

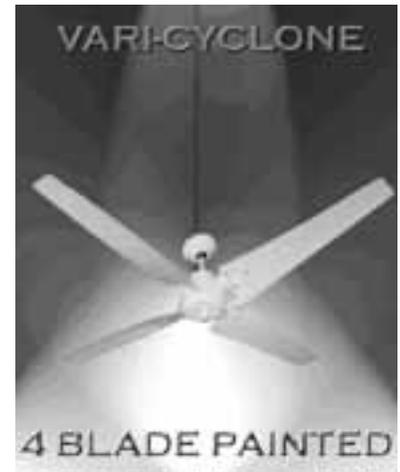
HIGH EFFICIENCY DC FANS

Vari-Cyclone

12-24 Volt Ceiling Fan

The Vari-Cyclone, available in 3-blade and 4-blade models, with a 60" sweep, will outperform any other DC-powered ceiling fan available. The new blade design uses Gossamer Wind Technology and in tests conducted, the 3-blade Vari-cyclone showed a 22.8% increase in cubic feet per minute over the 5 blade, 42" Vari-Fan. The Vari-Cyclone can bring the warm air down from your high ceilings, blow a cooling breeze and keep the air circulating on your porch, warehouse, etc. The Vari-Cyclone will give you years of energy efficient, trouble free use operating at 12 or 24 VDC, mounted close to the ceiling or installed with the 16" down rod. The Vari-Cyclone can be powered from a battery bank or directly from a PV panel. Available in painted white or unpainted models. 0.5 amps.

71-501	Vari-Cyclone, 3 blade(white)	\$399
71-502	Vari-Cyclone, 3 blade(unpainted)	\$n/a

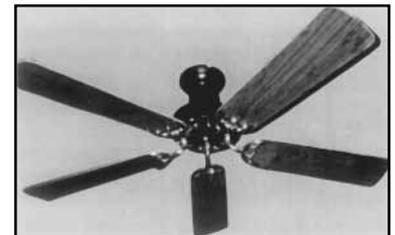


Vari-Fan

12-24 Volt Ceiling Fan

The Vari-Fan is, undoubtedly, the most energy efficient product we offer. It uses a scant 0.4 amps per hour so it can run continuous without discharging a battery. The fan is designed to run on 12 or 24 volts and bring warm stratified air down from a ceiling and spread it around at floor level where it is needed. At 24VDC it can deliver a cooling breeze on those hot and humid days. In large rooms or if you are trying to move air from one room to another, we recommend installing two Vari-Fans - one in the room that is too warm and a second in the middle of the cooler room to pick up and distribute the warm air. Installing a speed control when operating the Vari-Fan at 24 volts is recommended. The Vari-Fan has a reversible DC permanent magnet motor assuring many years of continuous operation. Many operate these fans 24 hours per day from freeze-up to break-up and seldom shut them off. The Vari-Fan is the most versatile product we offer. It can be set up with 4 or 5 blades attached, it has a 42" sweep and can be installed as a ceiling hugger, or as a 12" down-rod fan. These four mounting configurations allow it to be used in nearly any area.

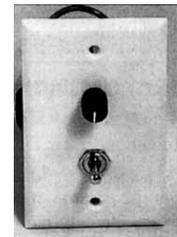
71-316	Vari-Fan Ceiling Fan	\$359
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Fan Control with Reversing Switch

These variable speed controls work well with all of the fans on this page, or for controlling any 12 or 24 volt permanent magnet motors with a current draw of 1.5 amps or less. Speed is linearly adjustable from absolutely off to full on. The switch allows duplication of an optimal speed setting. The center position of the switch is off. Pushing the switch to either side turns the fan on, but one way the motor turns clockwise and the other way it reverses. Filtering the circuitry keeps audio noise to a minimum. The 12V to 24V voltage increaser (60-430) is in a double-gang wall plate.

60-430	VARI-C3, Fan Control - 12V input to 24V output	\$159
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SNAPFan DC Powered Venturi Exhaust Fans

These new upgraded fans have a 3-wing polypropylene fiberglass blade mounted in a square injection moulded fiberglass venturi frame for easy mounting and long life. The high efficiency DC motor has a 5000 hour life at 32 VDC and longer at lower voltage. This new design makes the quiet while moving more air with less power. They can be used on existing battery systems or with other module combinations with up to 40 VDC open circuit voltage. 1-year warranty.

