



MING YANG BIPV PRODUCT MANUAL

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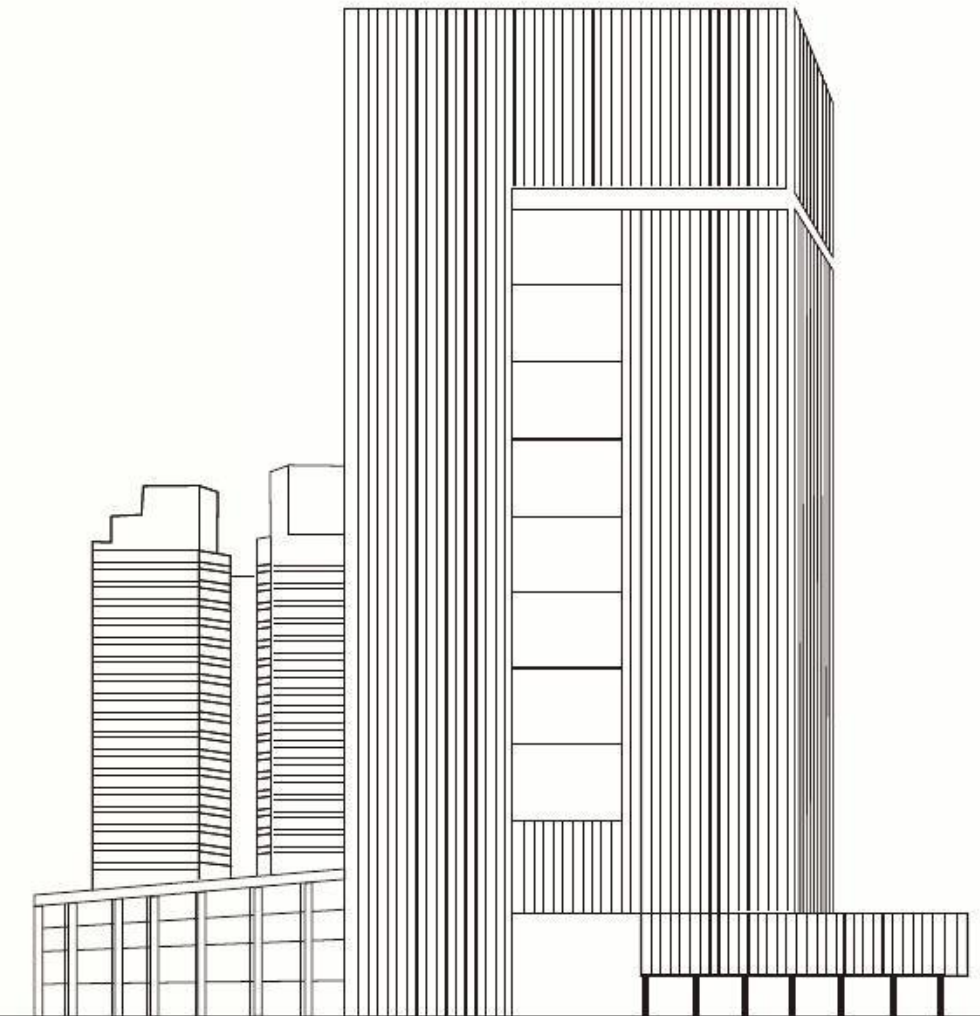
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MING YANG BIPV PRODUCT

Empowering Buildings, Beautifying the World.



Our Parent Company

Ming Yang Smart Energy Group

Founded in 2006 and headquartered in Zhongshan, Guangdong, China, Ming Yang Smart Energy Group focuses on R&D and manufacturing of high-end new energy equipment. It covers the development and operation of clean energy such as wind, solar, storage and green hydrogen energy, offering high-end equipment and products, and providing engineering and technical services. Ming Yang ranks among the top 500 Chinese companies and the top 500 global new energy companies, and is a leading smart energy enterprise in China and with important influence globally.

2025 Rankings

*Data from China Enterprise Confederation (CEC), China Entrepreneur Association (CEA), Wind Energy Committee of China Renewable Energy Society (CWES), Bloomberg, etc.



17th
Global Top 500 Clean
Energy Companies



1st
Global Offshore Wind
Innovation



Top 500
Asian Brands



1st
Domestic New Offshore Wind
Installations



Top 500
Chinese Companies



Top 3
In Global Wind Power Market Share
and Total National Wind Power
Capacity/New Installation Volume



1st Prize
National Science and
Technology Progress Award



1st
National Offshore Wind Power
Market Share



Guangdong Ming Yang Thin Film Technology Co., Ltd.

Empowering Buildings, Beautifying the World.

Ming Yang Thin Film Technology Co., Ltd. is a wholly-owned subsidiary of Ming Yang Smart Energy Group Co., Ltd., a leading enterprise in China's renewable energy industry. As a platform of Ming Yang Group in the field of new energy technology innovation, the company focuses on advanced applications of building-integrated photovoltaics (BIPV). Based on cutting-edge solar energy technologies such as cadmium telluride (CdTe), heterojunction (HJT), perovskite (PK), and tandem cells, we integrate self-produced solar cells into various architectural glass structures. Our product portfolio includes extensively diverse BIPV products that can differentiate in size, shape, transparency, aesthetic appearance and power option to fit customer's project needs. In each of our manufacturing bases at Zhongshan and Yanchen, we have production lines on both solar cells and BIPV panels, allowing us to complete a full vertical integration from the beginning of the cell manufacturing to all the way shipping of products in a single park. This enables us to have an unparalleled tracking and control on all the manufacturing steps, ensuring high product quality and reliability.

10000m²
BIPV
production line

10000m²
CdTe solar cell
production line

5000m²
R&D Center

2000m²
Perovskite solar
cell pilot line

20000m²
HJT solar cell
production line

200+
Patents



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2

Manufacturing Bases



5

Customer Service Centers

Region Positioning

Layout



Headquarters

Zhongshan Thin Film Park

- ☆CdTe Production Line
- ☆BIPV Manufacturing Line
- ☆Transparent Panel Solar Production Line
- ☆Perovskite Pilot Line
- ☆Perovskite & Tandem Cell Laboratory
- ☆Solar Power Stations



Smart Manufacturing Base

Yancheng Industrial Park

- ☆HJT-CW Production Line
- ☆BIPV Manufacturing Base
- ☆Thin Film Production Center



New Product Development Center

Ming Yang Group Headquarters Park

- ☆Perovskite & Tandem Innovation Center

01 Cadmium Telluride Thin-Film Cell

01-Cadmium Telluride (CdTe) Thin-Film Cell

- Independently developed proprietary technology, with core equipment, processes, and products leading domestically; single-panel size is being expanded from 0.72 m² to 2.88 m².
- Uniquely developed world-leading light-transmitting technology that enables solar cells to achieve excellent transparency with a "glass-like" visual appearance.

02 Heterojunction Crystalline Silicon Cell

02-Heterojunction (HJT) Crystalline Silicon Cell

- High-efficiency HJT crystalline silicon cells achieve 26% efficiency.
- GW-Level HJT Cell Production Line.

03 Perovskite/Tandem Solar

03-Perovskite/Tandem Solar Cell

- Certified conversion efficiency of 25.11% for perovskite thin-film cells.
- 100MW perovskite pilot line(0.72mm² champion) module efficiency reach 22.41% .
- Perovskite/crystalline silicon tandem cells achieve 34% laboratory efficiency.

04 Building-Integrated Photovoltaics

04-Building-Integrated Photovoltaics

- A full-fledged BIPV technology and a vertically integrated product system covering core processes and core equipment.
- Diverse products covering customized diversely light transmittance, aesthetics, glass structure, and panel shape and size.

- Ming Yang Thin Film Technology has obtained authoritative certifications covering multiple dimensions such as product performance, safety systems, and green manufacturing, elevating corporate practices into industry quality benchmarks.

- Intellectual Property Management Certification
- BIPV Photovoltaic Glass Engineering Center
- High-Tech Enterprise
- Technology-Oriented Small and Medium Enterprise
- Innovative Small and Medium Enterprise
- Top 10 Most Influential BIPV Industry Brands (2024-2025)
- Excellent Enterprise in Low-Carbon Development (2025)



Excellent "Green & Low-Carbon" Cooperation Unit of China Construction Fourth Engineering Division



Top 10 Most Influential BIPV Industry Brands (2024-2025)



Zhongshan Top 10 "Tech Innovation Rising Star" Enterprises



The solar louver won the Bronze Award in the 2024 Photovoltaic Design Special Competition



Annual Innovative Material and Application Award - 6th FBC AWARDS (Golden Xuan Award for Building Fenestration Industry)

- Deeply involved in the development of national, industry, and group standards, covering performance, testing methods, and BIPV application specifications for thin-film photovoltaic modules, transforming practical experience into industry consensus.

