
Efficiency of solar collectors

Posted by Archbob - 2007/10/02 08:46

I believe currently these things are operating at less than 10% efficiency, which is not enough to power much of anything. I read in a science article that the maximum efficiency possible is 25%. Is this true? Can anyone verify this?

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Re:Efficiency of solar collectors

Posted by DianaR - 2008/07/14 23:20

I have always considered efficiency arguments to be red herrings. If a unit functions at all and meets the needs of those using it, it is worth using.

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Re:Efficiency of solar collectors

Posted by brother - 2008/07/24 05:42

Having sold active solar collectors to heat water and transfer heat to the home hot water tank I must mention that there several models each with different costs and different efficiencies. To put it bluntly, the cost paid takes years to realize a savings if you buy them retail. Now, if you are considering heating a swimming pool, an array of home built collectors can save you a bundle. For the average home hot water uses I don't think the investment has a good payback. Use a restricted flow shower head and cover your hot water heater with insulation for most cost effective savings. Then educate users to get wet and turn the water off while washing and then turn it back on to rinse. For a bath fill the tub less full. Much better than paying thousands for an active solar hot water system with collectors, heat exchanger, mixing valves etc.

Passive solar home heating is a different story but normally a home is not built to take advantage of this. Insulate and fill gaps that infiltrate... A few tubes of caulking applied in the right places and some insulation stuffed into holes where pipes come into your home, storm windows with a substantial gap between glass, weather stripping around doors and you can comfortably turn your thermostat down a few degrees because the cold drafts will be cut down. I have treated homes and cut heating bills by 30% and more from these methods. You just need to know where that cold air comes in. On a windy day light an insense and put it by doors windows and around the base of walls and under the sinks in your home then watch the smoke and you will see the drafts. Where the walls meet the floors there is often a big gap to let in drafts. You will need to pull carpet from the edge to discover a big gap there - fill it with caulk. Also note the round pipes coming in through the square holes with a big gap... Fill them up even if it is with plastic bags from the grocery store.

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