Blade diam.	Frame dimesions	@ 12 VDC Amps/CFM	@ 24 VDC Amps/CFM	Item #	Price
12"	17.5"x17.5"	0.4 / 620	1.3 / 1200	71-212	\$569
16"	21.5"x21.5"	1.0 / 800	2.1 / 1600	71-216	\$645
20"	25.5"x25.5"	1.2 / 1400	2.7 / 2600	71-220	\$795
24"	29.5"x29.5"	1.5 / 2325	3.1 / 4300	71-224	\$1,085



REFRIGERATION

Refrigeration is typically the largest consumer of electrical energy in an energy efficient home. Conventional refrigerators designed to operate on grid power may use 3 kilowatts or more of electricity per day. To supply this much power would require the entire output of at least ten 50 watt solar modules mounted on a sun tracking structure for six hours of bright sunshine per day anywhere in Canada. N.A.P.S. offers several alternatives for efficient refrigeration on the following pages.

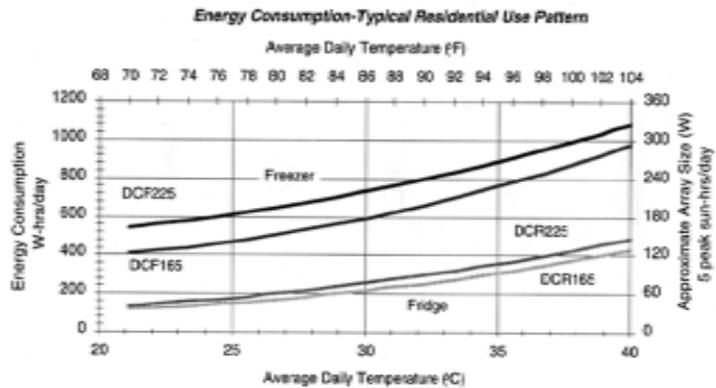
DC REFRIGERATION

SunDanzer Refrigerators and Freezers

These chest style refrigerators and freezers have proven to be a very affordable alternative for off-grid applications. The Sundanzer are a highly efficient line of refrigerators & freezers with exceptionally low energy consumption and superior quality construction providing reliability and long life. Features : Operates on a single 75W module in most climates (see graph below) • 12 or 24 VDC with low voltage disconnect for battery protection • Environmentally friendly CFC free refrigerant • Rugged scratch resistant galvanized steel exterior • Easy to clean aluminum interior • Patented low-frost system • Automatic control with adjustable thermostat • Baskets for food organization. Shipping Weight for the 5.8 cu ft. refrigerator or freezer is 120 lbs. and for the 8.0 cu ft. refrigerator or freezer is 140 lbs. Call for freight quote.



80-240	SunDanzer	5.8 cu ft. 12/24 V Freezer	\$1,579
80-250	SunDanzer	5.8 cu ft. 12/24 V Fridge	\$1,579
80-260	SunDanzer	8 cu ft. 12/24 V Freezer	\$1,749
80-270	SunDanzer	8 cu. ft. 12/24 V Fridge	\$1,749



SunFrost Refrigerators and Freezers

The world's most elegant refrigerators are also the world's most energy efficient. Sun Frost refrigerators have removed a major obstacle in powering a home with renewable energy sources. The SunFrost RF16 typically consumes 15 kWh per month by contrast conventional refrigerators consume 90 kWh per month. The investment in the purchase of a SunFrost is far more economical than expanding your solar array to generate sixfold more power. The SunFrost is designed to provide well over 15 years of trouble free operation.

Larger and smaller models available, call for prices and shipping quotes. FOB Arcata, California.



80-280	RF16 Refrigerator/Freezer 16 cu. ft./with 13" cabinet	\$ask
	DC, 12 or 24V	\$ask
	AC, 110 or 220V	

DC REFRIGERATION

NEW:

Sunstar Freezers

SunStar freezers come with 4.5 inches of polyurethane insulation. The units run on a 12 volt or 24 volt DC Battery(self sensing input voltage).With a drain hole and smooth walls, the solar freezers take only minutes to clean!

