






Educational Buildings Building-Integrated Photovoltaics (BIPV) Brochure






Why Use BIPVs in Educational Facilities?

Educational buildings, from primary schools to higher-education universities, colleges, and research campuses, demand spaces that promote learning, innovation, and sustainability. From safety and comfort to aesthetics and efficiency, façade design plays a crucial role. With Mitrex's Building-Integrated Photovoltaic (BIPV) systems, façades, glazing, and cladding become renewable-energy assets—enhancing design while meeting sustainability and performance goals.

-  **Energy-Generating Facade**
Mitrex BIPV systems turn the exterior of a building—cladding, curtainwall, façades, and glazing—into a continuous renewable energy generator that support ESG and net-zero goals.
-  **Sustainability, Lifecycle Cost & Value Retention**
Educational facilities seek solutions that leverage sustainability, long service life, and cost control are essential to protecting long-term asset value.
-  **Maintenance-Free & Long Service Life**
Simple servicing and maintenance-free facade systems, durable systems with clear warranties, defined service life, and predictable operational costs.

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-  **Design Assist & Unique Design Specifications**
Design-assist services help educational buildings achieve high-performance façades with distinctive, custom forms and comfort for learning environments.
-  **Fire, Safety & Product Certifications**
Mitrex BIPV systems meet rigorous solar, fire, and structural standards, ensuring long-term safety, durability, and reliable performance.
-  **Retrofit Compatibility & Implementation**
Mitrex BIPV systems are ideal for new builds, additions, and retrofits, allowing phased implementation with minimal disruption to campus operations.



MITREX

Why Use BIPVs in Educational Facilities?

Energy-Generating Facade

Educational institutions increasingly prioritize sustainability and energy generation as part of their infrastructure strategy. Mitrex BIPVs turn campus buildings into power-producing assets that help achieve carbon reduction targets and align with green certification systems. With available Environmental Product Declarations (EPDs), institutions can document the environmental benefits of each installation and advance toward LEED, BREEAM, or ESG frameworks.

- Generates clean, on-site electricity directly from the building envelope.
- Reduces operating costs and offloads energy demand from critical systems.
- Reduce embodied carbon through sustainable material choices.
- BIPV brings you closer to meeting LEED, BREEAM or ESG frameworks.
- Full Environmental Product Declarations (EPDs) available.

Sustainability, Lifecycle Cost & Value Retention

Schools, colleges, and universities are often highly concerned with sustainability, budget-sensitive, requiring cost-effective, long-term solutions. Mitrex BIPV façades help reduce operational costs through on-site energy generation while preserving asset value. With access to grants and Power Purchase Agreement (PPA) options, institutions can implement renewable technologies with lower upfront investment and strong lifecycle ROI.

- Supports LEED, BREEAM, WELL, and ESG frameworks.
- Low-embodied-carbon materials supported by full LCAs and EPDs.
- Enables measurable carbon-reduction pathways and institutional sustainability reporting.
- Eligible for government grants, incentives, and Power Purchase Agreements (PPAs) to offset capital costs.
- Return on investment achieved through energy payback and reduced lifetime operational expenses.
- Systems designed for over 60 years of performance with minimal maintenance.
- Architectural finishes maintain campus aesthetics and long-term asset value.





Maintenance-Free & Long Service Life

Educational campuses face daily wear and tear from weather exposure and high occupant use. Mitrex systems are engineered for longevity, durability, and easy maintenance. Self-cleaning, maintenance-free surfaces, simple panel replacement, and lifetime warranties ensure that facilities can maintain performance and aesthetics for decades with minimal operational impact or maintenance downtime.

