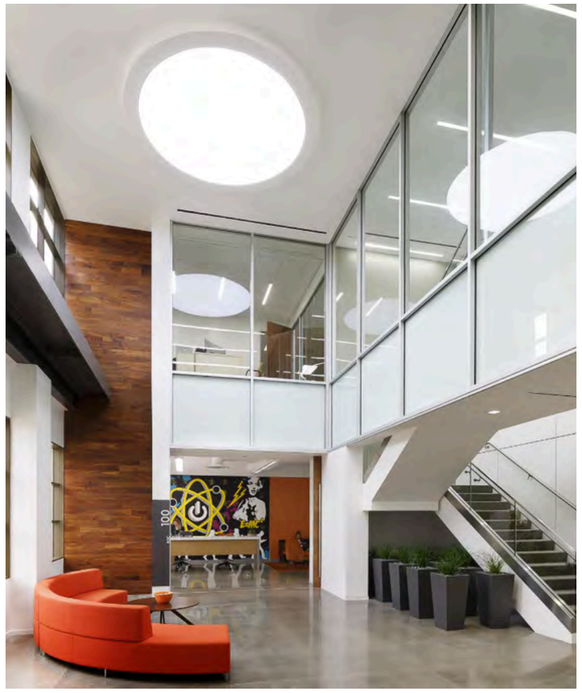
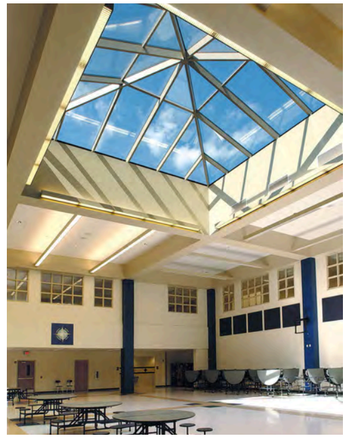
Light + Air

North America

EDUCATION FACILITIES -

DAYLIGHTING BENEFITS + SOLUTIONS





Kingspan®
Light+Air

ABOUT KINGSPAN LIGHT + AIR

We are an award-winning innovator of high-performance daylighting and ventilation solutions for building envelopes. Our translucent walls, skylights, canopies, smoke vents, glass metal framed skylights, and Solatube tubular daylighting devices are engineered to optimize the role that natural light and air play in the design of buildings and the health and well-being of its occupants.

We thrive on innovation and engineer, produce, and deliver durable, high-performance products in the marketplace and offer a wide selection of standard and custom system built to perform across a wide array of climates, conditions, and geographies.

Our mission is to set new, higher standards for the quality and versatility of daylighting technology, as we strive to advance daylighting design.

WORKING WITH US

With a wide range of customizable and scalable solutions, we partner with architects to design beautiful, sustainable, and healthy buildings.

Our experienced Architectural Solutions Team is available to consult projects at any stage - from initial concept to final implementation. Our team will work with you to determine the right daylighting or ventilation for your building, including daylight modeling services.