The SunStar Solar Freezers units conveniently come with either a refrigerator or freezer thermostat so that it is very easy to adjust the freezer to the temperature desired. With this alternative freezer using solar panel technology, you can easily save money on your high electric bills!!

SunStar Appliances take a minimal amount of energy from the panel and from the battery pack- they can even work with your existing one! Cut those electric and gas bills down and use energy free fuel.

The SunStar Solar Freezer is one of the most efficient freezers on the the market. Featuring a coated steel interior and a double gasket, it saves energy by sealing the tightest seal possible and has no cold loss and low frost build-up. SunStar Solar Freezer units also feature a cooling fan for a faster cool-down and longer compressor life.

Suitable Locations: Schools, Homes & Cabins, Medical, Markets & Stores, Missionaries, Farms

Features:

- Adjustable Temperature Control
- 4.5" Layer of Polyurethane Insulation
- Double Gasket
- No Inverters needed for operation.
- Freeze food under the sun
- Very minimal run time
- Automatic Current Switch (Emergency of no sunlight, it alternates to AC)
- working temperature: -15C to -22C
- dimensions: 43.7"x31.6"x32.7" (9cuft) or 53.1"x31.5"x37.2" (14cuft)

Model ST-14CF

Energy consumption @ 24hr period

	+32°F(+0°C)	+8°F(-13°C)	+0°F(-18°C)
at 21°C	336WHR/25.5AH	466WHR/37AH	581WHR/43.5AH
at 32°C	423WHR/32AH	584WHR/43.5AH	763WHR/59AH

(tested @ 12VDC) tested with no door openings

These units ship from Mississauga, Ont., call for freight quote.



80-261	Sunstar Freezer	9 cu ft. 12/24 V	\$1,850
80-262	Sunstar Freezer	14 cu ft. 12/24 V	\$2,298
80-263	Sunstar Freezer	21 cu ft. 12/24 V	\$3,465

PROPANE FRIDGES

Propane refrigerators are safe, attractive and economical to operate. All have reversible hinged doors for left or right hand opening. All have CO-Monitors which cease operation of the unit, shut down the burner and sound a 85 decibel alarm, assuring the utmost safety.

UNIQUE Gas Products

- Made in Oakville, Ontario -



UNIQUE 15 Fridge

Features: 15 cu. ft. capacity • Propane only • Front Mounted Controls • Battery Operated Interior Light • Thermostat • Piezo Igniter • Flame Indicator • CO-Monitor • CGA approved.

Dimensions: 62 3/4"H x 28"W x 35 1/2"D. Weight 230lbs. Gas Consumption: 1.6lbs LPG/24 hr. Call for freight quote.

80-293	Unique 15 Fridge	\$3,685
80-292	Unique 18 Fridge	\$3,965
	Stainless Steel Option	\$ 400

UNIQUE 10 Fridge

Features: 10.0 cu ft. capacity • Operates on Propane only • Front Mounted Controls • Thermostat • Piezo Igniter • Battery Operated Interior Light • CO-Monitor • CGA approval.

Dimensions: 62 1/2"H x 23 1/2"W x 30"D. Weight 200 lbs. Gas Consumption: 1.3lbs LPG/24 hr. Call for freight quote.

80-294	Unique 10 Fridge	\$2,365
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UNIQUE 7.8 Fridge

Features: 7.8 cu. ft. capacity • Propane only • Piezo Igniter • Front Mounted Controls • On/Off • Thermostat • Flame Indicator • CO-Monitor or Safe-T-Vent Optional • CGA approved

Great for small cabins, airtight rooms or locations using older woodstoves. Dimensions: 56"H x 24 1/4"W x 28"D . Weight 181 Lbs. Gas Consumption: 1.1 lbs LPG/24 hr. Call for freight quote.

80-295	UPG-8.0 CM Gas Refrigerator	\$1,875
	w/safe T Vent add	\$ 100

UNIQUE 3 3-way Fridge

Features: 3.4 cu ft. capacity (3 cu ft fridge + 0.4 cu ft freezer compartment) • Operates on Propane/12VDC/110VAC • Front Mounted Controls • Thermostat • Piezo Igniter • Flame Indicator • CGA approved.

Great for camping. Side handles for easy carrying. Dimensions: 30 1/4"H x 20 1/4"W x 23 3/4"D. Weight 86 lbs. Gas Consumption: 0.7lbs LPG/24 hr. Call for freight quote.

