

STEP 7

SELECT YOUR HOUSEHOLD APPLIANCES

This is the easiest Step in the design of your super-home. There's not much doubt about which types of appliances you will want. All the information you need to select the best models is readily available. And, the sizes of major kitchen appliances are standardized, which made it easy to lay out your kitchen in Step 1.

Only in a few cases will you need to ponder whether to have a major appliance – such as a food freezer. You can defer the selection of your portable appliances, such television sets, until your home is built. But, make sure that each appliance has a well planned niche in your home.

If a particular type of appliance can use more than one energy source – for example, clothes dryers can use electricity or gas – start by deciding which energy source is best for you, guided by our review of energy sources at the beginning of Step 4.

Next, narrow your search to models that have the highest efficiencies. You can do this entirely on the Internet. We explain the appliance efficiency rating systems and how to use them.

Then, for each type of appliance, we explain the main variations, features worth considering, and any installation issues that require special attention. Finally, visit a few large appliance stores to see the styles and features that are currently available. Check the reliability and performance of current models by reading objective reviews, such as *Consumer Reports*. For more details about available features, visit manufacturers' Web sites.

Everything in this Step applies to selecting appliances for an existing home in the same way as it does for a new home.

APPLIANCE EFFICIENCY RATINGS

Selecting high-efficiency equipment is one of the Five Principles of Super-Efficiency. But until recently, it would have been practically impossible for a homeowner to do all the research needed to identify the most efficient appliances that are available. Now, selecting efficient appliances has become almost effortless. The hard work is done for you by a system of energy efficiency ratings that allow you to shop for appliances on an objective basis.

Well, almost objective. Manufacturers do their own testing, subject to test procedures that are established by industry organizations. This invites cheating. Also, the ratings for certain appliances are misleading, and we will warn you about those.

The existence of efficiency ratings has been a powerful stimulus for manufacturers to offer models with greatly improved efficiency. At the same time, inefficient models remain for the cheap end of the market. So, there is now a much greater difference between the most efficient models and the least efficient.

Efficiency ratings are continually expanding and evolving. Most appliances are now rated, but some still remain to be covered adequately. Some equipment may be covered by two or more rating systems. Some rating systems are based on others. For appliances, the following rating systems are the most important at this time.

The Energy Star Rating System

In the United States, the primary rating system for household appliances is the federal Energy Star program. Appliances that fall within the top percentage of efficiency within each type are allowed to claim Energy Star certification. The range of eligibility differs for each type of appliance.

Even more useful, the individual efficiency ratings of Energy Star certified appliances are listed on the Energy Star Web site, www.EnergyStar.gov. This allows you to identify the most efficient models without setting foot in a store or looking in a catalog. Searching the Energy Star Web site is now the best way to start shopping for most appliances.

Each efficiency rating is tailored to the type of appliance. Water-using equipment, including washing machines and dishwashers, are now rated for water saving as well as energy efficiency.

Energy Star is now spreading to other countries and groups of countries, including the European Union. Similar efficiency rating systems have been adopted elsewhere.

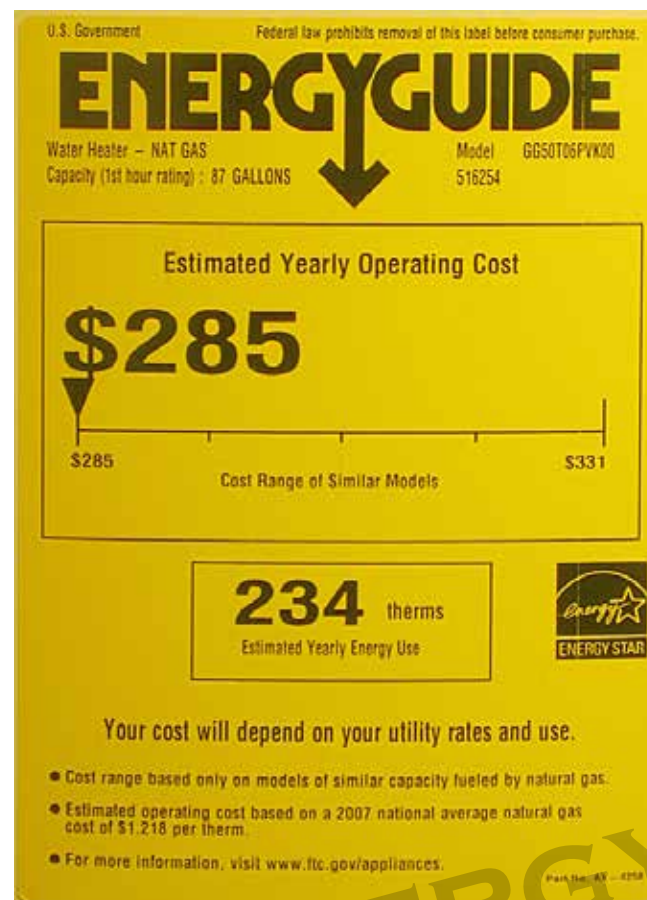


Figure 7-1. A typical appliance efficiency label.

