How to Build a Cost Effective "Green" Home
The Six Key Systems Approach

Green Defined: Healthy, efficient, disaster resistant, mold resistant, pest resistant, low maintenance, low environmental impact, built for life.

First, Here's the Math: Mortgage + utilities is LESS in a green home - you put more money in your pocket at the end of the month, after paying your bills. The five to eight percent more on construction costs (financed by the bank) is paid for, plus extra spending money, by the 60 to 75 percent on electric costs and 30 percent reduction in water cost. Maintenance is lower, too.

Six Key Systems:

1. Poured Solid Concrete Wall or Structural Insulated Panel: Avoids trapping moisture in walls for mold growth, stronger, better insulation, better sound resistance, better pest resistance, more accurate, faster construction.

2. Sealed Attic Construction: Using either Biobased water-blown healthy foam insulation sprayed on the underside of the roof deck, or a structural insulated panel roof (such as HPRS), provides a sealed, conditioned attic space, keeping heat, dust, moisture, pests and wind out. Attic temperatures are reduced from the typical 130 to 140 degrees F to 80 to 85 degrees. Now the attic is dry, cool, usable storage space. This saves on A/C costs, improves indoor air quality, and helps protect the roof in high winds.

3. Efficient, Impact Resistant Windows: Choose windows that are both energy efficient and protect the building envelope against wind forces getting inside to lift off the roof. This completes the "green" shell of your building.

4. High Efficiency Air Conditioning, Dehumidification and Fresh Air: We recommend looking at water-cooled air conditioning, able to keep summer A/C costs up to 50 percent lower than even the most efficient air-cooled equipment. Houses need more fresh air to flush out toxins. Fan recycler or energy recovery ventilation is recommended, along with a humidistat to keep humidity at 60 percent or lower.

5. Passive Solar Water Heating: The single most powerful energy saver of the 6 Key Systems. Reduces water heating costs by 70 to 95 percent (overall electric bill reduction of more than 20 percent). Has no moving parts, doubles the hot water supply for the house, provides hot water when power is out, and offers a 30% Federal Tax Credit to the home buyer.

6. Brac Greywater System - Self-contained system that cleans and recycles shower and laundry water to use for flushing toilets. Typical savings of 30% of household water and sewer use.

For more information, please contact:

Eco-$mart, Inc.
888-329-2705
www.eco-smart.com

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info@eco-smart.com

Cost - Benefit / Cash Flow Analysis: Eco-$mart 6 Key Systems Home

(Sample Home)

Home Size (square feet under air)	2000		
Eco-$mart Features / Additional Costs	**Standard Home**	**Eco-$mart Home**	
E-Wall Poured Solid Concrete or SIP Wall*	No	**$5,200**	
Biobased Soy Foam, HPRS or SIP Roof*	No	**$3,900**	
Passive Solar Water Heater (after Federal tax credit)	No	**$3,250**	Total Add. Const.Cost
Water-Cooled A/C	No	**$2,600**	$22,490.00
Energy Star Low-E and/or Impact Windows	No	**$3,640**	% Additional Cost
Brac Greywater System	No	**$3,900**	9.00%
Sale Price	$250,000.00	**$272,490.00**	
Mortgage (@ 7.0%)	$1,663.26	**$1,812.88**	
Utility Bills (60% Lower Electric, 30% Lower Water)	$333.33	**$133.33**	
Insurance Savings	$0.00	**-$50.00**	
Tax Benefit (Mortgage Pmt is Tax Deductible)	$0.00	**-$44.89**	
Non-Combustible	No	**Yes**	
No Mold and Mildew	No	**Yes**	
Disaster Resistant - Hurricanes, Fires	No	**Yes**	
Healthy Indoor Air Quality	No	**Yes**	
Pest Resistant	No	**Yes**	
Low Noise Transmission	No	**Yes**	
Increased Resale Value**	No	**Yes**	$49,752
Additional Interior Usable Footage (SF)	No	**Yes**	41
Monthly Out-of-Pocket	$1,996.59	**$1,851.33**	
Savings, from Day One >>>>>>>>>>		**$145.26**	per month

MORE HOME FOR LESS MONEY!

