

naturalLiving

Spring/Summer

your home. your world.

ROOM by ROOM

A Homeowner's Guide to Energy Savings



High-Tech
Tools for Energy
Conservation

presented to you by



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How Clean Is Your Air?

Air cleaners and humidity control systems can provide indoor air quality solutions for your home.

By Haley Hobson

A quick inspection of your house may reveal no obvious signs of uncleanliness, but harmful pollutants aren't always visible to the human eye. Whether it's tobacco smoke, pollen, pet dander, dust mites or mold and mildew, air pollution is present in most homes. What can you do to improve the air quality in your home?

For concerned homeowners, there are a variety of effective air cleaners and humidity control systems on the market. High Efficiency Particle Air (HEPA) filters remove a high level of particulate matter suspended in air. Small particles — roughly 1 micron in size — generally have the largest health impact, says Max Sherman, senior scientist at Lawrence Berkeley National Laboratory. "Very small particles can penetrate deep into the lungs and impact lung function," he says.

Installing a HEPA filter in your home will increase your indoor air quality and even reduce your utility bills. "HEPA filters catch 100 percent of the pollen that causes allergies, as well as many microscopic contaminants that cause irritation and amplify the effects of respiratory ailments," says Caroline Czajko, manager of Manufacturers Division for the Heating, Refrigeration and Air Conditioning Institute of Canada.

A HEPA filter is part of an overall indoor air quality control program that includes proper filter location, moisture control, point source control and air cleaning, she adds.

When a HEPA filter traps harmful pollutants, they die unless the air continually entering the filter is moist. This is where controlling

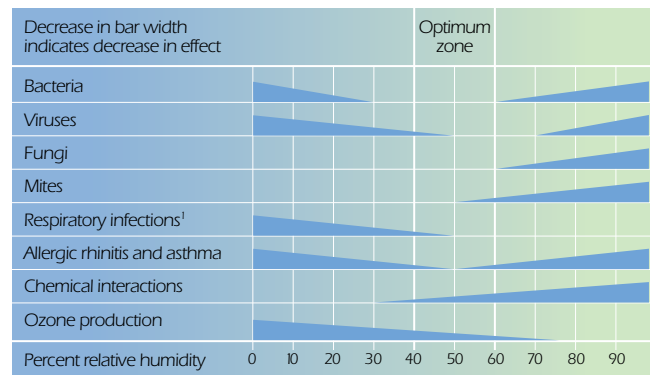
3% Indoor air pollution is responsible for nearly 3 percent of disease worldwide, according to The World Health Organization.

your home's humidity levels is vital. Humidity levels that are too high — more than 50 percent RH (relative humidity) — can provide a breeding ground for mold, mildew and fungus. Consistently low humidity levels — below 40 percent RH — can lead to sore throats, sinus pain and increased virus growth.

"Maintaining a relative humidity between 40 and 50 percent offers tremendous benefits to homeowners," says Scott Janke, executive vice president for NovelAire Technologies (www.novelaire.com). "It prevents mold, reduces allergens, protects furnishings and saves energy."

According to NovelAire, for every degree increase in temperature,

Effect of Room Relative Humidity on Selected Human Health Parameters



¹Insufficient data above 50% R.H.
Source: Sterling (1984) ASHRAE Transactions V. 90, Part 2.

By keeping your home's relative humidity in the 45 to 50 percent range, you can prevent the growth of many undesirable pathogens.

homeowners save approximately 6 percent on electric bills for cooling. When humidity is reduced to between 40 and 50 percent, homeowners feel more comfortable at warmer temperatures. Therefore, the thermostat can be set at a higher temperature in the summer to save energy and reduce utility bills.

For homeowners looking to reduce humidity levels, whole-house dehumidifiers absorb water vapor from the air. These gas-operated, desiccant-based systems utilize natural gas to reactivate a rotating desiccant wheel that is heated and vented to drive off moisture. Units — such as those offered by NovelAire — tie into

homeowners' existing air systems and are controlled independently of the air conditioner.

Optimal indoor humidity levels depend on the climate and the home itself, Sherman says. "The colder it is outside, the less well-insulated the structure and the lower the ventilation rate, the more likely one is to get condensation on walls and windows," he says. "In hot, humid climates, the situation is reversed as the cold surfaces and moisture sources are in different places."

Residents in dry climates, where RH levels often drop below 40 percent in the winter, can purchase whole-house and portable humidifiers at local hardware stores. ■

High-Tech Tools For Energy Conservation

A look at new technologies that promote higher efficiencies.

