AT FACADE

Glass.Facade.Expert

BROCHURE

Technology & Products

Perfessional Manufacturer of Super Large / Structural Decorative Glass.

Professional Glass Facade & Interior Decoration System Solution Provider.

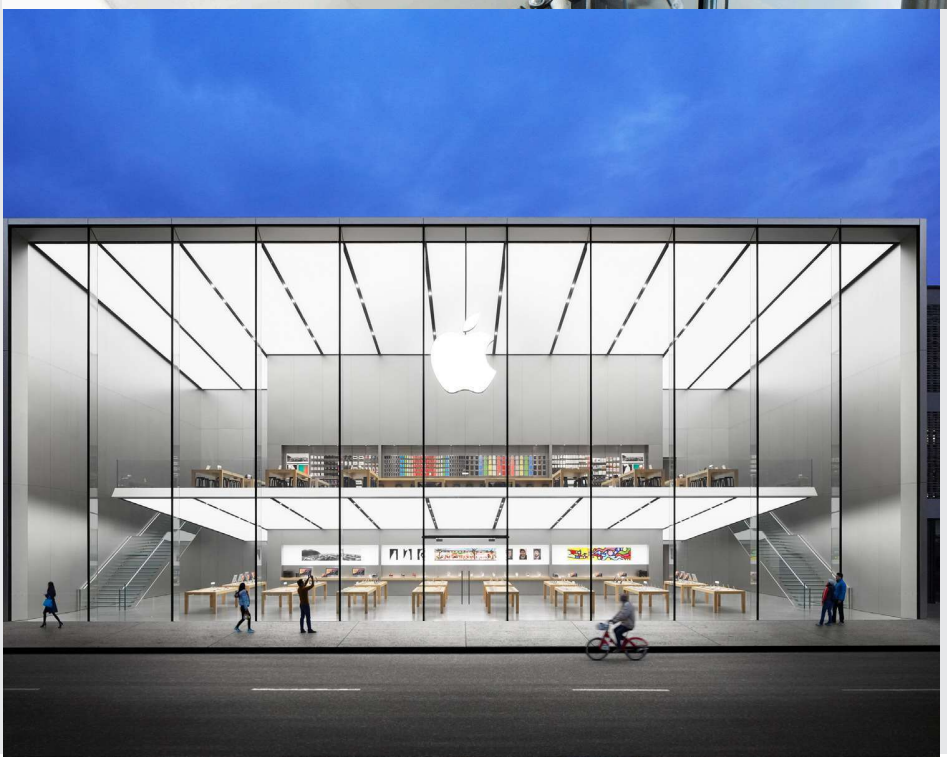
HONGKONG AT FACADE ENGINEERING LIMITED

Perfessional

Manufacturer of Super Large /
Structural/Decorative Glass.

social media -

www.atfacade.com/contact/



Founded

Apple 4S Sales Center

Industry

Hongkong AT Facade Engineering Limited

Qingdao SSMG Glass Co.,Ltd

Based On

Professional production and processing advantages of oversized glass

2022-23

Professional

Glass Facade & Interior Decoration System Solution Provider

Professional glass processing ability, excellent plan design; to provide customers with more possibilities

Why choose AT Facade?

Founded in China, AT Facade is a global architectural glazing company responsible for innovative facades and curtains walls for some of the most prestigious and modern buildings.

We are a specialist team of Curtain Wall Structural Engineers, Designers, Professional Workshop Producers, and Management Personnel that serve domestic and foreign projects.

We focus on giving life to all your goals through glass. Whether you are a high-end commercial business, a global architecture firm, or a local private business, our amazing team will guide you through the process.

This magic happens in a delivery area of more than 250,000 square meters, equipped with technology that is continuously upgraded and optimized to meet the highest standards of excellence.

Why choose us? AT Facade was created with the mindset of achieving a quality product with style, functionality, and technology. We are proud of our reputation as a recognized choice for top architects and designers all over the world.

Your idea is our challenge.Certifications

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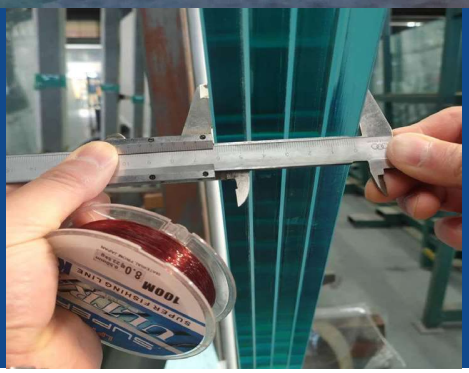
99%
Satisfy Client's



Delivery of oversized structural glass staircase to New York Hotel, USA (Width=10450mm)

Responsibility

We are a company that believes in a better future for everyone.The research, development, and application of "green energy-saving" products and services is a vital part of the company's vision and legacy. We care for the less fortunate.We actively participate in social welfare in partnership with the World Eye Care Day, in which every year we subsidize 100 patients with eye diseases. We want to impact people's lives for the better.

Researched, Developed&Test

Our products are researched, developed, applied, and tested to meet customers' size and design specifications. At the same time, we test the engineering application safety index of every product to ensure their mass production and delivery.

We keep our customers and partners in the loop, communicating throughout the process: from raw materials, processing technology, and surface treatment, to the final product and implementation. We can help you make it happen.

Vision

To become a world-leading reference of glass application solutions for architectural facade and interior design.

Mission

Become the most reliable and valuable partner for projects that inspire creativity, and transform spaces.

Commitments:

We promise excellent product quality, satisfactory services, and positive response

Glass Stair Joint Strength Test

we are commited to maintain our Quality

Customer

We strive to provide the best customer experience as the basis of mutual cooperation.
We guarantee that you will get a reply within 24 hours or earlier with our 24/7 fast response mechanism.
This allows us to provide you with the most reasonable proposals -in comparison to our competitors-, with real cost-saving prices, references, and advice.

Staff

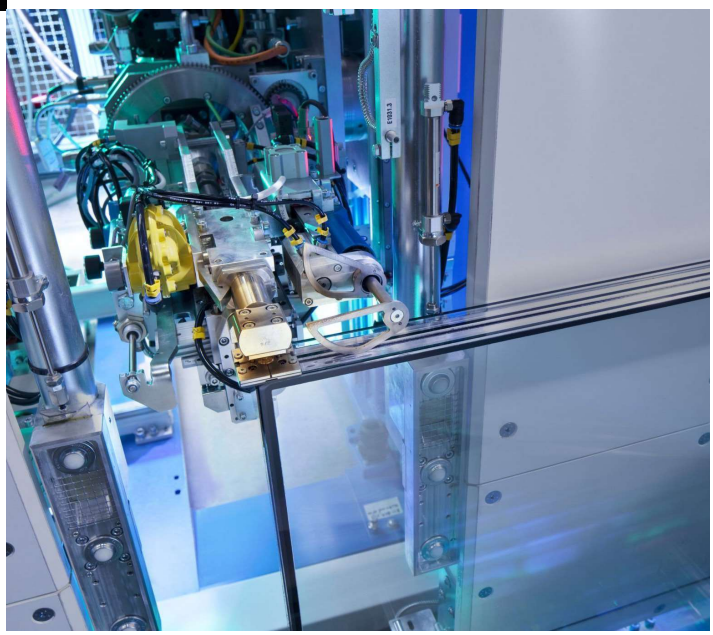
Our staff comprises the most knowledgeable teams in the architectural facade and interior design sector.
Each specialist will provide recommendations and plans, continuously adapting to required changes while maintaining innovation.

Products //

AT Facade provides crystal clear solutions to architectural glass challenges

At facade-
Absolute Advantage

- AT FACADE REDEFINE THE BOUNDARIES OF ARCHITECTURAL GLASS
- Size:FROM 60MM*60MM TO 3,660MM*18,000MM



At facade-
Absolute Advantage

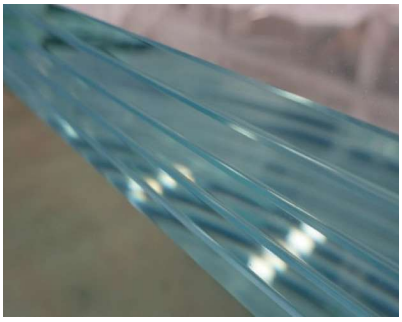
- AT FACADE SPECIALIZE IN ARCHITECTURAL GLASS.
- GLASS PRODUCTION AND DEEP PROCESSING.

- The height of the glass is 15.3 meters,
- The width is 2.5 meters,
- The area is 37.625 square meters,
- The total weight of a single piece is 11.5 tons
- The Glass Make-up: 19mm low-iron tempered glass(hst)*4+3.04 sgp*3+18a+15mm low-iron tempered glass(hst)*3+3.04 sgp*2
- In addition, the overlap difference after the interlayer cut is controlled within 1mm
- The color difference Delta E is controlled within 2.5

AT FACADE REDEFINE THE QUALITY OF ARCHITECTURAL GLASS.

