



SELECT ENERGY EFFICIENT APPLIANCES & ELECTRONICS Step 11

Identifying and purchasing the most energy efficient appliances at the lowest cost takes some effort as the most energy efficient and cost effective models often vary with each model year. Similarly, making it easier for residents to deal with the energy use and phantom plug loads of their electronics is also challenging. However, both efforts are critically important to the success of a zero energy home where appliances and electronics become the largest category of energy use – greater than the much reduced space heating and water heating energy use in these homes.

Select Energy Star Appliances

Search for energy efficient appliances on the [Energy Star Products page](#) and select the most cost-effective models. Smaller appliances usually use less energy, so think about right-sizing refrigerators, clothes washers and dishwashers. In selecting appliances for a zero energy home, both cost and energy efficiency should be taken into consideration. Cost and energy features of appliances change frequently so search for the latest information on appliances each time a new home is built.



Induction Stove Tops

An induction cooktop heats 30% more efficiently than a gas range and about 12% more efficiently than an ordinary electric range. Induction cooktops also heat more quickly than regular electric ranges and significantly faster than gas ranges. Induction cooktops heat the molecules in the pan rather than heating the cooktop itself. When you are done cooking, the cooktop usually is warm, but not hot, so it is safe to touch and easy to clean. Gas stoves create indoor air pollution that often exceeds EPA limits for indoor air quality, making it best to avoid installing them in very airtight homes.

Microwave Ovens

Microwave ovens are significantly more energy efficient and faster than electric or gas ovens. Microwaves should be sized so they can be used for most cooking. Recipes and techniques for cooking a wide variety of foods in a microwave oven are readily available online.

High RPM Washer with Cold Water

A front-loading high RPM clothes washer with a 1400 RPM spin cycle and a fan fresh (fluff) option will take almost all of the moisture out of wet clothes without heat, minimizing the use of a dryer or time needed to line-dry laundry. All washers have energy-saving cycles that use only cold water. Since hot water heating uses more energy, it makes sense to recommend cold water washing to zero energy home buyers.

Clothes Dryers

Standard electric or gas dryers use a considerable amount of energy and must be exhausted to the outside, creating the equivalent of a large (though intermittent) air leak in an otherwise super-tight building shell. Air drying clothes saves a lot of energy. Outdoor clothes lines and indoor drying racks are cost effective. In dry climates, indoor drying can bring welcome moisture to household air. In moister climates, outdoor clothes lines are a better option.

Heat Pump Dryers

If an automatic clothes dryer is needed, consider a [heat pump condensing dryer](#). Using the same technology as refrigerators, space heating heat pumps, and water heating heat pumps, these dryers get more heat from each unit of electricity than a typical electric dryer, typically saving 50 to 60% on energy costs. Heat pump clothes dryers have been used in Europe for many years but are new to the U.S. market. The models currently available are more costly than standard dryers, but may pay for themselves within about 5 years. In the future, as costs come down, they will be the electric dryer of choice.

Efficient Dishwashers

In selecting a dishwasher, look for those with an Energy Factor of 0.85 or greater. For example, the Bosch dishwasher is a highly energy efficient, water-saving dishwasher with an energy factor of about 1, however it's price tag may make it less cost effective than other, somewhat less efficient, Energy Star dishwashers.

Electronics

The biggest energy users in today's energy efficient homes are big screen TVs, gaming consoles, computers, and other electronics. Most electronics are energy hogs and almost all electronics have large "phantom loads" due to energy being used even when they are turned off – wasting energy 24/7. Encourage buyers to consider purchasing the most energy efficient electronics available, install manual on-off switches, and use power strips for electronics in order to reduce these phantom loads. Install electric outlets in rooms where electronics are likely to be used so they can be turned completely off with a wall switch. Special switches are available for turning off plug loads for entertainment centers without prolonging the start-up time.

Appliance Size

When building a smaller house as part of your zero energy strategy, consider selecting smaller appliances as well. When the building itself costs hundreds of dollars per square foot, shaving a few square feet from the total can save thousands of dollars in construction costs. Similarly, a 20-cubic-foot refrigerator uses less energy, square footage, and purchasing power than a 28-cubic-foot model. Consider downsizing the dishwasher from the standard 24-inch model to an 18-inch or a drawer-type dishwasher. Of course, appliance size will need to reflect the needs of the household.

Homeowner Education

The way occupants use appliances and select and use electronics has a big impact on overall household energy use. For a zero energy home that has met the energy modeling requirements to be successful in real life application, builders must provide homeowners with the technologies and education necessary for their success. Please see our [Zero Energy Living Guidelines](#) (link) to share with your homebuyers. The Zero Energy Project strives to be a complete resource for homebuyers, builders, designers, real estate professionals, and advocates for the zero energy home market.

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