QUALITY DAYLIGHTING SOLUTIONS SINCE 1935

ENLIGHTENED LIVING

Case Studies

Wasco Part of VELUX® Commercial

THERMALLY EFFICIENT UNIT SKYLIGHTS

City of Vallejo Library/Fire Station

Vallejo, CA

As part of city of Vallejo's effort to refurbish and repair the Springstowne Library / Fire Station roof, it was determined that the roof needed to be replaced as well as removing and replacing the 10 skylights over the Library and Fire Station.

CHALLENGE:

The building had to be brought up to Title 24 specifications.

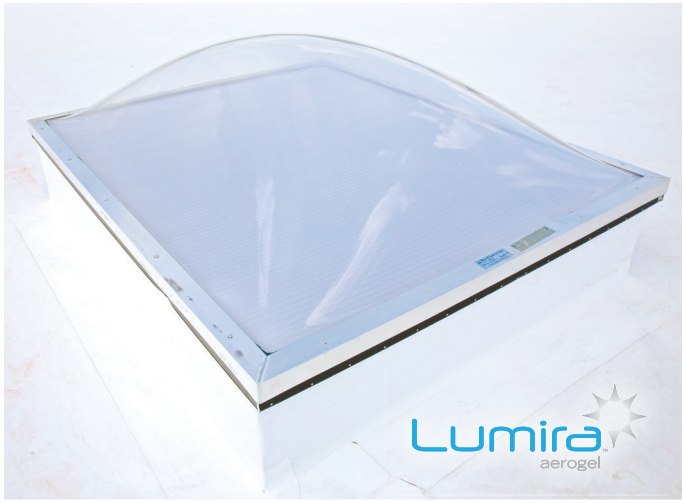
- The quality of the light in the library was of great concern, especially in the computer lab and reading areas where glare could be a major issue.
- As a Title 24 roof, low solar heat gain and high thermal performance were necessary requirements.

SOLUTION:

Wasco Skylights were chosen for their revolutionary EcoSky3 system, which meets IECC requirements in all climate zones, is NFRC Certified, and will meet Title 24 specifications in most cases.

- The units provided 92% UV blockage and much more daylight now that the UV screening fabric was no longer necessary.
- The new system is airtight and completely sealed and didn't require any condensation holes, providing much better thermal efficiency.
- The skylights arrived in pre-assembled sections, which was a big time saver and eliminated any need for cranes.
- EcoSky3 units incorporate Acrylite® Satin Sky glazing domed over a 10mm Lumira® Aerogel filled polycarbonate panel.

Roofing Contractor: Jared Johnson, State Roofing Systems



THERMAL UNITS WITH LUMIRA® AEROGEL

Hannaford Supermarket The First LEED® Platinum Supermarket in the U.S.

Augusta, ME

CHALLENGE:

To supply sufficient diffused natural light to key sections of the 50,000 square foot supermarket for both general and task lighting while significantly reducing energy costs.

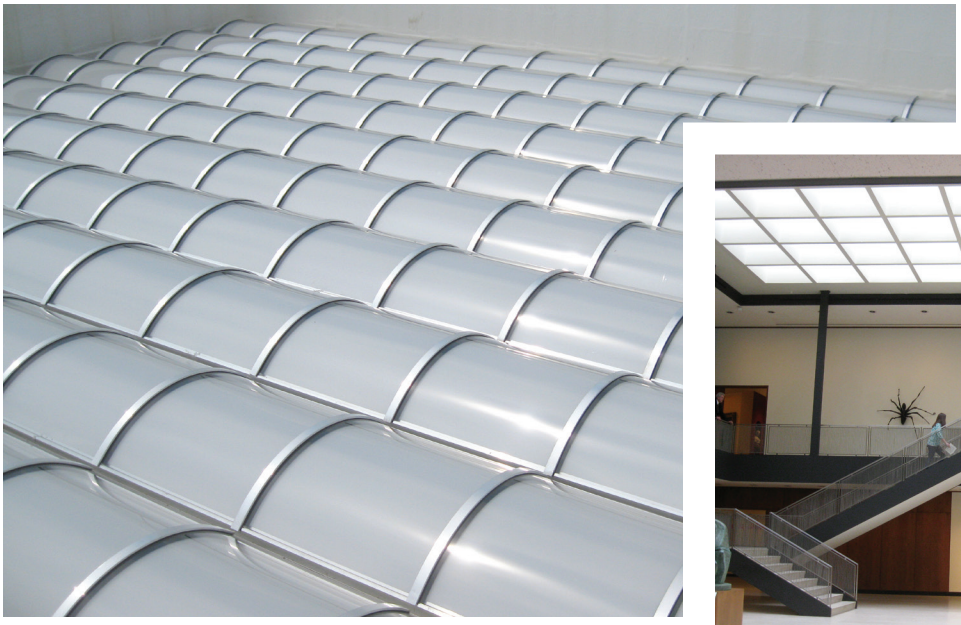
SOLUTION:

Architect Rick Ames, of Boston-based Next Phase Studios, chose Wasco Skylights' Thermal Units with Lumira® Aerogel – the highest performing daylighting product available on the market today.

- Fifty-four 4'x4' Wasco Lumira® aerogel Thermal Units were installed for both general and task lighting in critical areas of the store.
- Most of the units were used to light the perimeter areas where Hannaford displays its own brand products, meat and produce. The diffuse quality of the light transmitted by the Lumira® aerogel skylights protects produce and meats products from harsh sunlight that could speed their deterioration.
- Skylights used to illuminate service and delivery corridors where there is limited need for artificial light.
- Skylights down the center of the store supplied sufficient general lighting with additional skylights installed to highlight specific displays.
- Lumira® aerogel-enhanced skylights provide a high insulating value and an excellent Solar Heat Gain Coefficient.
- Consistent with the MBDC Cradle to Cradle Design philosophy.