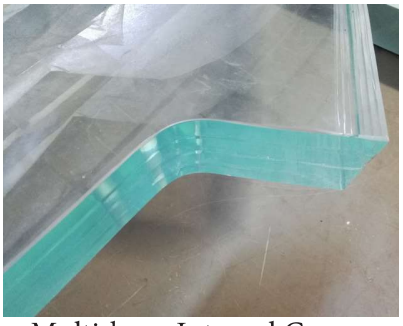
FROM DEEP PROCESSING TO FINE PROCESSING

The demanding requirements for every detail continuously improve not only its own processing capabilities, but also product quality and customer satisfaction.



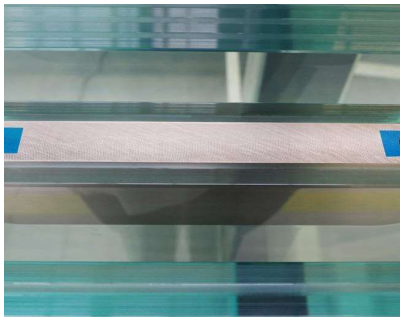
Polish All Side

Precision grinding and polishing of the four sides is the only standard we deliver.



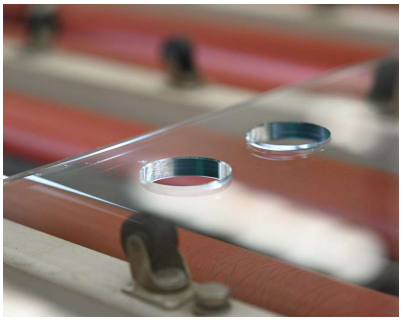
Multi-layer Internal Corner Polishing

The glass fin glass handrails, and other non-shielded parts are finely polished to meet the high-quality hardcover effect



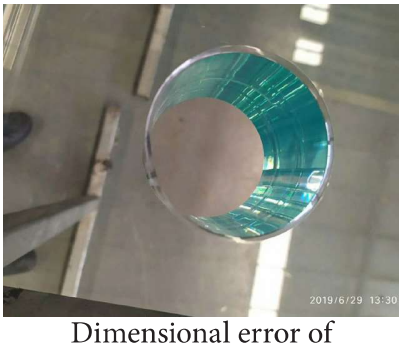
Hardware Embedded

The hardware is connected with the glass through SGP, which provides an excellent solution for the design



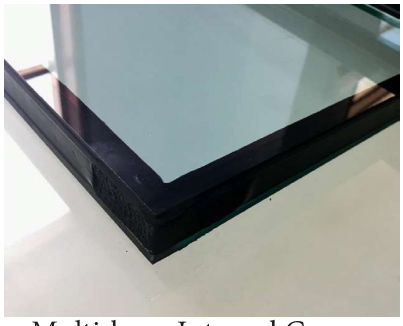
Single-layer Hole Polishing

Polishing is not only for aesthetics, but also for the stability of tempered glass



Dimensional error of multi-layer holes

Strictly control the overlap difference to ensure the application function of the product, and provide a reliable guarantee for the safety of the system

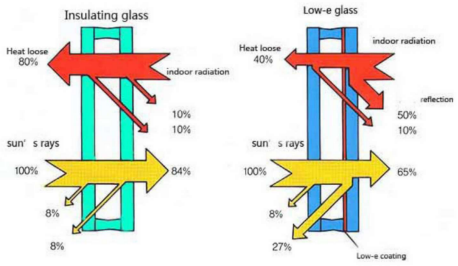


Multi-layer Internal Corner Polishing

Our insulating glass can be used safely for 25 years or more, and you can feel it through our perfect glue seal

Product

REDEFINE THE LOW-E GLASS //



- (MIN-U VALUE W/M^2.^{0}C>=0.76)
- (SIZE:300MM*300MM TO 3300MM*18000MM)

AT FACADE HIGH PERFORMANCE LOW-E GLASS

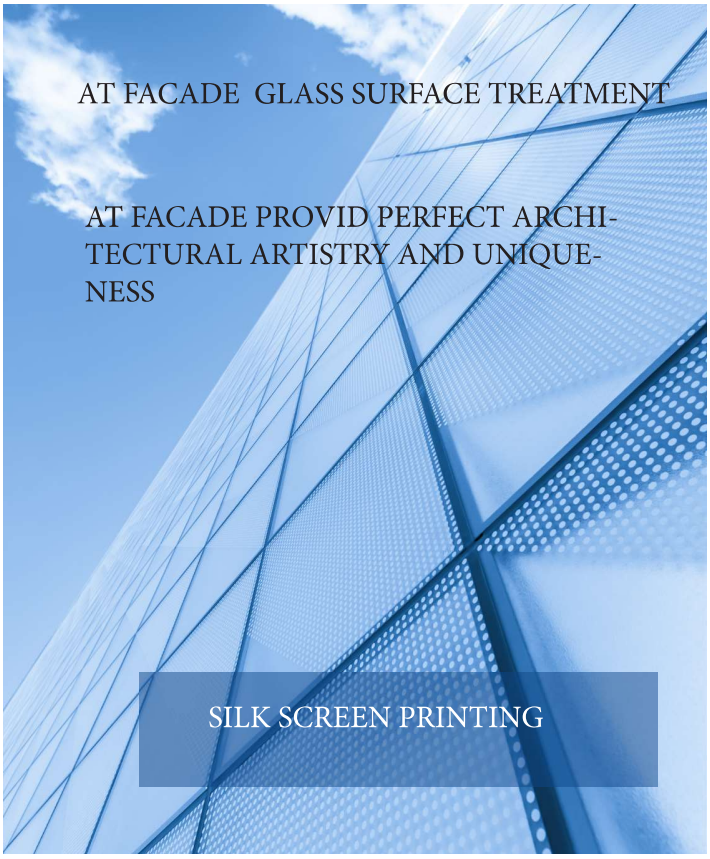
Based on the strict quality requirements, we only use the float glass of China Southern Glass Group and the ultra-white low iron glass with PPG technology of Jinjing group as the raw materials for glass production and processing.

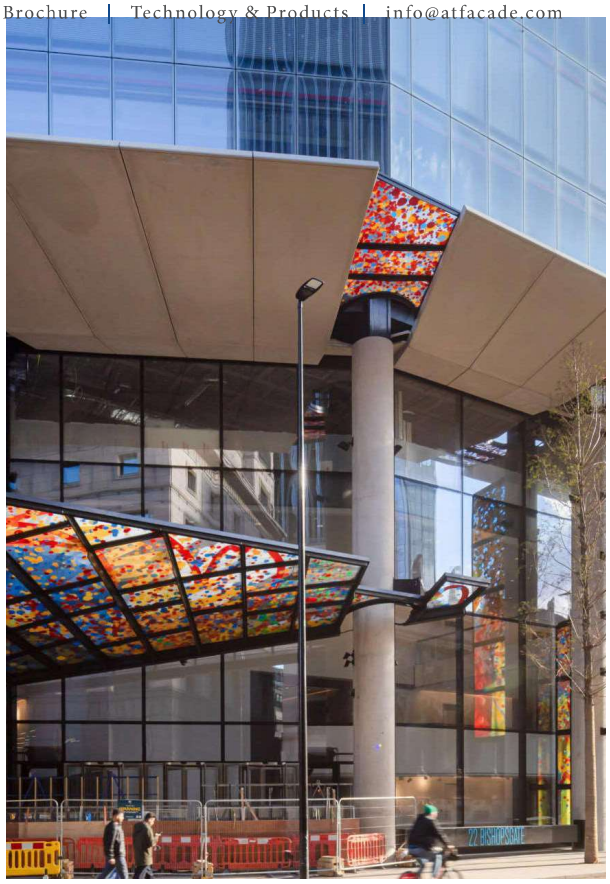
At the same time, we have kept active technical research and development communication with material cooperation units and have developed high-performance Low-E for customers.

The glass satisfies the perfect balance of optics and thermal engineering, and the harmony of the whole architectural color.

Our hard Low-E glass are made of a single piece, with stable and reliable performance; the soft Low-E U values range from 0.78 to 1.78.

Please consult our engineers directly for any technical queries.