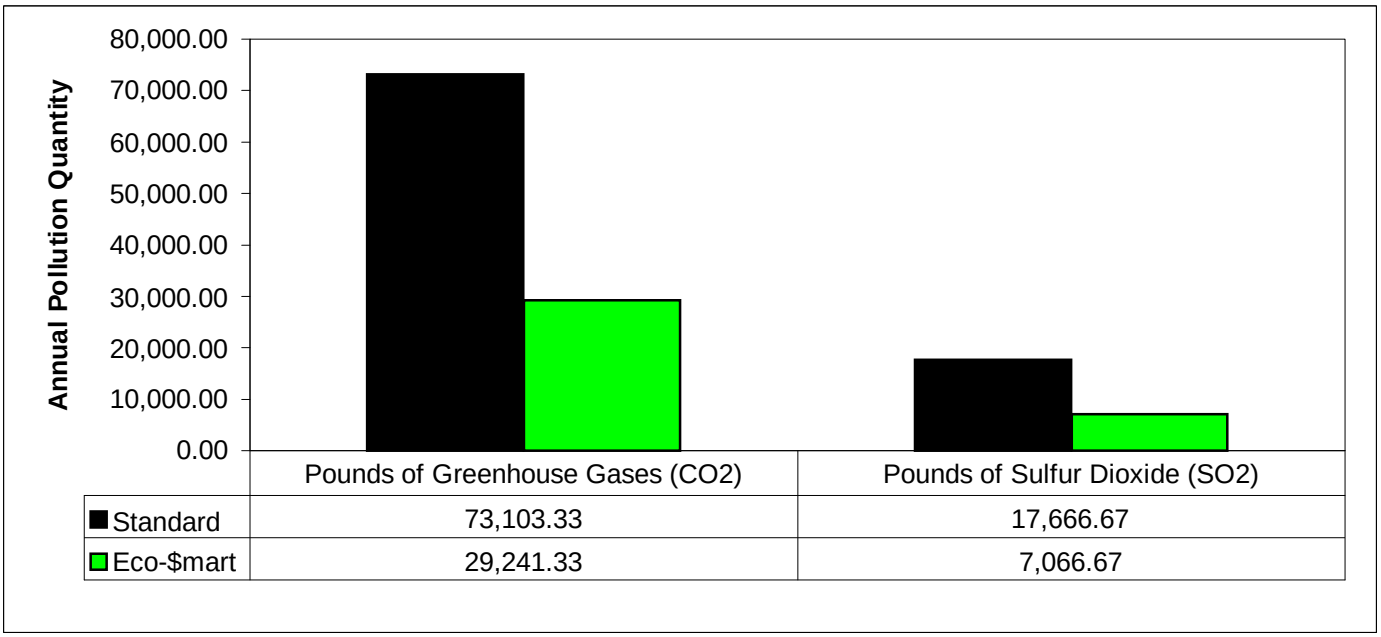
*SIP Wall and Roof can cost the same or less than conventional construction.

