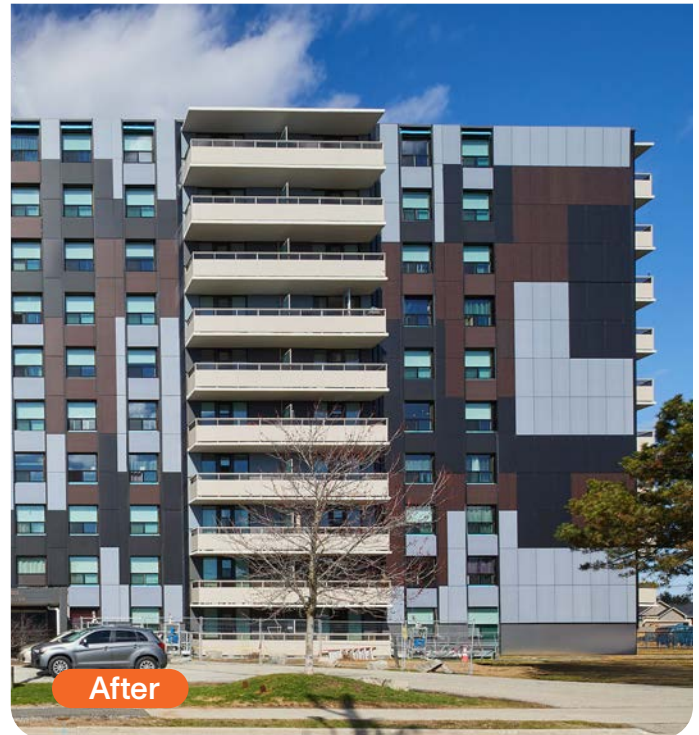




The Braeburn - Facade Retrofit - 1 Hamilton St. S, Hamilton, ON, Canada

The Braeburn in Hamilton, Ontario, demonstrates how solar technology can seamlessly blend with modern design in residential settings. Spanning 7,400 SQFT, the facade features Mitrex eFacade LITE solar cladding in Nobel Grey, Blackout, and Cassia finishes, creating a dynamic, energy-producing exterior. Designed by Invizij Architects and developed by Victoria Park Community Homes, the building now features a 67 kW solar facade that helps the project meet the 70% energy reduction target required for Canada Greener Affordable Housing (CGAH) financing, all while enhancing the visual appeal of the community housing project.

Project Details

PRODUCT USED:
eFacade LITE

BUILDING TYPE:
Residential, Retrofit

PROJECT SIZE:
7,400 SQFT

POWER OUTCOME:
⚡ 67kW

COMPLETION DATE:
2026

Project Stakeholders

ARCHITECT:
Invizij Architects

OWNER / DEVELOPER:
Victoria Park Community Homes

GENERAL CONTRACTOR:
Durmus Group

ENGINEER:
Pretium Engineering

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Project Challenges

- **Aging Infrastructure:** Prior to the retrofit, the building's original facade was showing significant wear and tear. Over time, the existing materials had become increasingly difficult to maintain, presenting a costly challenge for property management. The aging infrastructure not only detracted from the building's aesthetic appeal but also highlighted inefficiencies in upkeep costs, prompting the need for a more durable and sustainable solution.
- **Occupied Building Constraints:** With the building fully occupied throughout the retrofit, any interior access or construction activity risked disrupting tenants' daily lives. The project required an installation approach that would upgrade the entire facade without displacing residents, interrupting building operations, or requiring access to individual units.
- **Meeting the CGAH Financing Threshold:** The retrofit was originally scoped with EIFS to improve the envelope's R-value, but insulation alone could not achieve the 70% energy reduction required to qualify for CGAH financing. Closing that gap meant transitioning to a BIPV system mid-project, adjusting plans, budgets, and installation methods to accommodate a more advanced technology.
- **Balancing Energy and Architecture:** The design team needed to refresh the building with colours that matched the existing EIFS design palette while still satisfying the project's energy generation requirements.

