dcustom
DIGITAL IMPACT

The Path to Home Comfort

Getting the most out of your HVAC system.

Contact your local Lennox dealer to find the best system to match your home comfort needs and take advantage of current rebates and tax incentives available.

Getting Started

Your heating, ventilation, and air conditioning (HVAC) system is arguably one of the most important features in your home. Not only do these units represent up to half of the average homeowner's utility bills each year, but they also work year-round to keep your home cool and comfortable — or warm and cozy — while maintaining the indoor air quality you and your loved ones breathe on a daily basis.

Knowing how to efficiently operate and maintain your HVAC system can save you money and peace of mind in the long run. This guide will walk you through a few of the details you need to get the most out of your HVAC system, such as checking for insufficient insulation, diagnosing leaky ducts, and deciding if you should repair or replace your 10-year-old unit.

PT. 1

Creating a Healthy Environment

A healthy home depends on an efficient HVAC system, but even a high-performance HVAC unit can't maintain an optimal, clean environment in a home that hasn't been properly sealed or insulated. Before installing a new HVAC system in your home, check these problem areas to make sure your unit can operate as efficiently as possible.

Windows. Beyond making sure your windows are properly sealed and free from cracks or draft-inducing leaks, the next step in HVAC efficiency is investing in energy-efficient windows. ENERGY STAR® retrofits are customized for each climate zone and can reduce energy bills while keeping your home temperature comfortable year-round (i.e., glass stays warmer in the winter and decreases heat in the summer by reducing light pollution). Note: Even if windows are airtight, it still pays off to seal behind windows and door trimming for an extra barrier against the breeze.

Air leaks. When air seeps in or out through the exterior of your home, it can cause your HVAC system to work harder and use more energy than necessary. A fully sealed and insulated home can save around 10 percent on your home's annual energy bill and close to 20 percent on your average heating and cooling costs. Although most leaks are easy to spot (holding a lit candle near drafty areas and watching for the flame to flicker is a great trick for finding the gaps in your home's efficiency), some holes are harder to find. Check your attic, basement, and crawl spaces for problematic holes. For best results, use caulk, spray foam, or weatherstripping to seal the leaks. For a more thorough analysis of your home's efficiency, contact your local Lennox dealer for a diagnostic scan.

Insulation. An insulated home is a happy home, in both cool and warm seasons. A properly insulated home can keep your bank account insulated as well by lowering energy bills during the most extreme temperatures of each season. Insulation is measured by its ability to resist heat flow, known as "R-value." A home's R-value can differ based on its age, geographical location, and even its specific features (attics, basements, crawl spaces, etc.). The biggest impact homeowners can control is in the attic, where ideal R-levels should be around R-38 (roughly 12-15 inches of insulation). Check out this table to determine the most efficient level of insulation for your home: www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_insulation_table.

Ducts. All indoor air travels through the duct system, meaning a single leaky, improperly sealed, or disconnected duct could negatively impact your entire system's airflow and make it difficult to maintain a comfortable temperature in your home. On top of that, harmful fumes from everyday garden and household products can make their way into the system and affect indoor air quality, or aggravate asthma and allergy symptoms. Sealing and insulating ducts can improve the efficiency of your home's HVAC system by up to 20 percent, and it can improve your home's air quality immensely. The U.S. Environmental Protection Agency (EPA) recommends focusing on sealing ducts that run through the attic, crawl space, basement, or garage with duct sealant (mastic) or metal-backed (foil) tape to seal the seams and connections of ducts. After sealing the ducts in those spaces, the EPA suggests wrapping them in insulation to keep them from getting hot in the summer or cold in the winter before checking for any other ducts that you can access in the temperature-controlled areas of the house.

Other factors. Sometimes even the most airtight home can have uneven heating and cooling tendencies, often due to:

- **Home genetics** — Single-story homes tend to be colder, while two-story and split-level homes typically run colder on the lower levels and warmer on the upper levels.
- **Cardinal directions** — Southern-facing rooms get more sun exposure and typically heat up faster than other rooms.
- **Room features** — The number of windows in a room, along with the direction they face, can affect room temperature. Try using energy-efficient window drapes and coverings to offset the impact.
- **Not enough ducts** — Older homes are often plagued by too few air return ducts, resulting in cut-off air supply and pressure imbalances with so much as a closed door. Your local Lennox dealer can perform a simple heat load calculation of your home to identify problem areas and provide customized solutions for your specific needs. ▶

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PT. 2

Controlling Your Domain

The EPA notes that turning your thermostat back 7–10 degrees for eight hours a day can save the average homeowner upwards of 10 percent a year on heating and cooling costs. While the numbers seem simple enough, the routine can be tough to maintain.

