

## BUYING AIR CONDITIONERS

Air conditioning is a wonderful thing! It helps us enjoy summer days and provides a break from the hot, sweltering weather. But air conditioners use a significant amount of electricity, adding up to 16 percent to your annual energy bill. Choosing an air conditioner is an important decision. Buying an inefficient model will commit you to high electric bills for the life of your unit.

### **Types Currently Available**

The type of air conditioner you need depends mostly on the climate in your area and your house size. There are three common types of air conditioners:

**Room air conditioners** can be mounted in windows or directly mounted in walls. Both types generally work the same way. They are sized to cool one room, so a number of them may be required for a whole house.

**Central air conditioners** are designed to cool the entire house. The large compressor unit is outside, and coils inside the unit cool air and distribute it throughout the house.

**Heat pumps** are like central air conditioners, the difference being that the cycle can be reversed and used for heating during the cold months.

### **Size**

Most air conditioners are rated in BTU/hour (British Thermal Unit--the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit). But central air conditioning units may also list cooling capacity by tons. One ton is equal to 12,000 BTU/hour. Ask a local air conditioning dealer or energy auditor from your local utility company to come to your home and determine your cooling needs. Don't simply accept estimates by a salesperson, but do a thorough analysis to determine the proper size unit you need. With cooling systems, equipment cost is more proportional to size than with heating equipment; therefore, doubling the cooling output could nearly double the cost, so installing the proper size is crucial.

When it comes to air conditioning, bigger doesn't necessarily mean better. For small homes or homes with moderate cooling loads, a window unit may be the smartest choice. Central units are almost always more efficient than room units. But the smallest unit that's adequate to cool your home is the most economical.

### **Efficiency**

The efficiency of room air conditioners is measured by the Energy Efficiency Rating (EER). This is the ratio of the cooling output (in BTU) divided by the power consumption (in watt-hours). Look for EER ratings over 9 for room air conditioners and SEER (Seasonal Energy Efficiency Ratio) ratings over 12 for central air conditioners. The "Directory of Certified Room Air Conditioners" lists all brands and models of window units with cooling capacity and EER information. Ask a retailer for access to the store's copy.

### **Features And Conveniences**

Energy-saving options

- ◆ Timers that turn the unit on and off to fit your schedule.
- ◆ Louvers, similar to car vents, that you can close to allow other rooms to receive more air.
- ◆ Fan-only switches allow you to use the unit for ventilation without the high cooling costs.
- ◆ A filter check light reminds you to check and change the filter.

Air conditioners remove moisture from the air as the warm room air is forced past cold coils. Water vapor from the air condenses on the coils the same way a glass of cold water "sweats" on hot summer days. This water then drains out of the unit. You feel more comfortable and less sticky with lower humidity, but as the water vapor turns into liquid, it releases stored heat which reduces the efficiency of the air

conditioner. High-efficiency air conditioners have variable speed blowers. High speed operation is more efficient, but removes less humidity in the air. Lower speeds are less efficient, but remove more moisture. If you live in a humid climate, look for air conditioner models that effectively remove moisture (pints per hour). Choose a model with a variable-speed fan to aid in dehumidifying extremely moist air.

If you live where the weather is hot for more than two or three months per year, consider central air conditioning. Where summers are dry and nights cool, a window or whole-house fan may be sufficient and much cheaper.

### ***Buying And Installing***

- ◆ Does the system come with a warranty? What is specifically covered by it? Look for a good warranty on the compressor. Air conditioner warranties range from 1 year for complete parts and labor to 5-10 years for the compressors.
- ◆ Make sure the business/contractor has been in business for a while and is fully bonded and insured. You'll want to know they are reliable when you need service and repairs.
- ◆ Never place the compressor on the roof, or the east or west side of your house, unless it is shielded from the sun. Sunlight will heat the unit and reduce its efficiency.
- ◆ Some units are noisier than others. Ask to hear one in operation before buying it.

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## BUYING DISHWASHERS

Dishwashers all look about the same. Virtually all models are the standard width of 24 inches. They all have two racks and a door that makes up the entire front of the unit. And now almost all have plastic liners. Porcelain or stainless steel interiors are the exception. But these similarities do not mean that there are not significant differences. With prices ranging from around \$200 to over \$500, the wise consumer will do some homework before making the final decision. The main factors to consider are built-in or portable, performance, economy of water and energy usage, and noise.