- 《Integrated Design and Installation of Solar Components for Buildings》
- 《Technical Requirements for Cadmium Telluride Power-Generating Glass》(T/CIET1060-2025)
- 《Technical Specification for Building Cadmium Telluride Thin-Film Photovoltaic Systems》(T/CIET1060-2025)
- 《Technical Specification for Building Cadmium Telluride Thin-Film Photovoltaic Systems》(T/CECS1881-2025)
- 《Atlas of Integrated System Construction for Cadmium Telluride Thin-Film Photovoltaic Curtain Walls and Roofs》(Guangdong 25/T221)
- 《General Design Atlas for Rural Houses in Zhongshan City》
- 《Integrated Design and Installation of Solar Components for Buildings》(T/CIET633-2024)
- 《Technical Requirements for Cadmium Telluride Power-Generating Glass》(T/CIET625-2024)



Drafting Unit of the "Technical Requirements for Coating Preparation of Perovskite and Tandem Cells"



Drafting Unit of the "Performance Requirements and Test Methods for Perovskite Photovoltaic Cells"

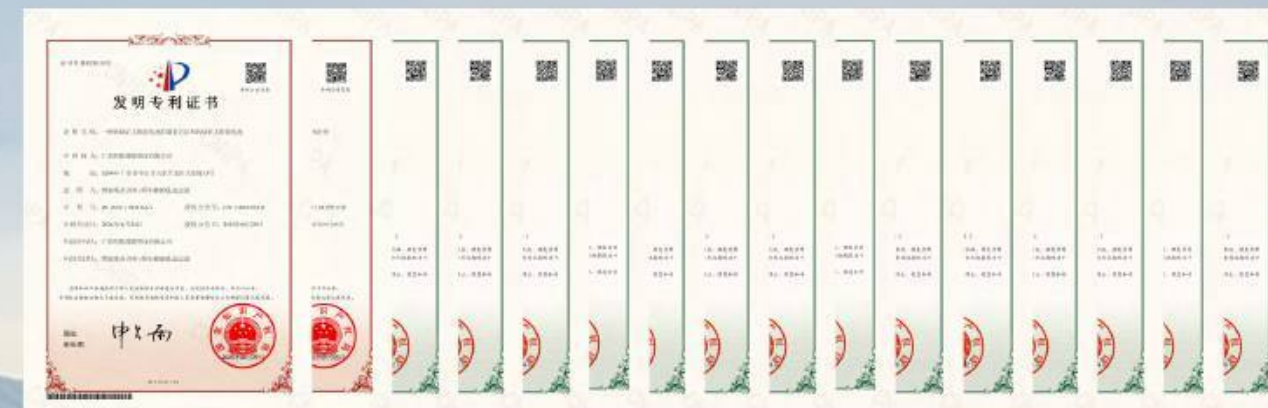


Advanced Collective in Standardization Work (2023)



Excellent Enterprise in Low-Carbon Development (2025)

Patent Certificate



VDE



Product Carbon Footprint Verification Statement



BIPV (3C)



ISO



UL61730 (CdTe120W)



Square-Meter Scale Perovskite Conversion Efficiency: 22.4%



CGC



Green Building Material Product



Ming Yang Thin Film Tech currently possesses a 100 MW cadmium telluride (CdTe) thin-film cell/module production line with completely independent intellectual property rights. A new CdTe production line with large panel size (2400×1200mm²) has entered the full-scale construction phase.

CdTe

Perovskite
/Tandem

With the focus on continuous technological innovations, Ming Yang Thin Film Tech has successfully built a 100MW-scale perovskite pilot line; the champion efficiency of 0.72m² module achieved 22.41% (certified).



HJT

At Yancheng site, Ming Yang Thin Film Tech has a 1 GW state of the art production line of heterojunction (HJT) solar cells. The unique design of **quarter-cut cells** from 182x182mm² silicon wafer is adopted, targeting specifically the BIPV applications where safety and ease in customization are heightened requirements.



BIPV

At both Zhongshan and Yancheng sites, Ming Yang Thin Film Tech is equipped with production lines for BIPV where solar cells are integrated into various architectural glass structures. In addition to full customization on shape, size, glass thickness, exterior color and transparency, our product designs can also include thermal performance and sound insulation etc.

CdTe

Our Technology and Capabilities

- Fully automated production line for 100 MW CdTe cells/modules with complete independent IP and self-developed core equipment.
- Third-party certified thin-film module (0.72m^2) efficiency of 17.3%.
- Uniquely developed transparent CdTe cell technology; the transmittance can be varied between 10-90%.
- CdTe thin film solar technology has become a recognized "star" technology in the BIPV field.
- Plans to upgrade the current production line ($0.72\text{m}^2/100\text{MW}$) to a large-format line ($2.88\text{m}^2/500\text{MW}$) in 2026.

25-year excess linear power output

21%+ Cell Conversion Efficiency

17%+ Module Conversion Efficiency

Our CdTe based Product Features



Safety Benefits of CdTe in BIPV

- **Low current:** much less resistive heating in cells, interconnections, and cables.
- **Shading tolerant:** Less sensitive to partial shading with minimal hot-spot risk.
- **Lower fire risk in BIPV:** Achieve Class A fire rating for building integration.



Excellent Building Integration (BIPV-friendly)

- **Aesthetic flexibility:** Available in various colors, transparencies (10–90%).
- **Easy installation:** Directly replaces conventional glass in facades, skylights and roofs.
- **Design-oriented:** Preserves architectural appearance while generating energy.



Superior Real-World Power Generation

- **Outstanding low-light performance:** Generates 10–15% more electricity than crystalline silicon on cloudy/rainy days.
- **Longer daily generation:** 1–2 extra hours of effective output per day.
- **Annual yield advantage:** 5–10% higher actual energy output compared to silicon.
- **Excellent high-temperature behavior:** Temperature coefficient about half the loss of silicon in hot weather.



Economic & Environmental Benefits

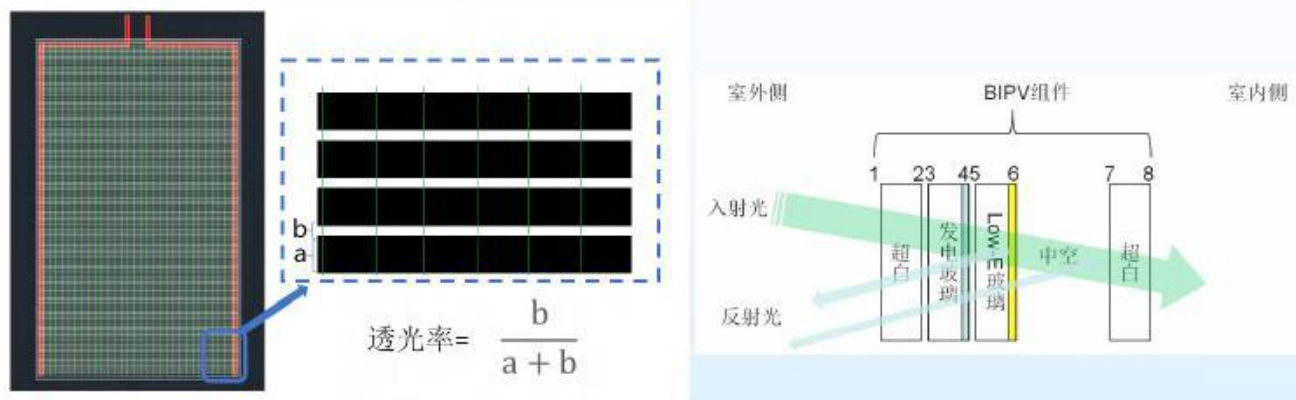
- **Short energy payback time:** Low energy consumption in production, fast carbon return.
- **Long service life:** $\leq 15\%$ degradation over 25 years → reliable long-term output.
- **Recyclable:** 95% of semiconductor material can be recycled; glass encapsulation controls environmental risks.

Ming Yang Thin Film Technology CdTe Transparent Technology Overcoming the Industry's "Moiré Pattern" Aesthetic Challenge

Moiré Pattern – A "Visual Flaw" on Transparent Modules

Phenomenon: When sunlight shines on the BIPV surface at a specific angle, a visual ripple effect (resemble water ripples) appears.