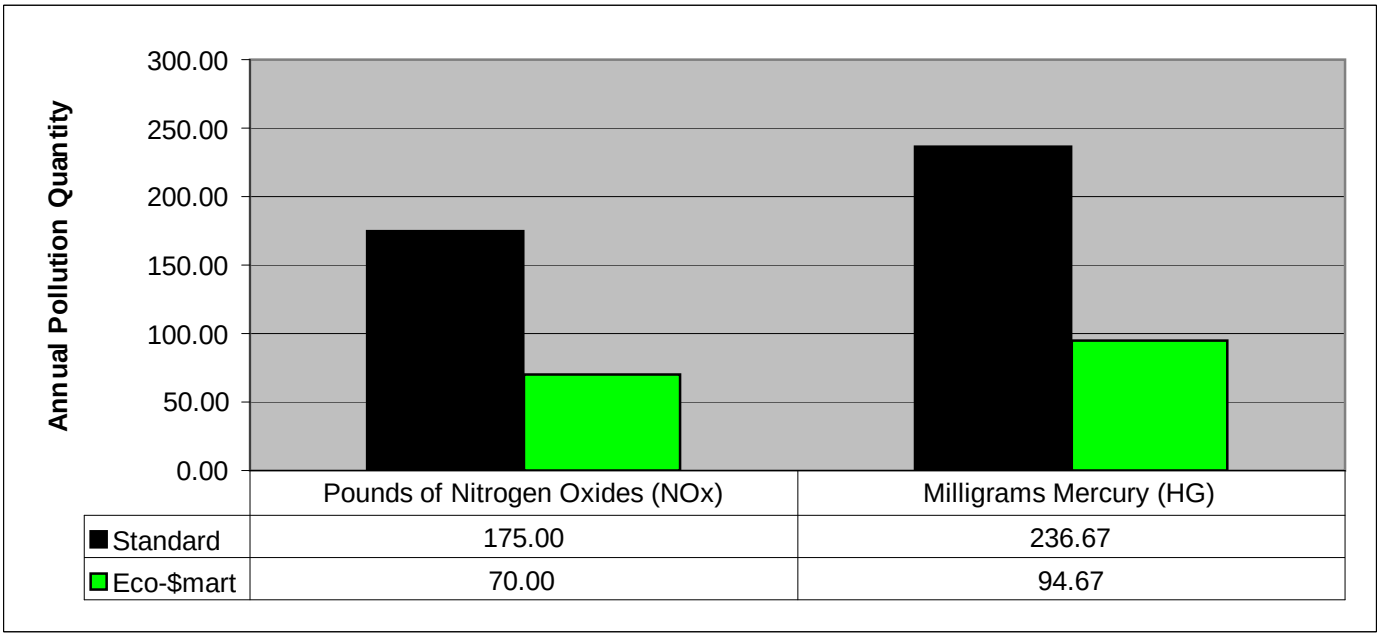
** According to the National Association of Appraisers, studies of resale prices of homes over the past 15 years have allowed them to attach an increased value to effcient homes. The value is calculated by taking one year's energy savings (as certified by a state licensed energy rater, part of the national program) and multiplying the savings by $ 20.73.

Annual Pollution Reduction from choosing Eco-$mart Home

Type of Pollution	Standard Home	Eco-$mart Home	Annual Pollution Reduction
Pounds of Greenhouse Gases (CO2)	73,103.33	29,241.33	43,862.00
Pounds of Sulfur Dioxide (SO2)	17,666.67	7,066.67	10,600.00
Pounds of Nitrogen Oxides (NOx)	175.00	70.00	105.00
Milligrams Mercury (HG)	236.67	94.67	142.00
Pounds of Carbon Monoxide (CO)	11.67	4.67	7.00
Pounds of Volatile Organic Compounds (VOC)	1.67	0.67	1.00
Pounds of Particulates (PM 10)	3.33	1.33	2.00

Emissions from electrical generation are based on Florida's fuel types used at power plants: www.cleanerandgreener.org

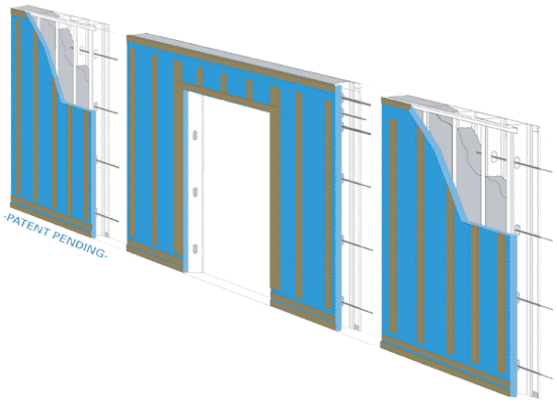




E-Wall
Stay-in-Place Forms for
Poured Solid Concrete Walls

E-Wall is a patented stay-in-place form for building solid concrete walls. The form consists of an exterior fiber/gypsum board held to an interior rigid foam insulation board. Light gauge steel studs hold the interior and exterior boards together. Furring strips are provided on the interior facing side of the insulation board surface. Vertical re-bar (poured in the slab) connects the panels to the foundation, and horizontal re-bar is placed every 2' in height in the form prior to the concrete pour. Once the forms are poured, the walls are ready for conventional electrical placement and drywall installation using the furring strips provided. Conventional exterior finishes such as stucco or siding can be directly applied.

E-Wall construction creates highly insulated, low air infiltration, moisture resistant, extremely strong (250mph wind load / Miami Dade Approved), fast, and affordable (competitive with standard concrete block) construction.



For more information, call Eco-$mart, Inc. at 888-329-2705.

All Eco-$mart products are approved by the nonprofit Florida House Institute for Sustainable Development www.i4sd.org.

