

## Solar Heating Equipment

Located in Cookeville, Tennessee, the home pictured uses energy collected by the solar array at right for heating water and part of the house. This solar system is designed for the homeowner who wants more than water heating but whose roof space or budget rules out a whole-house heating system; it is intended for heating the one area of the home used most frequently, for example, a den/kitchen combination. The array pictured is one element of the Suncatcher® solar equipment line—produced by Solar Unlimited Incorporated, Huntsville, Alabama—whose development was aided by NASA design management techniques.

The Suncatcher line includes a variety of solar arrays for water heating only, for partial home heating or for water and whole-house central heating. The company also manufactures associated heat exchangers, pumps, storage tanks, controls and other equipment.

The techniques employed in designing Solar Unlimited products represent an example of the personnel-type spinoff, wherein an aerospace scientist, engineer or management executive moves to a new field of endeavor

and applies his aerospace know-how to development of non-aerospace products. Solar Unlimited's founder and president Donald R. Bowden was a NASA employee for 20 years and was manager of the solar heating and cooling program conducted for the Department of Energy by Marshall Space Flight Center. Bowden credits adoption of NASA's systematic development process as a major contributing factor in public acceptance of Suncatcher products. Employed in managing design and development of complex aerospace programs, the process involves earliest consideration of potential performance problems and establishment of performance criteria before moving into the design or materials procurement phases. Using this approach, Solar Unlimited developed a set of rigorous requirements to avoid problems common to solar heating technologies. An example cited by the company is use of silicone fluids as the medium for transferring solar heat to the water in storage tanks; silicone was used to avoid potential problems of fluid freezing (which can burst pipes), boiling (which requires fluid replacement) and corrosive reaction (which may cause system deterioration).

\*Suncatcher is a registered trademark of Solar Unlimited Incorporated.