By Matt Bolch

Before rising fuel prices prompted a greater attention to energy conservation measures, manufacturers were testing and creating efficient products to reduce energy use and harmful emissions. So today when homeowners are considering purchasing furnaces and water heaters, they have more choices than ever to save money — and help the environment. Case in point: The following products, which are in various stages of testing and commercial release, can go a long way in cranking up your home's comfort level — while ratcheting down your expenses.

The Matrix Total Home System

NTI Thermal spent nearly a decade to create an integrated condensing water heater, furnace, boiler and heat recovery ventilator in one system that's pre-wired for air conditioning and requires less energy to operate than competing products.

Called The Matrix Total Home System, the unit uses a high-efficiency heat exchanger to reduce gas consumption by as much as 30 percent, when compared with a conventional system, while also reducing electricity use. Since the unit serves multiple functions, it may be easier and less expensive to install and service than separate appliances.

The Matrix uses microprocessor electronics to analyze the home environment, producing only the energy needed to increase comfort. In addition to energy savings, the Matrix saves significant amounts of carbon dioxide a year over competing condensing furnaces and heat pumps, according to company claims. (www.ntimatrix.com)

Energy Recovery Ventilation Systems

These systems provide a controlled way to ventilate a home with minimal energy loss. In winter, they transfer heat from the warm inside air being exhausted to the fresh (but cold) supply air, and in summer, the system cools the warmer supply air to reduce ventilation cooling costs, according to literature from the U.S. Department of Energy.

Homeowners can choose a system based on local climate conditions. Heat recovery ventilators (HRVs) are recommended for colder climates that have longer heating seasons, while energy recovery ventilators (ERVs) are the choice for warmer and more humid climates.

The heat exchanger in each of these units uses one or more fans



to push or pull air through the unit and control functions. Although wall- or window-mounted units are available, most are whole-house ventilation systems with their own ductwork or shared ductwork. Manufacturers include Fantech (www.fantech.net), Honeywell International Inc. (www.honeywell.com) and Nutech Energy Systems (www.lifebreath.com).

Electric Spark Ignition

For convenience and energy savings, consider an electric spark ignition system for your natural gas fireplace or gas log set. A spark ignition system could save you about \$100 in gas each year by turning off the pilot light when not in use — and it makes relighting your fireplace easier. This system requires gas to be piped to the inlet of the gas control valve, with 110- or 120-volt electricity wired to the transformer. When the appliance is switched to the “on” position, the igniter sparks and gas flows to the pilot burner and lights the appliance. Should the pilot flame extinguish for any reason, the control module stops the flow of gas but will automatically try to initiate a restart.

For those with existing standing pilots, you can turn it off when the heating season ends and relight it in the fall. (Follow the instructions in your fireplace's operating manual or have a qualified person shut off or relight the pilot.)

Micro-CHP Systems

Homeowners can cut their winter energy bills in half through the use of a micro-CHP (combined heat and power) called Freewatt. The



↑ This GREENandSAVE family room is heated by thermal mass radiant floors that are powered by solar hot water roof panels.

system, developed by Climate Energy and Honda, is powered by a Honda engine that runs on natural gas to produce more than 11,000 BTU of heat and 1.2 kilowatts of electricity, which can handle the energy needs of an average size home by producing smaller amounts of heat 24/7. The unit works with hot water and warm air heating systems. Options for the hot water system include a high-capacity, water-heating package.

Marketing of the Honda-powered generator with warm-air-heating systems has begun in the Northeastern states, where sales are boosted by the relatively cool climate and legislation promoting net metering, which allows owners of alternative energy systems to recover costs by feeding extra electricity back into the power grid.

The micro-CHP concept has been embraced by the Partnership for Advancing Technology in Housing, a public/private partnership

administered by the U.S. Department of Housing and Urban Development. (www.freewatt.com)

Phoenix Solar Water Heater

The Phoenix Solar Water Heater is fueled primarily by the sun, with a gas-fired backup component that is 97 percent efficient to meet the hot water demands of homeowners and businesses. Developed by Heat Transfer Products Inc., the unit delivers both space heating and hot water in a single, energy-saving and environmentally friendly package.

The Phoenix allows for auxiliary connections to a hydro-air system for space heating, and a pump circulates the heated water to a heat exchanger in the ductwork to provide warm air into the home or office. The unit can also power hydronic radiant floor heating and snow-melting systems.