"We chose the Lumira® aerogel Thermal units because we liked the balance of thermal characteristics and light transmittance," Rick said. "You get plenty of diffused light with these skylights and they give you an R-value approaching that of an exterior wall. That's really an unbeatable combination."

Lead Architect: Rick Ames, AIA, LEED® AP
LEED® Consultant: Gunnar Hubbard, AIA, LEED® AP, Fore Solutions
Daylighting Consultant: Dane Sanders, EIT, LEED® AP, Clanton & Assoc.



THERMALLY BROKEN BARREL VAULT SYSTEM

Munson-Williams-Proctor Arts Institute's Museum of Art

Utica, NY

"Even after 54 years, Wasco's framing and hardware were still in excellent condition"

Ron Draper
Facilities Director

Originally designed by world-renown architect Philip Johnson, one of the co-designers of the Seagrams building in New York city, once described by the *New York Times* as "the millennium's most important building."

CHALLENGE:

Preserving all the original architectural elements and architect's aesthetic vision from 1959 when the building was built.

- Due to the fragile and delicate nature of displaying and protecting valuable artwork, UV protection was absolutely necessary.
- The original skylights required UV screen material placed over them to block the UV, but in doing so also reduced valuable light.
- The ceiling was a tick-tack-toe style box of 121 individual panels, so the skylights had to fit between, and would require some slight modifications in order to carry a greater snow load.
- An extremely tight schedule where all the construction had to be completed within a three-week period between major exhibitions.

SOLUTION:

The original Wasco units from 1959 were replaced with a DDTBVV thermally broken barrel vault system, glazed with OP3 UV absorbing acrylic.

- The units provided 92% UV blockage and much more daylight now that the UV screening fabric was no longer necessary.
- The new system is airtight and completely sealed and didn't require any condensation holes, providing much better thermal efficiency.
- The skylights arrived in pre-assembled sections, which was a big time savings and eliminated any need for cranes.

Architect: Philip Johnson

BARREL VAULT SYSTEMS

Congin Elementary School

Westbrook, ME

This 42,600 SF building underwent a $4.2 million renovation that altered the school's open concept floor plan and created a series of separate classrooms with natural light.

CHALLENGE:

Increase daylighting, reduce energy consumption, and create an enhanced and more efficient learning environment.

SOLUTION:

They chose Wasco's Barrel Vault skylight to best bring balanced lighting into the rooms.

- The architects designed soffits for one side of the room to diffuse the light.
- The rooftop construction also features reflecting panels that capture and direct the daylight down into the wells, creating optimal daylight while minimizing solar gain in the spring and summer months.

Lead Architect: Pandika Pleqi, R.A.,Winton Scott Architects
Daylighting Consultant/Architect: Gunnar Hubbard, AIA, Fore Solutions

East End Elementary – A LEED® Registered Elementary School

Portland, ME

CHALLENGE:

To create an exemplary new high performance 73,000 SF learning environment using the USGBC LEED-NC rating system to guide and evaluate the project.

SOLUTION:

The architects used a system of skylights to integrate daylight into the learning environment.

- In the main lobby they chose Wasco's Double Dome Barrel Vault skylight (20' x 8'-3") to create a park like room.
- In one of the school's two cafeterias Wasco's Double Dome Barrel Vault (8' x 4'-3") skylights provide most of the natural light.
- Another Wasco Double Dome Barrel Vault (16' x 4'-3") skylight provides supplemental lighting to the corridor outside the gymnasium.
- Four Super Thermalized Solar Energy Sky Domes (4' 7" x 4'-7") provide natural lighting to the music room and the stairwells.

Lead Architect: Stephen J. Blatt, AIA, Stephen Blatt Architects
LEED® Consultant: Gunnar Hubbard, AIA, LEED® AP, Fore Solutions

SOLERA

PINNACLE SKYLIGHT WITH SOLERA GLAZING

Jamesville-DeWitt High School

DeWitt, NY

CHALLENGE:

As part of a school district's effort to refurbish their many buildings, portions of the roof needed to be replaced, including the skylight over the Media Center.

- Maintain the Media Center's large, open feel with diffused natural light.
- Media Center is located at the interior of the building, so the space needed a wide skylight spanning almost 1,100 square feet.
- Skylight needed to be both aesthetically pleasing and support itself.

"The glass was chosen over fiberglass panels for longevity, aesthetics, light control, and thermal properties. [Wasco's Pinnacle System] was able to withstand the lateral forces without the need for any cross members, ties, or unsightly modifications."

Daniel Donovan, LEED Architect

SOLUTION:

Wasco's Pinnacle Skylight System met the architect's needs structurally and aesthetically.

- System was fitted with Solera glass, which allowed for maintained diffused natural light.
- Glass was chosen over fiberglass panels for longevity, aesthetics, light control, and thermal properties.
- Pinnacle's variable-pitch hinge design can handle large-scale custom structures spanning up to 40 feet, and at any pitch between 15° and 60°.
- Narrow profile provides clean lines and its leak-resistant and continuous sill around the entire perimeter guards against air infiltration, water intrusion, using fewer sealants.
- Thermally-enhanced construction techniques include concealed fasteners for easy installation and an aesthetically pleasing look inside and out.

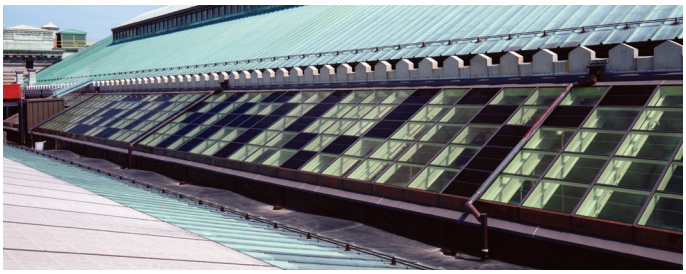
LEED Architect: Daniel Donovan, AIA, LEED AP BD+C,
Ashley McGraw Architects, D.P.C.