### ***Built-in Or Portable***

Built-in dishwashers fit under the kitchen counter top, like part of your kitchen cabinetry, and are permanently attached to the water supply. The preferable location is next to the kitchen sink. While you may mourn the cabinet space you lose to a built-in dishwasher, it far exceeds the portable in convenience. Portable models are designed to be rolled to the sink and attached to the faucet and electricity. Many portable models are called convertible, since they can be adapted for use as a built-in.

### ***Washing Ability/Performance***

Today's dishwashers are designed to provide clean dishes without excessive use of water or energy. However, each household has slightly different needs: you will want a model that allows you to put all of **your** household's dishes and eating utensils in the dishwasher--or as many as reasonably possible. You may decide not to place fragile items, sharp knives, wooden items, and other utensils in the dishwasher. Not all dishwashers accommodate dishes of the same size, and you may have an extra large platter or tall plastic tumblers that you use frequently. You'll need to check that the dishwasher you are considering will accommodate your unique items.

The internal configuration of a dishwasher determines the size and types of items you can load. A washer arm attached to the "ceiling" of the dishwasher will limit the height of glasses or pots that you can wash in the top rack. An arm under the top rack will limit the size of plates or platters that you

can load in the lower rack. Some models use towers to shoot water to the upper rack; these towers take up space in the middle of the lower rack and reduce the space for dinner plates and other items.

Some models offer adjustable upper racks that can be raised, lowered, or tilted to make space for taller items in either the top or bottom rack. Racks may have dividers that fold down. Some top racks are the same depth all the way across; others are deeper along the sides, allowing taller items to be placed in the center of the lower rack and along the sides of the upper rack.

Dishwashers also offer different cycles. These may include light, regular, and heavy wash cycles as well as a rinse/hold or sanitizing cycles. These differ in the number or length of washes and rinses in the cycle. A sanitizing cycle will boost the temperature of the rinse or wash water. Your household size, cooking style, and consciousness about energy and water usage will determine which of these options are important to you.

Performance cannot be accurately assessed in the showroom, even if you are able to learn about the number of spray arms, "wash levels", type of filter, and number of cycles. So, after determining which washers will accommodate your needs (special dishes, cycles, etc.), you may wish to examine comparisons of performance in a publication such as Consumer Reports. The October 1993 issue noted that dishwasher performance varies more than does the performance of other types of major appliances.

### ***Conserving Water And Energy***

Dishwashers vary in the amount of water they use. To conserve water, you may choose a model that uses a minimal amount of water per wash or rinse, and a model that offers a light cycle consisting of fewer washes and therefore less water usage. A rinse-hold cycle will also encourage you to run the dishwasher only when it is full, thereby saving additional water. These choices will also lower energy consumption by reducing the amount of water that must be heated.

Choosing "air dry" rather than drying with heated air also conserves some energy. Dishwashers and

their detergents perform best at water temperatures higher than those required for other household uses. Therefore, a dishwasher that includes a heating element to boost water temperature may allow you to lower the setting on your hot water heater and reduce the energy it consumes.

### **Noise**

While dishwashers as a group have become quieter over the years, the noise level can still be distracting. The noise may be a special problem if your kitchen opens into a family room where your family watches television or enjoys conversation.

Your visit to the showroom will probably not give you any information about noise levels. You may want to check published comparisons of dishwashers for ratings on noise levels.

### **Other Options**

You may choose models that have manual or electronic controls. Some models may accept custom fronts. A delay-start option is another choice that may appeal to you.

### **Making The Purchase**

Inquire about delivery fees and installation charges before making the purchase. Do not be pushed into buying an extended warranty. Compare prices between stores before making your decision.

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Prepared 6/94 By Karen Chan, Consumer & Family Economics Educator.

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# ENERGY GUIDE LABELS

When purchasing large appliances, consumers need to pay special attention to the "Energy Guide Labels." These labels have black letters on a bright yellow background, and they are found on the following major large appliances: refrigerators, freezers, water heaters, dishwashers, clothes washers, room and central air conditioners, and furnaces.

There are three types of labels. One type gives **general information** and tells you to look for a fact sheet that contains more information. Central heating and cooling systems will carry this kind of label. On the fact sheets you will find specific energy information for comparative shopping.