The Phoenix Solar Water Heater incorporates a dedicated solar heat exchanger at the base of the unit to transfer heat from solar panels to the water in its 80- or 119-gallon storage tank. Made of 316L stainless steel, the corrosion-resistant tank requires no anode rods. During periods when solar power cannot meet demand, the water heater uses the latest in modulating and condensing (Mod-Con) technology to pick up the slack. (www.htproducts.com)

Metlund Hot Water D'MAND System

Waiting for hot water can be wasteful, a problem addressed by the Metlund Hot Water D'MAND System from Advanced Conservation Technology Inc. This system is designed for use with any hot water heating system and consists of a high-performance pump, integrated controller and electronic zone valve that requires no special plumbing and can be installed in an hour or two. The unit prolongs the life of the water heater by allowing it to operate at a minimum heat setting, and the company notes the Metlund system has a one- to three-year payback. Each 10 degree reduction in water heater temperature results in a 3 to 5 percent energy savings.

The Metlund D'MAND System creates a self-cleaning effect on all water heaters. When the pump is activated, cold water is supplied to the water heater at a faster flow rate that creates a turbulence at the bottom of the water heater, which prevents sediments from forming. (www.gothotwater.com) ■

BACKUP POWER CAN HELP WITH MORE THAN BLACKOUTS

Backup power systems have become more than a luxury item — they are becoming standard in many new-home construction projects and included during remodeling. The most practical and convenient backup power system is the natural gas-powered generator because the natural gas distribution system is rarely affected by inclement weather.

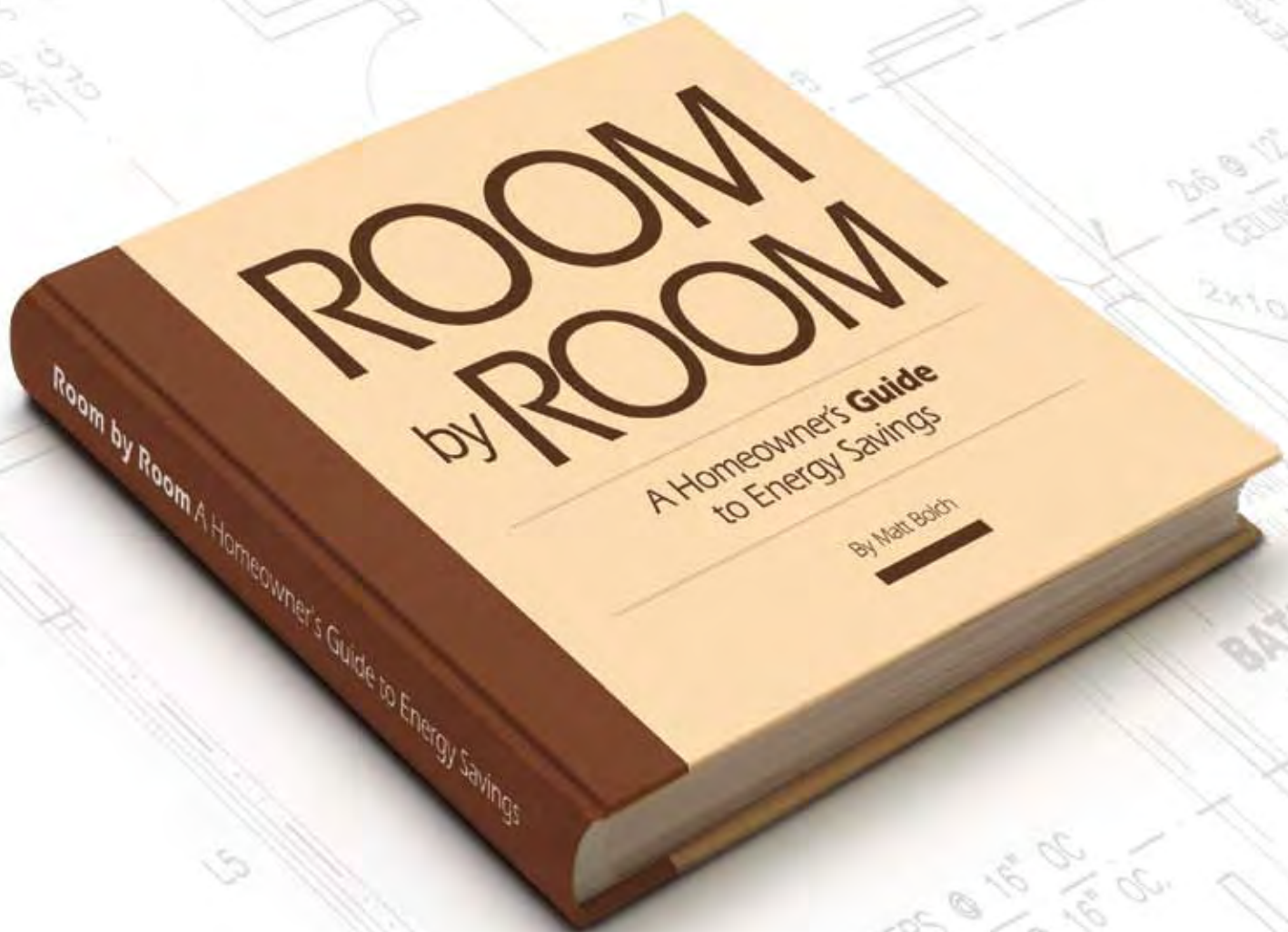
A backup power system provides piece of mind should the electricity fail, allowing the refrigerator and other vital equipment to stay on. Con-

sider what appliances you want to be able to run in a power outage, including air-conditioning, when determining what size generator you need to meet your needs. Discuss this option with a qualified installer.

