



# RESIDENTIAL WATER HEATING

## Solar Water Heating

The subtropical sunshine of Southwest Florida offers a plentiful source of free solar energy; however, the equipment needed to capture and store solar energy can be expensive. The typical solar water heating system consists of collectors, a pump, a storage tank and electric controls. Because solar heat must be captured and stored during daylight hours for use throughout the day, the storage tank should be significantly larger than a typical tank-type water heater. A well-designed solar water heating system will save up to 80 percent of the cost of heating water. Don't forget maintenance costs when figuring payback time on a solar water heating system. Constant exposure to the sun makes solar collectors high-maintenance equipment. It's not unusual to require repair or replacement of collectors within seven to 10 years.

Water heating can account for 14 to 25 percent of the energy consumed in your home, second to cooling and heating. Understanding your habits, learning how to conserve and installing the most efficient water heater that best fits your needs will help manage your water heating costs.

Because daily baths and showers are the primary use of hot water, and family size drastically affects the annual energy use of heating water. A 40-gallon water heater in Florida consumes 150 to 200 kWh per month for a two-member household with standby heat loss when set at 120 degrees Fahrenheit, depending on water heater efficiency.

### Annual Energy Use of Heating Water

Family Size	1	2	3	4	5	6
Energy Use in kilowatt hours	1,552	2,200	2,850	3,500	4,140	4,800

Note: Each tank-type electric heater in constant use contributes about 705 kWh to this annual energy use. If your home employs more than one tank-type water heater, add 705 kWh for each additional unit.

Although other methods of heating water are more energy efficient, they may not be cost-effective. Purchasing expensive water heating equipment is not recommended unless the projected savings will pay back your initial investment in a reasonable period of time (less than five years).

## HEAT RECOVERY UNIT (HRU)

The HRU uses the wasted heat of the air conditioning process to heat domestic hot water. This technology can be cost-effective for many households. The tank-type water heater is retained to serve as a storage tank for hot water during the air conditioning season and is called upon through winter months to heat water when the air conditioner is not in use. Most households can disconnect the electric supply to the tank during air conditioning season and force the HRU to meet all hot water needs. Large households that use air conditioning extensively achieve the greatest returns.

## More tips from our experts...

- Repair leaky faucets.
- Turn the faucet off while shaving or brushing your teeth.
- Take short showers instead of long showers or baths.
- Wash clothes in cold water.
- Consider installing a low-flow showerhead.
- Adjust the water heater's thermostat at 120 degrees Fahrenheit or lower.
- Periodically drain the hot water tank. This will prevent a build up of sediment and eliminate strain on the heating elements.

### Annual Savings From Heat Recovery Unit in kilowatt hours

AC Months Per Year	5	6	7	8	9	
Number in Family:	2	917	1,105	1,282	1,470	1,647
	3	1,188	1,447	1,658	1,894	2,130
	4	1,458	1,752	2,047	2,330	3,105
	5	1,728	2,070	2,423	2,765	3,223
	6	2,000	2,400	2,788	3,188	3,588

Note: The addition of an HRU to any air conditioning system can improve the efficiency of the system by as much as 10 percent.

## TANKLESS WATER HEATERS

Unlike conventional hot water tanks, which are activated by a thermostat, tankless water heaters are activated by the flow of water when a hot water valve is opened. Although this theoretically provides an instant, unlimited supply of hot water there are several issues to consider.

- They are designed for single area hot water heating; therefore, high fluctuations in hot water temperature may occur when there is a demand for hot water at several different points. This could cause scalding.
- They may require additional electrical work to support the high amperages of the heating elements, as well as special plumbing and space considerations.
- They may not be cost-effective. Cost of each unit may be comparable to a top-of-the-line conventional hot water heater. However, two or three units may be required to provide enough hot water for all the requirements in a home.
- Those between 12 to 15 kW consume about 360 to 450 kWh a month for one hour of daily usage compared to a single tank-type unit that consumes 180 to 290 kWh a month for an hour of daily usage, even with standby heat loss.
- They are promoted nationally to save on stand-by heat loss, but in Florida, most water heaters are located in hot garages and have very little heat loss. Additionally, cold water temperatures entering the water heater in Florida are warm for most of the year.