Cause: An optical interference effect caused by the superposition of periodic structures.



Ming Yang Thin Film Tech has optimized the light-transmitting pattern design of solar panels to create an optical structure that is orderly overall but locally random. This effectively weakens the interference effect caused by the superposition of periodic structures under light, significantly reducing the Moiré pattern phenomenon on BIPV transparent modules.

Moreover, this process maintains stable visual performance under different lighting conditions and viewing angles without affecting efficiency, endowing building facades with a purer and more transparent visual characteristic (more glass-like), and significantly enhancing the aesthetics, making it more attractive for high-end commercial buildings.



HJT

Top Performer in BIPV Power Generation Efficiency

Ming Yang Thin Film Tech also has a GW-level production line for HJT solar cells in Yancheng. Average cell efficiency achieves 26% with a bifaciality of over 90%, making it more suitable in applications where higher power generation is required.

While specifically targeting BIPV applications, Ming Yang Thin Film Tech has pioneered a **Quarter-Cut-Cell** design from 182x182mm² cells. Its core advantages include:

- **Lower current per cell** – current level becomes nearly comparable to thin film technologies such as CdTe.
- **Better mechanical flexibility and crack mitigation** – Smaller cells are less prone to stress-induced microcracks.
- **Enhanced shading tolerance** – particularly beneficial in BIPV where partial shading is common
- **Lower hot-spot risk** – critical for BIPV where direct access for maintenance is limited.
- **Aesthetic and product design freedom** – Smaller cells allow more creative arrangements for non-rectangular modules, common for BIPV projects.

30-Year Linear Power Warranty

23%-24%+ Module Conversion Efficiency(Vary with Customization)



High Low-Light Response

Due to the excellent amorphous silicon passivation effect, HJT cells have fewer defects and better low-light response. This allows HJT modules to maintain high power generation efficiency even in weak morning and evening light, extending the effective power generation duration.



Low Temperature Coefficient

Compared to other crystalline silicon cells, HJT cells have a lower temperature coefficient. With an ultra-low temperature coefficient of -0.24%/°C, they perform more stably in high-temperature environments.



90%+ Bifaciality

The bifacial symmetric structure of heterojunction cells achieves a bifaciality of over 90%, which is more than 10% higher than other crystalline silicon cells. This results in higher power generation at various installation angles.



Excellent Color Uniformity

The anti-reflective coating of heterojunction cells uses magnetron sputtering physical deposition technology, ensuring excellent color uniformity.

Perovskite (PK) & Tandem Technology

Ming Yang Thin Film Tech has built a world-class perovskite and tandem solar cell R & D and manufacturing center, a integrated facility for Perovskite thin film solar cell and mini-module research, fabrication, and testing.

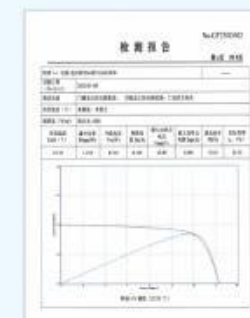
While the company adheres to independent cell technology and process innovation, it has deeply collaborated with multiple core equipment manufacturers to jointly develop customized perovskite industrialization equipment for key processes.

The company currently has a 100MW-scale perovskite pilot line, achieving a critical leap from laboratory to industrialization. The champion efficiency of pilot line module (0.72m²) has achieved 22.4% (certified).

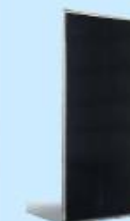
Mingyang Perovskite Cell Technology Progress



Certified efficiency of 100×100mm² perovskite module 23.43%



Certified efficiency of 1200×600mm² perovskite module 22.41%



4 Terminal

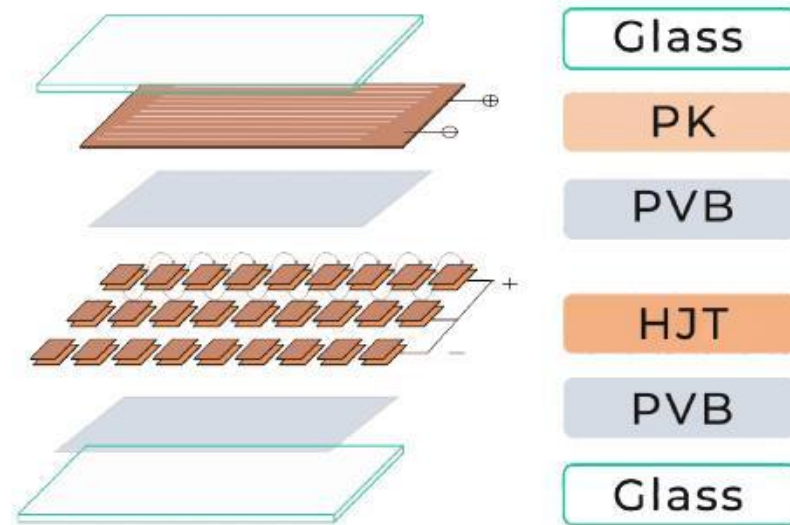


(Products available in 2027)

1800×1200 (Size customizable)

27%+ Module Conversion Efficiency

Product Structure



- High Conversion Efficiency
- Mature Process

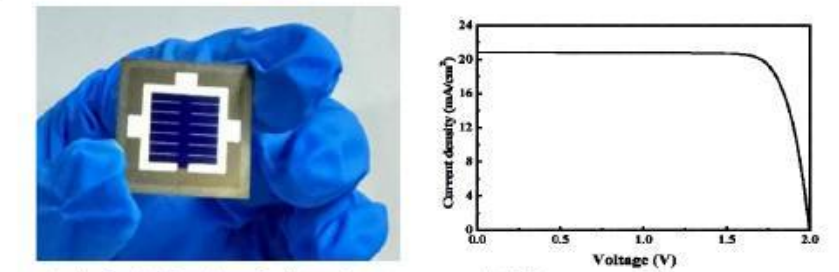
- Good Stability
- Compatible with Various Crystalline Silicon Technologies



2 Terminal

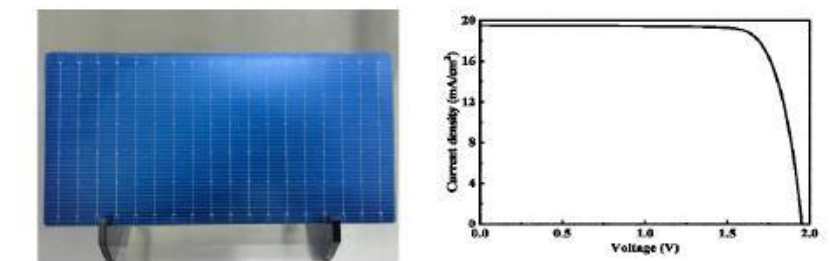


Lab-Scale Tandem Cell Efficiency: 34%+



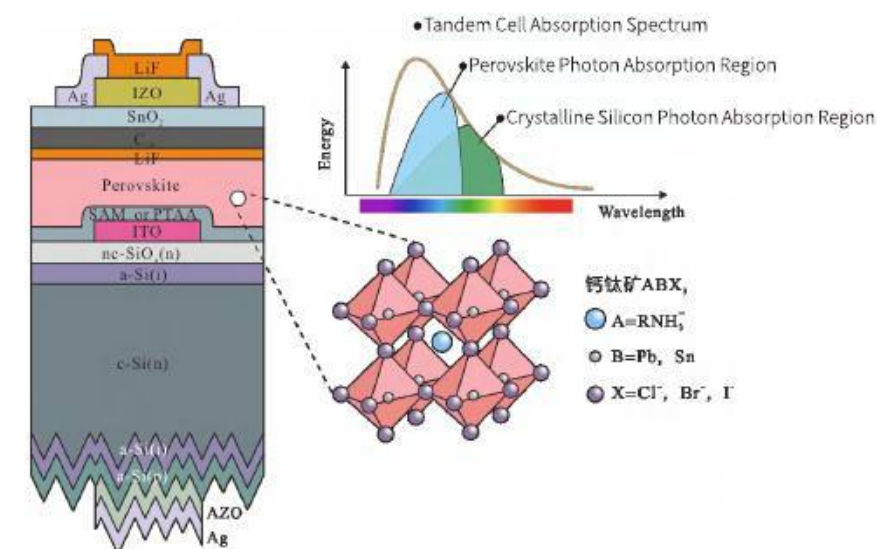
• Lab-Scale Tandem Cell Product Image and JY Parameter Chart