Whole-house solutions may not cost as much as you imagine. Manufacturers of whole-house generation products include Kohler Co. (www.kohlerpower.com), Briggs & Stratton Corp. (www.briggsandstratton.com), Generac Power Systems Inc. (www.generac.com) and Rheem Manufacturing Co. (www.rheem.com).







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AVING YOUR WAY TO PROSPERITY IS NOT THE FASTEST METHOD FOR GETTING rich, but saving money on your home's energy bills sure helps when household budgets get tight.

Homeowners can save big bucks on heating, cooling and other energy-consuming equipment by following some commonsense tips in each room of the home. Some ideas are as simple as turning the thermostat up or down, lowering the water heater temperature if it's set at the hottest temperature setting, or sealing cracks and other places where air escapes to the outside or enters inside. Other energy-saving ideas require an up-front investment like a new high-efficiency natural gas furnace or the addition of solar panels. But the beauty of energy conservation is that you can decide what's best for your home given its condition, the climate you live in and your budgetary constraints.



☛ Energy auditors can help you find ways to save money on energy costs, even in your most enviro-friendly room.

for Next Step Living. “Air leaks around plumbing penetrations, bathroom fans, doors, windows and electrical outlets can easily be remedied with weather stripping, caulk or low-expansion foam,” Boettcher says.

Many utilities offer free or reduced-cost energy audits as

well as energy-saving tips and customizable worksheets on their Web sites. For example, the online tools at Atmos Energy can be found at www.atmosenergy.com/home/energy_tips.html.

KEY AREAS THROUGHOUT THE HOUSE:

» **Windows.** Although double-hung Energy Star-rated windows with an inert gas such as argon or krypton between the panes can cut energy usage, window replacement might not be practical. Concentrate on the rooms where proper heating and cooling are most important, such as bedrooms and the living room. Sealing around the trim will cut energy use, as will the installation of storm windows over key windows.

» **Attic, floor and wall insulation.** Attic insulation to protect a home’s “envelope” is an easy way to save money. Moore from NYSERDA recommends 6 to 12 inches of insulation with an R-value of 19 or higher. The R-value indicates a material’s resistance to heat flow, and a larger R-value means greater insulating effectiveness.

Many people forget crawl spaces and basement spaces, which also could benefit from insulation. Older houses generally don’t have insulation between the wall studs that form the home’s exterior, and it could be cost-prohibitive to install. Ask a contractor for innovative ways to insulate existing walls with minimal mess, repair or cleanup. If you’re considering exterior siding work or an extensive room remodel, wall insulation should be near the top of the to-do list. (For more information about insulation as it relates to climate and your home’s age and structure, visit www.ornl.gov/~roofs/Zip/ZipHome.html.)

GETTING STARTED

An energy audit or energy assessment is a good first step to identify the areas of greatest savings within your home — and you might be surprised at what you discover. For instance, the average home has energy leakage equivalent to leaving open a 4-foot-by-4-foot (1.2 square meters) window all the time, says Ryan Moore, project manager at New York State Energy Research and Development Authority (NYSERDA).

Accredited home improvement contractors can conduct a comprehensive audit for a fee. (For more information, see “Finding Certified Auditors,” p. 11.) The health and safety of the home is also checked, with inspectors making sure that ductwork is properly connected and that the boiler, furnace or water heater is combusting and exhausting properly. The homeowner receives a report with suggested improvements, estimated costs and potential paybacks.

Suggestions for improvement are put in a spreadsheet that contains information on return on investment — the time period that a repair or upgrade will pay for itself through energy savings.

“We can’t make savings claims on individual homes, but homeowners typically can expect savings between 10 to 25 percent, which will pay for the cost of the visit in 10 to 12 months through energy savings,” says Geoff Chapin, CEO at Next Step Living, a company that helps homeowners and businesses save money on energy bills, keep houses and offices warm, and conserve energy while helping the environment.

