



Solar Thermal System Q & A

Does solar work in Minnesota?

Minnesota has average solar resources of about 4.5 Kilowatt-hours per square meter per day (kWh/m²/day). A single-panel system installed in Minneapolis has the greater energy savings than a system installed in any other US city, except Phoenix.

What is my Return on Investment (ROI)?

In order to calculate the financial benefits of a solar thermal system, the output of the system must be estimated. Your estimated return on investment will be determined during your site assessment. Additional benefits of going solar include less demand for burning fossil fuels, fewer greenhouse gas emissions, and energy independence.

Solar Hot Water

Do I need to get rid of my current hot water heater?

No, your current hot water heater will work in tandem with the solar thermal system as storage.

Where will the panels be placed?

Solar hot water panels can be mounted on a south-facing roof, on the ground, on a south-facing wall or even as an awning (see photo to right). Your site assessor will help you determine the best placement.

How much hot water will this produce for me?

Solar thermal systems are typically sized to provide close to 100% of hot water demands in the summer, when the sun is strongest. During the winter, less solar heat is generated, and a back-up water heater makes up the difference. Annually, a typical solar thermal system provides between 50%-80% of the total hot water usage.

What are the maintenance costs?

Over the 30+ years lifetime of a solar hot water installation it is estimated that the homeowner will need to replace the water pump after 10-15 years at a cost of \$100-\$300. Additionally, glycol antifreeze must be periodically checked and changed.

Solar Air Heat

Will the Solar replace my furnace?

No, the solar air heat system will generate heat during the day and ideally keep your existing furnace from kicking on, but you will need your existing furnace at night.

Where will the panels be placed?

Panels are installed vertically mounted on the south facing wall of the home.

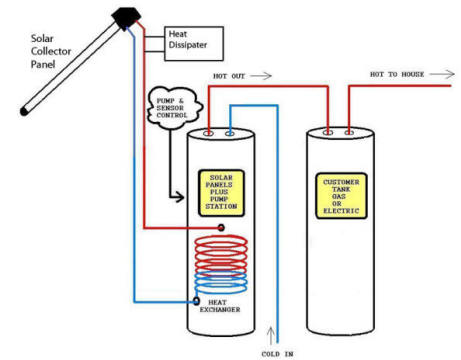
How much space heat will this produce?

Assuming there is adequate space, systems are sized to offset the home's heat during the day. If this is done and the home is well insulated, solar air heat may be able to offset 25% of your winter heating load.

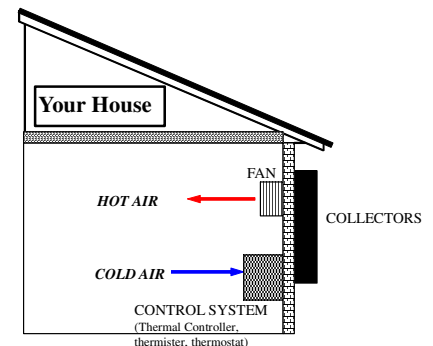
What are the maintenance costs?

The only component with moving parts is a fan which will most likely last 10-15 years. Fans currently sell for about \$250.

Solar Hot Water



Solar Air Heat



Most of this data was collected from an excellent paper analyzing the SE Como bulk purchase project involving solar hot water systems. If you would like more detailed information about bulk solar thermal projects, you can download the paper by Nelson, Stiever, and Kearney, "Solar Pioneers; A Case Study of the SE Como Neighborhood Solar Thermal Project," December, 2007.