Improved Learning with Daylighting

Solatube Daylighting Systems in Education
Fueling Student and Staff Achievement

It’s proven that a school’s indoor environment has a significant impact on student learning and staff effectiveness. In fact, studies have shown that about 55 million students attend schools that are so unhealthy, it inhibits their learning.

Daylighting, a key strategy for improving school environments, does more than brighten up a space. It has been shown to improve concentration, reduce behavioral issues and foster greater student achievement. It also promotes lower student absenteeism and higher faculty retention. And that’s just the beginning.

Better Test Scores: In environments with the greatest amount of daylight, students progressed faster on math and reading tests over the course of a year than students with access to the least amount of daylight.

Improved Focus: Daylight can also help regulate students’ circadian (sleep/wake) cycles. Exposure to daylight helps keep the circadian system in balance, so students are more alert and focused in the classroom.

Quality Matters: Daylight quality can impact student achievement on tests. One study found that students performed up to 26% better on standardized tests when exposed to the most diffused daylight with the least amount of glare.

Cover: Student Activity Center at Waukesha County Technical College Student Center. Solatube 750 Daylighting Systems with custom lanterns and integrated LEDs for nighttime lighting.
Attain Higher Certification and Funding

These combined benefits can help schools achieve LEED accreditation, earn Collaborative for High Performance Schools (CHPS) credits, and meet the Better Buildings Challenge requirements—all of which can help when competing for funds.

Comply with safety and health codes for fire, high-speed wind and Occupational Safety and Health Administration (OSHA) codes.

Improve student health and performance with exposure to diffused daylight that enhances concentration and mood, reduces eyestrain and headaches, and leads to better test scores and attendance.

Cut operating costs and carbon footprint by displacing the need for electric lights during the day, eliminating the heat they generate and reducing cooling loads.

“By reducing our energy costs, we can put the money we save to work in the classroom where it belongs.”
—Stu Reeve, Energy Manager, Poudre School District
The Push for Greener Schools

Schools today have more on their agenda than educating students. Pressure to reduce operating costs, improve carbon footprint and provide healthier indoor environments has fueled the push for green technologies.

While constructing a “green” school can cost on average 2% more than a conventional school, the return on investment is about 20 times greater. Savings can be realized through reduced operating expenses, lower student absenteeism and increased employee retention.  

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**Raybender HD Technology**
Focuses low-angle light into tube for even light levels throughout the day.

**SkyVault Collector**
Optional Collector increases low-angle light capture and heat rejection.

**SkyVault Amplifier**
Focuses daylight on the playing surface vs diffusing light at ceiling plane.

**Thermal Control**
Thermal transfer is minimized, reducing summer cooling loads and winter heat loss. Surpasses U-factor requirements.

**Color Rendition**
Pure white light with superior color rendition and maximum visual comfort.

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Often “green” means maximizing what nature provides. Solatube Daylighting Systems aggressively capture daylight, streaming nature’s light source into classrooms, halls, libraries, offices and gyms. And since daylight is proven to increase test scores and attendance, it helps achieve building and education goals. Interestingly, it’s human performance factors like these that often directly impact school funding.
**Solatube Innovations**

Solatube Daylighting Systems feature innovative optical technologies that balance light output and thermal performance, delivering optimal light levels without uncomfortable heat gain, glare or shifting patterns of light.

Our unique design also minimizes impact on the building envelope, allows for easy integration with electrical lighting systems and eliminates ongoing maintenance. The result is a cost-effective and energy-efficient solution that brings daylight to previously unreachable spaces—like interior classrooms, gymnasiums and windowless libraries.

- **Selective optics maximize light capture** and output so students and teachers can see their work clearly.
- **Significantly cut electricity** for lighting to lower energy costs.
- **Filter heat-producing infrared wavelengths** to keep temperatures comfortable and decrease cooling loads.
- **Block ultraviolet light** to prevent skin damage and fading of furniture and fabrics.

**Net Zero Modular Classrooms**

**BRENTWOOD SCHOOL**

Solatube Daylighting Systems in high-performance Gen7 modular buildings helped the Brentwood School earn LEED Gold Certification and standing as the first Net Zero prefabricated school in Los Angeles.

WATCH THE VIDEO
[bit.ly/ModularClassrooms](bit.ly/ModularClassrooms)
How it Works

**Capture**

- **Solatube’s patented Raybender Technology:** Increases low-angle light capture, rejects solar heat and mid-day sun.
- **LightTracker Reflector:** Maximizes low-angle light.
- **INFRAREDuction Technology:** Filters out infrared wavelengths and minimize solar heat gain

**Transfer**

- **Solatube Spectralight Infinity Tubing:** 99.7% specular reflectivity for highest light output.

**Deliver and Control**

- **Diffusers:** Minimize glare, deliver even lighting.
- **Dimmers:** Darken rooms to near blackout.

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**Interior Gymnasium**

**WESTSIDE CHRISTIAN HIGH SCHOOL**

“In addition to providing such incredible natural light and reducing energy use, the Solatube units are attractive and fit into the overall ceiling structure in such a way that they enhance the beauty of the space.”

—Dr. Deborah Miller, Head of School
Westside Christian High School

**Download Case Study**
bit.ly/WestsideChristian

**See Our SkyVault Daylight Dimmer in Action:**
solatube.com/skyvaultdimmer
Solatube Certified Commercial Distributors provide full support for every project phase - from design to spec writing to installation by factory-trained technicians. With exclusive access to the Solatube Design Calculator, an advanced tool for daylighting analysis and planning, they can help you create the right design for every school project.

Visit solatube.com/support/technical-resources on our website if you are looking for specifications, CAD drawings, BIM, installation instructions, cut sheets, approvals or other related information.