Insufficient air sealing is the biggest energy waster that auditors find, says Dave Boettcher, lead auditor





NATURAL GAS: THE RESPONSIBLE AND COMFORTABLE WAY TO SAVE THE PLANET

For homeowners concerned about their carbon footprint, using four natural gas appliances can reduce yearly carbon dioxide emissions by 46 percent.

These findings come from a Carbon Calculator Program built for the Energy Solutions Center by IFC Intl., which compared the carbon emissions of a 2,000-sq.-ft. home with four occupants that has standard-efficiency natural gas heat, water heating, cooking and a clothes dryer with that of a similar household with comparable electric appliances. The carbon dioxide savings goes up to 53 percent when high-efficient heating and water-heating technologies are compared.

ICF Intl. works with government and commercial clients to develop technology solutions in a variety of industries, including energy. The Carbon Calculator Program allows users to input products used in the home to determine their carbon (CO₂) outputs, for natural gas versus electric models. This tool is available online at www.comfortableresponsible.org/carboncalculator.asp.

Carbon dioxide is the main contributor to global warming, and emission savings from the use of natural gas appliances is equal to taking two-thirds of a car off the road. While that might not sound like much, imagine the number of households that can make the natural gas choice and combined savings add up quickly.

CO₂ reduction isn't the only benefit. While nearly 100 percent of SO_x emissions are reduced in the natural gas home, NO_x is reduced by about 73 percent. NO_x and SO_x form during the combustion of natural gas or the generation of electricity. These compounds contribute to smog and acid rain that can damage the ozone layer that protects Earth from harmful ultraviolet rays.

For homeowners who want the efficiency of natural gas appliances and the warm feeling that comes from doing one's part to help the environment, gas is clearly the way to go.

» Off-putting gases in interior spaces. While new-car smell can be a selling point to trade up from your old clunker, that smell in your home actually indicates the presence of potentially harmful substances. Many manufacturers of carpet, paint and other materials are reducing their dependency on chemicals and hydrocarbons, adopting green practices to reduce these indoor air pollution irritants that can trigger asthma or chemical sensitivities. The next time you're in the market for interior flooring or paint, look for brands that are low in emissions.

In fact, the use of paints, carpets and other products that reduce the amount of chemicals in the indoor environment are required by GreenHouse Certification guidelines. This minimizes a common source of irritation — great news for allergy sufferers and others with chemical sensitivities or those with respiratory concerns.

» Energy Star. This government-backed program rates appliances, heating and cooling units, water heaters, windows, home electronics, lighting and office equipment for energy savings. Buying an Energy Star product definitely will save money on energy costs, but be sure

“AIR LEAKS AROUND PLUMBING PENETRATIONS, BATHROOM FANS, DOORS, WINDOWS AND ELECTRICAL OUTLETS CAN EASILY BE REMEDIED WITH WEATHER STRIPPING, CAULK OR LOW-EXPANSION FOAM.”

to first select a product that fits your needs. When considering heating appliances, natural gas units typically save money over electric products, perhaps even those electric products that are Energy Star-rated. Purchasing an Energy Star-rated high-efficiency gas storage water heater can save an estimated \$30 a year, while whole-house gas tankless water heaters can save \$115.



» Air leaks around windows can easily be remedied with caulk, weather stripping or low-expansion foam. Photo courtesy of Next Step Living.

» Power strips. Did you know that many home electronics, even when turned off, still draw power — as much as 40 percent? Plug home audio and video equipment into a power strip, then turn the strip off when not in use.

Recording equipment, such as a TiVo or other digital video recorder unit, should be plugged in directly so your favorite shows will still be captured. The same rules apply to computer equipment and accessories. The general rule is that if you aren't using it, unplug it.

KITCHEN AND BATHS

Low flow is the key to saving water and the energy to heat it. Low-flow faucets and showerheads have aerators to cut water usage by as much as 40 percent. Other easy ways to save include taking shorter showers, turning the water off while brushing your teeth or shaving, and avoiding the temptation to prewash dishes destined for the dishwasher.

Kitchen appliance technology has evolved greatly in the past decade, according to appliance manufacturer Miele. In the past few years, water use has decreased by half, while energy use has gone down by one-third in new dishwashers. An Energy Star refrigerator uses at least 20 percent less energy than one not qualified and more than 40 percent less energy than units sold in 2001.

Significant water savings also can be found by changing toilets to low-flow or dual-flush models. Although older low-flow models were criticized for not flushing waste properly, these challenges have largely been overcome.



Thanks to advances in appliances, in the past few years, water use in kitchens has decreased by half.

that much to make that one room a little more comfortable than the rest of the house.