The second type of label gives a **dollar figure** that shows the model's estimated annual energy cost. The lower the dollar figure on this label, the more efficient the appliance is. Appliances to be labeled with a dollar cost are refrigerators, freezers, water heaters, dishwashers, and clothes washers.

Labels for clothes washers and dishwashers carry two sets of energy costs -- one for electric water heaters and one for gas water heaters. You need this information because the main expense of using a dishwasher or clothes washer is the cost of heating the water.

The third type of label shows an **energy-efficiency rating**. Climate-control appliances, such as room and central air conditioners and furnaces, will carry this label. With the energy-efficiency rating, the higher the number, the more efficient the appliance.

## Computing Life-Cycle Costs

According to the American Council for an Energy-Efficient Economy publication, The Most Energy-Efficient Appliances 1992-93, "the best appliance buy is not necessarily the least expensive model nor the one with the highest efficiency." To decide which is the best buy, ACEEE recommends you compute and compare life-cycle costs of the different models being considered.

To compute a life-cycle cost, you will need to know: (see below)

- ◆ The **appliance's purchase cost** (ask the dealer).
- ◆ The **cost of energy** (ask your local utility company).
- ◆ The **yearly energy cost** to operate the appliance (check the Energy Guide Label).
- ◆ The **estimated lifetime** of the appliance in years (see chart "Characteristics of Appliances" on back page)
- ◆ A **discount factor**-a number that adjusts for inflation and for the fact that a dollar spent today will not have the same value as a dollar spent in the future, since today's dollar could be invested and earn interest over time (see chart on back page).

The information you have for the above points can then be used in the following formula to calculate life-cycle costs:

$$\text{Life-Cycle Cost} = \text{Purchase Price} + [\text{Annual Energy Cost} \times \text{Estimated Lifetime} \times \text{Discount Rate}]$$

Energy Guide Labels on appliances can help you select more efficient models. Be sure to use them when you shop for a new energy-efficient appliance!

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### **CHARACTERISTICS OF APPLIANCES FOR LIFE-CYCLE COST COMPARISONS**

	Average lifetime of appliance (in yrs.)	Discount factor*
Water heater (elec.)	13	0.83
Water heater (gas)	13	0.83
Refrigerator/Freezer	20	0.76
Freezer	20	0.76
Air conditioner (central)	12	0.84
Air conditioner (room)	15	0.81
Range/oven	18	0.78
Clothes washer	13	0.83
Clothes dryer	18	0.78
Dishwasher	12	0.84

\* Based on a real discount rate of 5% and an energy price escalation rate of 2% per year above inflation. Source: Consumer Guide to Home Energy Savings. Reprinted with permission from the Consumer Guide to Home Energy Savings, 3rd edition, copyright 1993 by the American Council for an Energy-Efficient Economy. Available for \$8.95 (ppd.) from ACEEE, 2140 Shattuck Ave., Suite 202, Berkeley, CA 94704.

The average lifetime of an appliance may be different than the average useful life. Consumers may choose to "retire" an appliance early because repairs are no longer cost effective. For example, while the average lifespan of a refrigerator may be 20 years, the average useful life is around 13 years (Association of Home Appliance Manufacturers, 1990).

Source: Association of Home Appliance Manufacturers (1990). Average useful life of major home appliances. Chicago, Illinois: National Family Opinion Inc.

## BUYING FREEZERS

Many families find that a freezer is a time saving convenience because it can reduce the number of shopping trips for food. There are three basic designs to choose from: chest, upright, or compact.

**Chest freezer:** A chest freezer opens from the top. It is more energy efficient and usually costs less to buy than an upright freezer of the same size. This type of freezer can store more food per cubic foot of freezer space compared to upright freezers, because there are no shelves. Packages can be placed in baskets that lift out to make it convenient to locate food. The capacity of a chest freezer ranges from 10 to 25 cubic feet of food storage space.

**Upright freezer:** The door opens from the front and looks similar to a refrigerator. One can choose between a left-opening and right-opening door. The shelves provide a good view of the contents and make it easy to find and remove packages of food. The capacity of this type of freezer ranges from 10-20 cubic feet. The upright requires less floor space than chest freezers.

**Compact freezer:** This type of freezer may have the greatest appeal to small families and to people with limited space. Both upright and chest designs are available. The food storage capacity is less than 10 cubic feet.