AT FACADE GLASS SURFACE TREATMENT
AT FACADE PROVID PERFECT ARCHI-TECTURAL ARTISTRY AND UNIQUE-NESS
SILK SCREEN PRINTING




ACID/FROSTIING Glass Staires or Floor

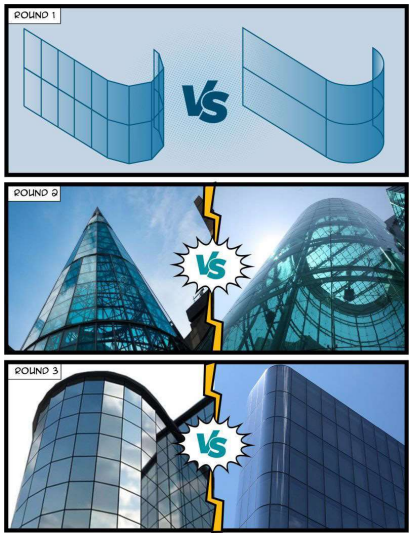

DIGITAL PRINTING

Product

AT FACADE REDEFINE THE TEMPERED GLASS //

SUPER LARGE SIZE TEMPERED GLASS

MULTI-CURVED TEMPERED GLASS SURFACE



AT FACADE DESIGN VALUE OF TEMPERED GLASS STREMGTH

Design value of glass strength(fg)

ITEM	Thickness(MM)	Facade/N·MM^{-2}	Side Facede/N·MM^{-2}
Float Glass	4-10	28.00	19.50
	12-19	24.00	17.00
	>=20	20.00	14.00
Tempered Glass	4-10	84.00	58.80
	12-19	72.00	50.40
	>=20	59.00	41.30

Note:

1.The strength design value of laminated glass and insulating glass can be determined according to the type of glass used;

2.When the strength standard value of tempered glass does not reach three times the strength standard value of float glass, the values in the table should be adjusted according to the actual measurement results.

3.The strength design value of the semi-tempered glass can be twice that of the float glass. When the strength standard value of the semi-tempered glass does not reach twice the strength standard value of the float glass, the design value should be adjusted according to the actual measurement results.

4.The side facade refers to the section of the glass after cutting, and its width is the thickness of the glass

Product

SUPER LARGE SIZE FLAT TEMPERED GLASS // (3660MM X 18000MM)

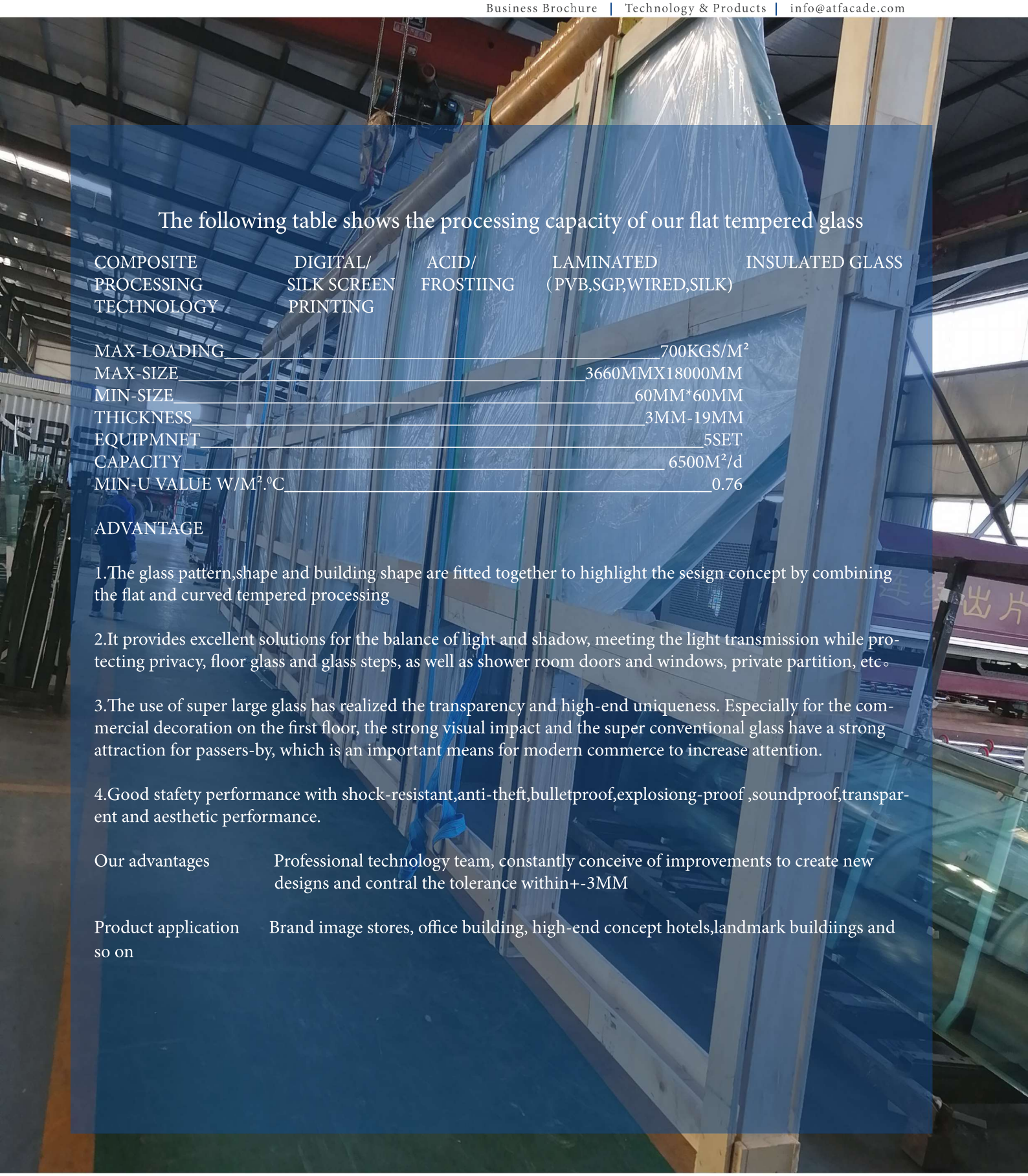
Flat tempered glass

it is catually a kind of pre-stressed glass, in order to increase the strenght of the glass, usually the method of tempered glass processing is to change the glass arc according to the requirements, and at the same time form a compressiver stress on the glass surface, when the glass is subjected to external forces, the surface stress is first offset,thus increasing the carrying capacity and enhancing the glass's own wind pressure, cold and heat resistance,impact and so on. Super large size flat tempered glass Maxinizes the machining dimensions on the basis of normal-size flat and curved tempered glass, and its performance remains unchanged

Warpage tolerance of the flat tempered glass

Glass thickness(T)	Arched		Wave
	The length of the glass(L)		
	L=<2,000 MM	L>=2,000 MM	
T=<6MM	0.40%	0.50%	0.30%
T=8MM,10MM,12MM	0.30%	0.30%	0.30%
T=15MM,19MM	0.30%	0.30%	0.30%

Note: In the case of matching door glass or direct butt installation between glass and glass, the uniformity deviation of warpage is less than or equal to 3.0MM, (after tempering, the matching mark must be made and the customer is required to install according to the matching glass); single-piece door glass warps Please refer to the above table for the degree requirements.



The following table shows the processing capacity of our flat tempered glass

COMPOSITE PROCESSING TECHNOLOGY	DIGITAL/ SILK SCREEN PRINTING	ACID/ FROSTIING	LAMINATED (PVB,SGP,WIRED,SILK)	INSULATED GLASS

MAX-LOADING	700KGS/M²
MAX-SIZE	3660MMX18000MM
MIN-SIZE	60MM*60MM
THICKNESS	3MM-19MM
EQUIPMNET	5SET
CAPACITY	6500M²/d
MIN-U VALUE W/M².⁰C	0.76

ADVANTAGE

1.The glass pattern,shape and building shape are fitted together to highlight the sesign concept by combining the flat and curved tempered processing

2.It provides excellent solutions for the balance of light and shadow, meeting the light transmission while protecting privacy, floor glass and glass steps, as well as shower room doors and windows, private partition, etc。

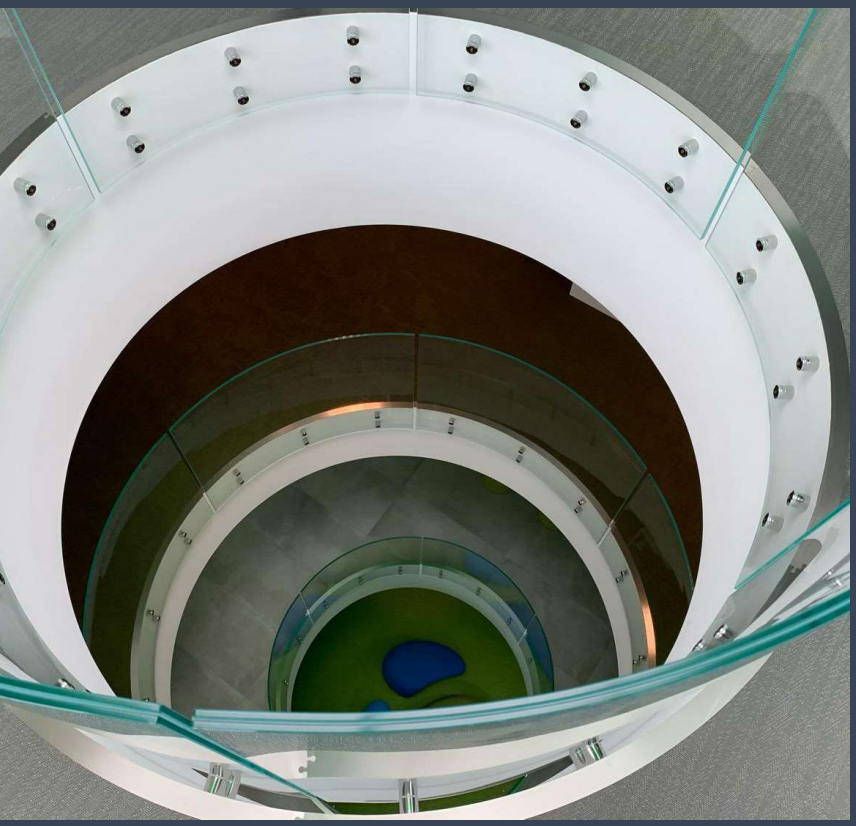
3.The use of super large glass has realized the transparency and high-end uniqueness. Especially for the commercial decoration on the first floor, the strong visual impact and the super conventional glass have a strong attraction for passers-by, which is an important means for modern commerce to increase attention.