The Eco-$mart Catalog

Building Envelope Systems

Healthy, Efficient, Disaster Resistant Products for Better Living

Panelized Steel Hybrid Building Shell

Item Number: BE-PSHBS
Price: Quoted

Protect the Environment

~ Renewable Source
~ Recyclable Steel
~ Clean, Efficient Manufacturing
~ Reduced Wood use
~ No on site waste

Protect Your Investment

~ Earthquake
~ Fire
~ Insects
~ Weather

Panelized Steel Hybrid Building Shell is a complete building shell system including walls and wall coatings, roof, floor, interior framing and insulation - and optionally, windows, doors and roof cladding. The core of the system is an engineered, panelized, specially manufactured steel stud wall and roof and interior framing, rated to resist winds from 150 to 200mph (design dependent). In the field, the walls are clad with a Miami-Dade approved textured, colored concrete coating (other exteriors also available). The insulated steel panels can be used as the roof, or the roof can be a steel frame system only, clad with OSB, then sprayed underneath with open cell water blown foam - both options providing a healthy, sealed attic and excellent air control. The wall panels have insulation installed in the factory, carrying an insulation value of R-32. The Panelized Steel Hybrid Building Shell installation crew does all the work of up to nine separate subcontractors, reducing time and cost to build. The Panelized Steel Hybrid Building Shell is suitable for residential or commercial buildings up to five stories.

The complete Panelized Steel Hybrid Building Shell for a 2500 square foot house can be built in as little as three days, by a single crew, eliminating delays between trades. Costs for Panelized Steel Hybrid Building Shell, which include engineered drawings, are competitive with standard construction methods. Yet, the Panelized Steel Hybrid Building Shell is truly a healthy, efficient, disaster resistant building envelope. And crews can install Eco-$mart's Insulated Impact Windows, and a special, high wind resistance metal roofing product that looks like tile or shingles.

Panelized Steel Hybrid Building Shell can be supplied and installed throughout the United States. Each plant is capable of producing over 100,000 square feet of panels per week. Where a project creates sufficient demand, a plant can even be located near to the project.

Advantages of Panelized Steel Hybrid Building Shell Packages

1. Replaces six to nine trades with one subcontractor.*
2. Much faster shell construction.
3. At or below conventional construction costs.
4. Truly "Green", healthy, efficient, disaster resistant structure.
5. Complete shell is engineered to 150mph and up.
6. Miami-Dade approved.
7. Manufacturing tolerances below 1/32 of an inch.
8. Offers a variety exterior options (concrete/stucco, AAC, siding)
9. Residential and commercial pre-engineered designs available.
10. Design build services available.

* Replaces wall mason, poured beam contractor, interior framer, truss and floor system installer, insulation contractor, stucco contractor, exterior painter, optionally: window installer, roofing contractor.

Toll-free Phone:(888) 329-2705 Outside US: 941-377-9460

Panelized Steel Hybrid Building Shell

Factory in a Box **Price:** Quoted

Portable housing factory

Emergency construction anywhere in the world!

- Many models in single and multi-dwelling configurations
- Quickly placed on site.
- Ensures fast and consistent construction.
- Reduces transportation costs.
- Utilizes Local Labor

Complete housing in as little as three days!

Larger Photo & Description PDF

Disaster Relief Housing Models

Multiple Dwellings

Single Dwellings

 (888) 329-2705 info@eco-smart.com www.eco-smart.com

Key Systems:
Hurricane Proof Roof Systems

300+ mph wind resistance, sealed attic, fire, mold and pest resistant.Can eliminate exterior roof tile (concrete is stamped)

Biobased Water Blown Foam Insulation

Water Blown Foam Insulation Benefits:

- Reduces A/C Costs by 20 to 25 Percent
- Virtually Eliminates Dust, Moisture and Heat in Attic Space
- Improves Indoor Air Quality (Endorsed by American Lung Assn.)
- Reduces Affect of High Winds on Roof System
- Eliminates Pest Access to Attic from the Outside
- Creates Dry, Cool, Usable Attic Space
- Provides a Low Maintenance Location for Air Handler
- No Off-gassing from Spraying or Foam Itself
- Lifetime Warranty for Performance
- No Food Value to Insects
- Reduces chance of Spread of Fire in Home

Product Description: Made from U.S. grown soy bean oil, this open cell, water propelled foam is sprayed directly onto the bottom side of the roof decking, creating a totally sealed attic space. Ridge vents and soffit vents are eliminated. Peak attic temperatures will drop from the standard 130 degrees (or more) to 85 degrees (or less). Air conditioning ducts will now run in cool, dry space, saving 20 to 25 percent on A/C costs. Dust and moisture that typically enters vented attics and makes its way into the living space is eliminated. The building becomes safer in high winds due to the elimination of the ridge and soffit venting, which also eliminates a major access for pests. Can be used in wall cavities as well as roof applications. Creates excellent sound reduction, as well. Suitable for commercial and residential buildings.