SageGlass®

SAGEGLASS

US Naval Academy, MacDonough Hall

Annapolis, MD



SageGlass' sustainable, money-saving, cutting-edge electronically tintable dynamic glass.

The U.S. Naval Academy's MacDonough Hall needed to replace its leaky metal roof, and the academy saw this as an opportunity to improve the building's energy performance and maximize daylighting in the process, bringing healthy, natural daylight to the dreary interior.

CHALLENGE:

- External solar shades were ruled out because of the Hall's historic architectural significance.
- Mechanized internal shades or blinds also did not make sense due to the roof's hard-to-reach location.
- With an all-glass roof, how could you avoid 'poaching' the people so controlling solar heat gain was a major concern.

SOLUTION:

Navy Architect Tony Freitag and his team ran some initial building energy calculations based on using SAGE's electrochromatic glass and discovered it would reduce the building's HVAC cooling requirements by at least 18%.

- SageGlass' electronically tintable dynamic glass can darken or clear automatically on demand.
- Daylight is maximized and outdoor views are maintained while controlling glare and heat gain.
- The SageGlass skylight creates a bright space with natural light and enhances the daylight in adjacent spaces as well.

Contractor: Allen & Shariff Engineering and Construction

The large atrium skylight is a Pinnacle Segmented Vault with integrated OKALUX photovoltaics in the center.

Photo: skyhighenterprises.com

SEGMENTED VAULT, PYRAMID AND SINGLE PITCH SKYLIGHTS

Massachusetts State House

Boston, Massachusetts

Twenty-one skylights had to be replaced less than 15 years after the original installation because of a continuous leaks, which also damaged custom plasterwork. The centerpiece of this project was an expansive atrium skylight over the Memorial Hall which contained photovoltaic film laminated within the glass, allowing some light transmittance in this very public area.

CHALLENGE:

- A very historical building and incredibly busy work site with a steady flow of senators, congressmen, as well as public tours, so minimal impact was crucial.
- Because of past problems, a stringent quality control program was instituted.
- There was a lot of welded copper flashing and gutters and each section had to be submitted for approval before installation.
- All roofing abutting the skylights had to be replaced.
- Creating a green, energy-efficient daylighting solution.
- Finding one company that could supply the two different types of photovoltaics and meet all stringent specifications laid out in the plans.
- Complicated manufacturing process to integrate the thin photovoltaic film within a sealed insulated glass structure not normally meant to house wires and connectors.

Clockwise from top left: Pinnacle Single Pitch with OKALUX Photovoltaic Glass, Pinnacle Pyramid and Single Pitch.

OKALUX

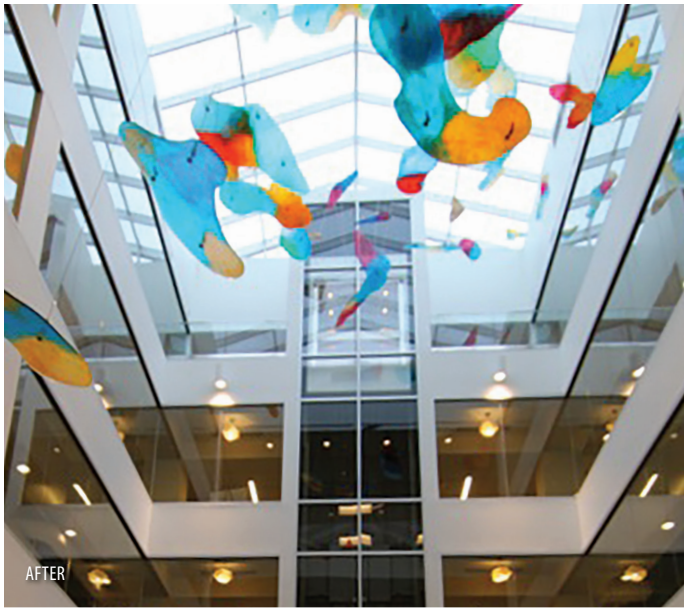
We take architectural glass a step ahead.

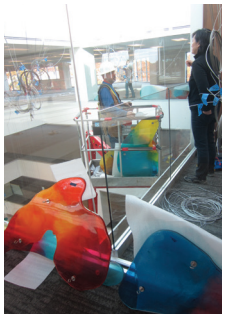
SOLUTION:

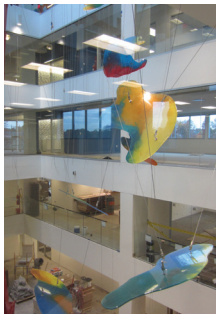
Wasco's Pinnacle skylight system was chosen because its leak-resistant sill enclosure guards against air infiltration and water intrusion and it's perfect for large spans.

- Wasco created a scale model – large enough to walk under – to test the performance of all critical sections, then invited the Massachusetts State House construction management team to the Maine manufacturing facility for review.
- Besides being aesthetically pleasing, integrating the OKALUX photovoltaics into the skylight structure meant that the panels would not have to be removed in any future roof repairs.
- Wasco made deeper, custom pressure bars for the wire and connectors to run under the face caps so as not to compromise the integrity of the system.
- More traditional, non-light transmitting OKALUX photovoltaic glass units were used in non-public areas.
- The remaining skylights were more traditional non-photovoltaic daylighting systems, and a handful were just re-glazed keeping the existing rafters and purlins while adding new pressure plates and covers.

Engineering Firm: Simpson Gumpertz & Heger Inc.
Customer: The Cheviot Corporation







Atrium before with dark, dingy skylights which blocked light for years, and after, showing the space bathed in natural light with suspended glass sculpture.

DOUBLE PITCH, PINNACLE 900 SYSTEM

Equity Trust Company

Westlake, OH

The Equity Trust Company had outgrown its previous offices and decided to consolidate its operations by completely renovating a five-story, former medical office space in Westlake, Ohio.