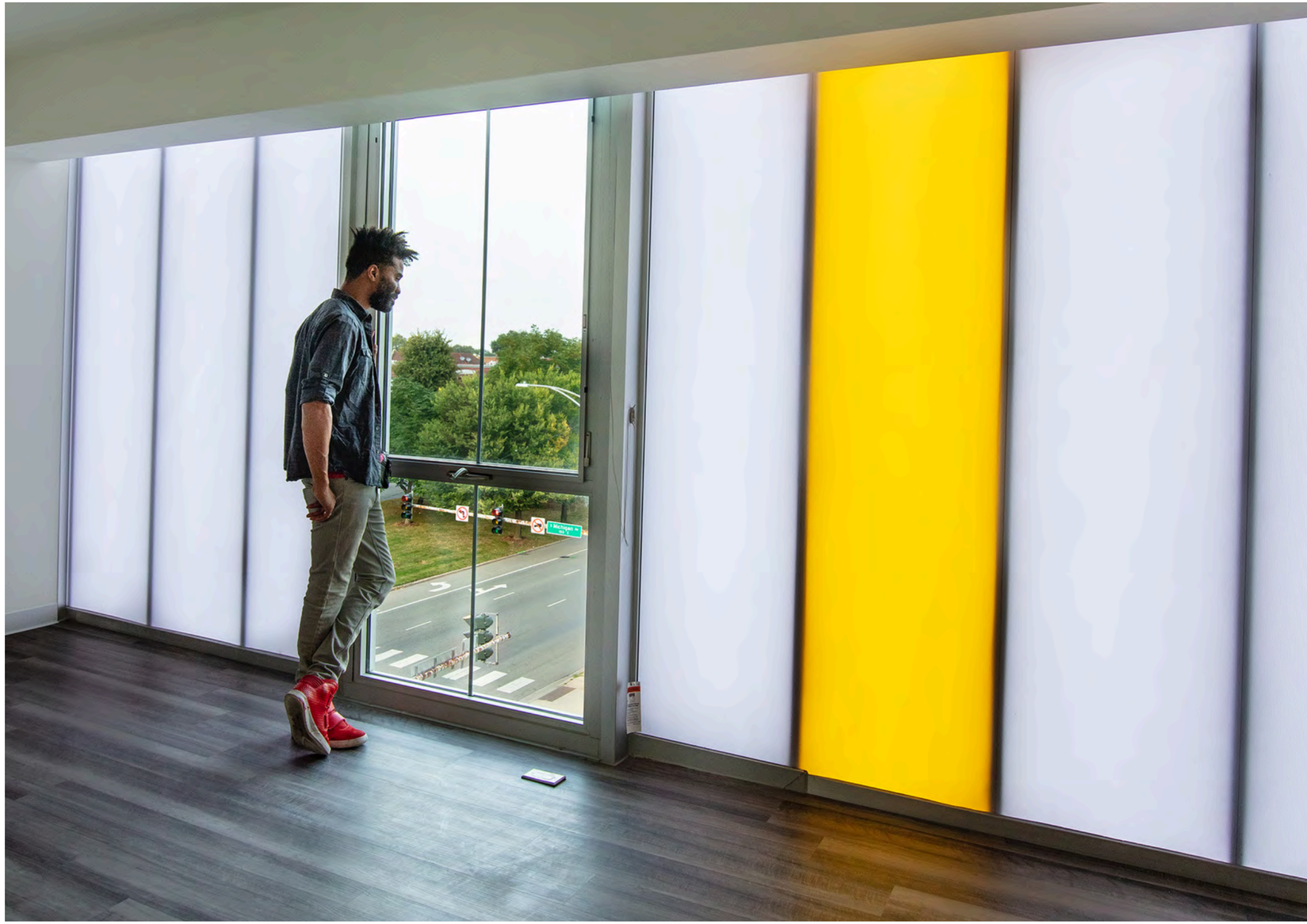
Kingspan | WE ARE PLANET PASSIONATE

At Kingspan, our mission is to accelerate a net-zero emissions future-built environment with people and planet at its heart.

Planet Passionate is our 10-year global sustainability program through which will help build a clean energy future, manage the earth's resources more sustainably and protect our natural environment.

Find out more at https://planetpassionate.kingspan.com/

THE BENEFITS OF DAYLIGHT



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SCHOOLS + STUDENTS BENEFIT FROM ACCESS TO NATURAL LIGHT

Natural light and education facilities go hand-in-hand, with numerous studies showing the benefit that access to daylight can have on student attentiveness and performance, teacher and staff wellbeing, and energy savings.

A study done by Heschong Mahone Group, “Daylighting in Schools” (2002), evaluated daylighting and human performance in three separate school districts in differing climates, with different building designs, teaching styles, and curricula. The study indicated that “most teachers felt that windows and daylight[ing] improved the mood of their students, keeping them calm and improving their attention spans. Higher illumination levels in daylit classrooms simply help keep children more alert and capable of absorbing new information.”

Well-designed daylighting has long been shown to have significant economic payoffs such as reduced demand for electricity, but it’s important to remember that natural light can boost student health and general mood, illicit better behavior, and increase focus. Students with the most daylighting in their classrooms also progressed 20% faster on math tests and 26% faster on reading tests in one year than those with the least amount of daylighting. Students with well-designed skylights in their classrooms - ones that diffuse the daylight - also improved 19-20% faster than those without a skylight (according to Daylighting in Schools, Condensed Report, Heschong Mahone Group).

INCORPORATING DAYLIGHT INTO A SPACE

ENTRANCES: Welcome students and teachers and protect them from the elements with a bright and welcoming outdoor canopy or “pass-through” skylight that draws people into the facility.

