

Steven Winter Associates, Inc.

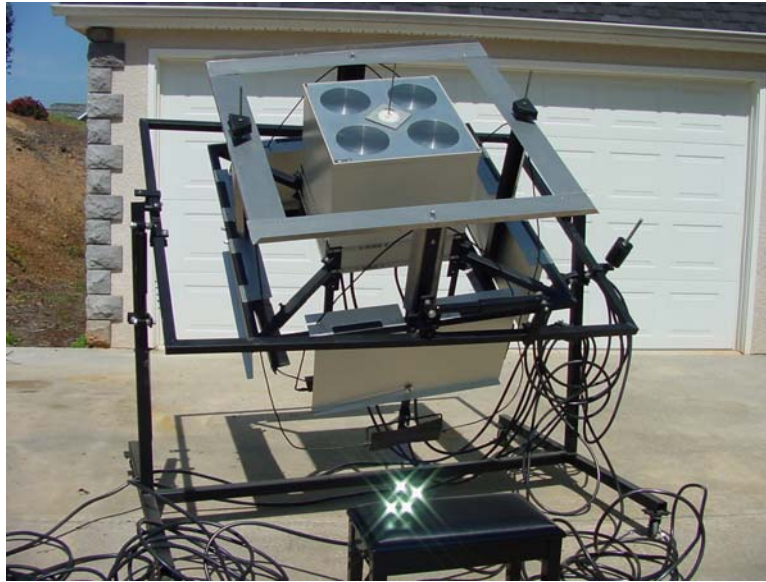
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## **STEVEN WINTER ASSOCIATES WINS NAHB-RC / POPULAR SCIENCE AWARD FOR PASSIVE FIBEROPTIC DAYLIGHTING PROTOTYPE**

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ATLANTA Steven Winter Associates' (SWA) breakthrough passive fiberoptic daylighting technology is the recipient of a 2002 Science Innovative Housing Technology Award bestowed by the National Association of Home Builders Research Center, Inc. (NAHB-RC) and *Popular Science* magazine. The award was presented at the 2002 NAHB International Builders' Show on February 9 in Atlanta, Georgia.

The daylighting system (photo of prototype, above) delivers natural light to virtually any space inside a building without the use of windows or skylights. By reducing the need for artificial lighting, the technology offers a number of advantages—lower electric bills, a healthier interior environment, and less dependence on fossil fuels (use of which has been linked to global warming and pollution). Five years in development, the concept was first recognized by *Popular Science* in its "Best of What's New" section, and now has the benefit of patent protection.

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The invention employs cutting-edge materials and technologies to capture sunlight. A two-stage “concentrator” lens focuses the light and passes it through flexible, transparent rods that can reach 50 feet or more in length. The prototype features four such fibers or tubes, the ends of which glow with intense sunlight that can be distributed through conventional light fixtures. Compared to previous systems that employ dozens of thin, glass fibers, the prototype’s large-diameter ½-inch plastic tubes allow greater tolerances in the focusing mechanism and thus a less exacting solar orientation system.

Using no energy source other than the sun, the device is the first truly passive fiberoptic daylighting system. The concentrator automatically tilts and swivels to follow the sun without the use of an electric motor. This is another breakthrough compared to other collectors, which rely on a complicated system of gears, motors, and electronics to keep the lenses properly oriented for maximum light output. According to Dr. Ravi Gorthala, Senior Research Engineer at SWA, the tracking system employs refrigerant gas that expands when heated by the sun, shifting the center of gravity of the surrounding frame through a system of channeling tubes and balances.

Taken together, these innovations will likely lead to the development of a daylighting system with greater power and flexibility at a lower cost than the \$1,000+ devices currently available. One can envision such light-catchers dotting the roofs of all kinds of buildings to deliver healthful, natural sunlight deep inside. SWA is seeking a corporate partner to help move the project into advanced development and installation of a production version.

Steven Winter Associates is an architecture, engineering, and building systems research and consulting firm with offices in Norwalk, CT and Washington, DC. SWA specializes in energy performance analysis, sustainable materials specification, indoor air quality, accessibility, technology transfer, and event management. Information on this and related projects is available on the SWA website at [www.swinter.com](http://www.swinter.com) and at [www.carb-swa.com](http://www.carb-swa.com).

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