CHALLENGE:

To open up the five-story atrium and bathe the office spaces with as much natural daylight as possible, which had been blocked for many years by the yellowing of the existing dark and dingy skylight system.

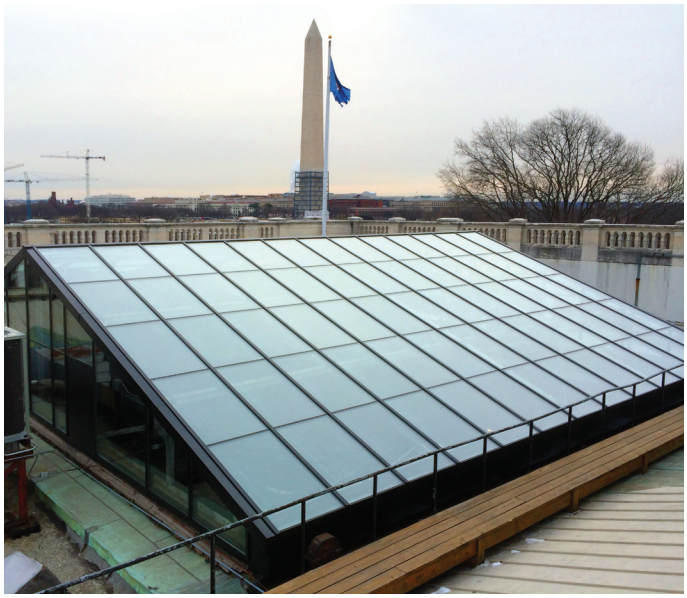
- Maximize the clear glass area by minimizing the structural profile.
- A large-scale glass sculpture was to be suspended from the skylight's structural members.
- Each individual piece of glass artwork weighed up to 30 pounds so it was necessary not to overload any individual structural member, or any one side of the skylight.
- Maximizing the available natural light was necessary since no artificial lights were to be used to illuminate the glass sculpture.
- Given the height of the suspended sculpture, safety was a major concern.

SOLUTION:

Wasco's Pinnacle system was chosen for its narrow profiles, structural integrity, clean lines and variable-pitch hinge design which can support spans up to 40 feet wide.

- The glass consisted of 3' x 8' panels with 4.37:12 pitch.
- The glazing is a solar blue tint with a high-performance low-e coating, which was meant to be similar to the exterior of the building and, even on a really bright day, look like blue sky.
- The artwork installation was commissioned after the original construction documents were produced, which required quick and efficient design and engineering modifications in order to complete the project on time.
- Cables were pre-hung from Wasco's Pinnacle system and later the artist used a 45' boom to hang each of the glass panels from the skylight.

Architect: Vocon Partners, LLC
Contractor: Carroll Glass



Pinnacle 350 Double Pitch, 55'-5" wide by 56' long.

DOUBLE PITCH, PINNACLE 350 SYSTEM

Organization of American States

Washington, DC

The headquarters of the Organization of American States (OAS) features a large atrium skylight, over a magnificent tropical patio, which was originally built in 1910. Because of its age, and the thousands of dollars lost each year in energy costs due to the antiquated skylight structure, a complete skylight reconstruction was undertaken. The focal point of the atrium is the historic "Peace Tree", a hybrid of fig and rubber, planted by President William Howard Taft during the building's dedication ceremonies.

CHALLENGE:

- The building is situated right on the national mall in a direct line of sight to the White House so any roof work required coordination and approval by the Secret Service on a daily basis.
- Plan a work schedule to accommodate the steady flow of ambassadors and diplomats going in and out every day, and make almost daily modifications to it.
- Safety was a major concern since the building had to remain open during construction.
- Balancing the delicate light spectrum requirements of the "Peace Tree" with VLT (visible light transmittance) and energy efficiency needs.

SOLUTION:

Wasco's Pinnacle skylight system was chosen because of its thermally-enhanced construction, standardized engineering and fast on-site assembly and installation.

- Worked with the building's arborist to verify a glass choice which allowed the appropriate spectrum of light (between a nanometer range of 435 to 650 recommended).
- Built a multi-layer debris and fall protection system into the structural steel below the skylight so the Atrium—which is the heart of the building—could remain open.
- Conducted a comprehensive energy modeling study to help choose the appropriate glazing that balanced the light spectrum needs of the "Peace Tree" while providing the owners a payback model detailing thousands of dollars of energy saved per year in perpetuity.

Energy Consultant and Contractor: Reinforced Energy

Before: ©Laura Kicey laurakicey.com. After: ©Laura Swimmer swimmerphoto.com

STRUCTURAL RIDGE, PINNACLE 350 SYSTEM

Urban Outfitters – Anthropologie HQ

Philadelphia Naval Yard , Philadelphia, PA

Urban Outfitters began a massive renovation of multiple dilapidated old buildings in Philadelphia's abandoned Navy Yards as part of an ongoing plan to consolidate their operations into a single campus. Building 18 was a very ornate, wonderful piece of historical architecture, and the only Navy Yard building with a pre-existing open glazing system over the length of the building.

CHALLENGE:

- Providing a design that met the National Park Service's stringent standards for historic renovation.
- Attaching the massive metal skylight structure to the curbing and integrating with the roof posed a special engineering challenge. The existing roof deck, with underlying concrete roof panels was restored to original historical specifications so proper attachment required precise engineering and manufacturing. Some were restored and the others replaced depending on the pre-existing condition.
- How to maximize the daylight opening but reduce glare and solar heat gain to make a comfortable working environment since natural light was extremely important for both morale, productivity and product development in this creative driven industry.

The dilapidated old building #18 was transformed into an inspiring, creative and light filled work space.

SOLUTION:

Wasco's Pinnacle 350 system was chosen for its large span capability, variable-pitch hinge design, and fast on-site assembly and installation.