For Quotes and Installation Call: Eco-$mart, Inc. 888-329-2705 www.ecosmartinc.com

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The Eco-$mart Catalog

Windows, Doors & More

Healthy, Efficient, Disaster Resistant Products for Better Living

Wind-Pact Plus
Large Missile Impact Windows

Item Number: WN-WP-*

Styles:
Single Hung - *SH
Horizontal Slider - *HS
Casement - *C
Sliding Doors - *SD

Colors: White and Adobe

Price: Quoted

WIND-PACT PLUS windows feature specially designed heavy duty extruded vinyl frames with multiple chambers, as well as insulated laminated glass for superior strength and energy efficiency. All windows feature block and tackle balancers for smooth operation, with removable sash and removable screen for ease of cleaning. Windows over 30" wide feature double locks. All Vinyl Frame windows meet or exceed the Florida Codes and feature substantially high design pressures.

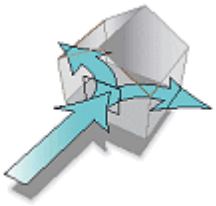
WIND-PACT PLUS vinyl large missile impact windows are manufactured with Cardinal Sea-Storm laminated glass. This glass was designed to pass the stringent Dade County protocol for windows used in high wind-speed coastal areas. It is produced by bonding a combination of plastic vinyl layers and polyester film between two panels of glass into a single sheet. Cardinal Sea-Storm laminated glass looks like ordinary glass, but protects like a shield against accidental impact, forced entry, sun damage and unwanted noise.

PLUS, Cardinal offers their patented LoE² Coatings that are virtually invisible to the eye but provide significant savings on your home energy bill. With a Solar Heat Gain Coefficient (SHGC) of 0.26 and a Winter U-Value: 0.33, glass coated with LoE² Coatings keep heat outside during summer and inside during winter. For beautiful windows that stand up to just about anything AND save energy, choose WIND-PACT PLUS with Cardinal Sea-Storm laminated insulated glass.

WIND-PACT Plus Offers Peace of Mind:

- Against Hurricanes
- Against Intruders
- Against High Energy Bills

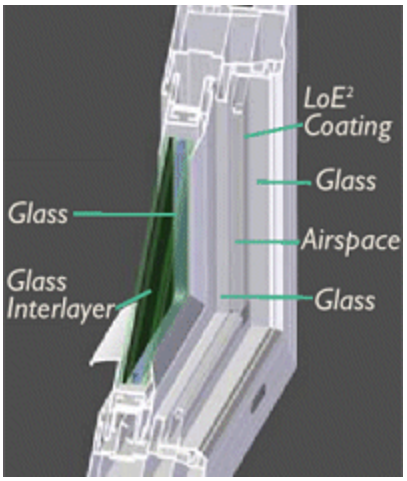
How will the right window protect my roof?



Wind enters a broken window, lifting the roof and stressing the walls.

Solid laminated impact window helps preserve building integrity.

Energy Efficient LoE² Coatings reduce solar heat gain in laminated glass.