Consider the amount of space available for a freezer. It is best to place the freezer in a location away from sunlight and heat producing appliances such as furnaces, water heaters, ranges, and ovens.

Decide the capacity needed. One method to estimate the number of cubic feet needed for the freezer is to figure one to one and a half cubic feet per person eating at home. Each cubic foot of freezer space can hold about 35 pounds of food. This amount will vary for families who buy food in large quantities and/or freeze garden produce. In addition, some families will require additional freezer space if they cook and freeze foods for future use. If

the freezer is a replacement, decide if the size of the previous appliance was large enough to meet the family's food storage needs. For the most efficient use of energy dollars, keep the freezer at least two thirds full. The most popular size purchased is 15 cubic feet.

**Defrost features:** Most freezers are defrosted manually which requires 40% less electricity than the no-frost models. Some upright freezers have the no-frost system. Chest and compact freezers are manually defrosted. The manual defrost freezers are better at holding the temperature at one level for large amounts of food. Front drains are available on some models, which provide easy connection to hoses to release water during defrosting.

**Energy labels:** When shopping, read the energy guide labels on the freezers to find the most energy efficient appliance that best suits the needs of the family. Look for the lowest annual operating cost among freezers of similar size and defrost systems. The actual cost will vary according to the local energy cost, the amount of food stored in the freezer, the amount of frost built up in the freezer, the length of time the door is open while searching for food, and where the freezer is placed in the home.

**Warranty:** Freezers tend to come with a one-year warranty for parts and labor on the entire freezer and ten years on the sealed system. To prepare for repairs beyond the warranty, consider putting money in a savings account that would be equal to the amount the company would charge for an extended warranty on the freezer being purchased.

### Service Contracts

Service contracts, also known as extended warranties, are sold by many appliance dealers. Do not confuse the service contract with the manufacturer's warranty, which is automatically provided when you purchase the product. You must pay an additional fee for the service contract. Check to see exactly what

parts or services the contract covers, whether you will have to pay a deductible, where you must take the product to get service, and whether the service contract duplicates coverage already provided by the manufacturer's warranty.

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Prepared 6/94 by Debra Bartman, Consumer and Family Economics Educator

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## BUYING MICROWAVE OVENS AND MICROWAVE/CONVECTION OVENS

Microwave ovens can be used by people of most age levels, from school age children to the oldest cooks in the family because there is no flame or heating element, lightweight cooking utensils are available, and the easy to use controls are located at the front of the oven. Braille overlays for the vision impaired can be purchased. They range in price from \$90 to over \$750.

### **Basic Choices: Narrowing The Field**

**Size:** Begin by measuring the amount of space you have available for a microwave oven. Select a location that is convenient for use. Countertop height is best for many people. People in wheelchairs and children will be able to reach an oven that is installed below the countertop. There are a variety of sizes of ovens to fit on the countertop or to install in a wall or cabinet, and ovens to fit under a cabinet or over the range. Large ovens allow you to prepare a larger quantity of food and are slightly higher priced than the small ovens. They have the advantage of having extra features and cooking faster than smaller ovens.

#### **Size of ovens available**

	Width	Depth	Height	Watts
large	22-27"	15-21"	13-16"	650-over 1000
medium	20-24"	13-18"	13-16"	600-800
small	18-20"	12.5"	10-12"	400-700

**Over the range units:** These ovens are usually in the mid-size range and could have many features. They may have fans and venting systems which can serve a double purpose as a range hood.

**Power:** Food heats up to one-third faster in a more powerful oven. Small amounts of food can be defrosted and reheated with 400 to 500 watts. If you plan to do more extensive cooking, a mid-size or a large oven may better suit your needs. Check to see if the oven has a variety of power levels. Five power levels are enough to cook most foods. Some ovens have only one power level while others have up to 100 possible power settings. Most microwave ovens need to have a separate electric circuit.

**Amount of food to be cooked in microwave at one time:** Measure the "floor space" inside the oven to determine if there is enough room for containers and the amount of food you will be cooking at one time. Manufacturers measure the inside of the oven in cubic feet. Ovens range from .5 cubic feet to 1.6 cubic feet. Ovens with the same cubic feet can have big differences in the amount of floor space. Small ovens may be fine for heating leftovers, warming food and popping corn. However, there may not be enough space for a dinner plate in the smallest ovens.