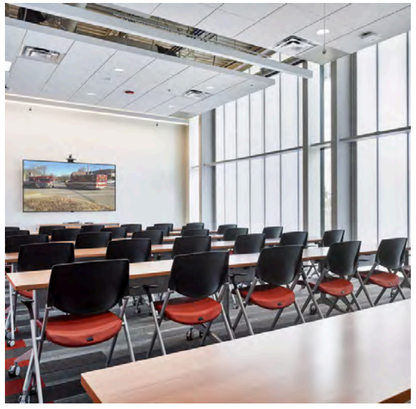
CLASSROOMS: Natural light has been shown to improve student focus and test scores, and Kingspan Light + Air offers a wide variety of systems - from tubular daylighting devices to translucent wall systems - that allow for numerous design options. Mixing operable glass and translucent glazing can also offer views to the outdoors and occupant control of ventilation while retaining thermal performance and light control.

HALLWAYS: Open up confined spaces by incorporating skylights or tubular daylighting devices - they’re perfect for illuminating well-traveled areas with natural light.

GATHERING/SOCIAL AREAS: Cafeterias and common areas are more welcoming when enhanced with natural light—and the cost savings can be significant compared to lighting these spaces solely with electric lighting, especially since they’re at their busiest during peak energy use hours.

ATHLETIC FACILITIES: Large gymnasiums and pool areas require a tremendous amount of electric light. Cut energy costs and offer students the natural comfort of daylighting. Translucent systems like UniQuad®, UniGrid™, QuadSpan™ and GridSpan™ are an excellent solution for bringing glare-free daylight into athletic facilities.

OUTDOOR “FLEX” SPACES: Covered exterior spaces can make excellent multi-use learning spaces, converting easily from general gathering spaces to classrooms and allowing for more flexibility.



PROJECT EXAMPLES

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MAKING A DESIGN IMPACT

COLLIN COLLEGE TECHNICAL CAMPUS

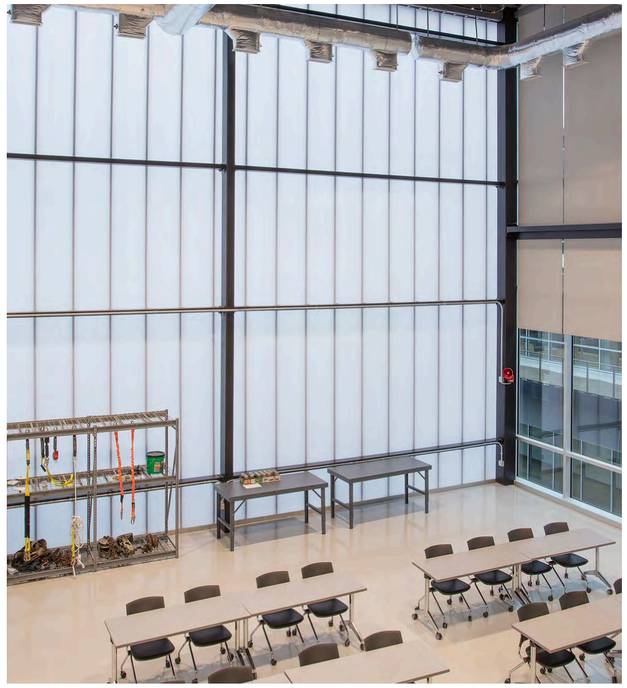
ALLEN, TX

Product: UniQuad®
Architect: Perkins&Will

When Collin College, located in Allen, Texas, decided to provide a more focused technical education program – and offer more opportunities for corporate training and partnerships – they enlisted the help of renowned architecture firm Perkins&Will. The result is a future-ready building that addresses the needs of today's students while providing flexibility to adapt to changes in technology and employer needs.

The new Collin College Technical Center (CCTC) is home to classroom spaces, science labs, early college and high school programs, student services areas, learning commons, dining, collaboration zones, and a conference center. The facility is focused around a central building that acts as a "spine", with areas dedicated to specific trades and career concentrations running perpendicular to the main building. In an article for Metal Architecture, Andrew Metter, FAIA, design principal at Perkins&Will, stated that "The design concept sought to develop a building that would operate as an educational village in service to an environment that fosters cross-disciplinary collaboration."