4.Good stafety performance with shock-resistant,anti-theft,bulletproof,explosiong-proof ,soundproof,transparent and aesthetic performance.

Our advantages	Professional technology team, constantly conceive of improvements to create new designs and contral the tolerance within+-3MM
Product application	Brand image stores, office building, high-end concept hotels,landmark buildiings and so on

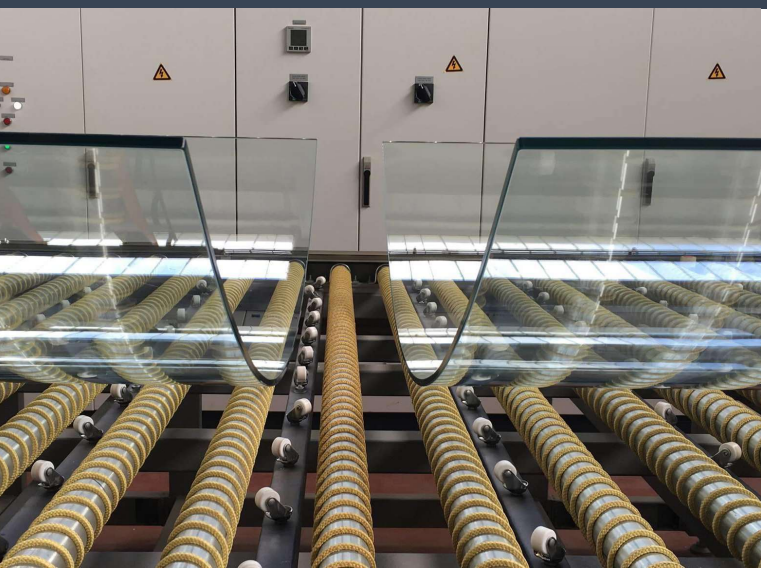
Product

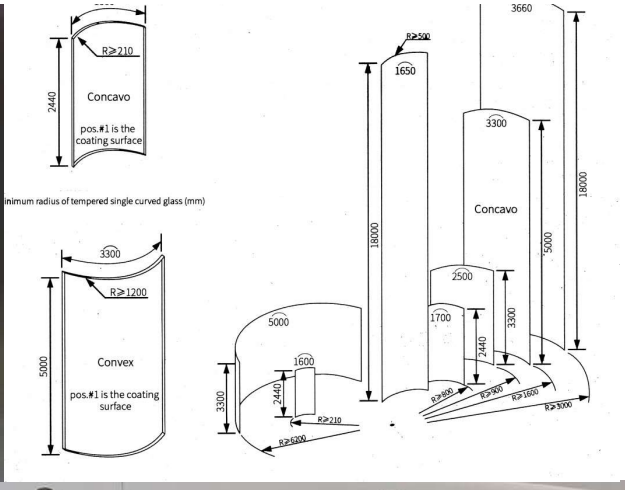
S-CURVED TEMPERED GLASS //



S-CURVED TEMPERED GLASS

Single curved glass is also a kind of prestressed glass, the usual method of tempering is changing the curved radians of the front and back on the basis of the same direction of the glass according to the requirements, thus to better fit the requirements of the design for aesthetic functionality.





The following table shows the processing capacity of our s-curved tempered glass

COMPOSITE PROCESSING TECHNOLOGY	DIGITAL/ SILK SCREEN PRINTING	ACID/ FROSTIING	LAMINATED (PVB,SGP,WIRED,SILK)	INSULATED GLASS

MAX-LOADING	700KGS/M²
MAX-SIZE	3660MMX18000MM
MIN-SIZE	60MM*60MM
THICKNESS	3MM-19MM
EQUIPMNET	5SET
CAPACITY	1000M²/d
MIN-U VALUE W/M².⁰C	0.76

ADVANTAGE

1.The glass pattern,shape and building shape are fitted together to highlight the sesign concept by combining the flat and curved tempered processing

2.It provides excellent solutions for the balance of light and shadow, meeting the light transmission while protecting privacy, floor glass and glass steps, as well as shower room doors and windows, private partition, etc。

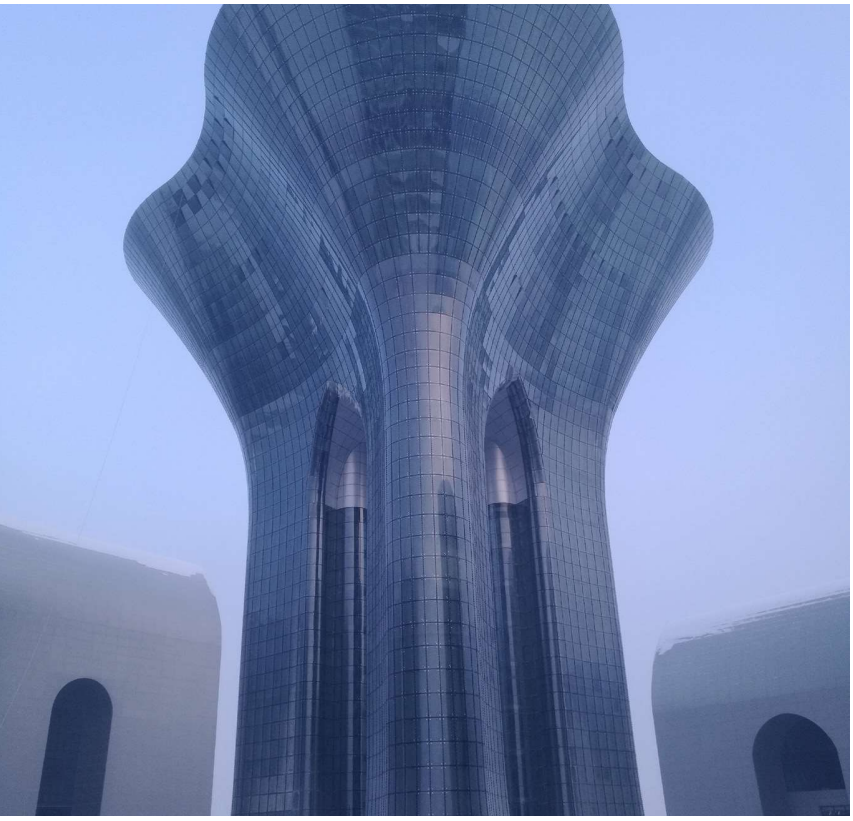
3.The use of super large glass has realized the transparency and high-end uniqueness. Especially for the commercial decoration on the first floor, the strong visual impact and the super conventional glass have a strong attraction for passers-by, which is an important means for modern commerce to increase attention.

4.Good stafety performance with shock-resistant,anti-theft,bulletproof,explosiong-proof ,soundproof,transparent and aesthetic performance.

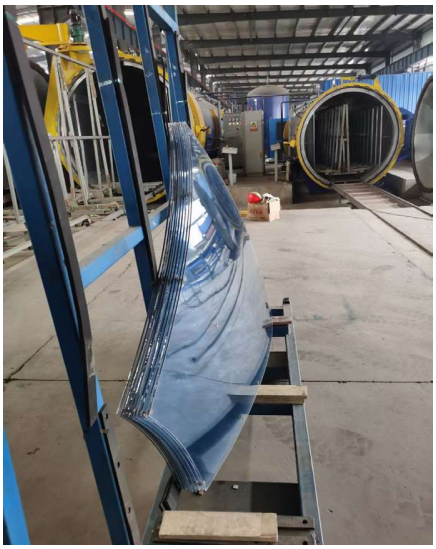
Our advantages	Professional technology team, constantly conceive of improvements to create new designs and contral the tolerance within+-3MM
Product application	Brand image stores, office building, high-end concept hotels,landmark buildiings and so on

