



# SUN FROST



The world's most elegant refrigerators are also the world's most energy efficient!

- In an energy-efficient home powered with photovoltaics or other low-output energy sources, refrigeration is typically the largest consumer of electricity. But the super-efficient SUN FROST refrigerator makes these alternative technologies both feasible and affordable.
- In a home using utility power, SUN FROST normally cuts energy consumption by 80%.
- Along with energy efficiency, the SUN FROST offers other advantages not found in conventional refrigerators including food-saving high-humidity storage, quiet operation, and an easy-to-clean interior.
- With its clean, uninterrupted lines and choice of more than 100 colors and numerous natural wood finishes, the custom-built SUN FROST refrigerator adds elegance to every kitchen.

# EFFICIENCY – PLUS

The SUN FROST refrigerator employs an array of configuration innovations to achieve its exceptionally low energy consumption.



The cooling system on the SUN FROST is top mounted. This configuration reduces energy consumption several ways. The heat generated by the compressor and condenser (black coils on the back of many refrigerators) does not reenter the refrigerator, and also with a cooler-running condenser, the efficiency of the cooling system is increased.

In a SUN FROST, there is no air circulation between the refrigerator and freezer sections, unlike both manual defrost and automatic defrost refrigerators. This compartmental design reduces infiltration of warm kitchen air when the doors are opened.

In a conventional refrigerator, the 38°F refrigerator section is typically cooled by an unnecessarily cold (-10°F) evaporator. In a SUN FROST

refrigerator, the 38°F refrigerator section is cooled by a higher-temperature evaporator slightly colder than the refrigerator section. This design significantly increases the efficiency of the cooling system.

Good insulation also contributes to the SUN FROST's energy efficiency. The walls of the refrigerator contain 2.5 to 4.5 inches of polyurethane foam, the best nonexotic insulation available. Unlike many other refrigerators, the insulation in the walls of the SUN FROST refrigerator is not degraded by thermal bridges (metal supports between the inner and outer walls).

Another SUN FROST energy-saving feature is the elimination of strip heaters in the doors' gasket area. In conventional refrigerators, these heaters prevent condensation under humid conditions, however they also increase the energy consumption of the cooling system. The energy savings switch found on many refrigerators merely turns these heaters off. SUN FROST refrigerators use waste heat from the condenser in place of these electric heaters to prevent condensation.

The efficiency of the cooling system is further increased by making use of a passive evaporator (no fans) and a condenser with a large surface area. If a fan is circulating air over an evaporator, energy is needed not only to run the fan, but also to remove the heat produced by the fan motor.

When dust and cobwebs collect on a cooling system, they lower its efficiency. The top-mounted condenser on the SUN FROST refrigerator is accessible and easy to clean, allowing the cooling system to continue running efficiently.



## EFFICIENT DEFROST

Defrosting a SUN FROST is a simple process. Frost buildup in the SUN FROST freezer is very slow because there is no air circulating between the freezer and the refrigerator sections. The ice which forms in the freezer collects primarily on the ceiling.

When defrosting the freezer section, the contents of the freezer may be transferred to the refrigerator section so they remain frozen. After the freezer has been turned off for about twenty minutes, the ice is easily removed in large pieces. There is no mop-up because the ice does not need to be melted, only separated from the flat ceiling.

## SUPERIOR STORAGE

SUN FROST refrigerators keep food fresher by maintaining high humidity. This prevents freezer burn and wilting caused by water loss in food. Since there is minimal water loss in foods stored in a SUN FROST, foods often last two to three times longer than in conventional refrigerators.

In typical refrigerators, the water contained in food is transformed into ice on the freezer's cooling coils. This process results in the dehydration of fruits and vegetables, increases energy consumption, and accelerates frost buildup. In a conventional refrigerator, high humidity is achieved by storing food in airtight containers, which creates high humidity conditions, but cuts off the food's oxygen supply. Without oxygen, plant cells break down more rapidly, decreasing shelf life.

The SUN FROST allows you to store produce in breathable containers, such as paper bags, that can double their storage life.

## RELIABLE

The cooling system of the SUN FROST refrigerator contains a minimal number of moving parts. Both the DC and AC compressors incorporate highly reliable, hermetically sealed, brushless motors.

The efficient thermal design of SUN FROST refrigerators also contributes to the reliability. The top-mounted cooling system runs at a lower temperature than most, which prolongs the life of the system's lubricants and reduces mechanical strain on the compressor. The cooling system is designed to provide typically over twenty years of trouble-free operation.