FAMILY ROOMS AND BEDROOMS

In addition to possible window improvements, consider reducing the thermostat in winter to 68 degrees Fahrenheit (20 degrees Celsius) during the day, and 60 degrees (15 degrees Celsius) when you go to bed. In summer, try 78 degrees (25 degrees Celsius) during the day. (See "High-Tech Thermostats" below.)

Ceiling fans can help push warm air down during the winter while circulating air during summer months to increase your comfort. Be sure the fan blades are turning in the correct direction for proper air flow. Check your operator's manual for correct direction. If your living room has a natural gas fireplace or gas stove, use that to add supplemental heat to that room when you are in it. It won't cost

LAUNDRY ROOM

Front-loading washers use 40 percent less water than top loaders and can wash larger loads. Because the drum in a natural gas dryer heats up more quickly than electric dryers, the time to dry clothes is reduced, especially on permanent press and delicate cycles. And instead of washing clothes as you need them, doing a week's worth of laundry at one time saves money on the dryer. A warm dryer takes less time to heat up than a cold one, requiring less energy.

BASEMENT/UTILITY ROOM

If your furnace and air-conditioning units are more than about 10 to 15 years old, it might be time to upgrade to a high-efficiency model.

HIGH-TECH THERMOSTATS

Programmable thermostats have been on the market for years, but many homeowners are only now realizing the potential to save significant money with a modest investment. According to the Department of Energy, a programmable unit can save \$1,800 over a 10-year span, which means your investment pays for itself in just about one year.

Sophisticated thermostats can communicate with your electric meter, display real-time energy usage and accept programming via phone or Internet. But even a relatively simple programmable thermostat can deliver significant savings. In general, every Energy Star-

qualified programmable thermostat comes with four pre-programmed settings, but many qualified models have such features as digital, backlit displays, touch-pad screen programming, hold/vacation features, and indicators that signal malfunctioning heating/cooling systems or whether it's time to change filters.

However, only 30 percent of programmable thermostats actually have been programmed. You won't realize one dollar of savings until you customize the settings — either manually, through the phone or via the Internet — so find that owner's manual and get to it.



YOU CAN REDUCE YOUR MONTHLY WATER-HEATING BILLS BY SELECTING THE APPROPRIATE WATER HEATER FOR YOUR HOME AND BY USING SOME ENERGY-EFFICIENT WATER-HEATING STRATEGIES.



Furnace and air conditioner technology has evolved rapidly in the past decade, which can mean considerable energy savings.

Larger homes, those with multiple levels and home additions, often have more than one heating or air-conditioning system that can be heated or cooled in zones, which can reduce fuel bills by as much as 20 percent. Each zone has its own thermostat and calls for heating and cooling separately.

“Saving energy is beneficial on both an individual and a global scale,” says Bill Harrison, president of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). “First, and most immediately, saving energy translates into money savings for homeowners. In addition, saving energy is beneficial on a global scale, since we face dwindling energy reserves.”

A heating and air-conditioning system tune-up will ensure the unit is operating efficiently and safely. Also, check to make sure ductwork is sealed, and consider having the ducts professionally cleaned. Clean ductwork helps the A/C or furnace operate more efficiently while cutting down on allergens found in the home. Make sure supply and return vents, radiators and baseboard heating units are unobstructed to ensure proper distribution of warm air throughout the room.

To control dust inside your home, buy filters with a MERV rating of between 9 and 12; these filters stop particles in the 1 to 3 micron range. However, it’s important to clean higher MERV-rated filters as directed because they can have a negative impact on air flow when they become dirty, leading to equipment performance problems.

Water heaters account for about up to 25 percent of a home’s energy use, according to the U.S. Department of Energy, and traditional tank heaters have a life expectancy of between 10 and 15 years. Older models may not be well-insulated, so a water heater jacket or blanket available from your local hardware store can help hold heat more efficiently. If your home has copper pipes, insulating the hot water pipes can help prevent energy loss between the heat source and the faucet.

FINDING CERTIFIED AUDITORS

In the United States, the nonprofit Residential Energy Services Network offers a list of certified auditors (which it calls “raters”) in each state (www.resnet.us/directory/raters.aspx). In Canada, the Office of Energy Efficiency of Natural Resources Canada (NRCan) (www.oee.nrcan.gc.ca) has contracted with organizations across Canada to make the residential energy assessment service widely available. The price of a home audit varies. Check with more than one auditor and ask what tests are included in their price.



Photo courtesy of Next Step Living.

You can reduce your monthly water-heating bills by selecting the appropriate water heater for your home and by using some energy-efficient water-heating strategies.