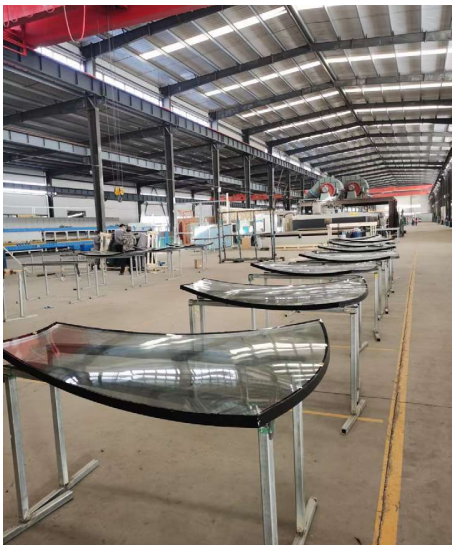
Product

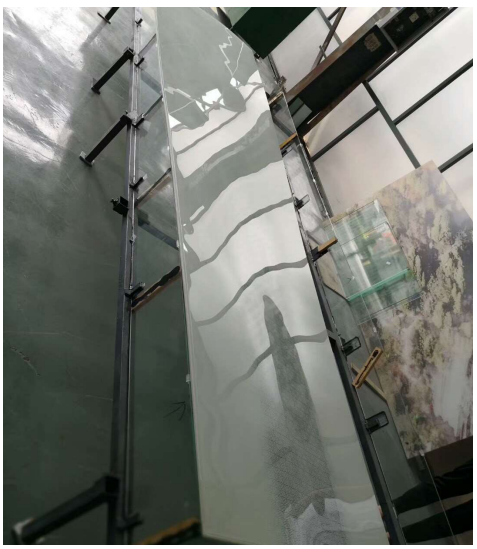
MULTI-CURVED TEMPERED GLASS //

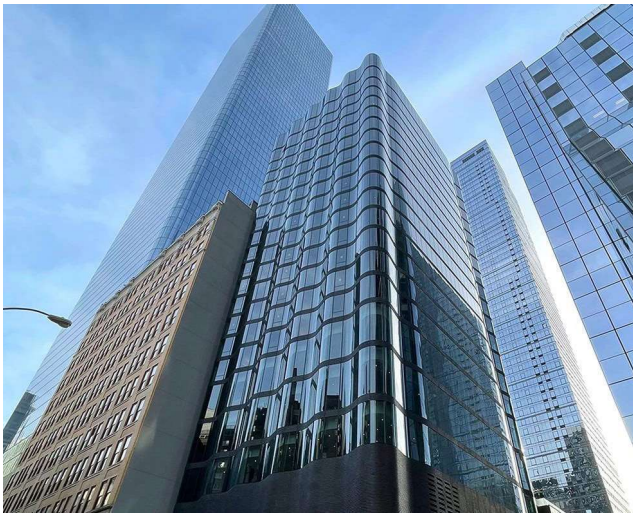


We redefine tempered glass. Through our continuous exploration and thorough understanding of the process, we have subverted the traditional concepts of plane tempering and single radius tempering and established a mature production process plan. With the improvement of streamline, smoothness and aesthetics of modern buildings, we respond positively. Every team member, from management to the technical research and development team to the production workshop, is full of enthusiasm and welcomes new challenges, We can provide extended products such as multi curved tempered glass and back laminated insulating glass for projects. Our products have been successfully applied to landmark buildings all over the world, and we have received good feedback from our clients and society. It has reached the industry leading level inproduct structure safety, smoothness of glass plate connection, and product material properties.



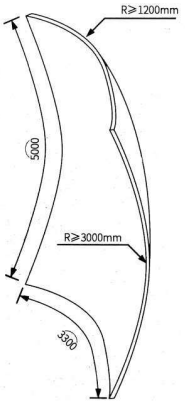






Double S and multi-curved tempered

Project Application Case--Suzhou Center



Max.dimensions of multi -curved tempered glass(mm)

The following table shows the processing capacity of our multi-curved tempered glass

COMPOSITE PROCESSING TECHNOLOGY	DIGITAL/ SILK SCREEN PRINTING	ACID/ FROSTIING	LAMINATED (PVB,SGP,WIRED,SILK)	INSULATED GLASS

MAX-LOADING	700KGS/M²
MAX-SIZE	3660MMX18000MM
MIN-SIZE	60MM*60MM
THICKNESS	3MM-19MM
EQUIPMNET	5SET
CAPACITY	500M²/d
MIN-U VALUE W/M².⁰C	0.76

ADVANTAGE

1.It can better match glass patterns shapes and acrchitectural shapes to highlight the designer's concept.Single curved tempered glass is more suitables for using at corners and has the advantages of intergrity and transparence.

2.The fit and shape of the glass complemnt the building

3.Good stafety performance with shock-resistant,anti-theft,bulletproof,explosiong-proof ,soundproof,transparent and aesthetic performance.

Our advantages Professional technology team, constantly conceive of improvements to create new designs and contral the tolerance within+-3MM

Product application Brand image stores, office building, high-end concept hotels,landmark buildiings and so on

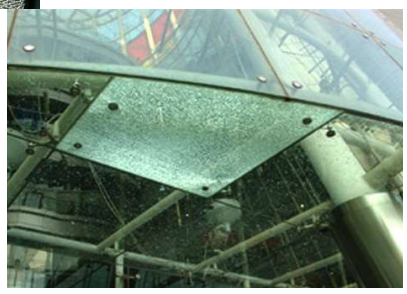
Product

TEMPERED GLASS // (Self Explosion)

- ☑ Clear Float Tempered Glass Self Explosion (0.3%)
- ☑ Low-Iron Tempered Glass Self Explosion (0.01%)

Reason

Nickel sulfide inclusions usually exist in small spheroids, with diameters between 0.1 and 2. The appearance is metallic. These miscellaneous inclusions are Ni3S2, Ni7S6 and Ni - XS, of which X=0 - 0. 07. Only Ni1 - XS phase is the main reason for the Self Explosion of tempered glass.



Solution

AT FACADE

TEMPERED GLASS-Heat Soaked Test(HST)

(STANDARD :EN14179-2005)

MAX SIZE:3660MM*20,000MM

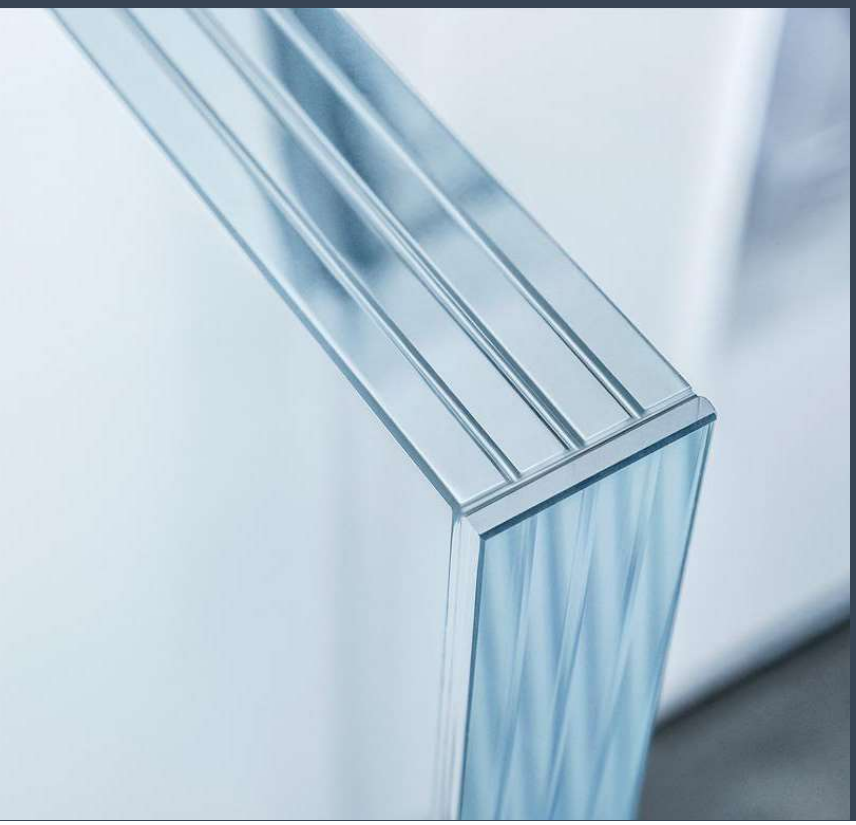
Scientific,Stable Reliable

This is a strict requirement for product quality as well as a control of project risks.

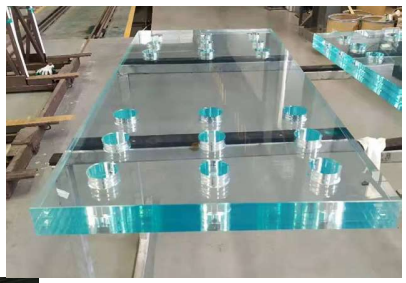
We adhere to strict project risk management and control regulations, and Heat Soaked Test all tempered glass, especially structural glass and super large panel glass.