Commercial-Scale Tandem Cell Efficiency: 30%+



• Commercial-Size Tandem Cell Product Image and JY Parameter Chart

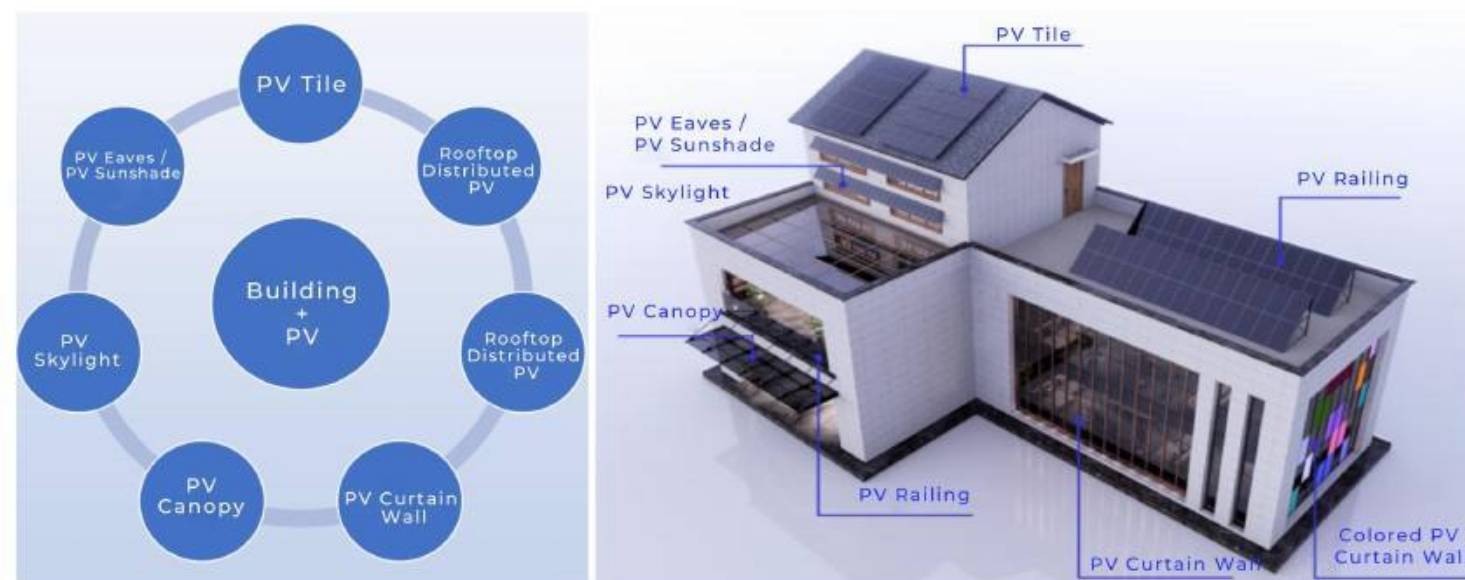
2T Perovskite/Crystalline Silicon Tandem Cell Structure



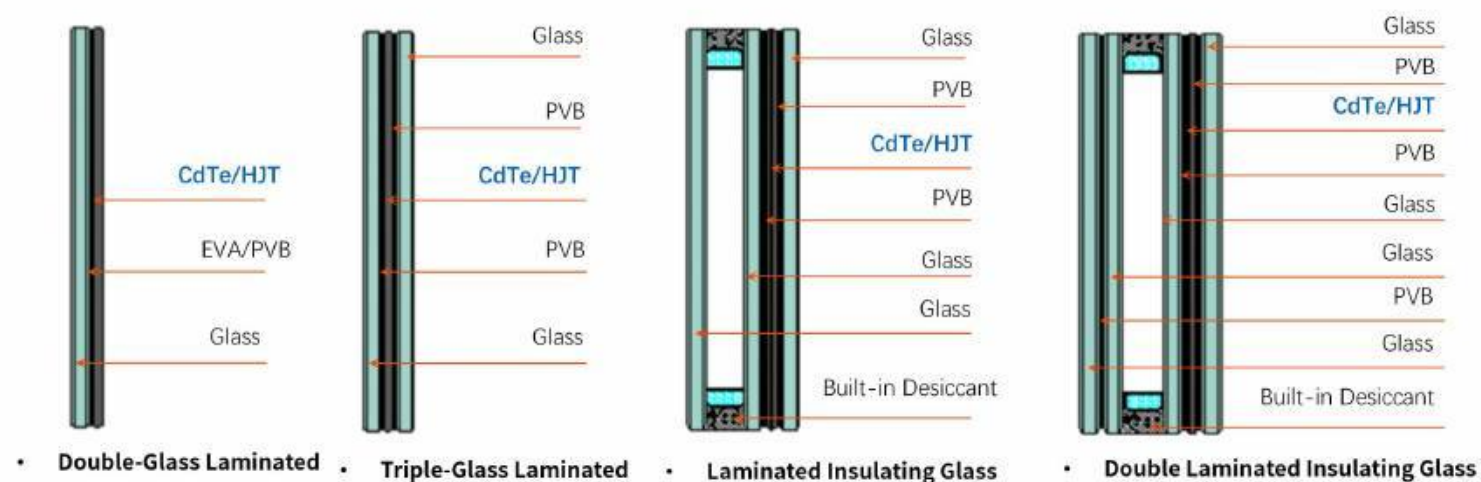
- High Conversion Efficiency
- Low Levelized Cost of Electricity (LCOE)
- Highly Compatible with HJT Production Lines
- Short Process Flow

BIPV—Ming Yang PV glass is a green power-generating building material "born for architecture"

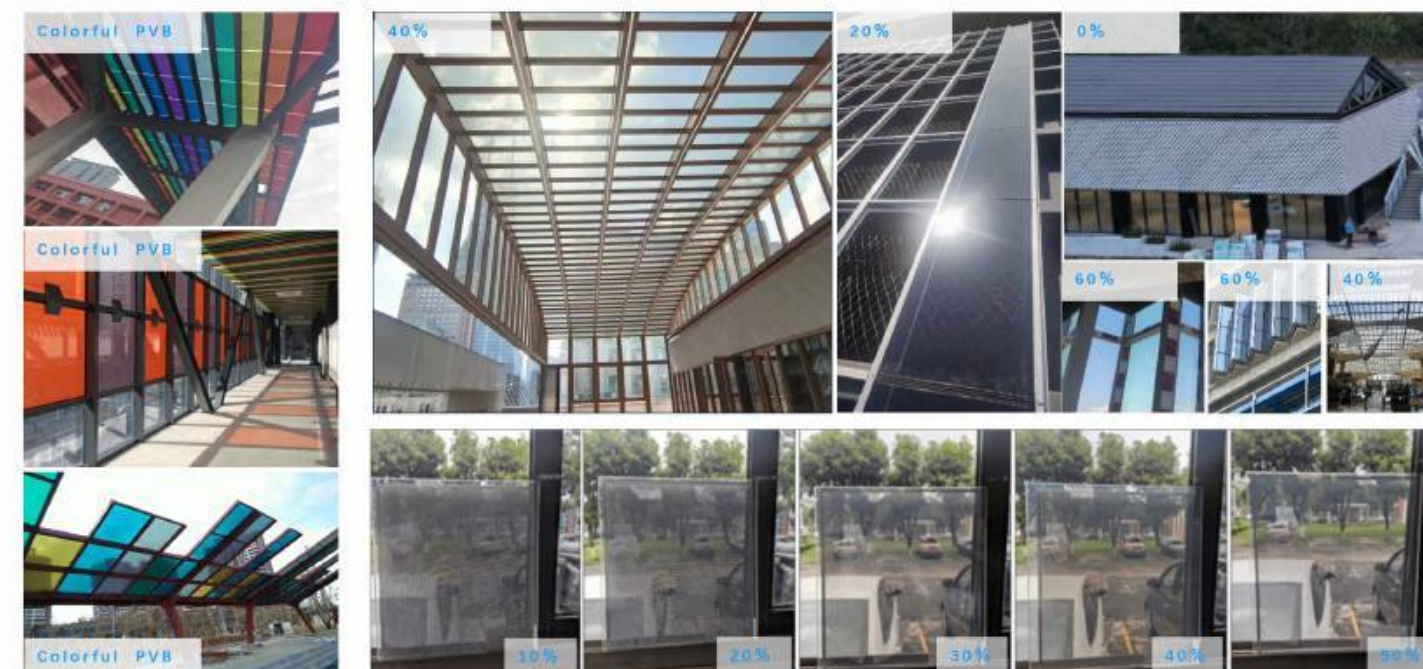
Targeting the high-barrier, high-value BIPV market, Mingyang PV Glass offers full customization – shape, transparency, color/texture, insulation, and structural adaptability. Covering the entire BIPV product range, it is an integrated green building material that merges safety, functionality, sustainability, and aesthetics.