- Wasco developed a custom tinted glazing system utilizing a combination of Solarban 70 Low E bronze and clear laminated glass to provide all the positive benefits of natural daylight without suffering the undesirable effects such as excessive heat gain, glare and fading.

Architect: MSR Architecture
General Contractor: Blue Rock Construction, Inc.
Sub Contractor: Metal Alliance, Inc.

Pinnacle 350 Structural Ridge: 22' x 340', 22' x 106', 22' x 148'. Glazing: 1-1/16 " I.G., 1/4" Bronze Tempered Solarban 70 XL (2) over 5/16" Clear H.S. Laminated. Finish: Kynar 500 Quaker Bronze.

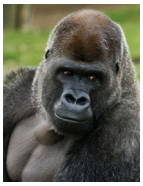
Pinnacle 350 Double Pitch: 10' x 20', 11' x 26', 11' x14'. Glazing: 1-1/16" IG, 1/4" Clear Tempered Solarban 70 XL (2) over 5/16" Clear H.S. Laminated. Finish: Kynar 500 Sandstone.

Awning type vents and casement windows enabled the food to be broadcast to the animals through the roof openings.

LEAN-TO , PINNACLE 350 SYSTEM

Detroit Zoo, Great Ape Exhibit

Detroit, Michigan



Opened in 1928, the Detroit Zoo is the largest paid family attraction in Michigan with more than 1.3 million visitors annually. It's home to more than 2,500 animals of 280 species, and situated on 125 acres with many naturalistic habitats.

CHALLENGE:

- The old dome skylights were in dire need of replacement did not let in sufficient natural daylight necessary for the well-being of the Great Apes.
- Thermal efficiency was also a major requirement in the new skylight system.
- All work had to be conducted during the zoo's regular hours of operation, and working times could change due to animal issues.
- There are three species of primates that do not all coexist. Some need to be separated or kept from each other.

SOLUTION:

Wasco's Pinnacle 350 Lean-To was chosen for its large span capability, variable-pitch hinge design, and fast on-site assembly and installation.

- The new skylights were installed with awning type vents and casement windows so that food could be broadcasted to the animals through the roof openings.
- Lucite "Utran" UV Transmitting Acrylic glazing allows the UV to enter the space, to create a healthier atmosphere for the primates.

Contractor: DeMaria Building Co., Inc.

Pinnacle 350 Lean-To With Operable Vertical Vents, (4) 5' 3" x 17' 4", (4) 5' 3" x 29' 4". Glazing: Lucite "Utran" UV Transmitting Acrylic.

©Julie Legg Photography

©Julie Legg Photography

PINNACLE 350 CUSTOM EXTENDED PYRAMID AND STRUCTURAL RIDGES

Arhaus Furniture – Manhasset

Roslyn, NY

Arhaus Furniture set out to find their latest sales campus in Roslyn, NY. They would set their sights on what others might see as an unconventional property for a high-end retailer.

CHALLENGE:

- Convert a 1930s aircraft hangar turned car dealership and nearby automotive service station into a luxury retail furniture showroom for Arhaus Furniture's Roslyn, NY sales campus.
- Transform and connect the disparate structures by creating a truly unique skylight that matched the architect's requirements for the historic building without the advantage of previously engineered templates.
- Fabricate a hybrid structural ridge and pyramid skylighting system to comply with the extreme angles and tight tolerances of the existing roof line.

SOLUTION:

The architects worked closely with skylight contractor Ken Shaw from Wilson-Shaw and the project management and engineering teams at Wasco Skylights. Together they were able to design, engineer, build and install a custom 64' x 10' roofing system that includes a special extended pyramid skylight straddling a structural ridge skylight.

Due to the complexity of joining the units, Wasco's engineering and project management teams performed a full mock up on the floor to ensure all pieces were fabricated to the tight tolerances and provided step-by-step installation photos to the on-site installers.

- Finials supplied by Wilson-Shaw were incorporated onto each end of the ridge while ensuring a weather tight condition where the finial mounts pass through multiple layers of ridge closure material
- Wasco coordinated the arrival of all materials within the General Contractor's very tight schedule for opening the roof of the existing structure
- Lead architect Mark Poltorek remarks that the process was quite easy. "Using this custom double structural skylight system allowed us to completely reinvent that previously utilitarian space into an observatory style design center… There wasn't a lot of back and forth. We have developed a very good relationship with the engineers at Wasco."

Architect: RDL Architects, Inc

Pinnacle 350 Custom Extended Pyramid and Structural Ridges, 64' x 10'. Glazing: 1-3/16" IG Bronze Reflective. Finish: Kynar Bone White.

A large chimney clad in glazed concrete block divides the building into two distinct volumes and evokes a midcentury vibe. The rear of the building is the working part of the building, with a gravel floor and teak and galvanized metal work benches. A granite counter with stainless steel sink cantilevers from the masonry core. The front of the building is a tearoom and meditation space and looks out on a traditional Japanese garden in the style of a dry river bed. This space features a polished concrete floor and red cedar ceiling. The building features a green roof, planted in native grasses.

PINNACLE 350 LEAN-TO

Glass House in the Garden

New England

The clients wished for a greenhouse where they could practice the art of training bonsai trees that incorporates and respects the surrounding natural landscape. Colin Flavin of Flavin Architects collaborated with Peter White of ZEN Associates on the design of this modern glass house set in the garden. White developed the concept drawings for a modern greenhouse similar to Philip Johnson's Glass House. Project Architect Howard Raley refined the building to its essence of structural steel, aluminum window system and glass.

CHALLENGE:

Achieving the minimum slope requirements within the steel roof structure depth, with only 12" to accommodate the skylight, associated curbs and flashing, and intermediate supports.

SOLUTION:

According to the project architect Colin Flavin, AIA, Wasco's Pinnacle 350 Lean-To system was chosen for a number of factors including, "Cost, simplicity, and installation detailing available on line for reference… Ryan Cosmini from PACE Representatives, the Wasco sales representative, was very helpful and presented all of the available options for consideration."