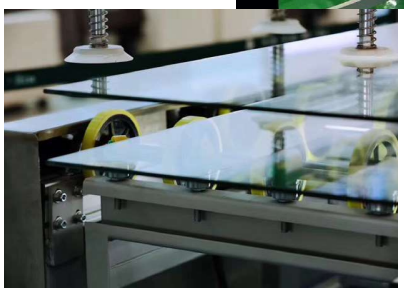
Product

LAMINATED GLASS//



Laminated glass is made up of two or more pieces of glass, and there are one or more organic polymer intermediate interlayers between them, then processed by high temperature pre-pressure (or vacuum) and high pressure in high temperature processing, the glass and intermediate are permanently bonded into one composite glass product. the interlayer is usually PVB,SGP EVA,CF NET,VPA BOARD and so on.





PVB FILM SELECTION SPECIFICATION			
Glass Type	Raw Glass Thickness(MM)	PVB Film Thickness(MM)	
		Short Side<=800MM	Short Side>800MM
Raw Laminated Glass	<=6MM	0.38	0.38
	8MM	0.38	0.76
	10MM	0.76	0.76
	12MM	1.14	1.14
	15/19MM	1.52	1.52

Glass Type	Raw Glass Thickness(MM)	PVB Film Thickness(MM)		
		Short Side<=800MM	800MM<Short Side>1500MM	Short Side>1500MM
Flat Tempered Laminated Glass	<=6MM	0.76	1.14	1.52
	8MM-12MM	1.14	1.52	1.52
	>=15MM	1.52	2.28	2.28

Glass Type	Raw Glass Thickness(MM)	PVB Film Thickness(MM)	
		R>3M	R<=3MM
Curved Tempered Laminated Glass	<=8MM	2.28	3.04
	>=10MM	3.04	3.04
Hot Bending Laminated Glass	<=6MM	0.76	1.14-1.52
	>=8MM	1.14	1.52

Product performance table

Material / Performance	UNIT	SGP	PVB	EVA	Standard
Proportion	G/CM³	0.95	1.07-1.08	1.05	ASTM D-792
Coefficient of linear expansion	℃$^{-1}$	10-15X10^{-5}	4X10^{-4}	2X10^{-3}	ASTM D-696
Tensile strength	MPa	34.5	20	12	ASTM D-638
Tear strength	MJ/M³	50	10^{-15}	5^{-8}	ASTM D-638
Bonding strength with glass	MPa	>20.7			DU PONT
Elongation	%	400	275(ASTM D-412)	200	ASTM D-638
Thermal deformation stability	66PSI	43℃			ASTM D-696
Fog degree		<<2%	<2%	<2.5%	
Yellow index	%	<2.5	10-15	<10%	INTERLAYER
Refractive index		1.5	1.47-1.5		
Blocking the band of UV	NM	310	380		
UV barrier rate(3C+0.38+3C)	%	99.98	99.98	98	
Adhesion to glass	KG/CM		500MM/MIN,20 ℃		

Advantages

1. Anti-theft: Because breaking through laminated glass takes a long time and has a lot of noise, it has a strong inhibitory effect on malicious destruction, theft and violent invasion.
2. Safety: The fragments of laminated glass remain in situ when or after rupture, playing a safe role.
3. Noise reduction: PVB film can block the sound wave, so that laminated glass can effectively block the transmission of sound, reduce noise.
4. Control of sunlight characteristics: laminated glass (especially colored laminated glass) can weaken the transmission of sunlight, thereby reducing refrigeration energy consumption, while reducing the glare of the sun without causing color distortion.
5. Anti-ultraviolet characteristics: laminated glass on ultraviolet radiation has a very high isolation effect (more than 95%), help to avoid indoor valuable furniture, curtains, exhibits or other items affected by ultraviolet radiation.
6. Water pressure resistance: Sandwich glass not only has a certain strength, but also has good water resistance when it is sealed with compatible glass sealant.

Our advantages:Stable and reliable product quality, excellent edge and hole stack control, super large size (3660mm * 18000mm)

More info about the laminated please check our glass center web:https://www.ssmglass.com

Product

STRUCTURAL LAMINATED GLASS //

(Tempered Glass+ SGP+ Hardware Embedded)

Structural glass is a kind of non-framed two or more layers tempered glass that is bonded to SGP structural film and combined with a variety of internal or external support to make the glass extremely resistant to pressure,bending and impact strength.

Super high Structural Laminated glass

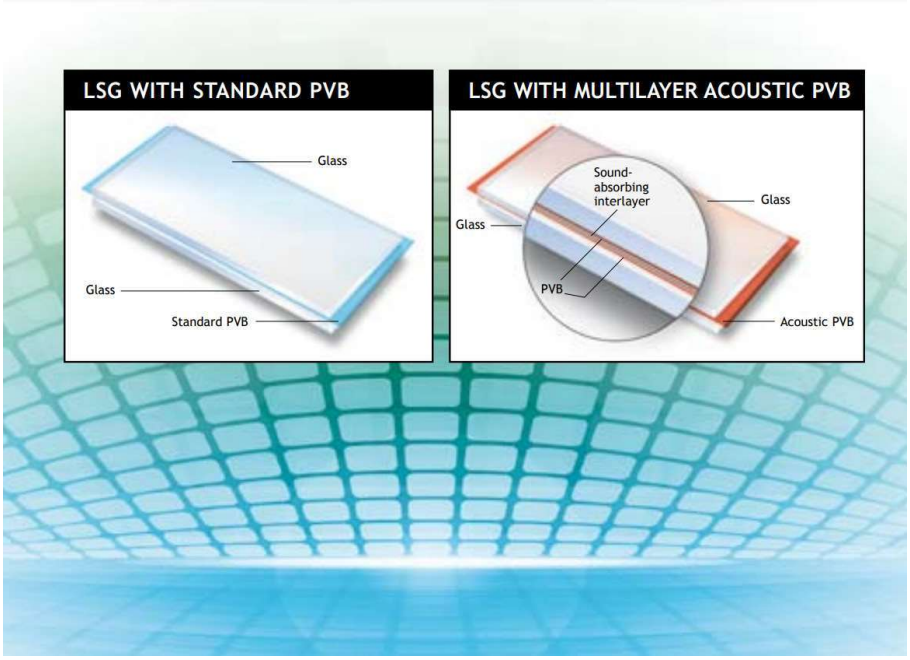
Because of its excellent mechanical properties, SGP structural laminated glass can be used as a glass rib to support the glass panel to realize the permeability of the curtain wall. It can also be used as a glass staircase to provide a more characteristic scheme for indoor and outdoor decoration. The super high glass rib provided by our company can achieve the best visual effect of curtain wall facade. The super large tempered glass and structural laminated glass have realized the production of all glass stairs, and the two sets of all glass stairs provided by our company for New York Hotels in the United States have been highly recognized by customers. It realizes the simplicity and fluency of the building curtain wall, reflects the high-quality decoration style, and the details are of extreme excellence.

Product

ACOUSTIC LAMINATED GLASS//

In modern society, motorway , air and railway transportations rapid developments have caused exponential noise increases.

Studies have shown that noise can cause various diseases. People who are constantly exposed to harmful, persistent noise hazards suffer from stress, insomnia, inattention, and cardiovascular disease. Resolving these problems requires urban planners and architects to work together.



We work closely together with TROSIFOL to reduce noise in laminated glass.

With the development of TROSIFOL® SOUND CONTROL (TROSIFOL® SC), a special PVB acoustic film, TROSIFOL® made a breakthrough in high-grade acoustic glazing.

This monolayer film product used in multiple insulating glass combines outstanding sound protection properties with all the advantages of a conventional TROSIFOL® PVB film.

Even in monolithic laminated safety glass, TROSIFOL® SC reveals its exceptional sound protection performance. Compared to float glass of the same thickness, an improvement of 5 dB in the sound insulation value is achieved in this example with TROSIFOL® SC. TROSIFOL® SC complies with the requirements of the" Technical rules for fall prevention glazing" as well as the "Technical rules for linearly mounted glazing" of the German Institute of Construction Engineering (National German approval No. Z-70.3-89).

The product thus satisfies all the requirements of conventional laminated safety glass – even for overhead use and in glazing that prevents falls

Product

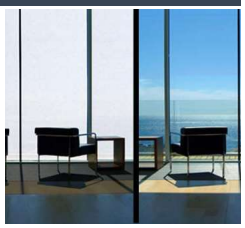
PDLC LAMINATED GLASS (SMART GLASS)//

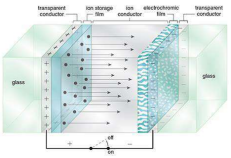
Smart PDLC glass is the same with the self-adhesive film, more safety, it can manage transparency instantly in response to user demand for seclusion, privacy or confidentiality without compromising light transmission. User just turns the Smart Film "on" for transparent glass and "off" for opaque glass within one second by a power switch. Smart PDLC glass structure :glass+smart pdlc film+glass, they are used for window, hotel and so on.

