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## CONSUMER INFORMATION

4 HOME ECONOMICS—FAMILY LIVING No. 6 **Selecting a Refrigerator**  
WANDA OLSON

Three main types of refrigerators are available. The all-refrigerator type has a small freezing area, usually at the bottom of the box, for ice cube trays; the conventional refrigerator includes additional freezer space; and the combination refrigerator-freezer may be one-third to one-half freezer space.

Each type maintains a refrigerator-area temperature between 35° and 40°F. The freezing-area temperature of the conventional refrigerator is between 10° and 25°F, with air moving between the refrigerator and freezer storage areas. The combination refrigerator-freezer has a separate section that maintains 0° - 5°F. temperatures. You can store frozen foods for the recommended maximum time at zero temperatures.

## DEFROSTING

The method of defrosting affects the convenience of a refrigerator. It also affects the purchase price and the operating cost. The costs in kilowatt hours (kwh) per month under standard test conditions are given on the AHAM (Association of Home Appliance Manufacturers) label on new refrigerators. The label on no-frost refrigerator-freezers must list energy consumption with and without the use of sweat heaters if a switch is available. (Sweat heaters are small heating elements around the freezer door to keep its cabinet from sweating during hot, humid weather.)

AHAM sponsors the program to verify the ratings, which are listed in the Directory of AHAM Certified Refrigerators and Freezers. Appliance dealers may have a copy; single copies are available for 50 cents from AHAM, 20 North Wacker Drive, Chicago, Ill. 60606. Directories are published twice a year.

Most refrigerators 10 cubic feet or smaller have a defrost system that is initiated manually. Most combination refrigerator-freezers have defrost systems which are initiated and terminated automatically for all or part of the refrigerated surface.

**Manual defrost.** You must turn the cold-control to "defrost" and remove the food from the freezer and place it in the refrigerator or wrap it to prevent thawing. After defrosting and cleaning, reset the cold-control dial to "on" and replace the frozen food in the freezer. In some models you start the defrost cycle by setting the cold-control to "defrost." The refrigerator automatically returns to the "on" setting after defrosting is completed. You do not need to remove food from the freezer.

**Partial Automatic** (often called cyclic defrosting). This method is only used in refrigerators without a freezer or with a manual defrost freezer. When the refrigerator compressor is off, the rising air temperature around the refrigerator evaporator coils melts any frost that accumulates on these coils.

**Automatic Defrost** (often called no-frost). May be activated 1) by a clock timer, 2) after the compressor has run a set number of hours, 3) after the door has opened a set number of times, or 4) after the frost on the coil is a certain thickness. Moisture frozen to the coils, which are located outside the refrigerated spaces, is removed before the cooled air is circulated

through the food storage area. The continuous circulating cooled dry air results in even temperatures in the food storage area, but requires careful covering of food to prevent drying out.

## CAPACITY

Refrigerator size may vary from 1.5 to 30.0 cubic feet. Of the total space, the freezer may be as large as 4, 8, or even 16 cubic feet. Or, it may have space for ice cubes only. The freezing area may be at the top, the bottom, or the side of the refrigerator.

Refrigerator space also may be rated in square feet of shelf space. The shelves may be stationary, swing-out, slide-out, roll-out, or height-adjustable. Slide-out and roll-out shelves need side and back guards to keep food from falling when you move the shelves. Most refrigerators have one or more sealed crispers and may have a special meat keeper. If the meat keeper is connected to the air circulating around the freezing area it will be several degrees cooler than the rest of the refrigerator.

Special butter, cheese, and egg compartments are available. Some refrigerators have a heating coil around the butter compartment to keep its temperature higher than the rest of the refrigerator.

The amount of refrigerator space you need depends on how often you shop, the number and ages of persons in your household, and how much entertaining you do. A general guide is 6 to 8 cubic feet of fresh food space for two people, 1 cubic foot for each additional family member, and 2 extra cubic feet if you entertain often. Plan for 2 cubic feet of freezer space per family member if you have no other freezing facilities.

When deciding between a top, bottom, or side by side refrigerator-freezer think about how you will use the freezer. For example you may have to stoop to get food from a bottom freezer, stretch to see into a top freezer, and often the side by side is narrow.

## COST

Purchase price will depend on the size and type of refrigerator, the method of defrosting, and special features you desire. Normal life expectancy of a new refrigerator is about 15 years.