Another design goal was the inclusion of natural light, but carefully designed to provide the well-being benefits for students while still controlling solar heat gain, which can create excessive loads for HVAC systems. While the building orientation was set to minimize impact, translucent glazing was also used to control natural light. Large sections of UniQuad® translucent wall systems were used in learning and gathering spaces to provide diffuse daylighting without excessive solar heat gain and glare. The aesthetics of the UniQuad® system, with its long uninterrupted panel lengths and minimal exposed framing and fasteners, also lends itself to the clean and modern design goals of the facility.



REVITALIZING WITH DAYLIGHT

GROVER CLEVELAND CHARTER SCHOOL

RESEDA, CA

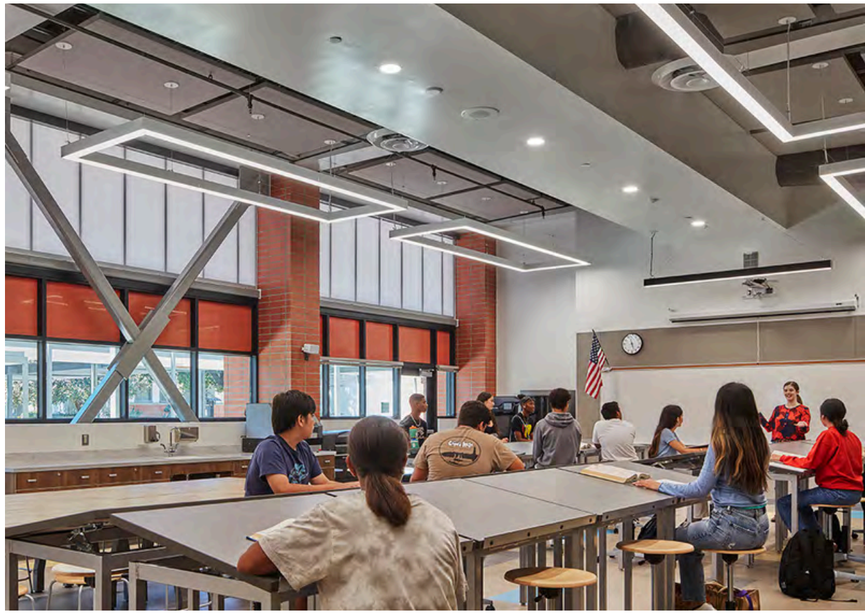
Product: QuadSpan™ Skylights, UniQuad® Wall Systems, Briteway® Canopy
Architect: PBWS Architects

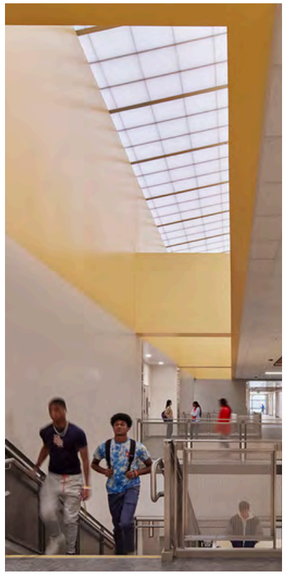
Grover Cleveland High School was built in 1961 to accommodate 1,500 students. The original campus exemplified the mid-century style prevalent at the time and consisted of single-story classroom buildings with low-pitched roofs arranged in a finger-style layout, linked by a central covered walkway.

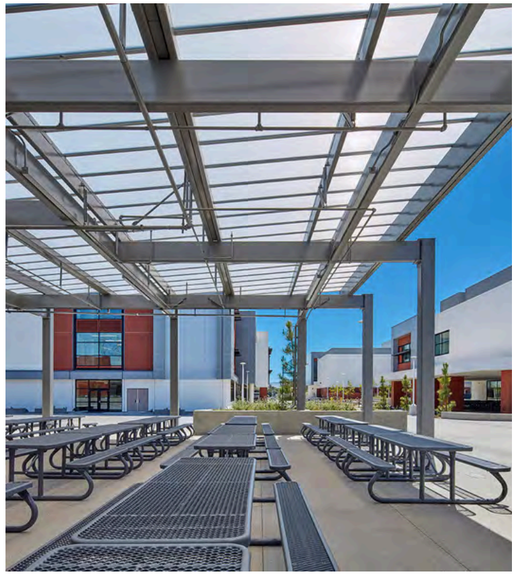
The Los Angeles Unified School District's campus created a new plan that included seven new buildings, which would add over 176,000 square feet—more than doubling the square footage of the existing facilities and providing space for performing arts, general and special education classrooms, science labs, drafting and engineering labs, a multimedia classroom, food service and dining, childcare and campus support services. PBWS Architects was chosen by the district and challenged with the task of creating a modern campus infused with biophilic elements that still honored the original mid-century design of the campus. To do so, the design team would need to implement an effective daylighting design.