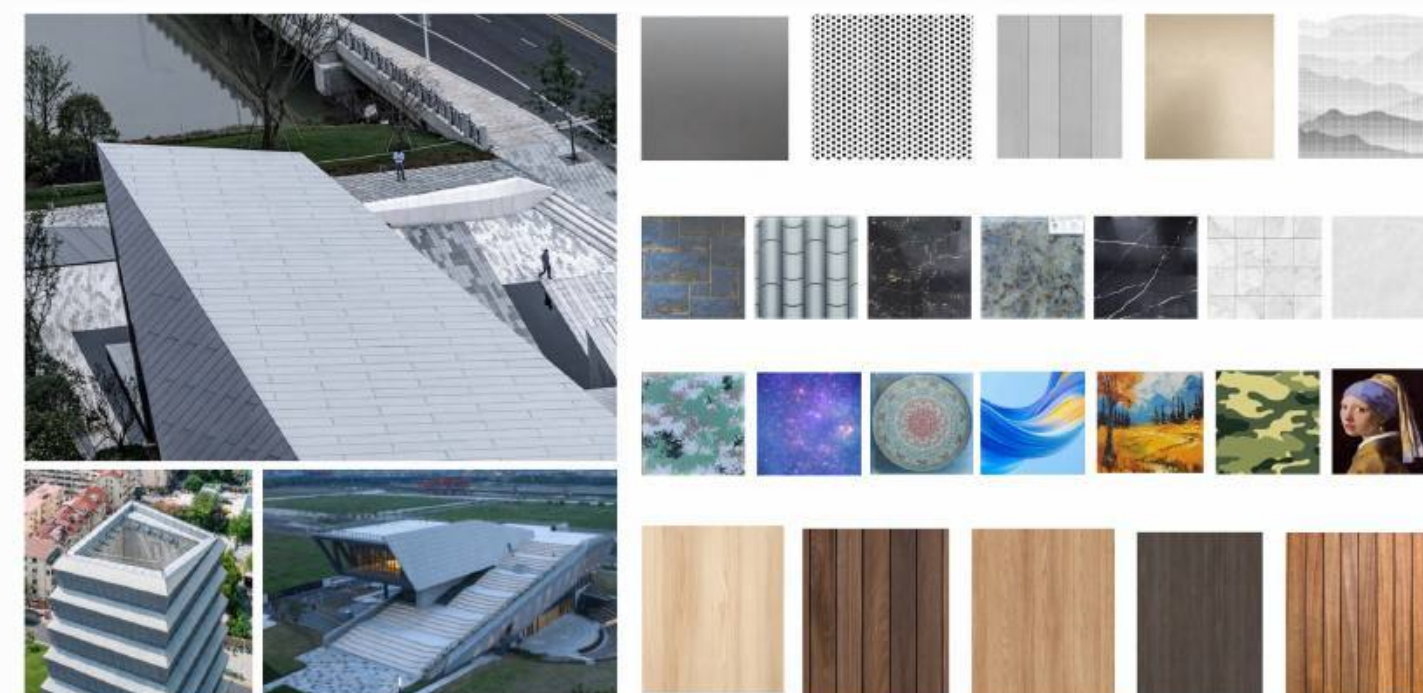
- ◆ Customizable light transmittance: Light transmittance can be tailored to lighting requirements, and transmitted light colors can also be customized, such as yellow, blue, orange, etc.



- ◆ Customizable colors and patterns. colors and patterns can be tailored to architectural aesthetic requirements, achieving perfect harmony with the building, such as aluminum panel imitation, stone imitation, brick texture, etc.



- ◆ According to load design specifications, various photovoltaic glass products meeting building standards can be configured, such as laminated glass, laminated insulating glass, double-laminated insulating glass, etc.



Main Types of BIPV Products

Curtain Wall Glass

PV Glass for Skylight

PV Roof Tile

PV Pavement Tile

Main Types of Solar Cell

CdTe Thin Film Solar Panels

Standard panel 17.3%

HJT Solar cells

Quarter-Cut Cell 26%

Standard panel 23+%

*Efficiency may vary with Customizations

Customizable Features for BIPV

Any size less than 4X6m

Shape :Non-rectangular Compatible

Exterior color:standard variety or customer designated

Laminated Glass:

—— Tempered or Semi-Tempered

—— Single glass Thickness:5-12mm

Adhesive Film:

—— PVB thickness

—— Available thickness :0.38mm-3.04mm

Typical thickness: 1.14mm,1.52mm

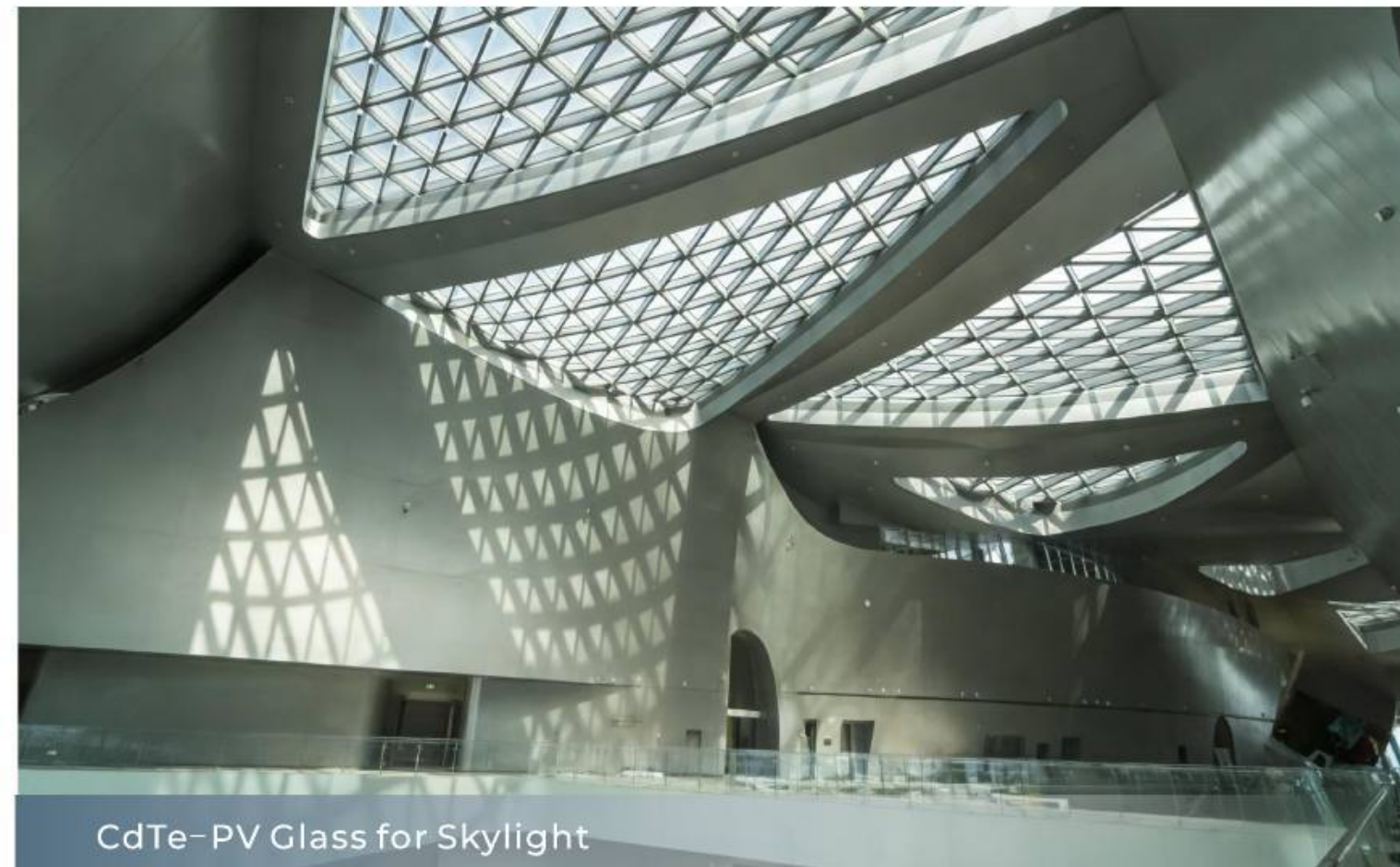
Glass Structure:

—— Laminated Structure or Laminated Insulating Structure

Others:

—— Low-E glass or Solar Control Film can be incorporated into

—— design to meet thermal insulation or sound insulation needs



PV Roof Tile

Ming Yang PV tile products are suitable for new pitched roofs and pitched roof renovations. They can replace traditional glazed tiles, clay tiles, metal tiles, etc., allowing buildings to retain their original appearance while generating additional power income, perfectly interpreting the development concept of "Building-Integrated Photovoltaic (BIPV)".