**Microwave convection ovens** are higher priced than most microwave ovens. However, they can roast, brown and crisp food like a conventional oven (with temperatures ranging from 200°-450°F), as well as cook food quickly with microwaves. New cooking methods are required with this appliance. It is possible to cook food with either the convection or microwave method separately or to combine them. A conventional oven still gives the best results for most baking and broiling.

### **Other Considerations**

**Controls:** There are two types of controls available. **Mechanical controls** may have a timer dial to turn, plus an on/off switch. The dial may be difficult to set for a specific number of seconds, which could result in overcooked food. **Touch pad controls** are used on most microwaves. Look for models that have well-lit large number displays that are easy to read. Also look for models that are easy to program or have display prompters that guide you as you set the appropriate cooking stages.

As you comparison shop, ask for a demonstration to see if it is easy to set programs on the oven for proper cooking temperatures. Some models make cooking very easy by pushing one button to cook certain foods. Pushing only one key to begin cooking is a great convenience. Some models allow a person to store cooking instructions of various foods and to retrieve those instructions and cook the food with a press of one button.

**Automatic Defrost:** Consumers find this feature timesaving and convenient although food can be defrosted in any microwave.

## **Basic Features To Look For**

It is helpful to have a window that permits a good view of the food as it cooks. A shelf increases the amount of food that can be prepared at the same time. Some models have a tray that can prevent the spread of spills. Look for a model with a clearly written and well-organized cookbook and owner's manual. They can help you make the best use of your appliance. Check these publications before you buy to decide if your family will be able to understand the instructions.

## **Other Features**

You will find models available with several other features. These may include: a temperature probe, moisture sensor, multi-stage cooking programs and a turntable. Some models even count calories in food portions and keep track of the total calories consumed. These are not as widely used as the previously listed features. Decide if the cost of these features is worth the extra cost of the unit.

## **Warranties**

Read the warranty carefully. Warranties differ among manufacturers. It is common to see warranties that cover parts and labor for one year. The magnetron tube is often under warranty for 5 to 10 years. You may see a limited two-year warranty on parts on some microwave ovens.

## **Safety**

Microwave ovens are safe to use. They are tested to meet federal standards of emission levels so any radiation leakage will be very small. For maximum protection, stand a few feet away while the oven is on. If the door does not fit snugly, have the oven checked for microwave leakage. Contact a local microwave dealer or the local health department for information on testing.

## **Care**

Follow the manufacturer's instructions for use and care. In general, wipe the oven with warm water that contains hand dishwashing detergent. They wipe dry to prevent rusting.

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Prepared 6/94 by Debra Bartman, Consumer and Family Economics Educator.

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# BUYING REFRIGERATORS

Consumers have many options available in selecting refrigerators. They range in price from \$80 to over \$3,000. Determine the price range you want to stay within as well as the size and features you need before you begin to comparison shop.

## **Size Of Refrigerator To Buy**

How much space is available? How much clearance space is available to open the refrigerator doors?

As you comparison shop, look inside the refrigerators. Is there enough space for large containers and the amount of food you need to store?

If you buy a refrigerator that is larger than you need, you will spend a great deal more money than is necessary on your electric bill. Each additional cubic foot of refrigerator space will increase the amount of electricity consumed. On the other hand, it is more energy efficient to have one large refrigerator rather than two small ones.

## **Styles Available**

**Top-freezer:** A separate freezer compartment is above the refrigerator and at eye level making it easy to reach frozen food. This style tends to be the lowest priced of all refrigerators and the least expensive to operate. It offers the largest variety of sizes, options, and features. Wide shelves permit easy access to food at the back of the refrigerator.

**Bottomfreezer:** This style is higher priced than top-freezers of the same size. It costs more to operate than top-freezers. One must bend over to get food from the freezer. Wide shelves provide easy access to food in the refrigerator. There are fewer sizes and features available than in other styles.

**Side-by-side:** This style is higher priced and about 35% more expensive to operate than top-freezers. Many sizes and features are available. The narrow doors require a smaller amount of space to open than other styles. It is convenient to have many foods at eye level in both the refrigerator and freezer. It may be difficult to reach food at the back.