A tankless or on-demand water heater eliminates the need for a tank, creating hot water only when it’s required. A gas tankless water heater is about one-third more energy efficient than a typical storage tank water heater, and the cost for not running out of hot water during a shower is priceless. In fact, if your home uses less than 41 gallons of hot water each day, an on-demand water heater can result in a 24 to 34 percent increase in energy efficiency over conventional storage tank water heaters. ■

For more information visit www.naturalgasefficiency.org





By Lori Erickson

GRILLING:

Simple, Safe and Fun

How to make your backyard barbecue a smashing success.

We don't know exactly when humans first thought to cook meat over an open flame, but we can guess they reacted with some variation of "Wow! That's amazing!" Grilling meat over an open flame is as popular now as it was centuries ago when it was the only way to cook.

Cooking outdoors over an open flame has never been easier to enjoy, thanks to new tools and technologies that make it safer and simpler than ever. A natural gas grill allows you to quickly and easily control the cooking temperature — and to create delicious, nutritious dishes ranging from the tried-and-true (hamburgers and steaks) to the unexpected (grilled fruits, anyone?).

"Grilling is growing in popularity," says Deidra Darsa, media and public relations manager for the Hearth, Patio and Barbecue Association (HPBA). "Last year, a record 7.4 million grills were shipped from manufacturers to retail stores."

Outdoor cooking offers a quick, no-fuss way to prepare a meal for the nearly 74 million U.S. households that have at least one barbecue grill. According to HPBA, two out of three consumers would prefer to cook out at home when they are in the mood for grilled meats rather than eat out in a restaurant.

While charcoal grills have their devoted fans, the convenience and versatility of gas grills have given them the edge among consumers. Gas grills, it can be argued, are also the more ecological choice, since charcoal grills emit more carbon monoxide and particulate matter into the atmosphere. And then there's the convenience factor: With a natural gas grill, you always have an endless supply of fuel — no more running to the store for more charcoal or lugging around a propane tank for a refill.

Before you begin cooking, make sure your grill is in good working order, particularly at the start of the season. Clean the interior and exterior of the grill, including the cooking surfaces.



Please recycle this magazine after you read it.

“WITH A NATURAL GAS GRILL, YOU ALWAYS HAVE AN ENDLESS SUPPLY OF FUEL — NO MORE RUNNING TO THE STORE FOR MORE CHARCOAL OR LUGGING AROUND A PROPANE TANK FOR A REFILL.”

GRILLING BASICS

Whatever's on the menu, follow these tips:

- ▶ **Be prepared.** Have everything you need at hand before beginning to cook, so that you won't have to leave the grill unattended.
- ▶ **Don't get sticky.** To reduce sticking, spray or brush the grill's cooking surface with vegetable oil before turning on the gas.
- ▶ **Start early.** Preheat the grill for 10 to 15 minutes with the lid closed before putting anything on it — a time that is much shorter than that required by a charcoal grill, which takes 30 minutes or more before it's ready for cooking. “Many people make the mistake of starting to cook too soon on a gas grill,” says Karen Adler, co-author of more than 20 cookbooks, including *BBQ Bash: The Be-All, End-All Party Guide, from Barefoot to Black Tie*. “You need high heat of 400 to 500 degrees to sear the outside of what you're cooking, especially for meats like steak.”
- ▶ **Get the right tools.** Use tongs or a spatula, not a fork, to turn meat. Stabbing the meat allows the flavorful juices to escape and also increases the risk of flare-ups. Be sure to wash the tongs or spatula after touching raw meats, as with any type of grill cooking.
- ▶ **Know your marinades.** A sugar-based liquid like barbecue sauce will burn easily, so add it toward the end of the grilling time. A citrus- or oil-based marinade can be used to baste the meat throughout the cooking time. Also, never put cooked meat on a plate used to carry the raw meat to the grill, as you could contaminate it, and don't reuse marinades that have been in contact with raw meats or poultry.
- ▶ **Think fresh.** Use fresh herbs to season meats and vegetables. They add no calories and impart rich flavor.
- ▶ **Resist the urge to peek.** Unless you're grilling something that cooks very quickly, like fish or a small piece of meat, try not to lift the lid too frequently. Every time you do so, it adds minutes to the cooking time and creates uneven heating.
- ▶ **Be prepared.** Keep a spray bottle of water handy so you can quickly and easily extinguish flare-ups.
- ▶ **Let it rest.** After removing the meat from the grill, let it sit for a few minutes, which will allow the juices to permeate the cut.
- ▶ **Be precise.** Use a thermometer to make sure the meat has reached a proper recommended temperature to be safe to eat.
- ▶ **Cover it.** Keep your grill covered when not in use, as sunlight and rain can cause rusting and corrosion of its exterior. ■



Trends in grilling like cooking with a plank and using grilling baskets add a new twist to the backyard barbecue. Photo courtesy of the Hearth, Patio and Barbecue Association.