UniQuad® translucent walls and QuadSpan™ were chosen to help illuminate spaces with soft, diffused natural light, avoiding harsh glare or heat caused by direct sunlight, with a large Briteway® canopy covering an exterior multi-use space. As a result of the thoughtfully planned daylighting design, corridor alcoves, breakout areas and seating spaces under stairs offer students a bright place to retreat without feeling isolated from the main social areas.

PBWS Architects created a comprehensive modernization of Grover Cleveland Senior High School, transforming the 1961 campus into a contemporary and light-filled 21st-century learning environment.







*Images by Benny Chan/Fotoworks

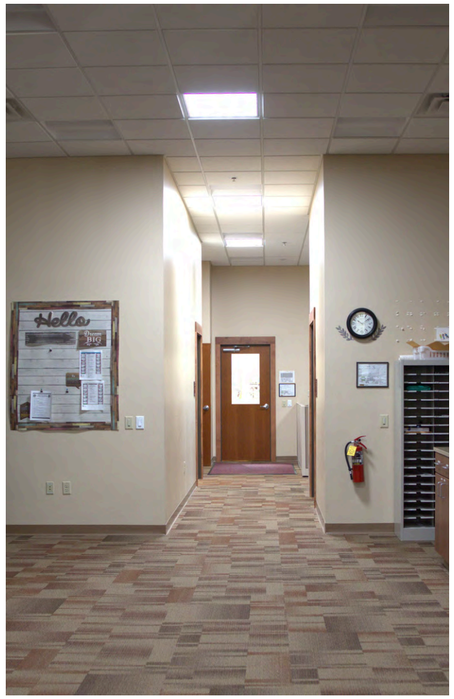
ADAPTIVE RE-USE

LINCOLN SCHOOL
FERGUS FALLS, MN

Product: SolaMaster Tubular Daylighting Devices
Architect: Design Intent Architects

With the high cost of newly constructed facilities, adaptive re-use is often a money-saving undertaking - but it's also not without its challenges. This 90,000-square-foot former Target retail store was converted into a healthy, energy-efficient, and vibrant learning facility, but only after overcoming several challenges including compliance to building and fire codes and a lack of windows and overall access to natural daylighting.

With teachers wanted natural light in classrooms and due to the "big box" nature of the space, the solution was to bring in a large number of SolaMaster TDDs that could reach these hard-to-access spaces. Different sizes of TDDs were used depending on each space's unique needs, with some fitted with solar powered dimming, allowing staff to easily control light levels in classrooms.