**Built-in** The kitchen will have a custom look with this style. Larger sizes of up to 30 cubic feet are available. It is higher priced and costs more to operate than other models. It could be expensive to install.

## **Refrigerator Features**

**Defrosting** Which system do you prefer? **No-frost** is most popular. It automatically defrosts the refrigerator and freezer. **Manual defrost** is labor-intensive and is not widely available. With the **cycle-defrost**, you defrost the freezer manually but the rest of the refrigerator defrosts automatically.

### **Shelves and bins; check to see:**

- ◆ Is it possible to rearrange the shelves in the refrigerator, on the door, and in the freezer?
- ◆ Are the shelves sturdy and easy to clean?
- ◆ Do they slide out to bring containers within easy reach?
- ◆ Do you need deep door shelves that can hold gallon-sized containers?
- ◆ Will there be enough space in the kitchen to open the door wide enough to remove the shelves and bins?
- ◆ Are there glass or plastic shelves to prevent spills from spreading?
- ◆ Are there separate drawers for fresh vegetables and meat? Do they have controls to allow you to adjust the temperature and humidity? Are the drawers the right size for the foods you want to place in them?

**Automatic icemaker:** This feature saves steps between the sink and refrigerator to fill ice cube trays. Connection of the refrigerator to a water supply is necessary to use this feature. About six pounds of ice are produced in a 24 hour period. The icemaker and storage bin take up about one cubic foot of freezing space. Check to see if the ice cube storage bin is removable.

**Ice and water dispenser:** These features quickly add to the cost of a refrigerator. They need to be used often to avoid unpleasant flavors and to avoid break-downs. The dispensers provide limited amounts of water and ice. Some models dispense ice inaccurately. A portion of the ice may land on the floor rather than in a glass. Some models dispense ice too forcefully for certain types of glassware.

The dispensers may require the dealer, a plumber, or a kit to install these features. Find out if there will be an extra charge for this installation service.

**Other features:** Many other features are available such as electronic touchpad controls to signal when the door is open, if the refrigerator is too warm, or that the coils need to be cleaned. You can also have a built-in

beverage container with its own faucet. These features usually add to the purchase price of the refrigerator.

**Energy Guide Label** These labels are on all new refrigerators being sold. Read the labels to compare refrigerators of similar size, features, and defrost systems. The label lists an estimate of yearly energy costs for the refrigerator. Consider the appliance with the lowest energy cost. The actual cost of operating the refrigerator will vary according to the local energy cost, how often the door is opened, the amount of food cooled, and the room temperature around the refrigerator.

**Warranty:** Often refrigerators will have a one-year warranty that covers parts and labor on defective materials and component breakdowns. You may also see a limited five-year warranty on the cabinet liner and refrigerating system. If you are offered an extended warranty, instead, consider putting that amount of money into a savings account to use in case repairs or service is needed.

### ***Service Contracts***

Service contracts, also known as ***extended warranties***, are sold by many appliance dealers. Do not confuse the service contract with the manufacturer's warranty, which is automatically provided when you purchase the product. You must pay an additional fee for the service contract. Check to see exactly what parts or services the contract covers, whether you will have to pay a deductible, where you must take the product to get service, and whether the service contract duplicates coverage already provided by the manufacturer's warranty.

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## RENT - TO - OWN

Televisions, washers and dryers, stereos, VCRs, reclining loveseats...these are just some of the things you can rent-to-own for a "small" weekly or monthly fee. But before you decide, know what you're getting into.

### ***What Is Rent-To-Own (RTO) And How Is It Different From Using Credit And Making Monthly Payments?***

In a rent-to-own program, you aren't under a contractual obligation to make payments for the life of the loan, as if you had purchased the item on credit. If you decide you no longer desire that 27-inch color television for \$225 a month, you would return the product and discontinue making the payments. Another difference is that while payments are being made, the dealer usually agrees to maintain and repair the product. This is a big selling point to customers. Rent-to-own companies remind customers that they won't have to worry about having to pay for any appliance repairs during the time they are "renting" the product.

When payments are made throughout the term of the Rent-to-own contract (usually 18 months), the consumer becomes the owner of the product. That may also mean the end of the "free" maintenance agreement.

### ***Is There An Advantage To The Rent-To-Own Option?***

People who use the RTO option generally do so because they don't have enough money for the full purchase price or downpayment needed in retail stores. Consumers who have no credit, or bad credit, choose RTO because there is usually no credit check.