It can be used to Car, House Window, Building Skylight, Meeting Room, Office, Hospital ,Bank, Bathroom,Projector Film

SWITCHABLE PDLC FILM AND GLASS SPECIFICATION

PRODUCT DESCRIPTION		NON-ADHESIVE SWITCHABLE		SELF-ADHESIVE SWITCHABLE		SWITCHABLE PDLC GLASS		ULTRA CLEAR PDLC FILM
OPERATION MODEL	POWER ON	TRANSPARENT						
	POWER OFF	OPAQUE						
	AVALIABLE COLOR	MILKY	DARK	MILKY	DARK	MILKY	DARK	MILKY WHITE
SPECIFICATION	MAXMIUM SIZE	1.8M*30M		1.5M*30M		1.8M*3.5M		1.8M*30M
	THICKNESS	0.36MM		0.36MM		4+4,5+5,6+6,8+8,		0.36MM
	TRANSMITTANCE(POWER	78%	71%	78%	71%	78%	71%	79%
	TRANSMITTANCE(POWER	4%	4%	4%	4%	4%	4%	4%
	HAZE (ON MODEL)	5%	5%	5%	5%	5%	5%	3%
	VIEW ANGLE	ABOUT 145°C						ABOUT 165°C
	SWITCH TIME	LESS THAN 1 SECOND (OFF>ON:ABOUT 200 MILLISECONDS/ON>OFF ABOUT 600 MILLISECONDS)						
	LIFE TIME	MORE THAN 100000 H (20 YEARS)						
ELECTRICAL	OPERATING TEMERATURE	TEMPERATURE:-20 °C TO 60°C						
	OPERATING VOLTAGE	AC 65+-5 V						
	FRENQUENCY RATE	50-60HZ						
	POWER CONSUMPTION	ABOUT 3.7W/SQ.M						
GREEN MATERIAL FUNCTION	UV BLOCK	ON MODEL>83% OFF MODEL>99%						
	INFRARED BLOCCK	ON MODEL>20% OFF MODEL>90%						
	DIMMER FUNCTION	YES						
	PROJECTION SCREEN	YES						

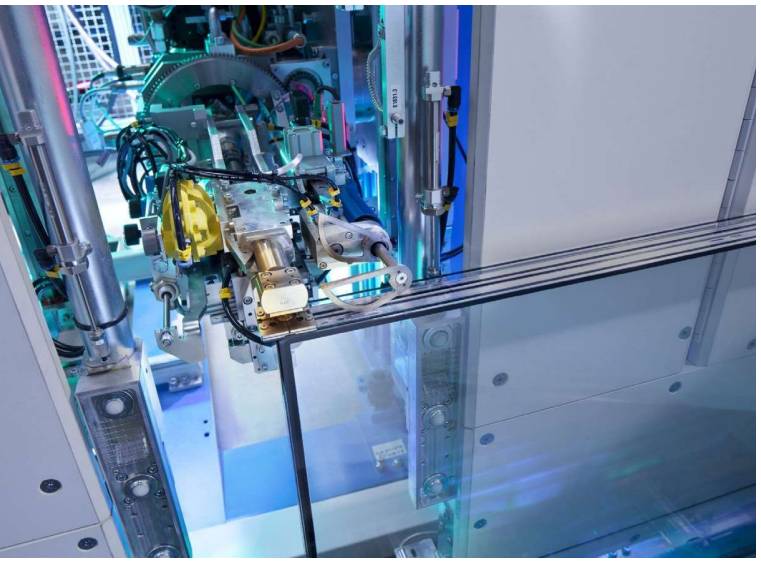


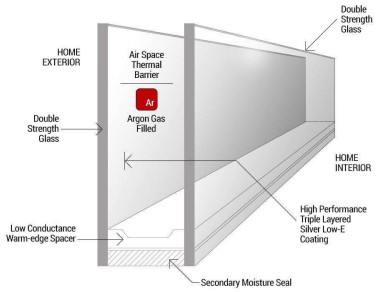


Product

DOUBLE GLASS-IGU//

ınsulating glass is made of two or more layers of flat glass. High-strength and high-air-tightness compound binder is used to bond and seal two or more pieces of glass with sealing strip and glass strip. The dry gas is filled in the middle, ??to ensure the air-drying degree between the glass sheets. The original glass sheets with different properties can be selected according to the requirements, such as colorless transparent float glass embossed glass, heat absorbing glass, heat reflecting glass, filament glass, toughened glass and frame (aluminum frame or glass strip, etc.), which are bonded or welded.





Make-UP

1. Glass

According to the design requirements, combined with our product technical indicators selection

2. Spacer

spacer:6mm,8mm,9mm,10mm,12mm,16mm,18mm,24mm, other as custom design,alum spacer or warm spacer

3. Spacer air

spacer air : air,argon , vacuum

4.Thermotechnical and optics performance date

Testing software:by softwarer wiindow 7.7 (nfr(100-2010))by lawrence berkeley laboratory,usa,except for the labeling criteria. (Our technical engineers will choose the best solution for you according to the needs of the project)

IGU embedded breathing tube structure

Having a breathing tube embedded in a hollow glass structure. Including inner glass, outer glass, and structural sealant layer, the breathing tube is embedded in the structural sealant layer, connecting sleeves are installed at the two ends of the breathing tube, and the middle partition of the connecting sleeve. The two ends are not connected to each other. One end of the connecting sleeve is provided with an inner nozzle communicating with the corresponding end of the breathing tube, and the other end of the connecting sleeve is provided with an outer nozzle communicating with the corresponding end of the breathing tube. The hose is connected and led to the dry space inside the doors and windows where the insulating glass is installed; the hollow glass cavity inside the breathing tube is also provided with a packaging drying partition, and the inner surface of the packaging drying partition is provided with a breathing communicating with the hollow glass cavity Hole; the inner nozzle of the breathing tube is inserted into the inside of the packaged drying spacer to make the inner cavity of the hollow glass communicate with the outside.

Product

U CHANNEL GLASS//

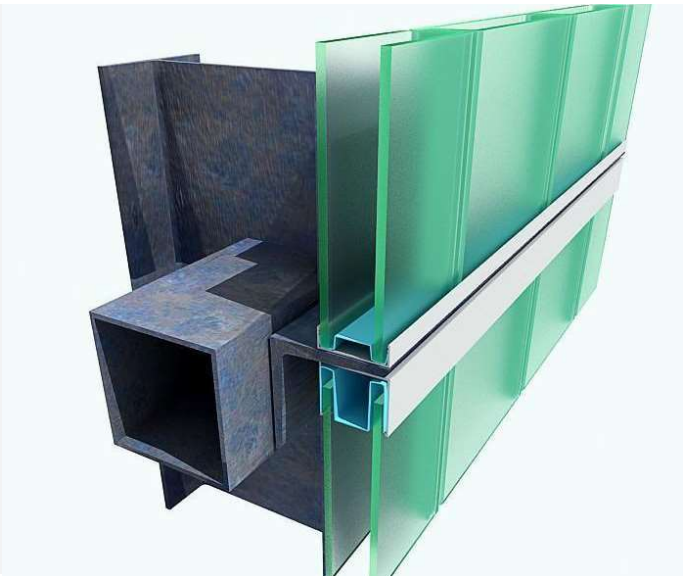
As an excellent glass curtain wall solution, the use of this glass reflects the softness of the building's outdoor light radiation and realizes the facade level sense. At the same time, it reflects the indoor light diffuse reflection effect, which is soft and elegant

U Channel Glass Size:

H: 60MM

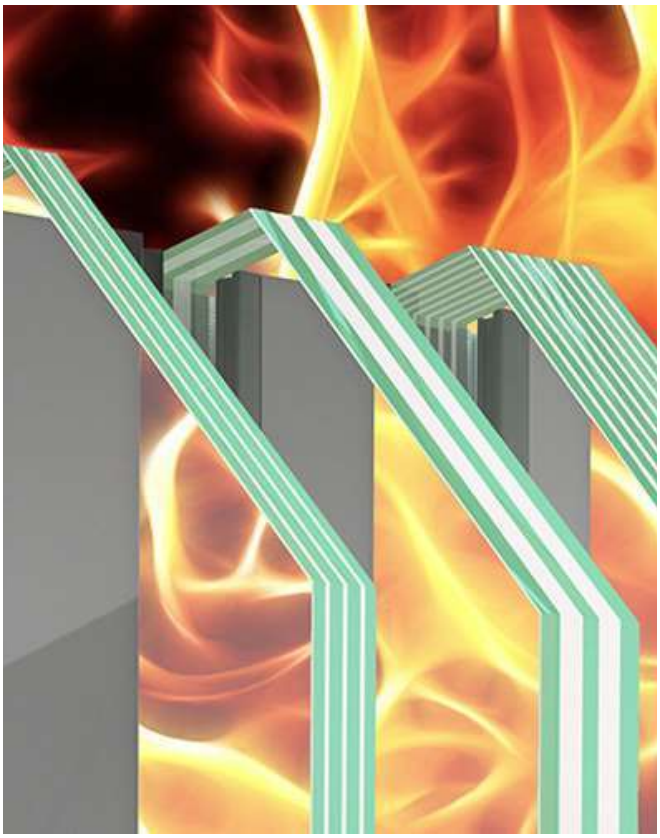
W: 230 MM,260 MM,330 MM

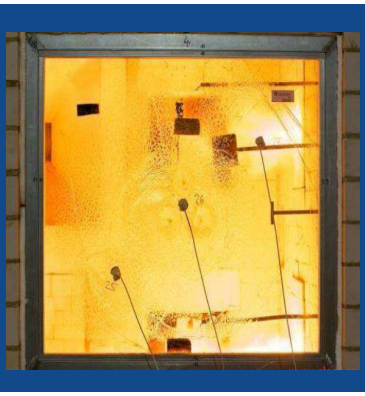
L: =<8000 MM



AT FACADE FIREPROOF GLASS

Monolithic cesium potassium fire-proof glass, undergoes special chemical treatment at high temperature for more than 20 hours of ion exchange, replaced the surface of the glass sodium, forming a surface chemical toughening stress. Through physical treatment, the glass surface formed a high-strength compressive stress, greatly improved the strength, when the glass broke into small particles. The strength of single cesium potassium fire-proof glass is 6-12 times that of ordinary glass and 1.5-3 times that of tempered glass.