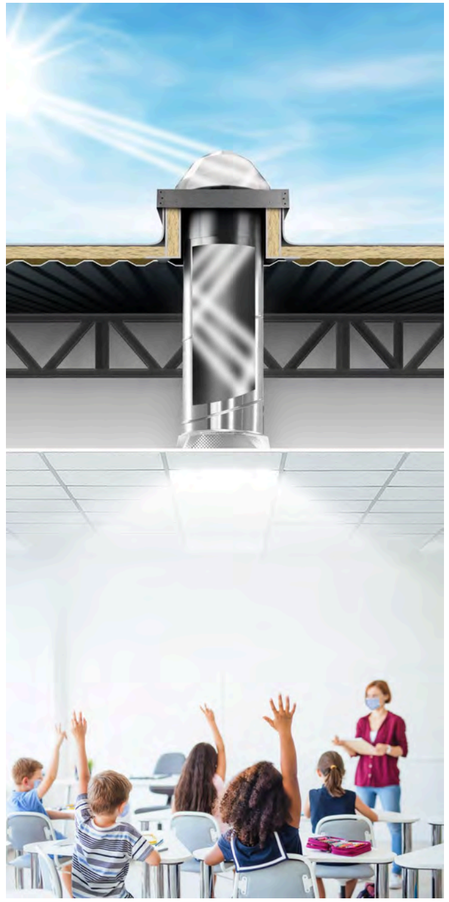


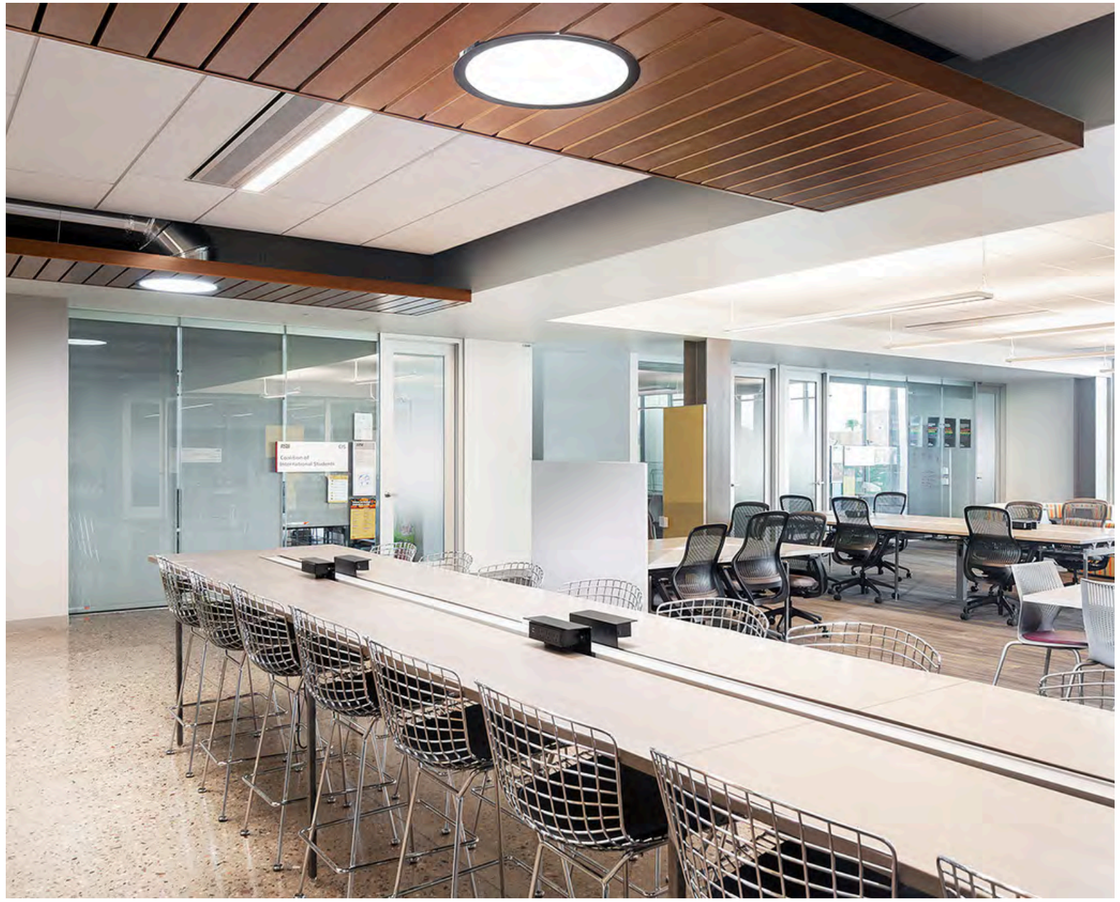
MORE ABOUT TUBULAR DAYLIGHTING DEVICES

Some structures are more daylight-friendly than others, and when dark spaces need light, a Tubular Daylighting Device (TDD) from Solatube may be the answer.

Their unique design allows them to gather natural light throughout the day and direct it around corners, across multiple stories, and into basements, hallways and other hard-to-reach areas.

Their small footprint makes them easy to install, and interior features like diffusers that can focus or spread light, built-in LED lighting that allows the system to transform from day to night, and solar powered daylight simmers that can help control the influx of light make them incredibly versatile daylighting tools.





CREATIVE OPTIONS
FOR RETROFIT & ADAPTIVE REUSE

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SYSTEM OPTIONS

Reglaze

The glazing system will be replaced and the existing structure will be evaluated and reused when possible. These projects are evaluated on a case-by-case basis to ensure long-term performance and suitability.