Architect: Flavin Architects

(2) Pinnacle 350 Lean-To, 4'10" x 13'6", 2:12 Pitch. Glazing: 11/16" IG, 1/4" Clear Temp over 5/16" Clear HS Laminated. Finish: Mill

Pinnacle 350 Lean-To, 7'6" x 13'6", 2:12 Pitch. Glazing: 11/16"IG, 1/4" Clear Temp over 5/16" Clear HS Laminated. Finish: Mill

The spectacular sky view provided by the new skylight is stunning day or night. A magnificent light fixture hanging from the middle incorporates a new "cloud" designed to control sound and echoes. The new system was glazed in only 36 hours, is hail resistant, energy efficient, and offers magnificent sky views!

Photos: Kelli Packard

SEGMENTED POLYGON DOME, PINNACLE 600 SYSTEM

Private Residence

Dallas, Texas

A 30' diameter, sixteen-sided, white, round skylight still had the original single layer acrylic glazing, no sky view and was damaged by hail.

CHALLENGE:

- The skylight did not meet current energy codes and the structure was not strong enough to hold double glazing.
- Glass would reflect the new curb and the lighting that surrounded the opening, especially at night.
- The client also wanted to hang a magnificent light fixture from the middle and incorporate a new "cloud" off the pole that held the fixture, designed to control sound and prevent echoes.
- Light quality and heat loss and gain was of utmost importance.

SOLUTION:

Wasco's Pinnacle skylight system was chosen because of its thermally-enhanced construction, large span capability and fast on-site assembly and installation.

- The new skylight retrofit was designed with the same amount of sides, but with more segments up the skylight and a slightly higher elevation for better aesthetics.
- A new curb was engineered that could handle the thrust loads of the new skylight.
- To avoid reflections of the lights on the glass at night, the inside of the curb was finished with white aluminum cladding and a white acrylic lens was designed to cover the lights.
- A white interior frame was recommended instead of the standard bronze frame for a more appealing look.
- A seven foot long chandelier and an eight foot sound-deadening "cloud" was suspended from the center of the new skylight retrofit—with the wiring hidden within the internal structure.
- Wasco skylight's advanced glazing technology ensured daylighting and solar heat levels were corrected. There is no required maintenance or re-coating costs, and hail damage is virtually eliminated.

Architect: Original design by Fran L. Meier, AIA

Structural ridge skylights extend the feeling of the room up to the sky. The gable forms connect each section and blend with the existing cottage-style homes in the neighborhood.

STRUCTURAL RIDGES, PINNACLE 350 SYSTEM

Broadwater II, Private Residence

Arnold, Maryland

Broadwater II was built as part of a larger compound of cottage style houses on the neck of the Magothy River.

CHALLENGE:

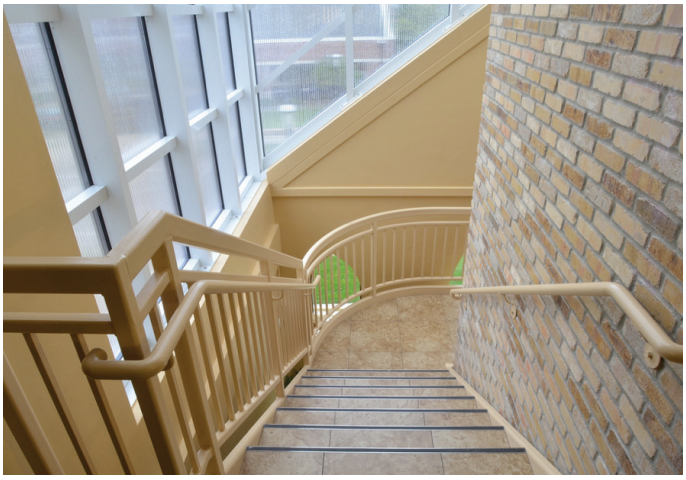
- It was important to blend the architectural aesthetics and detailing with the established cottage style homes in the neighborhood.
- The new home needed to flow seamlessly into the garden and its surroundings to maintain a connection with the outdoors.
- Gables connected each structure, so in order to preserve the purity of the gable forms in the cottage-like structure, a transparent material was needed.
- The home sits on an area surrounded by amazing water views and broad sky, so maintaining and accentuating the sky elements of the house was very important.

SOLUTION:

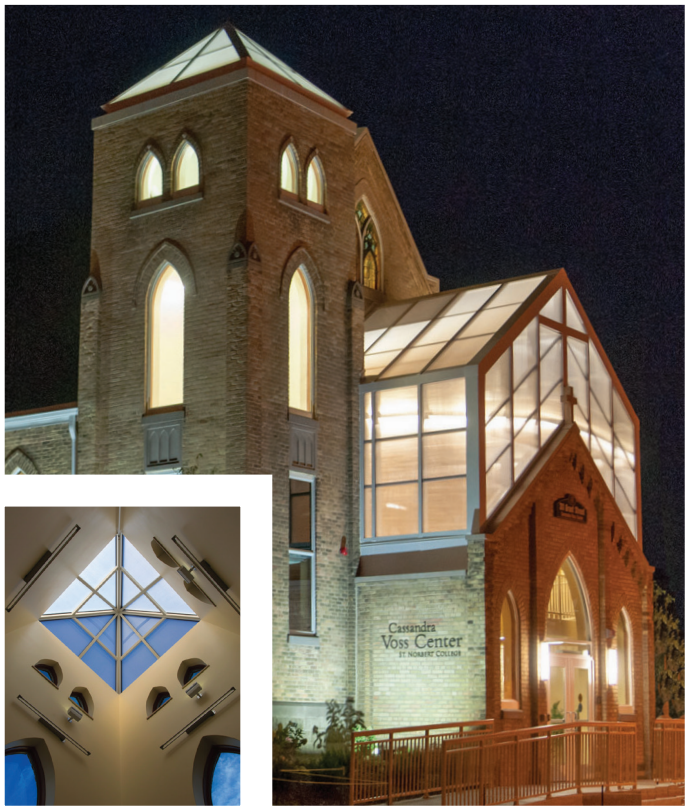
Wasco's Pinnacle 350 Structural Ridges were chosen for their narrow profiles, concealed fasteners for easy installation and an aesthetically pleasing look inside and out, as well as its leak-resistant sill enclosure and structural integrity.