Mitrex Project Solutions

- **Energy Generating Facade:** Mitrex's BIPV facade solution refreshed the building with a modern, aesthetically consistent material while turning traditionally unused space into an energy-generating asset. The 67 kW system reduces energy costs and supports the building's sustainability goals, providing both financial and environmental value. By replacing the aging facade with Mitrex's BIPV panels, the project demonstrates how innovative solutions can turn underused infrastructure into an energy powerhouse.
- **Fully Exterior Installation:** Mitrex's eFacade LITE BIPV system was installed entirely from the outside of the building using a swing stage, eliminating the need for interior access. Tenants remained in their units completely undisturbed for the duration of the project, while the plug-and-play modular design enabled a fast installation that connected seamlessly to the existing power infrastructure.
- **Seamless Integration:** Mitrex provided detailed guidance on module colours, external wiring, and installation adjustments to ensure the transition to solar went smoothly. The added on-site energy generation bridged the shortfall between the insulation-only design and the 70% reduction target, securing the project's eligibility for CGAH financing while all work continued from the building's exterior.
- **Design Flexibility:** Mitrex's selection of eFacade LITE colours allowed the architect to create a consistent aesthetic with the remaining EIFS material while still generating the desired BIPV output.

Key Takeaway: The challenges faced in this project, from transitioning to advanced materials, to addressing aging infrastructure, and ensuring a consistent aesthetic, were met with tailored solutions. Mitrex's BIPV panels not only improved the building's energy profile but also demonstrated that innovative materials can address complex retrofit challenges while delivering long-term financial and sustainability benefits.

Facade Design Process



1. Original Design

The project was initially scoped as a scheduled facade retrofit using EIFS, with the primary objective of increasing the R-value of the building envelope and improving overall thermal performance.

2. Incorporating BIPV

When insulation alone fell short of the 70% energy reduction required for CGAH financing, Mitrex worked closely with the building owner, architect, and engineer to identify the optimal facade areas for integrating a BIPV system, enhancing the project's value while ensuring all original performance goals were maintained.



3. Optimizing the Facade

Colour selection and panel layout were refined through a detailed, iterative design process with the architect (Invizij Architects) and engineer (Pretium Engineering), balancing energy generation targets with the desired architectural aesthetic.

4. BIPV Installation

Installation was completed entirely from the building's exterior, ensuring tenants remained undisturbed throughout the process. Mitrex's eFacade LITE plug-and-play system enabled the BIPV panels to be seamlessly connected to the existing power infrastructure, while the modular design supported a fast, clean installation, preserving safety standards and visual appeal while adding the long-term value of on-site energy generation.



ROI & Cost Comparison

Energy Generation

Orientation	System Size (kW)	Energy Estimation (kWh)
East	19	13,700
South	48	36,500
Total	67	50,200

- **Annual Savings:** With an estimated \$10,000 in annual energy savings through on-site generation, Mitrex BIPV enables The Braeburn to reach its 70% energy reduction target and qualify for CGAH financing.
- **Material Comparison:** The retrofit originally relied on EIFS to increase the envelope's R-Value, but insulation alone fell short of the CGAH financing threshold. Mitrex BIPV bridged that gap, adding long-term energy production on top of improved thermal performance.
- **Long-Term Value:** Beyond the immediate savings, Mitrex BIPV continues generating clean energy for decades, steadily reducing operating costs while enhancing the building's performance and asset value.

Project Impact

The Braeburn project in Hamilton serves as a model for residential buildings striving to balance sustainability, architectural excellence, and economic feasibility. The integration of BIPV panels:

- Generates 50,200 kWh of clean energy every year, equal to 33.7 tons of CO2 offset annually.
- Offsets the equivalent of 85,888 miles driven in a gas-powered car.
- Delivers the same carbon benefit as 558 trees grown for 10 years, while producing enough energy to power 4.5 homes for a year.

This project reinforces Mitrex's leadership in sustainable building solutions, proving that design and energy efficiency can coexist seamlessly. With facade-integrated photovoltaics, The Braeburn sets a new benchmark for residential buildings in Hamilton and beyond that are looking to reduce carbon footprints while maintaining architectural integrity.

Project Energy Generation Per Location

If this project were in a different city, here's how much energy it would produce.

Orientation	System Size (kW)	Los Angeles, CA (kWh)	New York, NY (kWh)	Miami, FL (kWh)	Denver, CO (kWh)	Chicago, IL (kWh)	Houston, TX (kWh)
East	19	15,917	13,152	14,630	16,685	13,267	13,766
South	48	45,984	42,439	38,033	52,115	42,200	37,649
Total	67	61,901	55,591	52,663	68,800	55,467	51,415

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