

WINTERGREEN

A monthly update on Steven Winter Associates, Inc.'s work in the realm of Energy Efficient, Sustainable, and High-Performance Buildings

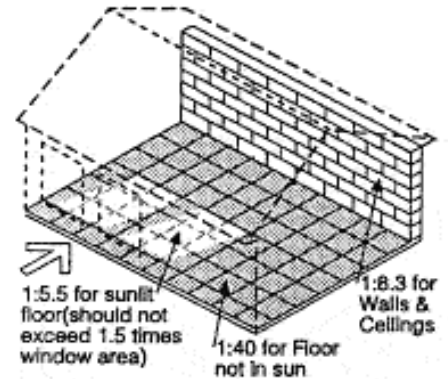
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Surfed the WBDG Lately?



One of the Web's best sustainable design resources is gearing up for more improvements. Last spring the Whole Building Design Guide (WBDG) debuted on the Web, where it now resides at www.WBDG.org, managed and hosted by the **National Institute of Building Standards**. WBDG is the only web-based portal providing government and industry practitioners with one-stop access to up-to-date information on a wide range of building-related guidance, criteria and technology from a "whole buildings" perspective. First produced for the **U.S. Navy's Naval Facilities Engineering Command (NAVFAC)** to sharpen its sustainable design criteria and process, the WBDG was developed by an advisory committee coordinated by the **Sustainable Buildings Industry Council (SBIC)**, managed by Steven Winter Associates, Inc. (SWA). Organized into three major categories, "Design Objectives," "Building Types," and "Products & Systems," the heart of the WBDG is its "Resource Pages"--expert summaries on technical topics (such as passive solar design, illustrated here) with links to additional resources. A team led by SWA is now in the process of improving the WBDG in response to Federal agencies that are aware of the need to incorporate sustainability and safety goals within their building designs. Among other things, five new design "Resource Pages" guides will be developed to address such topics as: balancing sustainability and safety objectives, distributed energy resources, micro-turbines, glazing hazard mitigation, threat and vulnerability assessment and risk analysis.

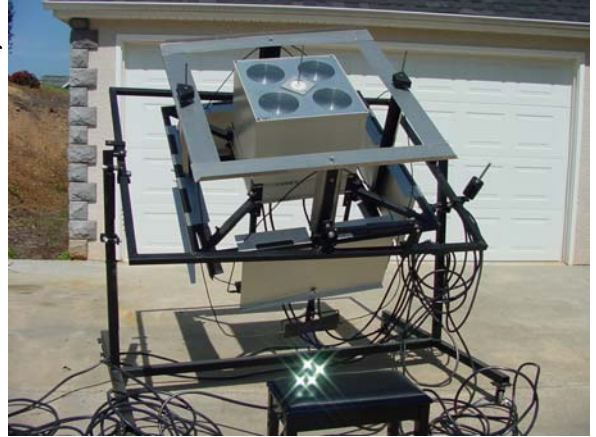


Saving Energy and Money Too

How do you save nearly a quarter-million dollars a year and keep cool in the process? If you're a building owner, have your building analyzed for energy use *before* it's built. SWA, Inc., recently studied the projected energy use of the proposed 38-story CIBC World Market US Headquarters, designed by **Skidmore, Owning & Merrill** (with **Jaros, Baum & Bolles Consulting Engineers**) to be built in New York City. The analysis was performed as part of SWA's ongoing work with the **New York State Energy and Research Development Authority (NYSERDA)**. SWA's analysis shows that the CIBC headquarters could be at least 15% more energy efficient than a building that complies with the New York State Energy Conservation Construction Code. Energy efficiency measures (EEMs) include spectrally selective glazing, premium efficient motors, variable frequency drives on air handling units, variable speed drives on hot water pumps and chilled water pumps, more efficient electric chillers, and cooling the data center with efficient centrifugal chillers instead of using the typical arrangement of a condenser water loop. Also under study are occupancy sensors for general and task lighting, daylight dimming controls, and lower lighting power densities. Savings could increase to approximately 30% if all of these EEMs are implemented. What does all this mean? It means that not only could the shortlist of efficiency measures save an estimated \$240,000 every year in lower energy costs, but also that the more than 1-million-square-foot high-rise office building might qualify for up to \$400,000 in funding from NYSERDA's New Construction Program (NCP). NCP funds up to 70% of the incremental costs associated with implementing qualifying EEMs. Cool!

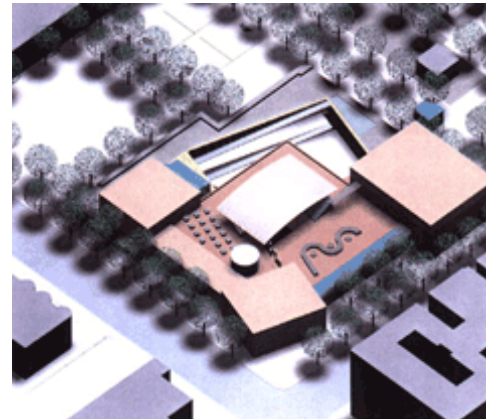
SWA Wins Housing Technology Award

SWA's 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 daylighting system (photo of prototype, right) delivers natural light to virtually any space inside a building without the use of windows, skylights, or bulky "light tubes." 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 invention employs cutting-edge materials and technologies to capture sunlight. A two-stage "concentrator" lens focuses the light and passes it through flexible, transparent cables that can reach 50 feet or more in length. The prototype features four such fibers or cables, the ends of which glow with intense sunlight that can be distributed through light fixtures. Compared to previous systems that employ dozens of thin, glass fibers, the prototype's large-diameter ½-inch plastic cables 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. The tracking system employs a 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. SWA is now seeking a corporate partner to help move the project into advanced development and installation of a production version.



Renovation in the Sustainable Limelight

While sustainable new buildings often catch most of the limelight, far more square footage is renovated than built new in the U.S each year. What about sustainable renovations? SWA is exploring that issue in its work on the Brooklyn Children's Museum in New York, which is undergoing a major renovation and expansion (model, right), including, among other spaces, the addition of office and exhibit space, a theater, a cafeteria, computer facilities, and an early learning center. Under contract to NYSERDA and the **New York City Department of Design and Construction (DDC)**, SWA is working with the designer, **Rafael Viñoly Architects**, as energy consultants to help the building achieve a silver LEED certification. Some of the systems under study are a geothermal heat pump and a ground-source cooled chiller versus air-cooled equipment. After SWA's energy analyses, it was determined that the ground-source heat pump could yield an 11% savings on annual energy costs (primarily electric), which translates into about \$23,500 in annual savings. SWA also determined that the ground-water-cooled chiller could yield a 12.5% reduction in energy costs annually--about \$27,000.



For more information
visit the SWA Website:
www.swinter.com

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