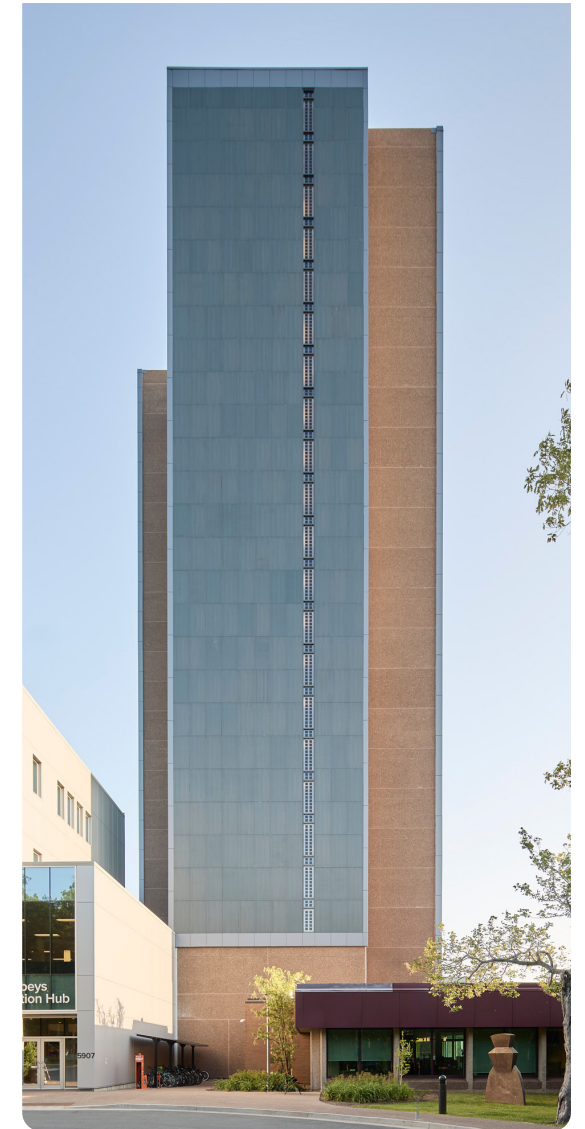
- Lifetime product and performance warranties ensure reliability.
- Panels feature self-cleaning coatings to reduce maintenance.
- Anti-graffiti and impact-resistant glass maintains aesthetics and safety.
- Modular replacement capabilities allow for fast service with minimal disruption.
- Optional maintenance and performance monitoring contracts available.



Design Assist & Unique Design Specifications

Architectural design in education goes beyond functionality—it represents identity, innovation, and inspiration. Mitrex supports architects through design-assist services to achieve creative, high-performance façades that optimize learning environments for daylight, comfort, and acoustics. Each project can be customized to include advanced finishes, acoustic glass, and even donor-integrated features that reflect institutional values.

- Compatible with monolithic façades, tilted planes, and complex geometries.
- Supports daylight optimization, thermal comfort, and acoustic control for learning environments.
- Acoustic glazing (up to STC 55) and triple-laminated options available for noise-sensitive areas.
- Integrate sustainability storytelling and alumni-funded naming opportunities directly into the façade.
- Optional master planning and phased energy design to align with campus expansion strategies.





Fire, Safety, & Product Certifications

Safety, compliance, and performance are central to institutional design. Mitrex BIPV systems are tested and certified to meet or exceed international standards for solar performance, fire safety, wind resistance, and environmental durability. These certifications ensure that educational facilities can achieve long-term safety and risk mitigation while adopting advanced sustainable technologies.

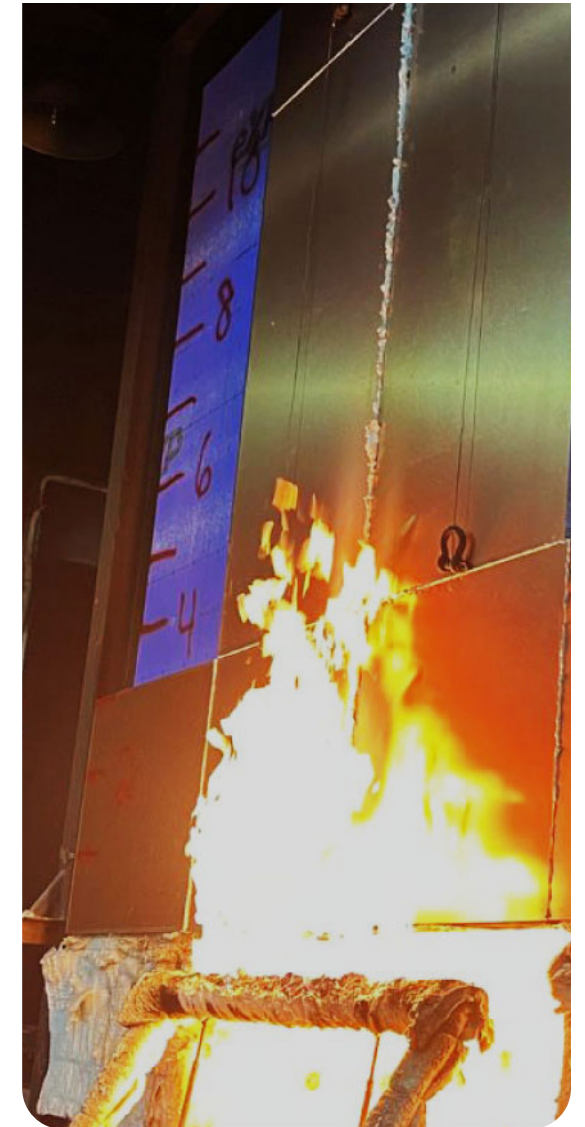
- Must meet solar certifications including UL 61730, UL 61215.
- Systems must meet/exceed fire-rating standards (NFPA 285, EN 13501 A2-s1,d0 fire classification, CAN/ULC).
- Systems must tolerate high wind loads, temperature swings, humidity, and sea-air salt corrosion such as ASTM E1996 for impact resistance, and ASTM E330 for wind load performance.