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The Eco-$mart Catalog

Air Conditioning and Dehumidification

Healthy, Efficient, Disaster Resistant Products for Better Living

Commercial and Residential Water Cooled Air Conditioning

Residential Water Cooled Split Systems

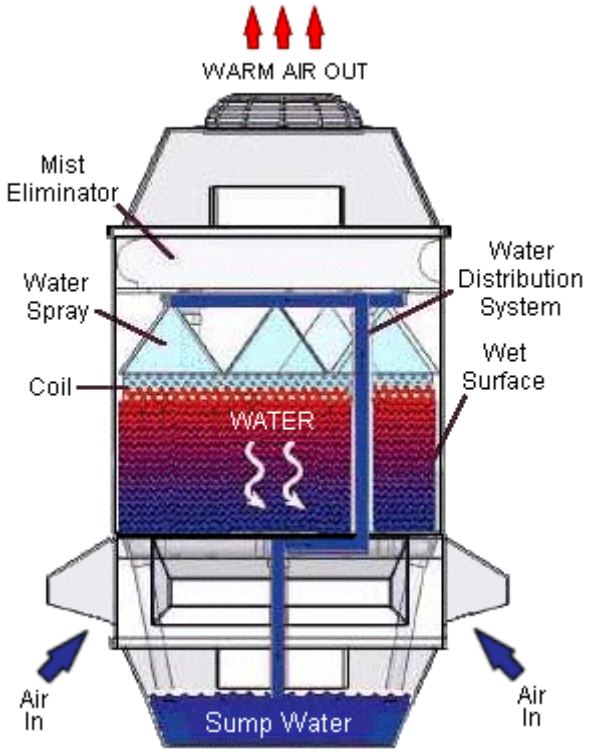
Three Zone System

Utilizing technology normally associated with the industrial sector (evaporative condensers). Allied has perfected the ultimate in energy efficient water-cooled air conditioning. The Thermal Flow system combines the superior water-cooled condenser with the newest Scroll compressor technology, the most efficient fans and pumps available. The Thermal Flow system utilizes two refrigerants, and natures own water is used to cool the Refrigerant up to 60 degrees cooler than what is possible with an air-cooled system. By reducing the heat in the refrigerant circuit, the operating efficiency of a water-cooled unit is dramatically enhanced, providing an unparalleled efficiency advantage over conventional air-cooled units.

Benefits Product Data Specifications PDF 3D View

The Thermal Flow system is designed and built to the highest standards, utilizing durable industrial grade components. The unique design combines function and form in a very attractive and compact unit only 54 inches tall. The system is designed to be compatible with all conventional systems. Systems can be fitted with a variable speed fan controller to conserve water. This also provides a quieter operation and lowers the fan energy required. An auto purge self-cleaning feature is included to handle the hard water in some regions. All of the components are available through the W.W.Granger parts network. Manufacturer warrants the cooling tower for fifteen years, the compressors for ten years, and the cooling tower fan and pump for three years.

Three Zone Compressor Box



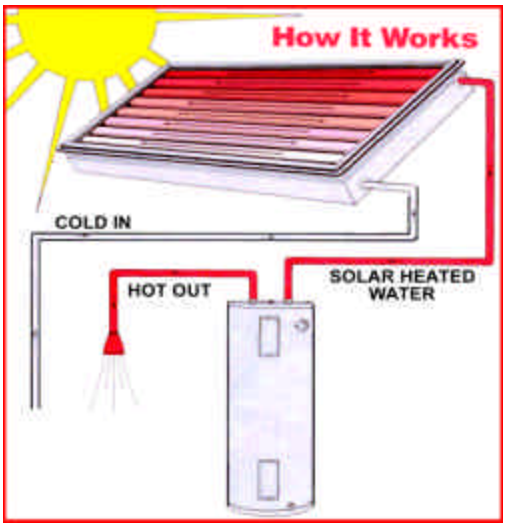
Eco-$mart, Inc. **(888) 329-2705** info@ecosmartinc.com

Passive Solar Water Heating

Passive Solar Water Heating Benefits:

- Reduces Water Heating Costs by 70 to 90 Percent
- Can Lower Overall Electric Bills by 20 Percent or More
- Doubles Hot Water Supply
- No Moving Parts, Maintenance Free, 10 Year Warranty, Made in Florida
- Creates Positive Cash Flow / Tax Free Return on Investment (5 to 20% annual)
- Acts as an Emergency Source of Hot Water
- Reduces Environmental Impact of Utility Power Generation
- Why Buy Oil from Overseas to Heat Water? Solar Water Heating is the Single Largest Step We Can Take Toward Energy Independence

System Description: A 4' x 8' collector holding 40 gallons of water is installed on the roof, typically facing South. Domestic water is plumbed directly into the collector where it is heated by the sun. The roof-mounted collector is piped to feed a standard gas or electric water heater inside the home, which acts as a backup heater. When hot water is used in the house, the solar heated water comes from the collector into the standard water tank, reducing or eliminating the need for the standard element to operate. One 40 gallon Passive Solar Water Heater will typically reduce water heating costs by 70 to 90 percent for a family of four in Southwest Florida, saving 20 percent or more on overall electric bills.



