



## Green Home Certification Criteria Explanation

### Appliances

**Refrigerator:** According to the U.S. Department of Energy (DOE), refrigerators use approximately 8% of a home's energy. ENERGY STAR® qualified models use at least 10% less energy than required by current federal standards, and 40% less energy than the conventional models sold in 2001.

**Dishwasher:** ENERGY STAR Certified Dishwashers use approximately 41% less energy than the federal minimum standard for energy consumption while using 35% to 50% less water than conventional dishwashers.

**Clothes Washer:** ENERGY STAR Certified Clothes Washers use half the water and a third of the energy that conventional clothes washers use.

**Clothes Dryer:** A damper on the clothes dryer vent shaft is important to keep outside air from entering the house.

### Heating & Cooling

**Thermostats:** According to the DOE, you can save 5%-15% on your heating and cooling bill by setting back the temperature by 10 degrees for an eight hour set-back period.

**Air Conditioning:** ENERGY STAR qualified central air conditioners have a higher seasonal energy efficiency rating (SEER) than standard models, which makes them at least 14% more efficient than standard models. If you purchase an air conditioner at SEER 16 or above, you qualify for a tax rebate.

**Heating:** A heating system with an ENERGY STAR certification has an AFUE rating of 85% or higher. ENERGY STAR certified heating systems are at least 15% more efficient than conventional heating systems. At 95% AFUE, a new heating system qualifies for a tax rebate. Well-maintained HVAC appliances have a history of professional maintenance at least once per year. Any combustion appliance that uses interior air should be monitored for carbon monoxide and other hazardous fumes.

### Lighting

**Energy Efficient Light Bulbs:** Compact Fluorescent Light (CFL) bulbs use approximately one-fourth the energy, and last about ten times as long as their incandescent counterparts. CFL's also emit 90% less heat than incandescent light bulbs. LED lights are similarly efficient while generating no heat and containing no mercury. LEDs also last longer than CFLs.

**Halogen Light Bulbs:** According to the California Energy Commission, halogen light bulbs are an extreme fire hazard, as they can reach temperatures of 1,200 degrees Fahrenheit. To save energy, change your fixture or use a lower-wattage halogen bulb.

### Plumbing (Indoors)

**Showerheads:** A ten minute shower using an older showerhead can use 30 to 40 gallons of water. With a new showerhead that uses 2.5 GPM or less, you could be saving thousands of gallons of water per year, which reduces the amount of money you spend heating that water.

**Toilets:** Older toilets use up to 5 gallons per flush. Modern toilets use either 1.6 or 1.28 gallons per flush, which saves thousands of gallons of water over the lifetime of the toilet.

**Composting Toilets:** According to Envirolet, composting toilets can save a household up to 20% to 50% of its water consumption and return the waste to the environment as fertilizer.

**Sinks:** By aerating your faucets, you conserve water with little impact to water flow quality. This can save thousands of gallons of water per year compared to sinks with no aerators. Plus, you don't have to spend money heating more water than you need.

**Water Heaters:** Water heating accounts for about 13% of your annual home energy use. A switch from a conventional water heater to an ENERGY STAR certified water heater may cut your hot water heating energy in half. To limit the amount of heat loss from water heaters without an ENERGY STAR certification, consider wrapping them with an insulation blanket. For safety, only wrap electric water heaters. Well-maintained water heaters have a plumbing professional inspect the water heater on an annual basis. Insulating the outgoing piping 2.5 feet from the hot water heater saves 15% of the energy used to heat the outgoing water.

## Plumbing (Outdoors)

**Irrigation:** Watering one's lawn can account for 40% of a home's water consumption. A gray water or drip irrigation system can counter that consumption by saving 35-40% of water use.

**Rain Barrel:** Only 1/4 inch of rainfall runoff from the average roof will completely fill the typical barrel and can be used to reduce water consumption for the household. (City of Palo Alto).

**Septic System:** A properly designed, installed, operated, and maintained septic system will provide economical and effective sewage treatment. If you properly treat sewage today, future generations will not incur the cost of cleaning up the health or environmental problems that contamination may create. (University of Minnesota)

## Structure & Materials

**Roof:** ENERGY STAR certified shingles can lower your roof's surface temperature and the attic temperature, which may lower your cooling costs by 10-15% (for homes with HVAC or ductwork in the attic).

A roof that has been painted with paint that has a solar reflectance index of 114 or higher achieves a similar impact.

**Downspouts:** Downspouts that push water at least three feet from the building safeguard your foundations and basements from flooding and mold.

**Doors:** The gaps between doors and door frames allow conditioned air to leave the house; which wastes energy. Proper weatherization saves energy.

A storm door is another layer between the conditioned portion of your house and the outdoors that provides insulation and air barrier.

**Windows:** Depending on their material, window frames conduct heat. Window glass also conducts heat and has very low insulation values. Gaps in windows allow air movement. According to the Department of Energy, these effects combine for an average of 10-25% of your home's energy consumption. With ENERGY STAR Certified windows, you can cut your energy use by 7% to 24% annually.

**Insulation:** EPA estimates that homeowners can typically save up to 20% of heating and cooling costs by air sealing their homes and adding insulation in attics, floors over crawl spaces, and accessible basement rim joists. Insulation and air sealing are very effective at improving the comfort and air quality in a home.

**Paint:** Using low or no-VOC paint benefits your household's health by improving air quality and lowering the amount of ozone depleting contaminants.

**Flooring:** FSC certified flooring is sustainably logged timber that you can feel responsible walking on. Recycled materials used to make flooring also help the environment.

**Solar Power:** Getting your energy from the sun takes advantage of clean and abundant sunshine, which means you don't need to buy power from coal and other dirty sources. Solar power lowers your carbon footprint by lowering pollution from traditional power plants.

## Air Quality

**Ductwork:** According to ENERGY STAR, approximately 20% of the air moving within an average house is lost to holes in ductwork. Sealed ductwork prevents any air from escaping into unconditioned space. It also prevents unconditioned air from coming into your living space, which is a major source of dirt and dust.

**Garage:** Garages are potential sources of air leakage and poor air quality. Creating a thermal and airtight barrier between the garage and the conditioned space of your home saves energy on heating and cooling, and ensures that no harmful toxins are leaked into your home. Weatherized garage doors operate similarly to a storm door, enhancing your thermal and airtight barrier to the living areas.

**Carbon Monoxide Detectors:** Carbon monoxide is an odorless, tasteless gas that, in high levels, can cause severe illness and even death. Carbon monoxide is a natural byproduct of combustion. Thus, it is created by gas furnaces, water heaters, ovens and other combustion appliances. Make sure to keep a Carbon Monoxide detector near your combustion appliances and throughout the living spaces of your home.

**Building Air Exchanges:** According to the EPA, a building airflow standard of 70-100% can reduce heating and cooling energy consumption by 10-21%. You can reduce air exchanges by doing air sealing and weatherizing of your doors, windows, attic and basement.



For more information, call 240-396-2141 or visit [www.ecobeco.com/greenhome](http://www.ecobeco.com/greenhome)