Public Safety Building, Salt Lake City, UT

FAÇADES & BEYOND

Building-Integrated Photovoltaic (BIPV) Glass Modules

SOLARVOLT™
Building Integrated Photovoltaic

A Legacy of Sustainability Charges Ahead

Vitro Architectural Glass, North America's largest and most trusted glass manufacturer, is responsible for many of the commercial glass industry's most-specified products, including high-performance *Solarban*® low-emissivity (low-e) glasses, *Starphire Ultra-Clear*® glass and a range of performance-tinted glasses.

Vitro Glass was the first U.S. glass manufacturer to have its entire collection of architectural glass products recognized by the *Cradle to Cradle Certified*™ Products Program and the first North American manufacturer to publish third-party verified Environmental Product Declarations (EPDs) for its Flat Glass and Processed Glass products. Our products have been installed on hundreds of LEED® certified buildings, including three of the world's 11 certified net-zero "living" buildings and five of the top 10 AIA Committee on the Environment (COTE®) award-winners for 2020. Learn more at **vitroglazings.com/sustainability**.

Unveiling New Possibilities

The Vitro legacy of sustainability continues with *Solarvolt*™ building-integrated photovoltaic (BIPV) glass modules. To realize this offering, Vitro Architectural Glass acquired assets from *solarnova*: a proven, Germany-based manufacturer of BIPV modules with successful commercial installations throughout Europe and North America.

Seamlessly integrated into the building structure, *Solarvolt*™ BIPV modules unveil new possibilities for renewable power generation and design. *Solarvolt*™ combines aesthetics, CO_2-free power generation and protection from the elements for commercial buildings, all while reducing air conditioning costs and replacing cladding materials.

Why *Solarvolt*™ BIPV?

- Made-to-order
- Aesthetic flexibility
- High-performance
- Replaces conventional cladding
- Sustainable

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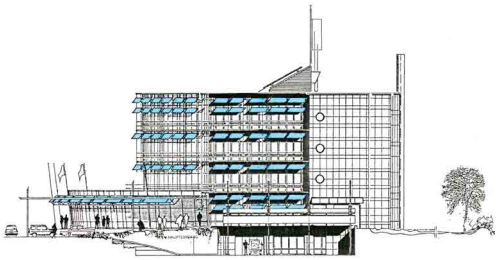
Elegant, Reliable, Energy Generation & Protection

An Integrated Building Envelope Solution

Solarvolt™ BIPV modules not only replace traditional façade cladding materials, such as stone or ceramic materials, but enhance just about any part of commercial building exteriors: balustrades and balconies, skylights, spandrel glass, roof elements, carports and more. Upon request, *Solarvolt*™ modules can be used as privacy screens or with weather— or noise—proofing features.

Vitro manufactures modules using both glass-glass composite—solar panels with solar cells arranged between two glass lites—and glass-film techniques, in sizes up to 98" x 146" and in thicknesses of up to two 12 mm lites—all with the quality you can expect from Vitro Glass. Combine energy-generating *Solarvolt*™ BIPV glass modules with any Vitro clear, tinted or low-iron glass substrate and low-e coating.