For information on the SunBuilt Program (free solar for builder models) call: 1-800-59-SOLAR

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All Eco-$mart systems are approved by the nonprofit Florida House Institute for Sustainable Development

Thermosiphon Passive Solar Water Heating

Thermosiphon Passive Solar Water Heating Benefits:

- Reduces Water Heating Costs by over 90 Percent
- Can Lower Overall Electric Bills by 20 Percent or More
- Can Act as Stand Alone Water Heater – No Garage Storage Required
- No Moving Parts, Virtually Maintenance Free
- Creates Positive Cash Flow / Tax Free Return on Investment (10 to 20% annual)
- Acts as an Emergency Source of Hot Water
- Reduces Environmental Impact of Utility Power Generation
- Why Buy Oil from Overseas to Heat Water? Solar Water Heating is the Single Largest Step We Can Take Toward Energy Independence

System Description: Two 4' x 5' panels with an 80 gallon storage tank are installed on the roof, typically facing South. The panels contain food grade glycol, which, when heated by the sun, rises up to circulate through the ceramic lined water tank, heating the water. The system can act as a stand alone water heater, as the tank contains its own heating element, or the system can act as a non-electric pre-heater to a standard electric or gas water heater in the home. Savings in water heating cost exceed 90 percent in Florida, saving over 20 percent of the typical electric bill. This system does not freeze, and corrosive water will not damage the collector copper tubes, as only the glycol comes into contact with the copper.

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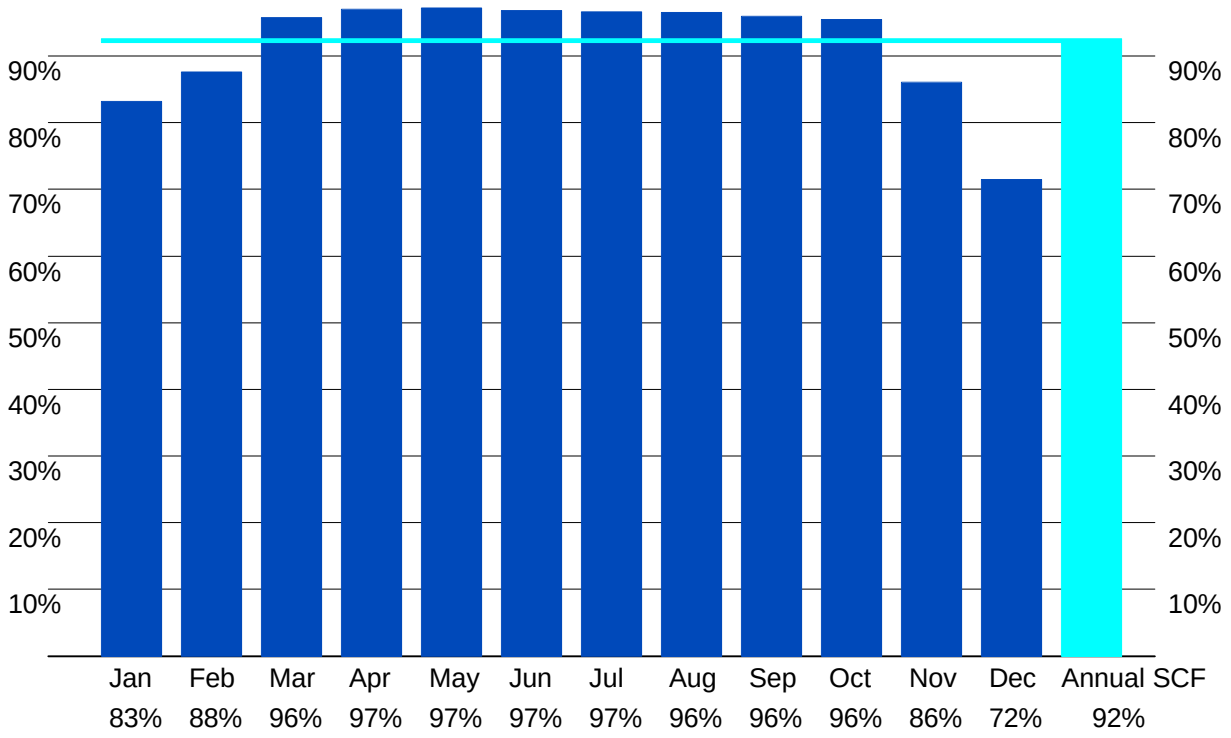
Energy Savings with Solahart 302J

