collect pinecones, rocks or twigs and clean them well with warm water. Once dry, roll in craft





glue and then glitter and let them dry. Attach ribbon to pinecones or twigs with hot glue and hang them from your tree or around the house. Or arrange items on shelves, tables or your fireplace mantle.

- Turn sticks into a star: Gather an assortment of sticks or twigs and arrange into a star on an interior or exterior wall.
 - Bring the outdoors inside: Incorporate evergreen branches and other plants such as eucalyptus, wood branches or pine cones. Use them to create garland for a stairway, make a decorative ring for a candle, arrange them into a centerpiece for a table, or place them on a fireplace mantle.
 - Add some firewood: Place stacks of firewood on the hearth of your natural gas fireplace to add a bit of homey ambiance. Intersperse evergreen branches or holly to add even more holiday cheer.
 - Make an easy holiday candle: Spruce up a mason jar or other glass container. Wrap the container with a ribbon and secure with tape. Tie on a sprig of evergreen and a pillar candle.

naturallyGood

ROAST TURKEY

Serves: 12 to 16 Prep: 20 minutes Cook: 3 hours 30 minutes to 4 hours

INGREDIENTS

- 1 whole turkey (12–16 pounds), thawed if frozen
- 2 cups low-sodium chicken broth, vegetable broth, water, or other liquid
- 2 sticks (1 cup) melted unsalted butter or oil, for basting (optional)

DIRECTIONS

- Thirty minutes to an hour before roasting, take the turkey out of the refrigerator. Remove any packaging and the bag of giblets (check in the body cavity and in the neck cavity). Set the turkey breast-side up on the roasting rack set in a roasting pan and let it sit while the oven preheats. This takes the chill off the meat, which helps the meat cook faster and more evenly. It also gives the skin time to dry out, which promotes browning and crisping. (Note: Your turkey will likely still feel cool to the touch after sitting at room temperature; that's fine and you can continue on with roasting.)
- Position an oven rack in the bottom third of your oven, remove any racks above it, and heat the oven to 450°F. If you brined your turkey, as we did, no need to do anything now. If your turkey is straight out of the package, rub it with some salt and pepper before putting it in the oven. We recommend leaving your turkey un-stuffed and un-trussed, both because it's easier and because the turkey will cook more evenly.
- When ready to roast, pour the broth or water into the roasting pan.
- Place the turkey in the oven and turn down the heat to 350°F. We recommend roasting turkeys breast-side up. Some people like starting the turkey breast-side down to shield the breast meat, but the idea of flipping a hot, sputtering turkey is not our idea of a good time. Instead, we



prefer to simply shield the breast meat with aluminum foil toward the end of cooking if it starts getting too browned.

- ³ The rule of thumb for cooking a turkey is 13 minutes per pound. So our 16-pound turkey was estimated to cook in about 3 1/2 hours. However, some factors like brining the bird, cooking with an empty (un-stuffed) cavity, and leaving the legs un-trussed will contribute to much faster cooking. Plan on the 13-minuteper-pound rule, but start checking the temperature of your turkey about halfway through the scheduled cooking time to gauge how fast it's cooking.
- 6 Every 45 minutes, remove the turkey from the oven, close the oven door (don't let that heat out!), and baste the turkey all over. To baste, tilt the pan if needed and use a turkey baster or spoon to scoop up the pan liquids and drizzle them on top of the turkey. Basting with pan juices cools the surface of the turkey and slows down cooking, which in turn keeps the breast meat cooking at close to the same rate as the legs and thighs. In the last 45 minutes or so of cooking, vou can also baste the turkey with melted butter or oil. This helps crisp up the skin and turn it a beautiful deep golden brown.
- Ø Begin checking the turkey's temperature

about halfway through the estimated cooking time. Check the temperature in three places: the breast, outer thigh, and inside thigh. In every case, the meat should be at least 165°F when the turkey has finished cooking. If any place is under that temperature, put the turkey back in the oven for another 20 minutes. Shield the breast meat with foil if needed to keep it from overcooking.

- ³ Remove the turkey from the oven. Grab one side of the roasting rack with an oven mitt and tilt the whole pan so the liquids inside the turkey cavity run out into the pan. (These juices are used to make the gravy.) Then, lift the whole turkey (still on the rack) and transfer it to a clean cutting board. Tent the turkey loosely with aluminum foil and let it rest for at least 30 minutes. This gives time for the meat to firm up and the juices to be re-absorbed into the muscle tissue, making the turkey easier to slice and taste juicier.
- Orve the turkey the same way you would carve a chicken. Remove the wings first, then the thighs, then the breast meat. Once you have the meat off, you can separate the thighs into thighs and drumsticks and carve the breast meat into individual slices.

SOURCE: THEKITCHN.COM