Over-glaze

We can over-glaze leaking systems if their performance is otherwise uncompromised. This option is typical for systems that provide enough light, but may be deteriorating, leaking, or need additional insulation performance. These projects are also evaluated on a case-by-case basis.

Replace or Add New

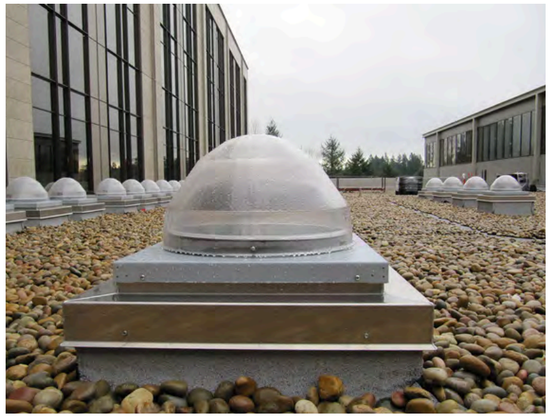
Existing curbs can often be reused for new systems, and lightweight system like Solatube Tubular Daylighting Devices are simple to install and require small roof openings.

Removable Sheet Technology (RST)

UniQuad® and QuadSpan™ systems feature Removable Sheet Technology (RST) which allows you to install or repair sections of the system.

The RST system can also be useful for changing the look of a space in an economical way, and makes it easier to address damage issues.

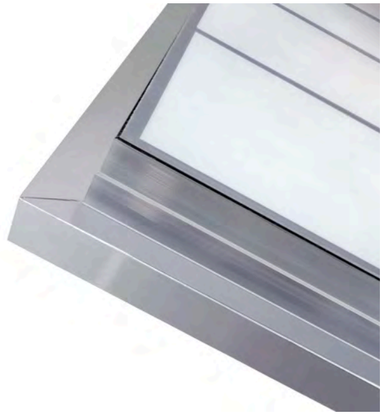
RST also saves time on-site. Since only one glazing sheet needs to be removed at a time, interior spaces can remain sealed off from the elements, reducing or eliminating the need to close off interior sections of the space during renovation.



CONTROLLING BUDGETS

Renovation costs can sometimes be astronomical, which is why it's important to note that our GridSpan™ and UniGrid™ FRP panels can sometimes be retrofitted into existing FRP panel systems (we review on a case-by-case basis to make the best judgement on structural soundness and overall fit).

UniGrid™ is also available in an adapter panel configuration, which allows a 2-3/4" wide panel to be installed in traditional 1" curtainwall framing.

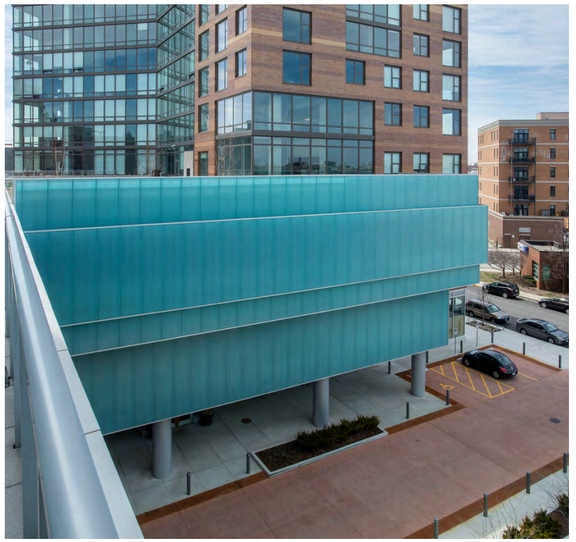


TOOLS FOR A DESIGN REFRESH

If you're looking for a solution to give your project an aesthetic update, PentaClad™ translucent cladding can be a versatile and inspiring design tool.

The system is designed to effectively cover up unsightly spaces or update a building's facade while offering a unique design palette that allows you to experiment with backlighting, custom sheet colors, graphics and more.

The single panel systems are light, simple to install, and are an excellent way to make a design statement. They can effectively call out an entryway, shield outdated or unsightly structural materials, or simply provide additional privacy for stairwells, mechanical systems and more.



Thank you for learning more about our daylighting solutions!

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