- The architects designed seven custom Pinnacle 350 Structural Ridge skylights with Low-E glass to create the uplifting atmosphere that extended the feeling of the room right up to the sky.
- The skylight frame was made flush with the roof surface to preserve the beautiful sight lines and reinforce the gable forms to blend seamlessly with the other cottage style houses in the neighborhood.
- Wasco's engineering department worked with the architects to sink the skylight structure into the roof line and create a custom gutter system.

Architect: Alt Breeding Schwarz Architects, LLC



Atrium: Pinnacle 600 Double Pitch, 25mm Lexan™ Thermoclear™ Polycarbonate Panels (Filled with Lumira® Aerogel on Roof), Kynar Bone White Finish.



Bell Tower: 8' x 8' Pinnacle 350, 12/12 Pitch, 16mm Lexan™ Thermoclear™ Polycarbonate Panels Filled with Lumira® Aerogel, Kynar Bone White Finish.

PINNACLE SYSTEMS WITH POLYCARBONATE GLAZING

Cassandra Voss Center, St. Norbert College

De Pere, Wisconsin

The Cassandra Voss Center was built in 2013 by her father Kurt to honor Cassandra J. Voss, whose life was cut tragically short in 2007. She was on track to be the first St. Norbert student to complete an individualized major in women's and gender studies.

CHALLENGE:

- To restore the architectural and spiritual roots of the dilapidated 130-year-old church building.
- Strike a perfect balance between old world charm and a contemporary feel.
- Bell Tower: This was a space for reflection, so they wanted as much light as possible, but the quality of light was of utmost importance.
- A diffused light that reduced glare and hot spots was more conducive to meditation and reflection.
- Thermal performance was critical to create a comfortable meditative space year-round, reducing both thermal loss in the cold months and solar heat gain in the warm.
- Front Atrium: The staircase was relatively close to the vertical panels so they hoped to maintain a visual connection with the outdoors and the campus.

SOLUTION:

Bell Tower:

- An 8' x 8' Pinnacle 350 framing system was chosen for the Bell Tower because its narrow profile provided clean lines, and its leak-resistant and continuous sill around the entire perimeter guarded against air infiltration and water intrusion.
- 16mm LEXAN™ THERMOCLEAR™ clear polycarbonate panels filled with Lumira® aerogel were chosen to provide the high quality diffused light and the superior thermal performance necessary for year round comfort in this meditative space.

Front Atrium:

- The atrium was designed with 25mm LEXAN™ THERMOCLEAR™ clear polycarbonate panels filled with Lumira® aerogel on just the roof but not on the three vertical sides so as to maintain the visual connection with the outdoors.

Architect: Performa
General Contractor: Immel Construction Inc.
Installer: H.J. Martin & Son

20mm Horizon Standing Seam Multiwall Polycarbonate Lean-To, 12' x 190', 5/12 Pitch, Opal 626 Glazing.

LEAN-TO WITH POLYCARBONATE GLAZING

Playland Ice Casino

Rye, New York

CHALLENGE:

As part of the Hurricane Sandy reconstruction efforts, the historic casino's wooden shingle roof needed replacement.

- Old rubberized fabric perimeter which was not energy efficient and provided little natural daylight.
- Limited restoration budget.

The old rubberized fabric perimeter was not energy efficient and provided very little natural daylight vs. the new Horizon Polycarbonate System by Wasco.

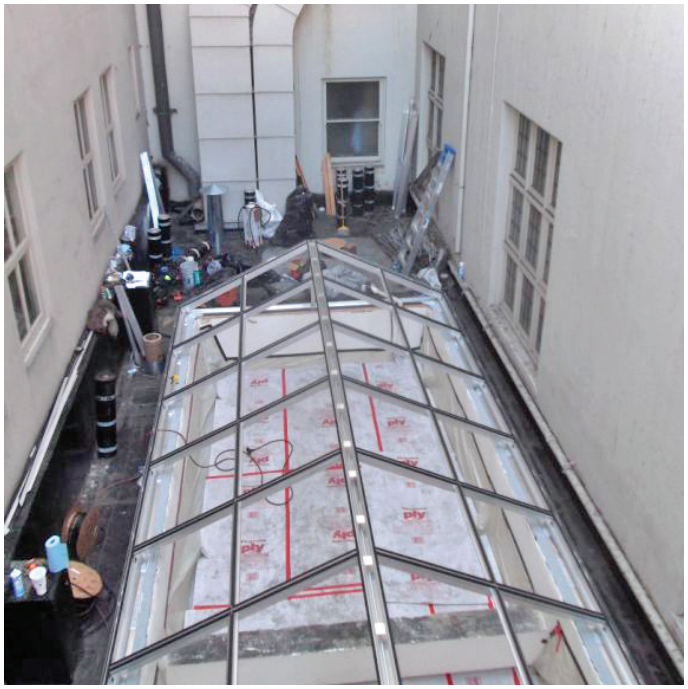
SOLUTION:

Wasco's sales representative, Fontana Metal Sales Corp., presented the general contractor, MILCON Const. Corp. with an alternative option than originally specified - Wasco's Horizon Polycarbonate System.

- Dry glazed, standing seam system with proven energy saving solar and thermal properties, constructed of lightweight, impact resistant, UV protected polycarbonate panels.
- 30 to 40% savings in labor costs - quicker, simpler, installation using existing structure and supports to simply "skin" the structure.
- 10% reduction in material costs by using the existing structure and support system.
- Provides greater natural daylight, transmitted through the interior diamond shaped window system.