- Planar tiles available for both CdTe and HJT
- Curved tiles available in 2027



Chengdu Wanhui School

📍 Chengdu, Sichuan

Custom-sized CdTe PV tiles combine aesthetics, practicality, and cost-effectiveness. Chengdu has average sunlight, but CdTe technology offers excellent low-light performance and a low temperature coefficient, resulting in good real world power generation efficiency. Ming Yang CdTe PV tiles integrate perfectly with traditional roofs, providing appearance uniformity and easy installation.



Yucun Impression Library

📍 Yucun, Zhejiang

Building of Yucun Impression Library utilizes technologically innovative materials to achieve carbon neutrality, offsetting and reducing carbon emissions through the use of renewable energy. Ming Yang CdTe PV tiles installed on the roof generate electricity that powers the entire building.



Pixian Agricultural Tourism Project, Chengdu, Sichuan

📍 Chengdu, Sichuan

Mingyang PV tiles can perfectly integrate with other traditional building materials, generating electricity and producing energy while maintaining basic functionality.



PV Pavement Tile

A PV pavement tile is a green power-generating building material that integrates solar photovoltaic panels with floor tiles. Its surface is made of high-strength tempered anti-slip glass, with built-in high-efficiency photovoltaic cells. The product features waterproof, anti-slip, and high load-bearing properties, and can be applied in urban plazas, park pathways, commercial streets, and other scenarios, combining practical functionality with technological aesthetics.



Zhongshan Headquarters PV Pavement Tile



Zhongshan Headquarters PV Pavement Tile



Smart City

Ming Yang PV glass uses cadmium telluride (CdTe) thin film as the photoelectric conversion layer to convert sunlight into electricity. Through the "self-consumption with surplus fed into the grid" model, it enables complementary energy utilization. With its high efficiency, aesthetic appeal, and environmental friendliness, it reduces building energy consumption and carbon emissions, ideal for the development of green buildings.



PV Curtain Wall



Gymnasium / Sports Venue



Office Building



Apartment / Residential Building



Old Building Renovation / Retrofitting



City Landscape

Ming Yang CdTe PV glass brings low-carbon benefits to urban landscapes while improving ecology and promoting human-nature harmony. Its customizable appearance (patterns, colors, transparency) enables diverse applications in public facilities, science centers, walkways, and scenic spots etc.



Park Support Facilities / Park Auxiliary Buildings



Science Center



Feature Landscape / Signature Landscape



Wind and Rain Corridor / Covered Walkway



Rural Revitalization

Ming Yang PV glass delivers clean, sustainable energy in rural areas with high efficiency – reducing reliance on traditional energy, cutting costs, and driving sustainable development.

Flexible installation options meet the needs of various rural scenarios – improving land use efficiency while delivering economic returns.



PV Village



Fishery-Solar Complementary



Tea-Solar Complementary



Agriculture-Solar Complementary

We supply photovoltaic products and also responsible for installation.

Wenzhou Guansheng Automotive



Greater Bay Area Science Hall



Tianyuan Academy



Three-Gorges Pump Industry BIPV Project
(Rooftop)



Tianjin - Ruineng Electric Industrial Park BIPV Project
(Rooftop)



Yangjiang - Wind Turbine Blade Production Base BIPV Project
(Rooftop)



Baotou - Northern Smart Energy Building BIPV Project
(Skylight + Railing)



Xinyang - Huayang Changqing Old Building Retrofit BIPV Project
(Building Facade Renovation)



Xinyang - Panpan Wood Products BIPV Project
(Rooftop)

Ultra-High-Rise Solution

Ming Yang Group Tiancheng Tower

📍 Zhongshan, Guangdong

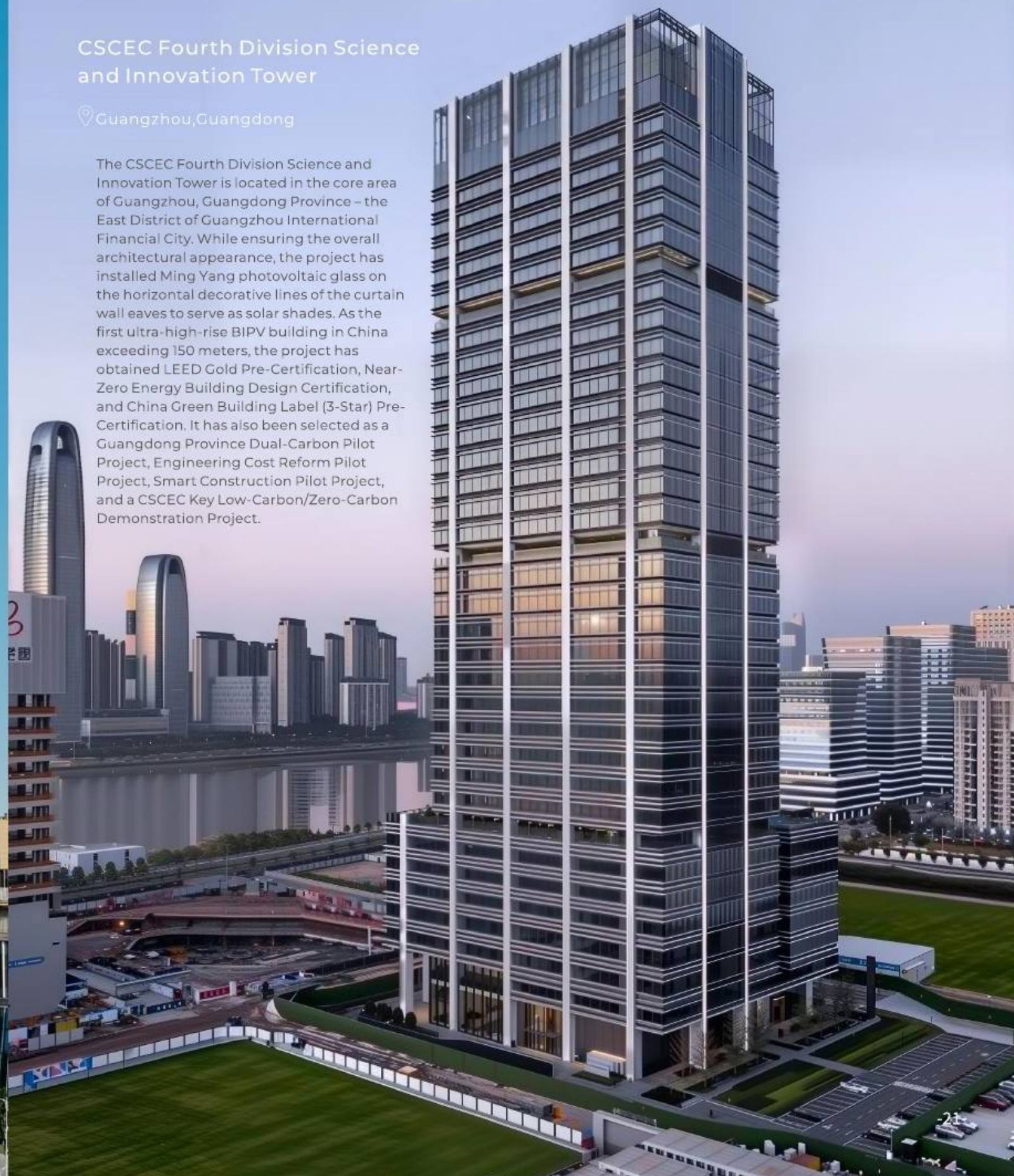
The Ming Yang photovoltaic glass used in MingYang Group Tiancheng Tower Facade. The product delivers a transparent, bright, and clean visual effect.