80-296	UPG-3 SM 3-way Refrigerator	\$875
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PROPANE FREEZERS



Frostek-8.5/6.0 LP Freezer

Features: 8.5/6.0 cu. ft. capacity • Propane • Top Mounted Controls • Piezo Igniter • Flame indicator • Temperature Gauge • CO-Monitor •
 Dimensions: 38"H x 44 1/2"W x 31"D. Weight 220 lbs. Gas Consumption: 1.5 lbs LPG in 24 hr period. Call for freight quote.

80-290 Frostek 8.5 LPG Freezer

80-291 Frostek 6.0 LPG Freezer



Frostek-4.0 LP Freezer

Features: 4.0 cu. ft. capacity • Propane • Piezo Igniter • Flame indicator • Exterior Temperature Gauge • CO-Monitor • Dual Compartments
 Dimensions: 41 1/2"H x 31"W x 41 1/2"D. Weight 190 lbs. Gas Consumption: 1.0 lbs in 24hrs. Call for freight quote.

80-297 Frostek 4.0 LPG Freezer

DO IT YOUR-SELF REFRIGERATION

Nova Kool 12/24 Volt DC Freezer/Refrigeration Kits

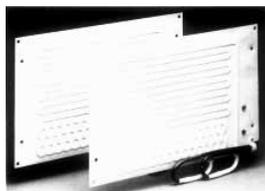
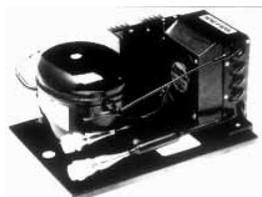
Model LT201-F

Nova Kool refrigeration kits are completely self contained and come pre-charged with refrigerant, ready to install in an existing manufactured refrigerator or freezer, or in a home-built box.

Retrofit existing appliances or build your own super-insulated box and operate it on 12 or 24 volt DC current direct from a battery bank, and use only one fifth to one-tenth the electrical energy needed to operate a conventional 110 VAC appliance with inverter supplied power.

Nova Kool units are amazingly quiet and fully automatic. The Danfoss compressor-condenser unit, and solid state electronic controls are all mounted into one compact unit that takes up little space. The evaporator, or cooling plates, are attached to the compressor with dual seal leak-proof couplings. The connector tubing is 12 feet long, so the compressor unit can be located in another room, or even out-of doors, from the appliance. The LT201-F has a cooling capacity of up to 16 cu. ft. in a refrigerator, and up to 12 cu.ft in a super insulated freezer box. The compressor uses 4.7 amps per hour at 12 VDC while running.

Electronic voltage sensing will shut down the compressor to keep from completely discharging the battery. It automatically restarts when the battery voltage recovers. Comes with complete installation instructions and a one year warranty. Shipping weight 20 Kg.



Compressor Unit

Width: 10"
 Length: 14"
 Depth: 7-1/2"
 Weight: 15 Kg.

Cooling Plates

Cooling plate spread width: 18"
 Length: 16"
 Width: 11-1/2"
 Plate thickness: 1/4"

80-200 Nova Kool 12/24 Volt LT201-F \$1,179

SUPER ENERGY EFFICIENT APPLIANCES

Staber Washer

Staber washing machines are the most efficient clothes washers available and cost less to use based on total energy, water, and detergent usage. Staber is the only top load horizontal-axis clothes washer made in the U.S. Staber washers operate similar to a front loading washer except you maintain top loading convenience, there is no mildew build-up or odor as with front load machines, and Staber washers are more durable.

Instead of fabric being submerged in a tub of water and twisted back and forth like traditional washers, the Staber washer gently tumbles like a front loader but improves wash performance by using a patented tub design. As the six-sided perforated inner tub rotates inside a stationary half of an eight-sided outer tub, water is pushed through the holes of the inner tub. This creates a gentle pumping action in the water which can clean more effectively and efficiently than circular tubs, using less water, energy, and detergent.