## FEWER SOLAR PANELS

The SUN FROST refrigerator typically reduces refrigerator energy consumption by a factor of five. The accompanying cost of the solar power system is similarly reduced. The SUN FROST RF16 typically consumes 15 KWH per month. By contrast, the average refrigerator in a home typically consumes about 90 KWH per month.

Producing the 90 KWH needed to run this refrigerator in an off-grid solar power system would require an investment of at least \$10,000 in hardware.

## COOLER SUMMER KITCHEN

During the summer, a typical refrigerator adds as much heat to your kitchen as a 1000-watt heater running five hours per day! The energy needed by your air conditioner to remove this excess heat will be about half the energy consumed by your refrigerator, increasing the cost of running it by an additional 50%.

By producing much less waste heat than a conventional refrigerator, a SUN FROST makes your kitchen more comfortable and reduces the cost of air conditioning in your home.

## QUIET

As a result of the efficient design of the SUN FROST, the compressors used are much smaller and produce correspondingly less noise than those found on a conventional refrigerator.

The SUN FROST RF19 and F19 use a quiet and highly efficient fan to help cool the condenser; on other models, the compressors are cooled passively. These features make the SUN FROST much quieter than a conventional AC refrigerator.



## SENSIBLE USE OF KITCHEN SPACE

SUN FROST refrigerators are designed to be mounted on a cabinet. With the refrigerator raised, all stored food will then be at a convenient height. In addition, a cabinet beneath the refrigerator provides much more accessible storage space than an overhead cabinet. This base can be built by the homeowner to match other kitchen cabinets or supplied by SUN FROST. SUN FROST manufactures a 13" high cabinet for the RF16 and RF19 refrigerators and a 24" high cabinet for the RF12. Each cabinet has two large side-by-side drawers. A SUN FROST refrigerator can be placed against a wall, minimizing floor area utilized. It will not have to be moved for either cleaning or servicing.



### Sun Frost RF16 *shown with 13" Cabinet*

The Sun Frost RF16 is an extremely efficient full-size refrigerator. It has two independent cooling systems and temperature controls. In fact, one compartment may be left running while the other is shut off. The uniquely designed cooling coils on the outside of the Sun Frost do not require fans. The Sun Frost RF16 may be mounted on a 13-inch high cabinet for maximum convenience.



### Sun Frost RF19, R19, and F19

*shown with 13" Cabinet*

These refrigerators and freezers have two compartments of equal size.

**The Sun Frost RF19:** one compartment is a refrigerator and the other a freezer. The RF19 can be ordered with the freezer on the top or on the bottom. The freezer is twice as large as the freezer in the RF16; however, the refrigerator compartment is slightly smaller than that of the RF16. The RF19 often eliminates the need to buy a separate freezer. Like the RF16, this model is typically mounted on a 13-inch high cabinet. The RF19 uses two quiet and highly efficient fans to cool the exterior cooling coils.

**The Sun Frost R19:** a refrigerator-only model with two equal-sized refrigerator sections. It does not need defrosting and incorporates a passive (no fans) cooling system.

**The Sun Frost F19:** our largest freezer-only unit. It has two equal-sized compartments incorporating two independently controlled cooling systems. One compartment may be turned off to conserve energy when its storage space is not required. It uses the same fans as the RF19 to cool its cooling coils.



### Sun Frost RF12 *shown with 24" Cabinet*

The Sun Frost RF12 is a single-compressor refrigerator/freezer with a passive (no fans) cooling system. For convenience it is typically mounted on a 24" high cabinet. The matching cabinet made by Sun Frost has two large side-by-side drawers.



### Sun Frost R10 and F10

The Sun Frost R10 and F10 are the same width and depth as our larger models but are shorter, and for maximum convenience would require a higher base cabinet. The R10 is a refrigerator-only unit and the F10 is a freezer-only unit.



### Sun Frost RF4, R4, and F4

The Sun Frost RF4, R4, and F4 are our smallest refrigerators and freezers. They are the same width and depth as the larger units. The RF4 consists of a refrigerator with an ice tray freezer section. The R4 is a refrigerator-only unit, and the F4 is a freezer-only unit. For convenience, these units would require a higher base cabinet, or they could be placed on a countertop. Our 4 cubic foot models are also ideal for use in bus conversions, boats, and RVs.



### Sun Frost RFVB

The Sun Frost RFVB vaccine-storage refrigerators are used primarily in developing countries, or where power is intermittent. Available in two sizes

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FROST**

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