A programmable thermostat is ideal for anyone who leaves home for any amount of time during the week. These simple devices are capable of storing multiple daily settings you can control or override at a moment's notice without affecting the usual program. When used correctly, programmable thermostats can significantly lower your energy costs.

Tips for buying a programmable thermostat. Programmable thermostats can be digital, electromechanical, or some combination of those two options. Finding the perfect programmable thermostat for your home is all about your preference. Although all varieties are similar in terms of function, there are numerous features that set each one apart, including:

- Built-in Wi-Fi
- Vacation settings (or "hold" settings)
- Adaptive recovery
- Maintenance reminders
- System malfunction alerts
- Backlighting
- Touchpads
- Smartphone programming
- Voice programming

There are three different models to choose from: 7-day, 5+2-day, or 5-1-1-day. Each has its own benefits, and the right one for you depends on your personal schedule. Benefits of each model are as follows:

- **7-day models** offer the most flexibility and are good for people whose daily schedules change frequently. They allow users to set programs for different days — usually with four possible temperature periods per day.
- **5+2-day models** are great for users who work consistent hours during the week since they use the same schedule every weekday, and another for weekends.
- **5-1-1-day models** are best for people with a regular Monday through Friday schedule, and set schedules for Saturdays and Sundays.

Tips for installing programmable thermostats. The first step to installing your programmable thermostat is determining a location. It's best to install the device on an interior wall, away from heating or cooling vents and temperature-sensitive areas (i.e., doorways, windows, skylights, bright lamps). Follow the instructions on the package for the rest of the installation, remembering to shut off your electricity before beginning any work. The job should only consist of reconnecting a few wires to replace the manual unit with a programmable one, but if the job requires more than a simple replacement, contact your local Lennox dealer to have them handle the installation for you. Note: If you plan to replace a manual thermostat that contains a mercury switch, take extra care not to break the tube, and always dispose of the unit at your local recycling/hazardous materials center.

Get the most out of your programmable thermostat by following these five steps:

1 Program the thermostat to stay at its energy savings level for extended periods of time when possible (eight hours is ideal).

2 Adjust the settings when you plan to be away from home for several days. Some units have a "hold" mode that works great for short vacations.

3 Install a separate programmable thermostat in each zone of your home for maximum comfort and savings. Note: The U.S. Department of Energy (DOE) found that zoning, when combined with programmable thermostats, can save homeowners up to 30 percent on their energy bills.

4 Change the batteries every year and keep track of any warning lights or maintenance indicators that may pop up throughout the seasons.

5 Fine-tune your settings to match your comfort needs while reaping energy-saving benefits. Remember, for every degree you adjust your thermostat, you save 1 percent on your energy bill.

PT. 3

Time to Replace

It's always a good idea to have your Lennox dealer inspect your current home system before making the decision to purchase a new one.

To get the most out of your HVAC system, it's generally recommended to swap it out for a newer model every 10 years to make sure you're getting the latest and best benefits on the energy-efficient market.

It's always a good idea to have your Lennox dealer inspect your current home system before making the decision to purchase a new one so they can assess your repair needs or help you sort through system replacement options, including:

Central air conditioners. In a central A/C, air is treated at a central location and distributed to and from rooms by one or more fans and a series of ducts. Replacing a central A/C also means replacing the blower motor of the old unit to make sure the system operates as efficiently as possible.

Furnaces. A furnace is responsible for heating the home by sending warm air through the duct system. Most furnaces run on gas, but there are a few that run on oil, propane, or electricity. The key to finding the most efficient furnace for your home is to look at the Annual Fuel Utilization Efficiency (AFUE) rating of the unit. Generally, the higher the AFUE rating, the more efficient the furnace. For example, a typical condensing furnace could have an AFUE rating of 90–98.5 percent while an older furnace with a pilot light might have an AFUE rating of 56–70 percent.