Operating costs depend on size, temperature to be maintained, method of defrosting, and use. Large refrigerators use more electricity than small comparable models, but many large models have better insulation and power switches. The kwh use per cubic foot is less for large models than small models. It takes more energy to cool and maintain lower temperatures. Lower freezer section temperature is maintained in refrigerator-freezers than in conventional refrigerators. Models with automatic defrosting systems use more electricity than comparable models with manual defrosting systems. Monthly energy costs based on standardized test conditions are:

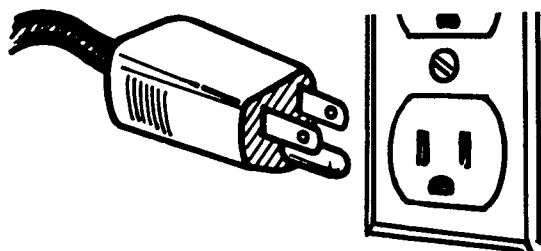
**Conventional refrigerators** — 25-164 kwh per month. At 4 cents per kwh, monthly costs range from \$1 to \$6.56.

**Combination refrigerator-freezer** — 46 kwh for 4.5 cubic feet partial automatic defrost to 261 kwh for 28 cubic feet automatic defrost. At 4 cents per kwh, monthly costs range from \$1.84 to \$10.44. The AHAM label on a new refrigerator will give its monthly kwh use based on standardized test conditions. These figures are useful in comparing otherwise similar models.

Ice making, food freezing and cooling, the number and length of door openings and room temperatures around the refrigerator all affect energy use.

## INSTALLATION

Refrigerators operate on 110/120 volts and are equipped with a 3-pronged grounding plug. You probably have a prede-



termined space in your kitchen for a refrigerator. Refrigerator size depends upon capacity, but the shape may vary. Many refrigerators are 30 inches wide and 60 to 64 inches high; however, they may be as narrow as 18 inches or as wide as 48 inches and as low as 36 inches (counter height). The depths of refrigerators vary. A few are 24 inches deep, most side by side mod models are 27 inches deep, and most top or bottom models are 30 inches deep. Some specialty models may be as small as 22 x 22 x 20 inches high (1½ cubic foot capacity).

Refrigerators need ventilation. Those with the condenser at the bottom may require a small amount of space at the top, at least 3 inches for a recessed installation, while those with the condenser at the back often require up to 4 inch clearance at the top and 2 inches on the sides.

Refrigerators installed without proper ventilation or next to ranges or heat vents will run more frequently. Refrigerators operating in areas where the temperature is 90°F. will require at least one-third more energy than at 70°F. and at 110°F. will require at least twice as much energy as at 70°F.

## FEATURES

More urethane foam insulation is being used because of the popularity of the slim or thin-wall design. It takes about half as much urethane foam as fiber insulation to get the same insulating results. The urethane insulation is much thicker in some models.

Examples of durable features include the use of "tempered" glass shelving and the use of "high impact" plastic.

Optional features include doors that open either left or right, dual temperature controls, special humidity controls, special cooling compartments, economy power switch, roll-out wheels, and automatic ice makers.

The economy power switch allows you to turn off the small heating elements around the freezer door which keeps the cabinet from sweating during hot, humid weather. Some models eliminate the heating element by looping a condenser coil around the cabinet.

Refrigerators with an automatic ice maker must be connected to a cold water supply. The ice maker and its storage bin take up about 1 cubic foot of freezing space. You may take ice from the storage bin by opening the freezer door, or from a separate opening outside the refrigerator, or from a dispenser which augers ice into a chute which opens through the freezer door. This dispenser may serve ice cold water and crushed ice.

## USE

Follow user manual.

If problems occur contact dealer; if satisfaction cannot be reached, contact the manufacturer. If satisfaction still cannot be obtained, contact MACAP, Major Appliance Consumer Action Panel, 20 North Wacker Drive, Chicago, Ill. 60606.

## CLEANING

Wipe outside with mild detergent water or a mild cleanser. Avoid cleaning waxes. They may damage the outside finish if it is acrylic enamel. Wash interior with a mild detergent or soda solution. Plastics retain odors more than porcelain enamel. The greater use of plastic in refrigerator interiors requires careful covering of strong-flavored foods. Tests have shown that mild detergent solution is at least as effective as soda solution in removing odor. Avoid perfumed detergent.

## OPERATOR MAINTENANCE

Clean condenser fins and coils regularly. They are located either at the back or bottom front of the refrigerator. Dust acts as an insulator and cuts down on efficient operation. Dust with a brush or unplug the refrigerator and use a vacuum cleaner attachment.

Check tightness of door gaskets. These should be replaced if they are not tight (check hinges and latch first). Gaskets cost \$25 - \$30. Two tests for gasket tightness follows:

\*Close the door on a piece of paper the thickness of a new dollar bill, then remove the paper. There should be some resistance. A tight gasket will not allow you to pull out the paper easily.

\*Place either a lighted flashlight or a 100 watt bulb on a flat extension cord in the cabinet area facing the door. Close the door, turn off room light—there should be no light coming from the refrigerator.

If the refrigerator has a power switch, turn it off in winter when humidity is low and sweating is not a problem. Unplug the refrigerator when not in use because the low wattage heaters that prevent sweating on no-frost models remain on even when the refrigerator is turned off.

If a refrigerator runs constantly, have it checked.

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