A World of Design Possibilities



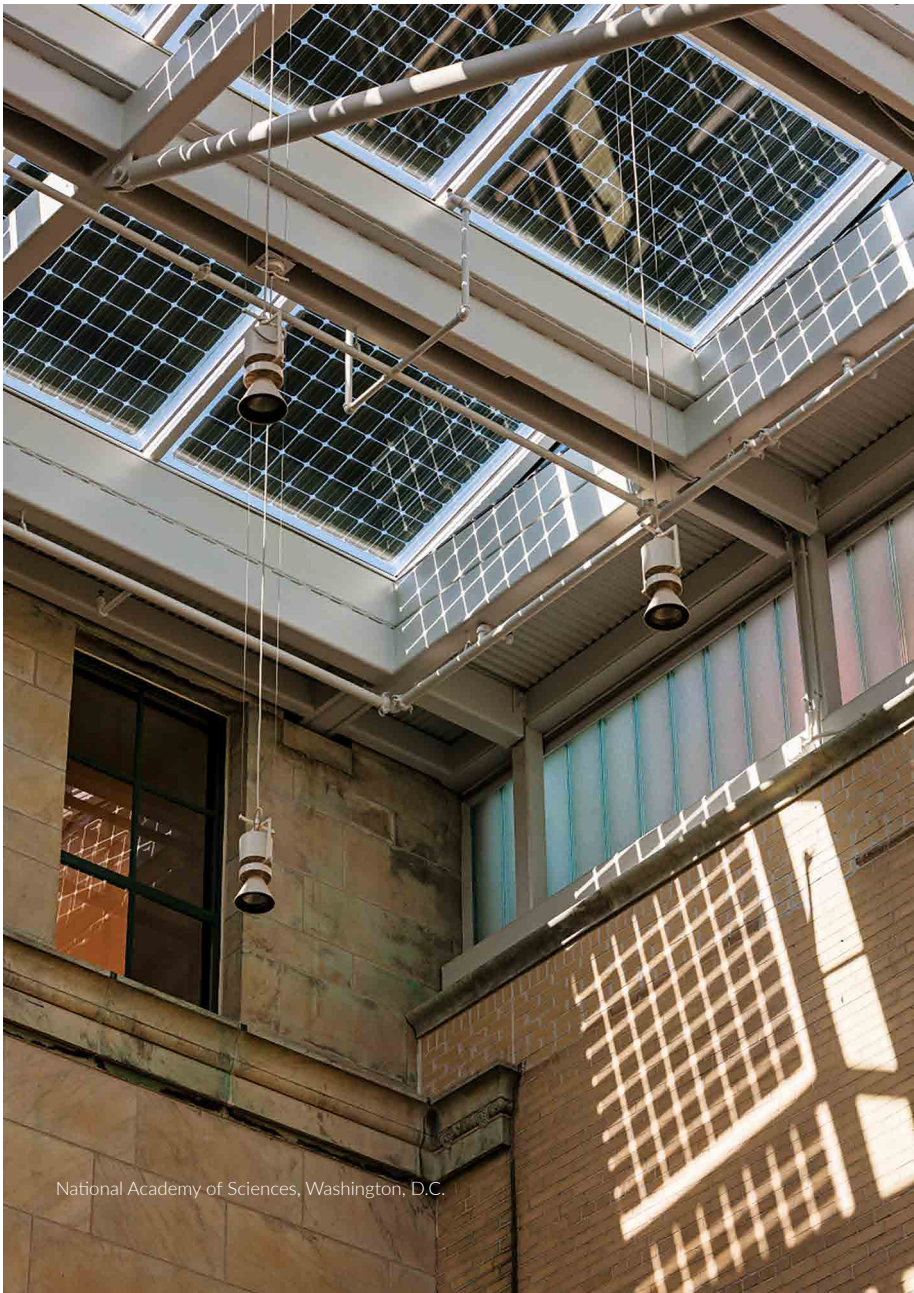
ADAC, Laatzen, Germany

You sketch your plans. We'll design just the right photovoltaic glass module for your needs. Cell density, transparency, colors and shapes will be adapted to your exact aesthetic, performance and technical requirements.

Our glass-glass modules are used in commercial buildings worldwide for their aesthetics and energy generation performance, including at the Public Safety Building in Salt Lake City, Utah, and the National Academy of Sciences in Washington, D.C.

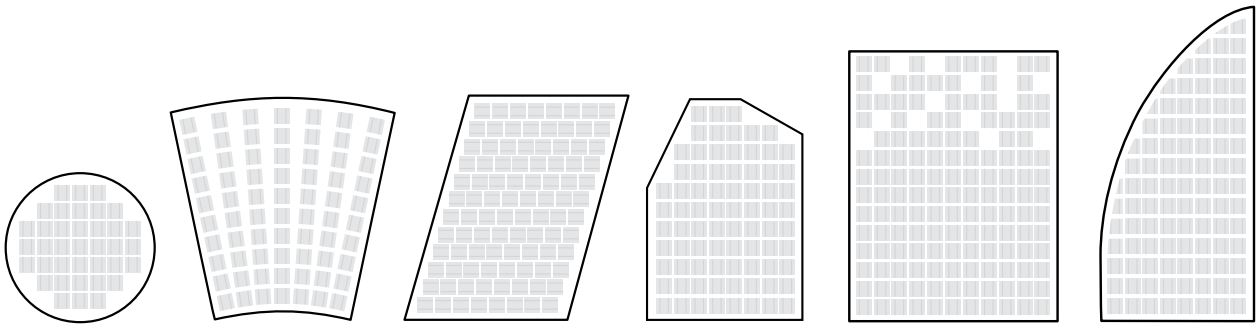
Harness Light & Shadow

The term "solar painting" is often used to refer to the interplay of light and shadow resulting from the spacing between individual solar cells. This technique, which is commonly leveraged for overhead glazing and skylight applications, must satisfy stringent safety standards for BIPV. Learn more at **vitrosolarvolt.com**.