### ***How Much Will Rent-To-Own End Up Costing?***

The total cost to own the item may be two to four times what you would have actually paid if you had paid cash or even paid on credit. Before you decide to RTO, shop around, and get an idea of how much things cost. Investigate other payment plans. Find out what the actual price will end up being after you've made all payments. Use the chart in this fact sheet to help you.

### ***Things To Be Aware Of***

- ◆ Rental payments. Read your contract before you sign. Do the number of payments on the contract agree with what the sales associate told you? If you were to miss a payment, what would the consequences be? Would a late fee be charged? Would they take the item from you?
- ◆ Ownership of the item. Find out when you will actually own the product. If you decide to return the item and stop the payments, is there a penalty? When the item is finally yours, is a maintenance/service agreement still available and for what cost?
- ◆ Additional fees. Ask the sales associate to highlight all possible fees with a highlighting marker in the contract. There could be charges for delivery, returning merchandise, and repairs (even though you have a maintenance agreement, you could still be charged a small fee for pick-up, paperwork, etc.).
- ◆ Condition of the item. Find out if the item is brand new or if it has been rented before. If the item is brand new and would happen to stop working or fall apart, would they replace it or offer repairs only?

And remember--you have legislation to protect you. Illinois Public Law 85-957 specifically addresses rental-purchase agreements that are for an initial period of four months or less. It requires the agreement to disclose:

- ◆ Whether the merchandise is new or used
- ◆ The total number of payments and the total amount to be paid
- ◆ The amount and purpose of any payment, charge or fee in addition to the regular periodic payments
- ◆ Whether you are liable for loss or damage to the merchandise
- ◆ That you do not have ownership rights unless you have complied with the terms of the agreement
- ◆ The cash price of the agreement

Consumers who are aware of the full costs of the RTO option would no doubt choose other options if they are able.

Another option is to buy on credit. The consumer still has the item immediately and the costs are much lower. However, a large percentage of people who

choose the RTO option are unable to obtain credit. Saving the funds and layaway are also options. So it comes down to asking yourself: **Do I really need it? Can I wait for it?**

**Sources**

Cude, B. (1991) Rent-to-own. Urbana: University of Illinois Cooperative Extension Service.

Prepared 6/94 by Dawn Frankfother, Consumer and Family Economics Educator.

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Cost Comparison...Shop Around Before you Buy				
	Rent To Own	Credit	Cash	Layaway
Time until Ownership				
Cash Price				
Initial Payment				
Weekly/Monthly Pmt.				
Total Paid				
Amount Above Cash Price				

# BUYING WATER HEATERS

Water heating is generally the third largest energy user in the home following heating and cooling. Water heaters, like other home appliances, have become much more energy efficient in the past 15 years. The proper selection of a water heater can prevent high energy bills and running out of hot water before everyone has had their turn in the bathroom.

## *Types*

◆ **Storage water heaters** are the most common type. Water is heated in an insulated tank. When the hot water tap is turned on, hot water is pulled out of the top of the water heater and cold water flows into the bottom to replace it.

◆ **Demand or instantaneous water heaters** do not contain a storage tank. A gas burner or electric element heats water only when there is a demand. Hot water is always available, but the amount per minute is limited. This type is mostly appropriate for vacation homes or in households with small hot water requirements.

◆ **Heat pump water heaters** use electricity for moving heat from one place to another rather than generating the heat directly. The heat source is the outside air or the air where the unit is located. Refrigerants and compressors transfer heat into an insulated storage tank. The cost to purchase and maintain these units can be very high.

◆ **Tankless coil water heaters** use the home's main heating system to heat the water. They are common in older oil-fired boilers, although gas-fired boilers are available. They operate off the house boiler with no separate storage tank. A tankless coil works most efficiently in colder climates because the boiler is usually hot. Generally, tankless coil types are not recommended.

◆ **Indirect water heaters** use the home's boiler as the heat source, but the water from the boiler is circulated through a heat exchanger in a separate, insulated tank. Since hot water is stored in a storage tank, the boiler does not have to turn on and off as frequently.

## *Fuel Options*

Oil and gas-fired water heaters are usually less expensive to operate than electric models. But before you decide against electricity, check with your utility company for special off-peak rates.