Retrofit Compatibility & Implementation and Effect on Operations

Educational facilities are frequently upgraded, expanded, or modernized. Mitrex BIPV systems are adaptable for new builds, additions, and retrofits—enabling phased construction with minimal disruption to learning environments. Prefabricated modules and simplified installation methods ensure faster timelines and reduced interference with building operations during construction.

- Compatible with new construction, additions, or retrofit façades.
- Prefabricated systems ensure rapid installation with minimal on-site impact.
- Phase-by-phase implementation supports academic calendars and operational continuity.
- Compatible with mechanical, electrical, and digital-building systems for smart-campus integration.



Inspirational Projects



ARCHITECT:
Diamond Schmitt Architects/MVRDV
DEVELOPER:
University of Toronto

● SAMIH Scarborough Academy of Medicine and Integrated Health

● Project Challenge

- The University of Toronto Scarborough required high renewable energy targets, prompting a shift from standard rooftop solar to integrated BIPV solutions.
- Reducing rooftop solar increased reliance on the vertical façade, demanding precise panel orientation and material selection for maximum output.
- The design evolved into a detailed mosaic of multiple panel sizes and colors, balancing aesthetics and energy performance.
- Integration of BIPV within union labor standards and a rainscreen system required coordination to ensure quality, efficiency, and compliance.

● Mitrex Solution

- Full BIPV integration replaced metal cladding, delivering 632 kW of solar capacity and meeting the 20% renewable energy target.
- Mitrex worked with MVRDV and Diamond Schmitt Architects to refine the facade’s complex mosaic layout, ensuring cost-effective and efficient implementation.
- Customized darker shades improved solar output while maintaining the architect’s aesthetic vision.
- Partnering with EllisDon, Mitrex ensured structural integrity, durability, and compliance with union standards through a high-quality rainscreen system.



ARCHITECT:
DSRA Architects
DEVELOPER:
St. Mary's University

● St. Mary's University - Loyola Residence

● Project Challenge

- A 50+ year-old deteriorating façade created structural and aesthetic concerns.
- Rooftop solar could only support a 28 kW system—far below the project’s energy goals.
- Architects required a custom sea-foam green aesthetic that had to integrate seamlessly with the existing structure while meeting sustainability criteria.
- The client required a façade solution that supported aggressive carbon-reduction targets while maintaining high visual quality.

● Mitrex Solution

- Mitrex delivered a full retrofit, replacing the outdated cladding with an integrated BIPV façade that met energy, safety, and performance requirements.
- Mitrex proposed a façade-integrated BIPV system producing 90.2 kW using just 6,554 sq. ft., turning the building skin into a solar asset.
- Mitrex conducted performance-based design testing, producing customized samples and evaluating performance impacts of 3mm and 6mm patterns to ensure both aesthetics and energy performance aligned with project goals.
- Mitrex’s 90.2 kW BIPV façade generated ~73,300 kWh annually, significantly contributing to long-term energy efficiency and sustainability objectives.

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Mitrex and Cladify Projects

