# BUILDER'S GUIDE TO ENERGY EFFICIENT HOMES IN LOUISIANA: APPLIANCES

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*The Builder's Guide to Energy Efficient Homes in Louisiana (Builder's Guide)* is being updated to reflect new code requirements. This is the eleventh in a series of articles that will summarize the information in the guide and highlight updates.

Washers, dryers, and refrigerators and Central HVAC systems use approximately 44% to 66% of the energy consumed by some southern and southeastern American homes. This is especially true in Louisiana and in the Southern and Southeastern United States.

In the Southern and Southeastern U. S. energy costs for water heating can sometimes be the same as heating and cooling the house. However, in these exceptional instances, it is relatively easy to reduce these costs significantly through conservation measures and water heating alternatives.

## Dishwashers

Most of the energy used by the dishwasher is consumed by the hot water heater. It is estimated that dishwashers may sometimes consume approximately 65% to 75% of the hot water produced by the hot water heater. Dishwashers commonly dictate the temperature setting for the hot water heater. Many older dishwashers require a temperature setting of at least 130 degrees to get dishes clean. Newer dishwashers have a small water heater to boost water temperature to approximately 140 degrees Fahrenheit. This saves water heating energy by reducing the required water temperature and standby losses of the main water heater in the residence. Dishwashers conserve energy and water when using their low and medium cycles. Running a dishwasher without a full load wastes water and energy. Dish washer water usage varies from a low of 7 gallons per wash for the medium cycle, to a high of 14 gallons per wash for the heavy duty cycle.

## Clothes Washers

The efficiency of clothes washers' usage of water and energy has increased five fold over the past 20 years. Horizontal axis clothes washers use far less water and energy than vertical axis machines. Horizontal axis machines save 50% to 75% more energy and water over vertical axis machines. Although the horizontal axis washers cost more than vertical axis machines, horizontal axis machines will repay this initial investment in 7 years (or less) through reduced energy and water costs. In some parts of the country water is becoming a more important and more expensive resource every year. Clothes washers now also carry a rating for water use per cycle called the "Water Factor" (W.F.). Water Factor is the water use per cycle per cubic foot (C.F.) of tub capacity.

## Clothes Dryers

Gas clothes dryers operate more economically than electric clothes dryers. At average prices for electricity and gas, electric clothes dryers cost $.30 to $.40 per load; while gas clothes dryers cost $.15 to

$.20 per load. Temperature sensing or humidity sensing dryer controls may save 5-15% over timed drying. When working correctly, these controls prevent over-drying. Humidity sensing controls are the most efficient. Cleaning the dryer lint filter after each load minimizes drying time. Over time, lint collects in the vent, elements, and air passageways reducing air-flow, and increasing drying time. Every few years a dryer and its vent should be thoroughly cleaned. Piping the dryer in a smooth metal vent pipe with silicon caulking rather than using a flexible duct reduces drying time.

## Refrigerators and Freezers

Refrigerators are large energy consumers. They account for 9% to 15% of a household's total energy consumption. Refrigerator energy efficiency has improved tremendously in the past 15 years. Better insulation, and weather-stripping, more effective controls, bigger coils, and better motors, improve efficiency. Consumers should compare the energy guide labels of different models when purchasing a new refrigerator or freezer. Appliances that have earned the Energy Star Qualification have better than average energy efficiency. The most energy efficient standard refrigerators use less than 500 KWh of electricity per year; however they are more expensive than standard refrigerators.

The way individuals and families use refrigerators and freezers can make a significant difference in energy consumption. The following practices are recommended:

- Keep freezers as full as possible.
- Defrost the freezer when 1/4 inch of frost has accumulated.
- Minimize refrigerator or freezer door openings.
- Clean the coils on refrigerators and freezers with a soft brush at least once a year.

## Refrigerator Energy Consumption

When selecting a new refrigerator, consider the following:

- Automatic defrost models waste energy. Choosing a manual defrost model if available in the size you want will save energy if one is willing to manually defrost.
- Side by side refrigerator/freezers use more energy than units that have the freezer compartments on top or bottom.
- Upright freezers use more energy than chest freezers.
- Operating two refrigerators uses far more energy than one larger model.

This information was summarized from *Residential Energy: Cost Savings and comfort for Existing Buildings* by John Krigger and Chris Dorsi.[1] More information on energy savings features, and the full text of the *Builder's Guide*, can be found on the DNR Technology Assessment Division website at URL: http://www.dnr.louisiana.gov/tad and click on the *Builder's Guide* link.

[1] John Krigger and Chris Dorsi, *Residential Energy: Cost Savings and Comfort for Existing Buildings*, Saturn Resource Management, Inc., Montana, 2004.