

INVENTION: SolarRoofs.com “Skyline” Unbreakable Polycarbonate glazed collectors versus conventional Tempered Glass glazed collectors:

All flat plate collectors made by the major solar water heating manufacturers are of very high quality and perform very well.

The difference comes as one of design. As I got older, I started to not appreciate having to heft 120 to 160 pound collectors into the roof. Solar dealers have to charge over \$1,000 to remove and replace a thermosyphon or batch heater because often a crane is needed to safely remove and replace it. A “Skyline” collector can usually be safely removed and replaced by one person at low cost for a re-roof. The savings can be dramatic.

My many trips to the chiropractor attest to the danger of installing or removing flat plate collectors. Whenever a flat plate or ICS collector is installed, OSHA safety rules for weight are often violated unless a crane or mechanical lifting technique is used. Technically, 5 people are required to “safely” install a 160 pound collector on a roof. They are just plain heavy, even moving them around the shop is difficult!

Back in the early 1980's I questioned this, why should installing solar water heaters be so difficult? I also asked why they shouldn't they look better! In college, as a student I wrote a Research paper, which included a reference to invention. I learned that the idea for an invention often comes as an “inductive leap,” where experiences come together in one grand culmination of thought resulting in a new, sometimes Patent-able” idea.

My first idea was not Patent-able, but it did set the stage for 3 future solar Patents. While driving through the beautiful hills of Great Falls Virginia in the winter, I happened to look up into a woodsy hill and saw a gorgeous home with a long skylight on the top of one end of the roof. Trees usually hide this house, but the fallen leaves made it visible and I had my first of many “inductive leaps.” Why not make a solar system as beautiful as that Skylight? And so the “Skylite” water heater was born.

The “Skyline” collector was so innovative that it won a DOE Energy Related Inventions Award” and a National Energy Related Invention Program (ERIP) Grant Award! Customers who liked solar but didn't want that “ugly thing” on the roof were now happy to install a “Skylite” water heater, and this was during the worst of times when energy was cheap and concern very low.

Conventional collectors are heavy because they use glass for their glazing. The advantages of glass are obvious, it can last for decades. Its disadvantage is that it can break, is very heavy and makes the installation much more difficult. Glass also offers about 8% better light transmission and on paper they appear to have better performance. But with its “double glazing” which reduces heat loss, actual field performance demonstrates “Skyline” systems perform just as well in real life solar water heating applications, plus it gives the “unbreakable” advantage. In areas where Hail is a problem, the Skyline collector is the obvious choice!

Hundreds of “Skyline” systems with GE Lexan were installed. My own “Skyline” system is in its 13th year and my family of 6 still turns off the electric element during the summer. We have all our hot water from the sun during the summer despite adding a lot more load with three teenagers and a fourth child. We now use a much superior Polycarbonate with a 10 full year warranty. We have evidence that this glazing will last over 16 years without yellowing and expect its usable life to be usually over 20 years.

We have had hundreds of customers and dealers safely install SolarRoofs.com collectors and entire systems by themselves. I do not think anyone has ever installed a conventional glass collector by him or herself. On a commercial apartment building job, we won the bid because the manager joked, around here, "throwing beer bottles on the roof at night is sport!"

The "Skyline" collector has evolved into the "Skyline" collector. Easily carried under an arm, the Skyline" collector is revolutionary in the solar water heating field. Solar Electric Power (PV) Dealers love the "Skyline" systems with Polycarbonate because it is sometimes lighter and easier to install than PV. Also having 4 to 5 times more power density, it adds value to their system and gives them a real sales advantage in a very competitive field.

We feel the low cost need to replace the Polycarbonate after 15 years is a small price to pay for its safety and convenience. Besides, the savings from one re-roof will easily cover the replacement cost. Back in my "dealer days," with a helper, I personally replaced many a broken glass glazing, believe me, it was not safe, or easy!

Thank you,

Al C. Rich
President / CEO
SolarRoofs.com
916-481-7200
richsolar@aol.com