CSCEC Fourth Division Science and Innovation Tower

📍 Guangzhou, Guangdong

The CSCEC Fourth Division Science and Innovation Tower is located in the core area of Guangzhou, Guangdong Province – the East District of Guangzhou International Financial City. While ensuring the overall architectural appearance, the project has installed Ming Yang photovoltaic glass on the horizontal decorative lines of the curtain wall eaves to serve as solar shades. As the first ultra-high-rise BIPV building in China exceeding 150 meters, the project has obtained LEED Gold Pre-Certification, Near-Zero Energy Building Design Certification, and China Green Building Label (3-Star) Pre-Certification. It has also been selected as a Guangdong Province Dual-Carbon Pilot Project, Engineering Cost Reform Pilot Project, Smart Construction Pilot Project, and a CSCEC Key Low-Carbon/Zero-Carbon Demonstration Project.



TELD Headquarters Building

Qingdao, Shandong

As the world's first ultra-high-level zero-carbon building, the TELD Headquarters project installs blue-gray Mingyang photovoltaic glass on the east, south, and west facades from the 2nd floor to the top floor, ensuring architectural harmony while absorbing solar energy and converting it into electricity.



Hangzhou TCC Gongliang Building



Geely Yuan Cheng Building



Chengdu Construction Engineering Tower



Management Center



Wuhan Jingpai Tower

Solutions for Science, Sports & Cultural Venues

2022 Beijing Winter Olympics National Speed Skating Oval

📍 Beijing

The 2022 Beijing Winter Olympics National Speed Skating Oval is located in the Olympic Park, Chaoyang District, Beijing, with a total construction area of 80,000 square meters. It served as the main venue for all ice sports competitions at the 2022 Winter Olympics and Paralympics. The 22 "ice ribbons" are composed of more than 12,000 pieces of Ming Yang photovoltaic glass. This product utilizes the latest process technology, creating a flowing "ice ribbon" effect while generating electricity and producing energy.



Capital Museum (East Wing)

Beijing

The Capital Museum East Wing, also known as the "Boat of the Canal," is located in Yongshun Town, Tongzhou District, Beijing, with a total planned area of approximately 112,000 square meters. The project's skylight adopts Ming Yang insulating laminated BIPV photovoltaic glass, creating a blue-green intertwined ecological base together with the North Canal and extensive greenery, forming a green spatial structure of "two belts, one ring, and one core" in the city's sub-center.



Qionghai Cultural and Sports Center (Phase II)



Shenzhen Art Museum



Fuyang Civil Defense Science Museum



Nanning ASEAN Equestrian Center, Guangxi



Shanghai Top Scientists Permanent Forum Venue



Hefei Museum

Building Retrofitting & Expansion PV Projects

BELIMO China CESIM Excellence Center

Shanghai

This project not only achieves a perfect integration of architectural aesthetics and functionality but also demonstrates the innovative power of green technology. Using customized Ming Yang photovoltaic glass with 20% light transmittance, it meets the daylighting needs of the building facade while achieving efficient power generation.



Shenzhen Gaoxin Primary School



Bengbu No. 3 Middle School



Shanghai Douyin Binjiang Center

Shenzhen Shekou Tower

Shenzhen, Guangdong

Shenzhen Shekou Tower is the first near-zero energy building and near-zero carbon emission building in Shenzhen transformed from an existing high-rise office building. Upon completion, the project is estimated to generate 314,800 kWh of photovoltaic electricity annually, reduce carbon emissions by 142 tons per year, achieve a comprehensive energy saving rate of 75.08%, and a renewable energy utilization rate of 47%.



Jingneng Zuojiashuang Thermal Power Plant

Beijing

Ming Yang photovoltaic glass injects green energy into the park's renovation, effectively revitalizing existing space, achieving energy savings and cost reduction while enabling self-consumption of electricity. This represents a key pathway for promoting zero-carbon transformation and efficiency improvement in existing parks.



Integrated Energy Solutions Involving
Wind, Solar, Storage, Hydrogen & Gas



Laibin - Guangxi Energy Investment / Guizhong Wind Farm Complex Building



Beijing - State Power Investment Corporation / Science and Technology Research Institute



Jiaxing Second People's Hospital

Huizhou - Guangdong Energy Investment / Daya Bay Petrochemical Zone Energy Station

📍 Huizhou, Guangdong

The main building facade features a diagonal design with smooth and rhythmic lines, using 1200×1800mm large-size transparent Mingyang photovoltaic glass. The green electricity generated is directly integrated into the plant's power system, achieving self-consumption and successfully merging green energy with modern industrial architectural aesthetics.

The project's central control building also cleverly utilizes 30% light transmittance insulating Mingyang photovoltaic glass, meeting the building's internal lighting requirements while achieving excellent shading and thermal insulation effects.

CHN Energy Shendong Coal Shangwan Binhe Cultural and Sports Center

📍 Ordos, Nei Mongol

Using Mingyang's custom red CdTe photovoltaic glass, it achieves Building-Integrated Photovoltaics while meeting the building's aesthetics.



Gansu Yuzhong Ecological Science and Innovation Center

📍 Lanzhou, Gansu

This project adopts a solar PV power generation system, innovatively using triangular transparent Ming Yang photovoltaic glass components on the exterior walls to efficiently generate electricity while meeting indoor daylighting needs.



Nanning China Resources Power Booster Station

📍 Nanning, Guangxi

Nanning China Resources Power Booster Station uses Mingyang PV tile products to replace traditional roofing, offering excellent power generation performance and modern aesthetics, integrating safety, practicality, environmental protection, energy efficiency, and beauty.

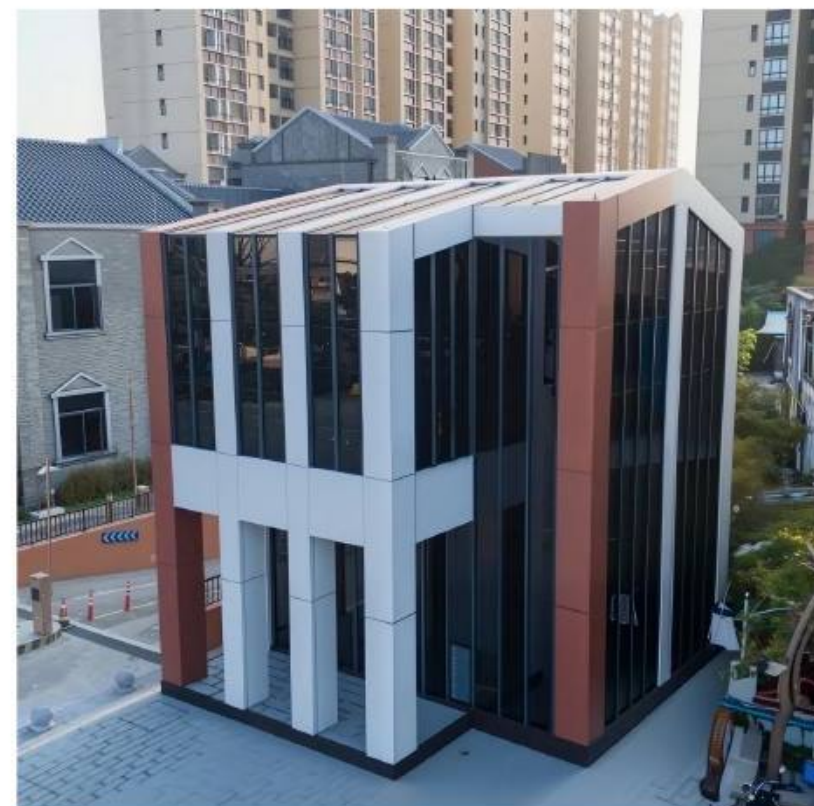
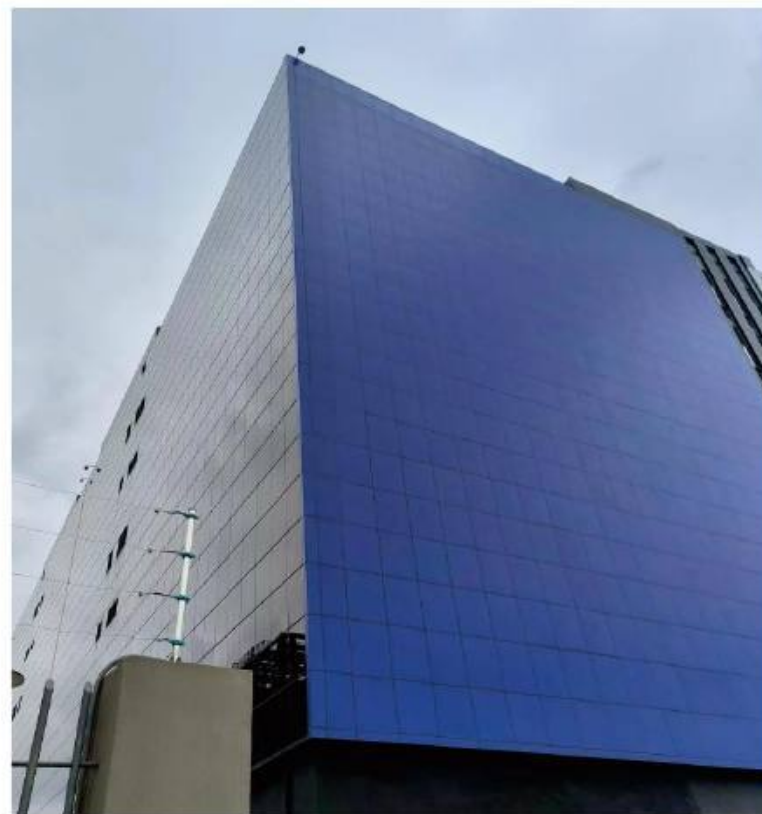


