



ENERGY STAR® Certified Home Features

Energy efficiency guidelines set by the U.S. Environmental Protection Agency (EPA)

A COMPLETE HEATING AND COOLING SYSTEM



Heating and cooling can cost the average homeowner more than \$1,000 a year—nearly half of the total energy bill. To help reduce these costs, ENERGY STAR certified homes come equipped with heating, ventilating, and cooling (HVAC) systems that are designed and installed to optimize performance, lower utility bills, keep you more comfortable, and provide better moisture control, better indoor air quality, and quieter operation. During design and construction, ENERGY STAR builder partners must meet all of the requirements of EPA's comprehensive HVAC Quality Installation inspections and work with trained and credentialed HVAC professionals to ensure that—

- Heating and cooling equipment and associated ductwork are sized and installed correctly to maximize comfort and performance.*
- Ducts are properly sealed to reduce air leakage, comfort problems, and expenses.
- Air is filtered and a mechanical ventilation system that draws in outside air is provided to reduce indoor air pollutants.

When builders meet these rigorous requirements, you get a home with a complete heating, ventilating, and cooling system—a better approach to building a better home.

EFFICIENT EQUIPMENT

ENERGY STAR certified homes typically include high-efficiency HVAC equipment that uses less energy and operates at reduced noise levels, helping you save on utility bills and maintenance costs.

PROPER SYSTEM DESIGN AND QUALITY INSTALLATION

Trained HVAC professionals design and install the heating and cooling systems in ENERGY STAR certified homes in accordance with best practices established by the leading industry association and equipment manufacturers.*

System Design and Sizing – Proper sizing of equipment and ductwork is essential to achieving optimum performance and comfort. Homes with oversized systems may not be as comfortable because of frequent on/off cycling, which can cause large temperature swings and lead to poor humidity control. Incorrect sizing can also put stress on system

components and shorten the equipment's life. HVAC professionals are required in most cases to perform detailed calculations to determine the optimal heating and cooling system for your ENERGY STAR certified home based on factors such as home location and orientation, house size, window types and locations, and insulation levels.

Duct Design and Installation – In many homes, ductwork carries air from the central heater or air conditioner to each part of the home and back again. In ENERGY STAR certified homes where ducts are used, they are properly sized to ensure that the right amount of air gets to each room and has a path to get back to the central unit. HVAC professionals install ducts without kinks, sharp bends, or excessive coiling or looping to help air flow freely and efficiently throughout the house. In addition, they insulate ducts in unconditioned spaces, such as crawl spaces and attics, to minimize energy losses.

*Applies to installation of ventilating systems and the most common types of heating and cooling systems in new homes.

Duct Sealing – Sealing air ducts is an important step in the installation process. In a typical house, about 20 percent of the air moving through the duct system is lost due to leaks, holes, and poor connections. As the owner of an ENERGY STAR certified home, you can be sure you are paying less to heat or cool air because duct joints and seams are properly sealed with durable materials. HVAC professionals will also typically seal ducts at the connections to air inlets and registers to prevent conditioned air from seeping into the walls, ceilings, or floors, which could condense and lead to moisture problems.

System Tests – HVAC professionals work with trained Home Energy Raters to perform several system tests of your ENERGY STAR certified home, as applicable, to ensure that the HVAC systems are operating properly. For example, the HVAC professionals check the refrigerant charge in air conditioners and heat pumps—an important step because an improperly charged system can consume more energy and provide less dehumidification. The HVAC professionals also check the electrical connections of the equipment because if the voltage or current is too high or too low, it can shorten the life of the unit. Last, but not least, the HVAC contractors take measurements to make sure that the proper volume of air is flowing in the equipment and in each room—this helps to avoid comfort problems and high utility bills. Raters also test the duct system to verify that connections have been properly sealed for optimum performance.

WHOLE-HOUSE MECHANICAL VENTILATION

Every ENERGY STAR certified home is built with a mechanical Ventilation system to provide outside air and to reduce indoor air pollutants. These mechanical ventilation systems are designed to ensure that any outside air inlets are located away from known contamination sources, such as garages or exhaust fans, and include screens to keep pests out. Premium air filters (rated MERV-6 or higher) are used so you can breathe easier knowing that outside air and indoor return air are filtered to help reduce dust, allergens, and other airborne pollutants. These filters are located to allow for easy routine maintenance.

Exhaust fans are installed in bathrooms and kitchens to vent moisture and fumes directly to the outdoors (fans in many typical homes often vent to the inside of the home). Quieter fans are also used so you can run the fans when needed without being disturbed by noise.

Improper Installation



Ducts are crammed into cavity, kinked and sharply bent.

Proper Installation



Ducts are run straight and supported properly.

Combustion appliances, such as furnaces, boilers, and water heaters are directly vented to the outdoors; installed in lower-risk areas, such as garages or attics; and combustion tests are done to help ensure safe operation.

BUILDING A BETTER FUTURE

An ENERGY STAR certified new home delivers better energy efficiency and so much more. An ENERGY STAR certified home is built better and built to last because the best, tried-and-true, integrated construction practices are used from the ground up. The result is better quality and durability, better comfort, better systems, a better value for today, and a better investment for tomorrow—plus a label backed by EPA. In short, better is better.

ENERGY STAR was introduced by the U.S. Environmental Protection Agency in 1992 as a market-based partnership to reduce greenhouse gas emissions through energy efficiency. ENERGY STAR offers businesses and consumers energy-efficient solutions to decrease energy consumption, save money, and help protect the environment for future generations. Nearly 20,000 organizations are ENERGY STAR partners, committed to improving energy efficiency in homes, products, and businesses.

ENERGY STAR Certified Home Features

- A Complete Thermal Enclosure System
- A Complete Water Management System
- A Complete Heating, Ventilating, and Cooling System
- Efficient Lighting and Appliances
- Independent Inspections and Testing

Ask your builder for more information.

Homes that earn the ENERGY STAR® prevent greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency. www.energystar.gov