National Academy of Sciences, Washington, D.C.

In Perfect Form



Solarvolt™ BIPV modules can be produced in almost every conceivable shape and size. The configuration of the individual cells also is highly customizable—space them close together or far apart, arranged in rows, diagonals, alternating patterns and more.

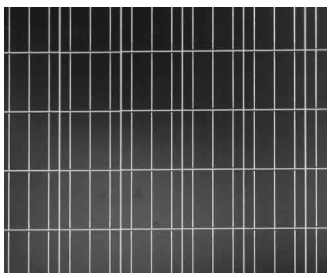
To achieve a sleek, minimalistic look, the glass can be back-painted for spandrel glass applications. To meet your design and environmental performance objectives, *Solarvolt*™ BIPV modules can be used with virtually any Vitro Glass product. Elevate performance with *Solarban*® solar control, low-e coatings.

Provide exceptional transparency and color rendition with Vitro low-iron glasses, such as *Staphire Ultra-Clear*® glass and *Acuity*™ low-iron glass. *Solarvolt*™ BIPV delivers design freedom and power generation, all in one.

Photovoltaic (PV) Crystalline Silicone Types

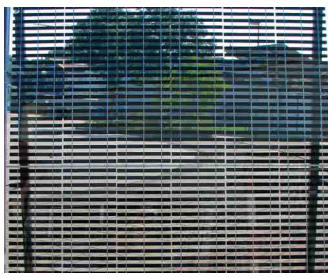
Choose from multiple PV crystalline silicone technologies to support your design and performance requirements. While monocrystalline PV renders a black appearance on solar cells with maximum energy-generation performance, polycrystalline PV delivers a striking blue appearance with slightly reduced performance.

For a patterned appearance with some of the energy generation benefits of monocrystalline PV and higher visible light transmission, monocrystalline PV strips are also available.



Monocrystalline PV

Polycrystalline PV



Monocrystalline PV Strips

Renewable Energy. Return on Investment. Revolution.

Why choose BIPV glass modules over other building envelope materials?

They generate power, resulting in strong ROI for building owners.

At NEURONAL in Mexico City, Mexico, the *Solarvolt*™ BIPV glass façade can generate up to 44,000 kWh per year. It also results in energy savings—by providing shade from the sun, it reduces air conditioning costs by 25% to 30%. It also diminishes noise from the outside and provides wind and weather protection.

Plus, BIPV curtainwall façades are easier to construct, maintain and service. There is no easier renovation option that will generate comparable cost-in-use savings.

Tomorrow's buildings will be constructed as visually attractive, small-scale power stations, driving the CO_2-free energy transition through self-sufficiency. The BIPV revolution has already begun. Are you ready? Vitro Architectural Glass is here to help.

NEURONAL (Santa Fe Offices), Mexico City, Mexico

EWE Arena, Oldenburg, Germany

EWE Arena, Oldenburg, Germany

Resources, Certifications & Accreditations

Solarvolt™ BIPV modules have been previously tested by Kiwa, according to IEC standards, under the *solarnova* brand.

IEC 61215:2005 / EN 61215:2005

Crystalline silicon terrestrial photovoltaic (PV) modules — Design qualification and type approval

IEC 61730-1:2004 / EN 61730-1:2007

Photovoltaic (PV) module safety qualification — Requirements for construction

IEC 61730-2:2004 / EN 61730-2:2007

Photovoltaic (PV) module safety qualification — Requirements for testing

All *Solarvolt*™ BIPV certifications and warranties are registered under ILUMIMEX S.A. de C.V., a Vitro company. *Solarvolt*™ BIPV also is undergoing new certification testing to **IEC**, **UL** and **CAN/CSA** standards and is pursuing **CEC** and **SGCC** certification.