Features:

- *15 gallons of water/load average
- *1 ox. of detergent average
- *150 watt hours of electricity/load
- *Up to 18 lbs of laundry or 2 cubic feet of usable volume
- *Automatic Dispensers for prewash detergent, detergent, bleach and softener
- *Faster spin speeds for less drying time
- *Immediate access to the tub while washing instead of being locked
- *Can pay for itself within two years at 8 loads per week
- *Patented stainless steel inner and outer tubs as opposed to plastic or porcelain
- *Reversible, variable-speed motor – eliminates the need for a transmission
- *Maintenance free self-cleaning water pump
- *Two sealed front and rear heavy-duty bearings per shaft
- *Heavy-duty four strut suspension
- *Hgh impact ABS resin top and lid resists rust and dents
- *Simple mechanical switches as opposed to expensive, electronic pushbutton controls
- *Staber Washing Machines Meet the ENERGY STAR® Guidelines for Energy Efficiency
- *One year full warranty, five year limited warranty (bearing assembly & suspension system) and twenty-five year limited warranty (stainless steel outer tub module)
- *Net weight of all models 180 lbs. Shipping weight 240 lbs. Call for Brokerage & Freight Quote, FOB Groveport Ohio.



View of the Staber with lid open looking in

80-305	Staber Washer, Model HXW2304, Standard White	\$1,799
80-306	Staber Washer, Model HXW2404, Stainless Steel Base, Brushed Stainless Control Panel	\$2,169
80-307	Staber Washer, Model HXW2504, Brushed Stainless Outer Cabinet, Stainless Steel Base and Brushed Stainless Control Panel	\$2,499

SUPER ENERGY EFFICIENT APPLIANCES

Bosch Water Heaters

The Bosch gas tankless water heater will supply your home with endless hot water and save you money. These units are small, lightweight and easy to install and maintain. There are three models to choose from to meet a variety of household needs.

Bosch 330 PNL

This small tankless gas water heater is ideal for cottages, camps, and other specific applications where a small volume of hot water is desired. Its compact size means you save valuable floor space and is available for liquid propane (LP).

89-124 Tankless Bosch 330PN-LP \$699

Bosch 520 HN

This tankless model proves water can indeed make fire. The pilot is ignited by a super-concentrated spark generated by a micro-turbine. The micro-turbine is activated by a request for hot water in the house. This energy efficient technology makes the 425HN ideal for households looking to maximize energy savings.

89-125 Tankless Bosch 520HN-LP \$1,699

89-126 Tankless Bosch 520PN-LP \$1,349

Bosch 425 EF

The 425 EF has all the durability & performance of the 425 HN and has a bonus feature - a built in a power vent. It is ideally suited for households requiring horizontal (through the wall) venting only.

89-127 Tankless Bosch 425 EF \$ask

89-128 FX Hood (required) \$ 179



260 PNL 425 HN 425 EF

Bosch Applications & Sizing

Model	330PN-LP	520PN-LP	520HN-LP	520EF-LP
BTU/hr gas input	75,000	117,000	117,000	130,000
Min. water flow (gpm)	.5	.5	.5	.5
Vent Size	3"	5"	5"	4"
Vent Option		Conventional Flue double-wall type B vent - natural draft		Power Vented through side wall
Height	22 1/4"	25 3/4"	29 3/4"	29 3/4"
Width	12 1/2"	16 3/4"	18 1/4"	18 1/4"
Depth	8 1/2"	8 1/2"	8 3/4"	8 3/4"
Energy Factor	.64	.79	.78	.78
Average Efficiency	78%	78%	82%	82%
Ignition	standing pilot	standing pilot	Hydro-Generated	Electronic
Voltage	n/a	n/a	n/a	120VAC

Temperature Rise at Various Flow Rates

45 F rise	2.6 gpm	4.25 gpm		
70 F rise	1.6 gpm	2.7 gpm	same	same
90 F rise	1.3 gpm	2.1 gpm		

Optional Accessories: Horizontal Vent Kit, AQ-4 Power Vent Kit, FX-Hood (horizontal vent cap)

Why choose a Tankless?