Smart City

Guangdong-Hong Kong-Macao Greater Bay Area Data Center

📍Guangzhou, Guangdong

A landmark for energy conservation in the Greater Bay Area. GBA Data Center BIPV project: 3,200 m² Ming Yang PV glass on south facades of the buildings. Integrated PV with curtain walls, expected annual output: 316,000 kWh, reducing CO₂ by 268 tons.



China Southern Power Grid Chikan PV Curtain Wall

📍Jiangmen, Guangdong

The Chikan Power Supply Station Distribution Station is located in Kaiping District, Jiangmen City, Guangdong Province. While ensuring the overall architectural appearance, the project uses Mingyang customized insulating photovoltaic glass on four facades and the roof to replace traditional insulating glass used in buildings, along with a supporting electrical system for the power-generating glass.

Beijing Miyun Tongniu Data Center

📍Beijing

Beijing Miyun Tongniu Data Center used CdTe PV glass as decorative facade material – offering both power generation and high aesthetics. Customizable colors and textures perfectly integrate with the data center's architectural style.



Haier Smart Manufacturing · Future Innovation Center

📍Beijing

Through urban renewal, Haier's Future Innovation Center has transformed from a traditional logistics hub into an 89,000 m² "four-in-one" smart park – integrating R&D, intelligent manufacturing, industrial internet, and sales. A benchmark for green buildings with full-scenario BIPV. Ming Yang photovoltaic glass is integrated into office walls, atrium skylights, and vehicle ramps.



The Bauhinia Hotel

📍 Hong Kong

The Bauhinia Hotel is the first utilized BIPV demonstration project in Hong Kong. Ice Silk Blue Ming Yang photovoltaic glass is installed on the east, south, and west facades, complementing the surrounding architecture while continuously enhancing the hotel's revenue.

Macau Incineration Center Administration Building

📍 Macau

Macau Incineration Center uses a component-based BIPV curtain wall structure. Ming Yang photovoltaic glass is installed on the east, south, west, and north facades, effectively absorbing external light radiation and reducing the internal temperature of the building.

COP29 Main Entrance Channel Curtain Wall

📍 Azerbaijan

The 29th United Nations Climate Change Conference (COP29) was held in Baku, the capital of Azerbaijan. Green transparent Ming Yang photovoltaic glass was installed on the main entrance channel of the venue.



Urban Landscape

Zero-Carbon Park Life Hall

📍Shenzhen, Guangdong

Located in the heart of Shenzhen Longgang Zero-Carbon Park, the Zero-Carbon Life Hall blends with nature. Its roof features 1,177 PV glass panels in 8 custom sizes, spiraling like a bamboo hat.



Zhangjiagang Qianxi Park

📍Zhangjiagang, Jiangsu

This landscape structure consists of 90 customized regular hexagonal panels with a side length of 60 cm in red, yellow, blue and green, forming a colorful honeycomb-style artistic landscape frame. Combining the geometric form of hexagons with colorful Ming Yang photovoltaic glass and imitation of large trees, it presents the harmonious beauty of technology and natural ecology.



Meizhou Island Mangrove Ecological Park Corridor

📍Fujian

Focusing on building an "ecological, low-carbon, civilized, smart" island, Meizhou Island has created a near-zero carbon demonstration site at Mangrove Ecological Park, installing PV systems on a trail corridor. Ming Yang photovoltaic glass comes in four colors: Sunshine Orange, Imperial Gold, Forest Green, and Sky Blue.



Tianyuan Academy

📍Hangzhou, Zhejiang

The Mingyang photovoltaic glass used in this project precisely adapts to architectural requirements. Combined with colored PVB interlayers, it achieves custom color options including red, yellow, blue, green, and integrating into the campus architecture's color aesthetic system.

Rural Revitalization

State Grid Ningbo - China's First CdTe Thin-Film (BIPV) PV Village

📍 Ningbo, Zhejiang

This project provides clean energy to more than 200 households in the village. Here Ming Yang photovoltaic glass are featured with power generation, waterproofing, aesthetics, and prefabricated installation devices, replacing traditional glass tiles, clay tiles, metal tiles, and other roofing materials.



Tea-Solar Complementary

📍 Xinyang, Henan

The "Tea-Solar Complementary" integrated development model combines modern technology with traditional agriculture. The Lumiao Ecological Tea Plantation project is an important practice in the field of tea-solar complementary. Ming Yang photovoltaic glass's unique light transmittance does not affect the photosynthesis of tea plants, creating a modern landscape where tea plants and power generation equipment coexist.



Agriculture-Solar Complementary

📍 Saudi Arabia

This project fully utilizes the rooftop space of greenhouses to install CdTe thin-film photovoltaic glass, meeting the electricity needs of the greenhouse without affecting internal lighting.



Low-Carbon Transportation

Hebei Expressway Tunnel Entrance

📍 Hebei

In this project, daylighting roofs are installed at the entrances and exits of high-speed tunnels. By adopting thin-film photovoltaic modules, the originally hazardous structural joints are transformed into modern infrastructure with multiple functions, including safety assurance, clean power generation, energy conservation and consumption reduction, as well as aesthetics.



Qingsheng Avenue Pedestrian Bridge

📍 Guangzhou, Guangdong

The Qingsheng Avenue Pedestrian Bridge project is located in Nansha, Guangzhou. It replaces traditional glass with solar thin-film photovoltaic glass, providing excellent visual effects while supplying electricity for streetlights.



Huangmugang Metro Hub

📍 Shenzhen, Guangdong

Ming Yang photovoltaic glass is used in rail transit center. The Huangmugang Metro Hub uses Mingyang photovoltaic glass (white linen stone pattern), combining aesthetics, energy efficiency, and power generation. Its appearance is indistinguishable from traditional materials, achieving better integration with the environment.



Lanxi High-Speed Railway East Station

📍 Lanxi, Zhejiang

The application of Ming Yang photovoltaic glass at high-speed railway stations integrates lighting, shading, and power generation without occupying additional land, reducing station electricity costs.



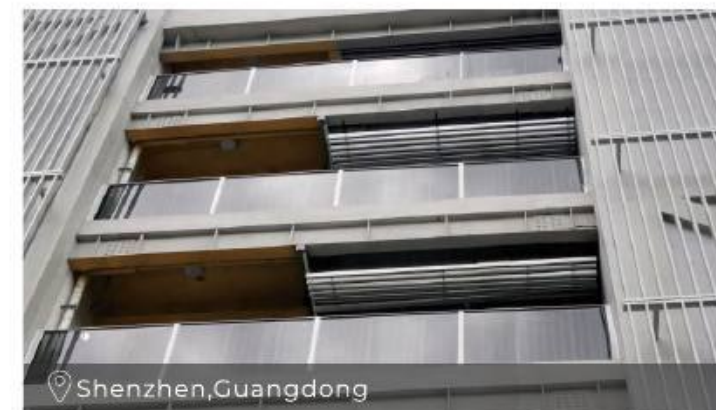


- » Heat insulation in summer, thermal retention in winter
Built-in shading reduces indoor temperature by 5°C-10°C compared to ordinary sunrooms
- » Diverse colors, stylish and aesthetic
Customizable colored PVB solutions available in multiple color options
- » Uniform light transmission, wide field of view
Chip light transmittance adjustable from 10% to 60%, providing uniform light without mottled shadows
- » Continuous power generation, long-term benefits
Self-consumption with surplus power fed into the grid, delivering long-term and stable returns

Sunroom



Photovoltaic (PV) Railing



Baotou, Nei Mongol

The First Choice for BIPV
Ming Yang PV Glass

Empowering Buildings, Beautifying the World.