Location.. Tampa Latitude.. 30.38° N Inclination.. 20° Orientation .. South



Total energy from the sun.....3353 kWh/year under average conditions.***

Savings relative to a 150 litre electric water heater.**

Average use 72 US Gal./day at 120.2°F (28434 Btu/day)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Radiation	1015	1268	1617	1966	2029	1934	1839	1744	1554	1395	1141	983	Btu/sqft.day
Ambient	78.1	61.5	66.4	71.2	77.2	81.0	82.0	82.0	81.0	74.8	67.6	62.2	°F
Cold Water	77.0	60.8	66.2	69.8	77.0	80.6	80.6	80.6	80.6	73.4	66.2	60.8	°F
Solar Input	8.24	9.2	9.87	9.8	9.62	9.49	9.37	9.36	9.41	9.55	8.87	7.51	kWh/day
Boost input	5.98	4.68	1.56	1.09	1.0	1.13	1.19	1.23	1.41	1.62	5.14	10.74	kWh/day
Electric HWS*	9.2	13.6	12.1	11.1	9.2	8.3	8.3	8.3	8.3	10.2	12.1	13.6	kWh/day
Energy saved	7.6	12.3	11.6	10.8	9.0	8.0	8.0	8.0	8.0	9.7	10.6	10.6	kWh/day
	80165	71170	56230	78105	29479	38220	38475	38465	38140	72684	80887	111794	Btu/day

Total Annual Savings on Energy Use vs. an Electric water heater.....3470 kWh/year

* 150 litre electric water heater container loss of 1.98 kWh/day.

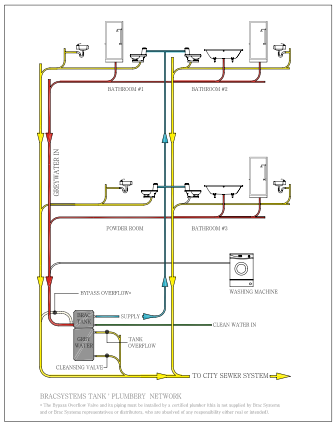
** Estimated savings are calculated with hot water use distributed throughout the day.

2/1/2003

Solahart Industries Pty Ltd
A Southcorp Company.
ACN 064 945 848
Corporate Headquarters: 112 Pilbara Street, Welshpool, Western Australia 6106. Postal Address: P.O. Box 95, Welshpool, Western Australia 6986.

BRAC SYSTEMS
Greywater Recycling System

Save 30% On Water Usage

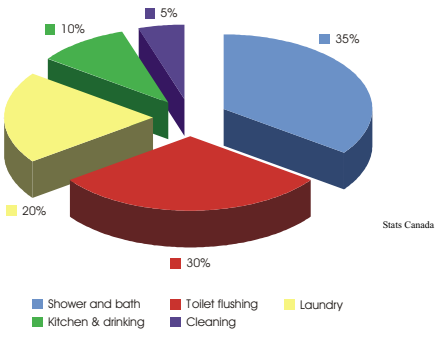


The Brac Systems Greywater Recycling Tank is designed into the plumbing system of new construction and existing residential homes.

Drains from showers, bathtubs and optionally the laundry, are routed directly to the Brac System. The grey water entering the tank is filtered through a quality-controlled ISO 9001 Registered 100 Micron filter bag. In the tank is a tri-chlorine tablet of the type used in swimming pools that keeps the grey water free of any bacteria and odours. The disinfected water is then pumped on demand by a jet pump and pressure tank system, through dedicated supply lines to supply grey water to household toilet tanks for flushing.

Where Does Your Water Go?

On average, a family of four uses 63,408 gallons of water per year. Well over half of our water is being used shower, bathe and do the laundry, while nearly a third is being used to flush the toilet. A mere 10% of our home water supply is used in the kitchen and as drinking water.



For more information, call:
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www.eco-smart.com

BuiltGreen™ BRITISH COLUMBIA

EXCEL Ventures Inc.

MEMBER CHBA
Canadian Home Builders' Association