Heat pumps. A heat pump is an HVAC system that heats or cools by moving heat. During the winter, a heat pump draws heat from outdoor air and circulates it through your home's air ducts. In the summer, it reverses the process and removes heat from your house and releases it outdoors.

Electric air-source heat pumps (ASHPs). An air-source heat pump uses the difference between outdoor and indoor air temperatures to cool and heat. They are more frequently used in moderate climates and are measured by Seasonal Energy Efficiency Ratio (SEER) and Energy Efficiency Ratio (EER) ratings, where higher ratings mean higher efficiency.

Geothermal heat pumps (GHPs). Geothermal, or ground-source, heat pumps are one of the most efficient systems because they heat and cool a home's water and air using natural energy from the ground. They are a great option for anyone with solar panels or wind energy systems, and these heat pumps often pay for themselves over time with their energy savings.

Humidifiers/dehumidifiers. These indoor air quality devices work to add or remove moisture as air passes from the furnace into the ductwork for distribution throughout the home. When attached to your home's central heating and cooling system, these units can ensure a comfortable environment for the entire home.

Water heaters. Although these units typically carry a hefty price tag up front, they generally end up saving you money in the long term due to their significant energy savings. There are several water heater options, including gas condensing tank units, heat pump water heaters, solar water heaters, and gas tankless water heaters.

Air filtration and ventilation solutions. Air filtration and ventilation options work to improve your home's indoor air quality. They can reduce airborne bacteria and allergens to create a healthier home environment. New filtration and ventilation products appear on the market all the time, so speak with your Lennox dealer to find out which options are available for your home.

Boilers. Unlike furnaces, boilers do not use a duct system to heat the home. Instead, they use gas, propane, or oil to heat water that flows through radiators, baseboards, or radiant floor systems. The higher the AFUE rating, the more efficient the boiler, but keep an eye out for energy-efficient features like electronic ignition and combustion technologies to improve fuel efficiency and safety.

Whole-house fans. Not to be confused with attic fans, these fans pull cool air from outside to create a wind chill effect in your home, even if it's already cooled by natural ventilation or air conditioning. These systems work best in climates with a significant change in temperature from day to evening, and they use less energy than traditional air conditioning. Raising your thermostat by 2 degrees while using your ceiling fan can result in air conditioning savings of 14 percent over the course of the cooling season.

PT. 4

Installation Basics

Proper installation of your new HVAC system will ensure long-lasting, worry-free operation and year-round home comfort. When installing your system, your Lennox contractor will use a few key guidelines outlined by ENERGY STAR and the Air Conditioning Contractors of America (ACCA). For the full list, visit www.energystar.gov/index.cfm?c=hvac_install.hvac_install_program_development, and remember to ask your HVAC technician if you have any questions about getting the most out of your new system.

PT. 5

Maintenance

Maintaining your HVAC system is critical to ensuring the equipment operates at its peak efficiency. Regular preventive maintenance can also prolong the life of the equipment by reducing the need for expensive repairs. A typical maintenance check involves cleaning, repairing, and sometimes even replacing one or more components of your heating and cooling system. Consider purchasing a maintenance agreement and setting up spring and fall HVAC maintenance appointments with your certified Lennox technician to ensure your system stays in top shape.

Between tuneups, it's important to check your air filters regularly and replace them every three months to prevent dust and dirt from causing inefficient (or harmful) buildups in your system. Make sure to call your HVAC contractor if you have any problems with your system throughout the year, including stale odors, frequent outages, ice buildup, increased or decreased moisture, and infrequent cycling of your system.

PT. 6

Resources

For more information on your home's comfort solutions, check out the following online resources or call your local Lennox dealer today.

- **Air Conditioning Contractors of America:** www.acca.org
- **Air-Conditioning, Heating, and Refrigeration Institute (AHRI):** www.ahrinet.org
- **AHRI tax credit information:** http://ahrinet.org/site/597/Homeowners/-Federal-Energy-Efficiency-Tax-Credits
- **Database of State Incentives for Renewables & Efficiency (DSIRE):** www.dsireusa.org
- **ENERGY STAR:** www.energystar.gov
- **Tips and resources from North American Technician Excellence, Inc. (NATE):** www.hvacradvice.com
- **U.S. Department of Energy (DOE):** www.energy.gov
- **U.S. DOE's Energy Savers:** www.energysavers.gov