## *Size*

To determine what size hot water heater your family needs, calculate the maximum expected hot water demand. Do this by estimating what time of day your family is likely to require the greatest amount of hot water. This isn't the total amount needed each day, but an indication of how much hot water is needed at peak hours.

The ability of a water heater to meet peak demands for hot water is indicated by its first-hour rating. This rating accounts for tank size and how quickly cold water is heated. Appliance dealers can provide information on a unit's first hour rating.

CALCULATING PEAK HOURLY HOT WATER DEMAND			
Hot Water Use	Avg. gallons hot water per usage	Times used in an hour	Gallons used in an hour
Showering	20	x	=
Bathing	20	x	=
Washing hands/face	4	x	=
Shaving	2	x	=
Shampooing hair	4	x	=
Hand dishwashing	4	x	=
Automatic dishwashing	14	x	=
Preparing food	5	x	=
Automatic clothes washer	32	x	=

For example, your family's greatest hot water use is at 6:45 a.m. with the following activities:

3 showers @ 20 gallons = 60 gallons per hour  
 1 shave @ 2 gallons = 2 gallons per hour  
 1 shampoo @ 4 gallons = 4 gallons per hour  
 Handwash dishes @ 4 gallons = 4 gallons per hour

Peak hour demand: 70 gallons per hour

These figures do not take into account energy-saving features such as low-flow showerheads.  
**Source: Gas Appliance Manufacturer's Association**

### Comparing Costs

There are two types of costs to look at: **purchase cost** and **operating cost**. It may be tempting to save money by buying the most inexpensive model. But often, the inexpensive models cost more to operate. Look at **life-cycle costs**, which take into account initial cost and operating costs for a much more accurate representation of the true costs of the water heater. ENERGY GUIDES will be most useful in determining this. Let's compare two differently priced models:

	Water heater	
	#1	#2
Purchase Price	\$ 425	\$ 500
Yearly Energy Cost	<u>165</u>	<u>140</u>
Cost over 13 years*	\$ 2570	\$ 2320

\*Avg. lifespan of a water heater

### Source

American Council for an Energy-Efficient Economy. (1993). Consumer guide to home energy savings. (3rd ed.). Berkeley, CA: ACEEE.

Prepared 6/94 by Dawn Frankfoter, Consumer & Family Economics Educator.

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# DISASTER



Cooperative Extension Service  
University of Illinois at Urbana-Champaign

Helping You Put Knowledge to Work

## Buying Replacement Appliances

Whenever a disaster strikes, people are affected in many different ways. Homes are destroyed, necessary services such as electricity and heat are unavailable, and emotions run high. After the initial shock, the recovery phase begins. One aspect of recovery for many consumers may be the replacement of household equipment and furnishings. The Consumer and Family Economics Team from the University of Illinois Cooperative Extension Service has developed a series of fact sheets to help families affected by natural disasters make smart decisions about these replacement purchases.

Fact sheets cover general buying tips including: Energy Guide Labels; Home Repair Fraud; and Rent to Own Options. Also included are sheets on specific purchases including how to purchase: Air Conditioners; Carpeting; Dishwashers; Gas and Electric Ranges; Microwave Ovens and Microwave/Convection Ovens; Refrigerators and Freezers; Upholstered Furniture; Water Heaters; and Wood Furniture. These fact sheets are available from the Consumer & Family Economics Development Team.

You should be aware that in some instances it may not be necessary for consumers to purchase certain appliances. Immediately following a disaster, the American Red Cross will assess disaster-related needs. Vouchers may be provided to qualified families (not businesses) for the replacement of

basic household furnishings which are considered necessary for "habitability". Need is determined on a case-by-case basis by specially trained American Red Cross Disaster caseworkers.

If the disaster is presidentially declared, other resources, such as FEMA (Federal Emergency Management Agency) grants and SBA loans, then become available. The same "habitability" restrictions apply to FEMA and SBA funds.

If you need additional information about the American Red Cross funds or FEMA funds for appliances, please call the numbers below.

American Red Cross: 309-677-7272 (Statewide)  
312-440-2000 (Chicago area)

FEMA: 1-800-820-1125 (Nationwide)  
1-800-621-3362 (Illinois only)  
1-800-462-9029 (To file an application by telephone)

Issued by Holly Hunts, Extension Specialist in Consumer Economics. February 1995

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3