General Contractor: MILCON Construction Corp.

Large Horizon polycarbonate skylight system over the active kitchen area in the busy hotel restaurant.



The larger skylight is a 12' 9" x 32' Pinnacle 350 double pitch with Horizon polycarbonate glazing at a 6:12 pitch. Two smaller skylights were 7' 6" x 13' 6" with a 6:12 pitch.

DOUBLE PITCH, PINNACLE 350 SYSTEM

450 Post Street

San Francisco, CA

The project location was an active hotel in the very crowded and congested Union Square area of San Francisco. Two areas were specified for new skylights to replace very old, leaking, wire glass assemblies. One in the kitchen and two in the men's room. Numerous challenges posed by the extreme work location and restricted time frame.

CHALLENGE:

- No available street parking.
- The largest skylight was over an active kitchen, where work had to be performed during normal prepping hours.
- No roof access – materials had to be carried through a narrow service stairwell, then a 200 stair climb to get to the point of entry.
- The two smaller skylights were on the opposite side of the building which required them to first load materials up the stairwell and bring it through a narrow upper roof to get to the location above the work site.

SOLUTION:

Wasco's Horizon polycarbonate skylight system was chosen over glass because:

- It is lightweight,
- Easy to install, and could be brought up in sections,
- Reduced installation time and labor costs,
- Impact resistant,
- UV protected.

Contractor: Fidelity Roof Company

Original panels were yellowing, delaminating and preventing much sunlight entering. New polycarbonate panels let in so much light that electric lights can be turned off on sunny days. Wasco's Pinnacle 350 with multiwall polycarbonate panels offers durability, large span capability and fast on-site assembly. Bottom right: Wasco's Pinnacle 350 double pitch metal-framed skylights next to solar panels installed for increased energy efficiency.

STRUCTURAL RIDGE, PINNACLE 350 SYSTEM
DOUBLE PITCH, PINNACLE 350 SYSTEM

The Center of Clayton

Clayton, MO

The Center of Clayton, located on the Clayton High School campus, is a joint venture between the city and school district, offering the ultimate experience in sports, fitness, swimming, recreational, educational and lifestyle enhancing programs.

CHALLENGE:

- Durability – the original translucent skylighting system experienced extensive delaminating between the face sheet and interior aluminum grid after only 9 to 10 years.
- Light Transmittance – sunlight and heat caused these particular panels to deteriorate and yellow, preventing them from transmitting sufficient natural, healthy sunlight.
- Energy Efficiency – Heat gain and energy efficiency was a concern due to the very large span of each skylight.
- Work had to accommodate the extremely busy schedule of use by both the students and the community at large.

SOLUTION:

Wasco's Pinnacle 350 structural ridge metal-framed skylight structure with multi-wall polycarbonate panels was chosen for its durability, large span capability and fast on-site assembly and installation.

- Wasco's Horizon multiwall polycarbonate panels offer excellent UV protection to prevent the sun's harmful UV rays from damaging or discoloring the polycarbonate panels.
- Lumira® filled panels, the highest performing daylighting product available on the market today, provided minimal thermal transfer while still providing an abundance of highly diffused natural light.

Lumira aerogel

Roofing Sales Associates. Installer: St. Louis Skylights

BEFORE: A more than 25-year-old hail-damaged, acrylic skylight was the source of extreme glare, heat gain and leaking. AFTER: Wasco's energy-efficient polycarbonate glazed Pinnacle system adds glare-free light while adding to occupant health and comfort.

Barrel vaults with Lumira aerogel filled multiwall polycarbonate panel laylites offer superior insulating capabilities while providing UV protection and beautifully diffused full spectrum daylight inside the building.

PINNACLE 350 TWENTY-SIDED POLYGON PYRAMID, THERMALIZED BARREL VAULTS WITH VERTICAL ENDS, FURNISH & INSTALL

The Peoples Bank

Eatonton, GA

The existing skylights included a 25-year-old 21' single glazed acrylic dome skylight positioned over the teller area and two large barrel vault units installed over the customer service desks.

CHALLENGE:

All of the units were leaking and were the source of uncontrolled glare and heat, which made both employees and customers uncomfortable and unproductive.

SOLUTION:

NorthRidge Roofing contracted Joe Burton Company to furnish and install the skylights. According to Wasco sales representative Lewis Burton of JBC, the clear winner for both energy efficiency and improved occupant comfort were Wasco Skylights.

- To replace the dome, NorthRidge Roofing repaired the curb during re-roofing, and Wasco certified installer Mill Contracting installed a Pinnacle 350 twenty-sided polygon pyramid with energy-efficient 25mm Opal IR polycarbonate glazing.
- The two vaulted skylights were replaced with 5' x 25' thermalized barrel vault systems with clear acrylic over Lumira® aerogel filled 16mm clear multiwall polycarbonate laylites.
- The polycarbonate glazing on all skylights provides UV protection and beautifully diffused full spectrum daylight while minimizing heat gain.

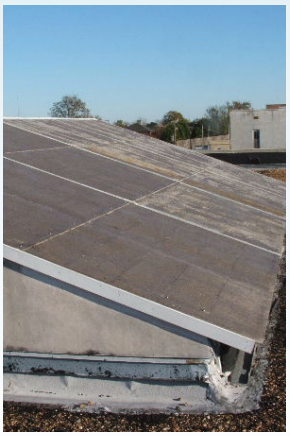
General Contracor: NorthRidge Roofing
Wasco Certified Installer: Mill Contracting

Lumira aerogel









Clockwise: Lantana, Austin, TX; Lonestar College, Tomball, TX; Eiland Elementary School, Houston, TX; Judith A. Resnick Elementary School, Gaithersburg, MD; Halliburton Oak Park, Houston, TX; Regions Bank, Natchez, MS.

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