- Never run out of hot water
- Most energy efficient water heaters on the market
- Designed and built to last for 20 years
- Small, light weight and hangs on wall
- Supplies all major hot water demands one major usage at a time (425 HN & 425 EF) or two major uses at a time (260 ES)

“SUN-MAR” COMPOSTING TOILETS

The Sun-Mar Composting Toilet

Sun-Mar Toilets convert human waste to fertilizing soil, while waste liquids are filtered by the living compost and carried up the vent stack as evaporate or drained away. To achieve this, Sun-Mar uses a unique three chamber system, each with its own independent environment for optimum efficiency. The first chamber is the composting drum, where the compost is kept perfectly oxygenated, moist and warm. Peat moss is added to the drum to provide the necessary organic carbon to maintain the correct carbon/nitrogen balance in the compost. The second chamber is the compost finishing drawer into which compost is extracted from the drum and where the composting process is completed. The third chamber is the evaporating chamber from where liquid is evaporated and carried up the vent stack or drained. On electrical models, evaporation is further assisted by a thermostatically controlled heating chamber. Because air is being pulled continuously into the toilet system, a partial vacuum is created to help prevent any smell. An overflow drain in the rear drains any excess liquid that cannot be evaporated. The user must provide a safe place for this liquid to drain. A small fiberglass tank will generally serve this purpose well.



Excel N.E. (Non-electric) Composting Toilet

The Excel Ne has long been the standard toilet for those living off the grid. The Excel NE has no fan or heater. Odorless operation is achieved by a 4" vent mounted at the top rear of the unit which acts like a chimney on a wood stove. For good air movement the vent should be as close to vertical as possible. If the Excel NE is used residentially or heavily, or is in a place which is subject to downdraft, an optional 12/24 volt fan should be installed in the vent stack. This fan draws 1.4 watts and can be powered by a solar panel and/or 12 volt battery. Dimensions: 22.5" W x 33" L x 31" H; User Capacity: 2-3 continuous use

89-953 Excel NE Toilet

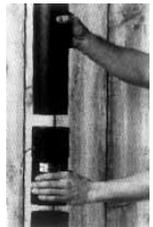
\$1,439

12 Volt Fan Kit

This small fan comes preinstalled in a short section of vent pipe the same size as used on all NE toilet models. It increases the evaporation rate by about four times. Simply insert it into the vent pipe during installation, or it can be installed at any time. It uses just 0.12 amps, so it puts little demand on a 12 volt system.

89-930 12 Volt Fan Kit

\$50



Excel Electric

The Excel is the preferred self contained electric model for heavy or residential use. The Excel has been successfully tested by the National Sanitation Foundation for 4 adults in continuous usage. The 2" vent is attached at the top rear of the unit and can be installed invisibly by running it through the wall and up the outside wall. 115 VAC. An AC/DC version of the EXCEL is also available. This is a dual voltage unit, (12VDC and 115VAC), has both 2" and 4" vent stacks, and can operate either as a standard electric unit or with a 12 volt 1.4 Watt DC fan. ADD \$100 to Excel Electric Model Price for Dual Voltage. Dimension: 22.5" W x 33" L x 32" H; User Capacity: 3-5 continuous use

89-950 Excel Electric

\$1,619

Central Units

A SUN-MAR central composting toilet is ideal for those who want to have a **traditional looking toilet** in their bathroom, and can place the composting unit below the toilet.

SUN-MAR has three different sized families of Central Units; the regular capacity **1000**, the high capacity **2000**, and the extra high capacity **3000**. All are available in **electric, non electric** and in **AC/DC versions**. Bone is the standard color for all units.

Either 1 pint water flush toilets or SUN-MAR Dry (water free) Toilets are available for use with CENTREX 2000 and CENTREX 3000 units, but water free toilets are not an option with the CENTREX 1000 series.



Central Units with 1 Pint Toilets

Central units using a 1 pint flush toilet should be **within 15-20 ft** of the bathroom. Installation involves hooking up the water supply to the 1 pint toilet, connecting the 3" plumbing pipe from toilet to composter, and erecting the vent stack supplied with the unit. These units use Compost Sure (blue) bulking material which is 100% hemp chips.

Central Units with SUN-MAR Dry Toilets

Central units with Dry Toilets (AF units) should be positioned **directly under** the toilet. Everything necessary for installation including the vent stack is included with the AF unit.

These units use regular Compost Sure (green) bulking material.



There is a wide selection of SUN-MAR models to choose from for all types of applications: cottages, cabins, light commercial, boats, RV's, barns and workshops. All Sun Mar toilets come with a 2 year warranty. Call for pricing and colored brochures.