

# Solar system should take your children into parenthood

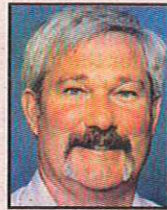
**B**ack to the nuts and bolts of a solar system. Solar panels come with a twenty five year warranty. If your roof is going to need to be replaced within the next five years, You should consider replacing it before installing a solar system on it. It can be costly to remove and replace the system to reroof.

The hardware is stainless and aluminum that will last the duration of the systems life.

Warranties are a guarantee that the panel will produce its rated power or a percentage of the rate power for the warranty period.

By no means does the warranty period represent the life of the panel. Panels have design life of forty year and may last for eighty years. We have not had a panel installed for forty years.

There are poly- and mono-crystalline silicon panels and there is amorphous silicon also known as thin-film panels. Poly means many a poly crystalline panel looks as though it is one piece. Where a mono-crystalline has defined modules usually framed with a plastic coating. Poly crystalline is the most widely installed. Thin-film panels are less efficient since they take nearly twice the space for the same



**Stewart Somerville**  
Alternative Power Systems

wattage array. They are a little cheaper but by the time you add in twice the racking and twice the time to install there is very little difference in price.

Solar panels and mounting hardware are designed to survive hale storms up to a half inch and wind loads of up to 120 miles per hour. When designing a system for a roof it's not the weight of the system. The concern is the wind load. If the system is installed in a high wind area and is tilted up at a 37 degree angle wind is an issue. The truss has to be able to support the stress created. Bolts have to be long enough to not pull out under load.

If you are a do it yourselfer get an engineer to look at the project. A few dollars spent here could save a lot of headaches later. Older homes may not have been built to current codes and will need some reinforcing. It is as

• See SOLAR on page 11

## SOLAR

• Continued from page 10

important to consider what you are bolting to as much as what you are bolting on.

Mounting hardware comes in all shapes and sizes. One of the simplest is a rail with an L-bracket mounted to it. Others are engineered for flat roofs that require no penetrations in the roof. If a tile roof is used, stand-offs will then be necessary. Choosing the right mounting hardware can be an arduous task. Cost is or should not be the issue. A few dollars saved may cost hours in time to install and a few choice words to go along with them.

Laying out a solar array can be, to say the least, time consuming. The inverter will require string sizing. Builders should consider the type of roof, especially it's structure. Solar panels have to be bolted into the structure. A builder should have a firm idea of what hardware will save the most money on mounting the array. If there is only a hundred dollars difference in hardware but the time is two to three hours to install there is no savings here.

Placing of the panels is important. In some publications, writers say that the panel should three feet from the edge or peak of the roof. I disagree with this because if you have any snow load you will want them closer to the peak—12 to 18 inches. Also, on

some roofs, space is limited and it is necessary to be closer to the edge.

With a piece of card board I did a little test. The wind in Cedar City is sometimes very strong. Mounting two sheets of card board the size of a panel 6 inches and one 18 inches from the edge of the roof. The 6 inch mounting was destroyed in minutes. Conclusion, don't mount your solar panel 6 inches from the edge. The one that was mounted 18 inch held up fairly well. After about an hour, it had finally succumbed to the forces and folded over, but was far from being destroyed. The conclusion from this is 18 inches will survive strong winds much better than 6 inches.

We will be in the parade of homes and several upcoming shows in southern Utah. Come by our booth and let's talk solar. Also be sure to catch my TV ads and information minute on KCSG-TV in the upcoming months. Alternative Power Systems, Inc strives to be the premier renewable energy company in Utah and Nevada. Thanks once again for all your support and interest.

*Stewart Somerville, of Alternative Power Systems, Inc., can be found at 1038 West Industrial Road in Cedar City, Utah 84720. He can also be contacted at 586-9181 or found on the Internet at [www.apssolar.com](http://www.apssolar.com).*