Appliance Efficiency Labeling

The United States has another program, called *EnergyGuide*, that requires manufacturers to attach large yellow labels to all residential refrigerators, freezers, dishwashers, clothes washers, water heaters, boilers, furnaces, air conditioners, heat pumps, and pool heaters. The label on each appliance indicates the annual operating cost and/or the efficiency rating of that particular model. The label also shows how that rating compares to the lowest and highest ratings for that type of appliance. Figure 7-1 shows a typical label.

This system has a big weakness, which is that the labels give you efficiency information only for the models that are displayed in the store. *EnergyGuide* labeling has been rendered largely obsolete by Energy Star and other rating systems that can give you comprehensive efficiency rankings on the Internet before you start shopping.

YOUR MAJOR APPLIANCES

REFRIGERATORS

A refrigerator is an insulated box with built-in cooling equipment. The cooling equipment is similar to an air conditioner, except that it cools to a lower temperature. Refrigerator efficiency has improved greatly in recent years because of better insulation, more efficient cooling equipment, and better control of temperature and defrosting.

The refrigerator is usually the biggest consumer of energy in the kitchen. That's because it runs all the time. You can minimize the energy cost of your refrigerator by shopping for a high-efficiency model, by installing it properly, and by using it efficiently.

Select Your Refrigerator for Efficiency

Start your shopping on the Energy Star Web site. All models listed there use at least 15% less energy than required by current U.S. federal standards. Pick from the best of this group. (Compact models, with volumes less than 7.75 cubic feet, are listed if they use at least 20% less energy than required by current federal standards.)

The models are grouped by their configuration and major features. For each model, the Web site lists the "percent better" than U.S. federal standards. Decide on the features that you want and narrow your selection to the most efficient models in that group.

Refrigerator Options

Energy consumption increases with size, other things being equal. However, don't get a refrigerator that is too small. From experience, you will know the size that you need for your family.

Most refrigerators have a freezer section. Originally, this section was always on top. That is still the most popular configuration. Refrigerators with side-by-side freezers are less efficient, although they provide more freezer space. Some refrigerators have a freezer at the bottom, but this location is awkward.

An automatic ice maker that is located inside the freezer compartment is a desirable option. It requires a flexible connection to your cold water supply. If you install a drinking water filter for household use, connect the water supply to the ice maker from the discharge side of the water filter.

Refrigerators with chilled water dispensers and ice makers located in the door have become popular. However, it is reported that this feature increases energy use by 14% to 20%. Also, in my experience, in-door dispensers are prone to trouble.



Figure 7-2. Rust that results from condensation around the opening of a refrigerator door.

Automatic defrosting has become a standard feature. Previously, the freezer compartment would accumulate a thick layer of ice, which greatly reduced efficiency. To get rid of the ice, you had to turn off the refrigerator periodically, empty the freezer compartment, and sweep out the ice as it melted. It is a chore that you won't miss.

However, automatic defrosting approximately doubles the energy consumption of a refrigerator, compared to one that is manually defrosted on a regular basis. Especially if your climate is very dry, you might consider a manual defrost model if you want to push energy efficiency to the limit. However, if you fail to defrost regularly, you will lose your energy saving.

Sweat tends to form around the door gaskets, especially when the weather is humid. This can cause mildew and rust. (See Figure 7-2.) To avoid this sweating, some refrigerators have heating strips around the door edges. This feature consumes additional energy, but it will make your refrigerator last longer in a humid climate.

Get a refrigerator that has rollers to allow you to pull it out easily for cleaning the heat rejecting surfaces and the space behind the refrigerator.

How to Install the Refrigerator

The machinery of a refrigerator moves heat from the inside of the refrigerator into the kitchen environment. To minimize your energy cost, keep the environment around the refrigerator as cool as possible.