Trends in Grilling

The increase in outdoor cooking's popularity means more options for the home cook. You can now make vegetables, pizza and even desserts on your grill. “New tools and recipes make your grill more useful than ever before,” says Deidra Darsa of the Hearth, Patio and Barbecue Association.

One technique gaining in popularity is plank grilling. “The method goes back to the Pacific Northwest Indians, who would cook salmon on a board in the fire,” says Art Roman, owner of The Kitchen Workshop. “The fire would cause the plank to smolder, which would flavor the meat as it cooks.”

Kitchen specialty stores stock planks in a variety of woods, including cherry, oak and various fruit woods. First soak the wood in a liquid such as water or apple cider, then place it on the grill on low heat with the lid down. “It's a simple way of imparting tons of flavor with no fat,” Roman says.

Other popular new tools include grilling baskets and woks, which make it easy to cook vegetables and small pieces of meat like shrimp, and smoke boxes filled with wood chips, which can be placed inside a gas grill to add flavor. Hickory or mesquite chips lend a strong, sweet taste, for example, while cherry chips make for a lighter, fruity flavor.

And don't forget the simple but indispensable thermometer, which can take much of the guesswork out of grilling. Many meats cook best at high temperatures of 500 degrees. For indirect grilling, use an interior heat of 350 degrees.

Whether you're creating a multi-course gourmet feast or a quick meal of hamburgers, your gas grill is an invaluable tool as well as a source of pleasure. “There's something about grilling that's simply fun,” Darsa says. “It's great to be surrounded by friends and family as you cook rather than be stuck inside a kitchen.”

On the Grill

Try these easy recipes for delicious dishes at your next backyard outing.



Asian-Style Pork Tenderloins with Grilled Broccoli

Makes 8 servings

INGREDIENTS

4 pork tenderloins (3½ to 4 pounds)
6 to 8 large stalks broccoli or broccolini

QUICK ASIAN MARINADE INGREDIENTS

½ cup soy sauce
½ cup rice vinegar
2 tablespoons toasted sesame oil
2 tablespoons honey
2 teaspoons lemon pepper



- 1 Place the tenderloins in a large zipper-top plastic bag.
- 2 Clean the broccoli, removing the tough outer layer of stem. Slice the peeled stem into thin strips about ¼-inch thick. Separate the florets. Place the broccoli in a separate large zipper-top plastic bag.
- 3 Combine the marinade ingredients. Pour half the marinade into each bag. Marinate the pork and the broccoli in the refrigerator for 1 hour.
- 4 Meanwhile, prepare a hot fire in your grill. Oil a grill wok or basket on both sides and place directly over the fire.
- 5 Drain the broccoli, reserving the marinade for basting. Place the broccoli in a bowl and set on a doubled baking sheet. Set the marinade on the sheet, too.
- 6 Remove the tenderloin from its marinade and discard that marinade. Set the pork on the sheet and take everything out to the grill.
- 7 Place the broccoli in the wok and grill for about 5 minutes, tossing while cooking. Spoon a little marinade over the broccoli while grilling. When the broccoli is tender and slightly charred, move the wok to the indirect-heat side of the grill.
- 8 Place the meat directly over the hot fire on the grill grates. Grill the tenderloin for 2 to 3 minutes per side, turning a quarter turn at a time, until the internal temperature of the meat registers 140°F. Baste with the remaining vegetable marinade.
- 9 Let the meat rest for about 5 minutes, then slice diagonally into 1 to 1½-inch-thick slices. Place on a platter and serve with the broccoli on the side

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Grilled Farmers' Market Antipasto Platter

Makes 6 to 8 servings

INGREDIENTS

2 pounds best-quality seasonal garden vegetables, such as whole baby zucchini and/or yellow summer squash, cherry tomatoes still on the vine, whole baby stem-on peppers of all kinds, or whole baby Japanese eggplant
Olive oil for brushing
Sea salt and freshly ground black pepper to taste
1 pound artisanal cheese of your choice, such as pecorino, goat cheese or fontina, cut into bite-size pieces
1 pound prosciutto or artisanal salami, very thinly sliced
1 pound brine-cured black olives

- 1 Prepare a hot fire in your grill.
- 2 Brush whatever vegetables you are using with olive oil, then season with salt and pepper and place on a baking sheet to take outside.
- 3 Grill the vegetables for 2 to 4 minutes per side, turning once, until the vegetables have blistered but are still crisp. Arrange the vegetables on a platter and surround with the cheese, prosciutto and olives.



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