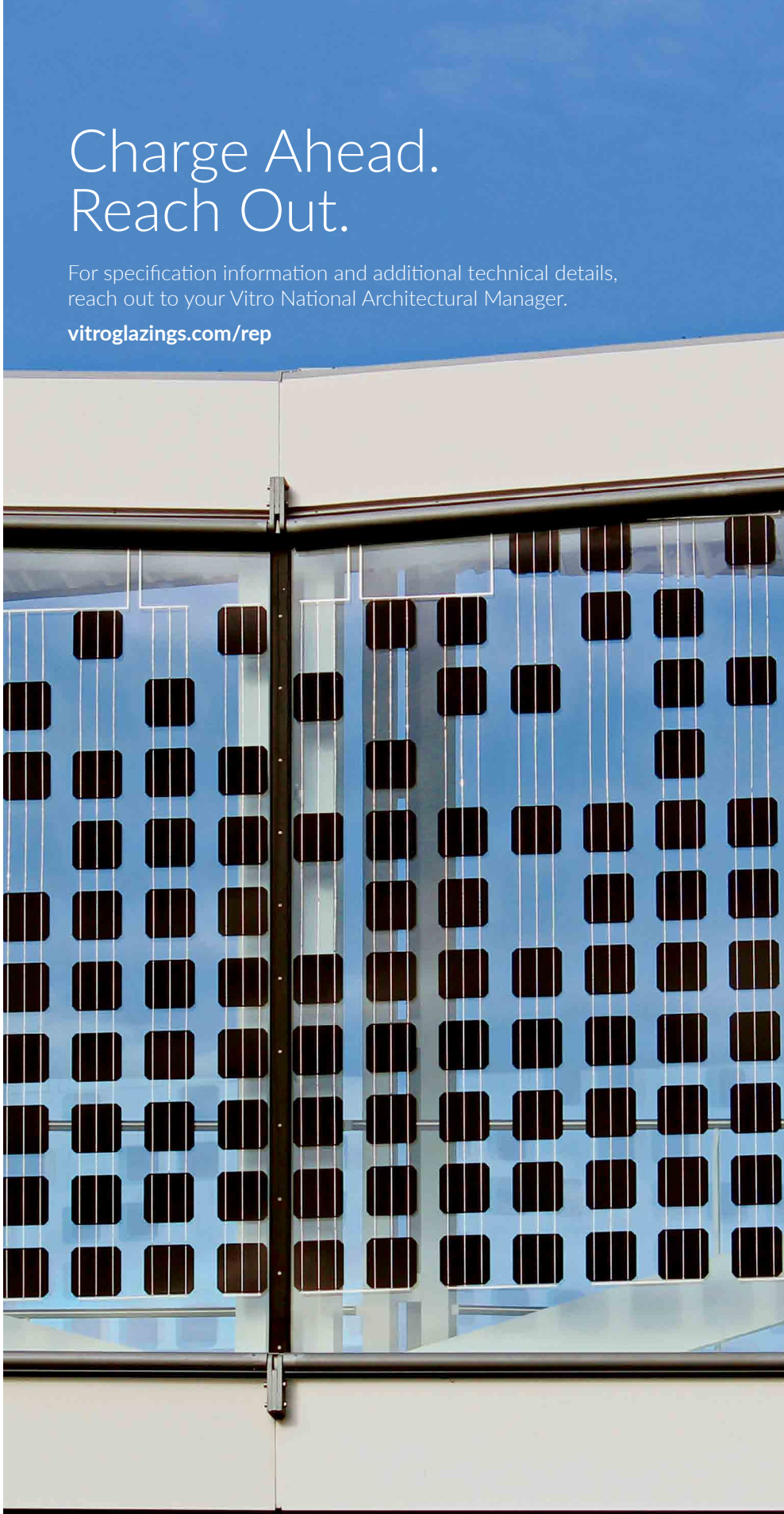
Download certificates, performance guarantees and more at **vitrosolarvolt.com**. A warranty is available.

Explore the full range of Vitro Glass products, including literature and technical information, at **vitroglazings.com**.

Charge Ahead.
Reach Out.

For specification information and additional technical details, reach out to your Vitro National Architectural Manager.

vitroglazings.com/rep



Deutsche Messe (Brücke), Hannover, Germany

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vitrosolarvolt.com

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Architectural Glass

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