AT FACADE
SOLUTION

- Commercial Glass Door System
- Window and Door Systems
- Curtain Wall Systems
- BIPV(Building Integrated Photovoltaic)Systems
- Glass Canopy Systems
- Glass Stairs Systems
- Glass Balustrade Systems
- Shower Room Systems

Solution

Commercial glass door systems//

Based on our professional glass production and processing capabilities, system integration of hardware, steel structure and intelligent lock control system, we provide customers with professi

onal overall design, productionand pre-installation according to specific project needs to ensure good performance in installation and use after delivery.

Solution

Window and Door Systems//

AT Facade's high-end Windows and Door System are dedicated to serving high-end commercial, residential and private buildings.

We have excellent heat and sound insulation, air and watertight properties, and wind pressure resistance, which meet international/German/European industry standards.

AT Facade also has a complete range of anti-theft, fireproof, and bulletproof product series. We can provide customers with all types of aluminum profiles, accessories, backups, production equipment, design software, and technical services to meet the needs of high-tech doors, windows, and curtain wall systems. AT Facade provides tailor-made services, such as public and civil construction projects with strict requirements on energy consumption, quality, and technology.

Unbreakable Protection, Unbeatable Quality.

Our company's windows and door system applies state-of-the-art technology to focus on the harmony between humans and nature.

We strive to provide sustainable solutions in buildings and to benefit future generations through reduced carbon emissions.

AT Facade combines high-quality creations with skillful craftsmanship and practice in design, manufacturing, installation, product protection, management, system and supply.

AT Facade has become the leader of the windows and door system industry. With state-of-the-art technology, energy conservation and environment protection casting, extrusion, anodizing, electrophoresis, powder coating, wooden grain transfer, and thermal break bridge system product lines that help us meet customers' needs and expectations.

Solution
At Facade Curtain wall

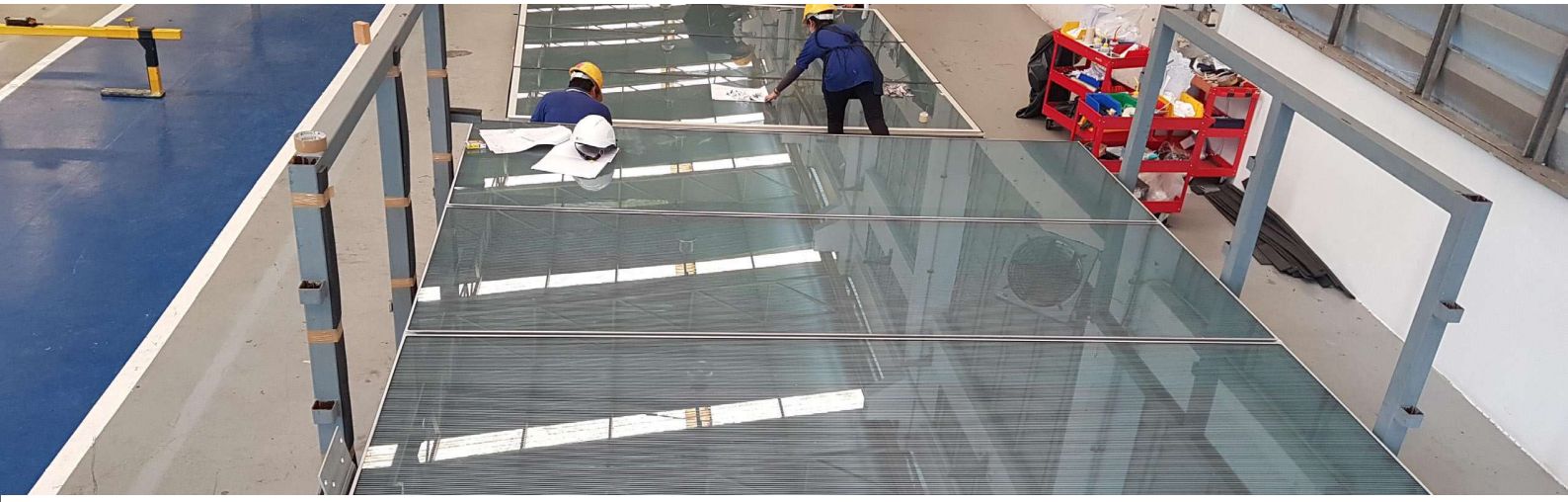
Curtain wall is an exact combination of engineering and aesthetics, of architectural technology and art. AT Facade believes that a curtain wall is a testament to an era and a product of architectural culture. It is the crystallization of wisdom from different regions, nations, societies, and visions.

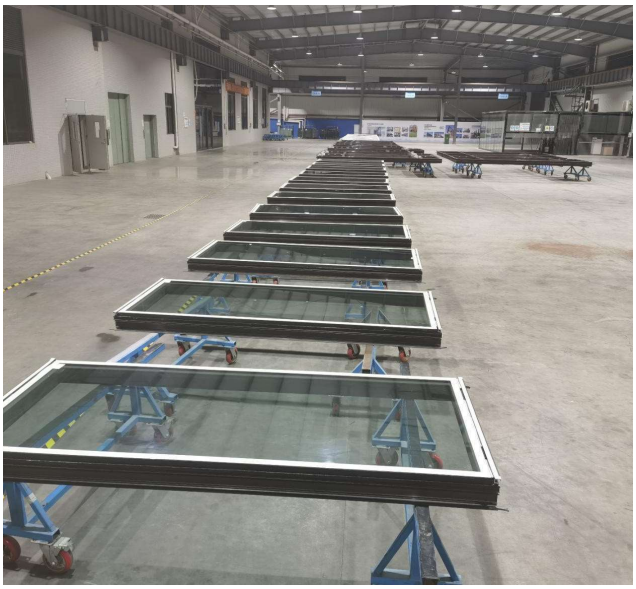
AT Facade curtain wall is based on the principles of “truthfulness, goodness, and beauty.” It conforms to the five guiding principles of material diversification, structural compounding, energy-saving, prefabrication, and design integration -All in the general direction of sustainable development. We aspire our projects to be long lasting landmarks and sources of the modern development of culture and wealth in their own rights.

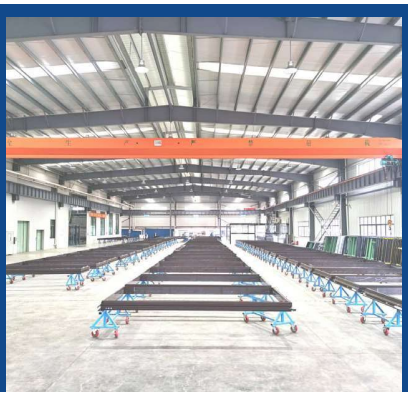
Solution

At Facade Unitized Curtain Wall//

1. The unit parts are processed in the factory, and glass, aluminum plates or other materials can be assembled on a unit part in the processing factory, which promotes the degree of industrialization of the building.
2. Because the unit parts are assembled as a whole in the processing factory, it is easy to check in the factory, which helps to ensure the overall quality of diversification and the engineering quality of the curtain wall.
3. The unitized curtain wall can be installed from the bottom of the floor to the top of the floor and can be constructed simultaneously with the civil works, which greatly shortens the engineering period.
4. All works of unitized curtain wall can be completed on the floor, tall scaffolding and gondolas can be spared during installation.
5. The design of the interface structure for the installation and connection of curtain wall unit parts can absorb interlayer displacement and unit deformation, and can usually withstand large building movements, which is particularly advantageous for high-rise buildings and steel structure buildings.
6. The unit curtain wall can be designed to achieve and maintain a double-layer sealing system.
7. After the installation of the unit curtain wall, since the unit parts and the unit parts are connected in a pin shape, silicone sealant can be injected (some of them can also be injected, depending on the installation method)
8. The joints of the unit curtain wall frame parts are arranged closely in a straight line, which are easy to form an excellent external wall image.







Solution

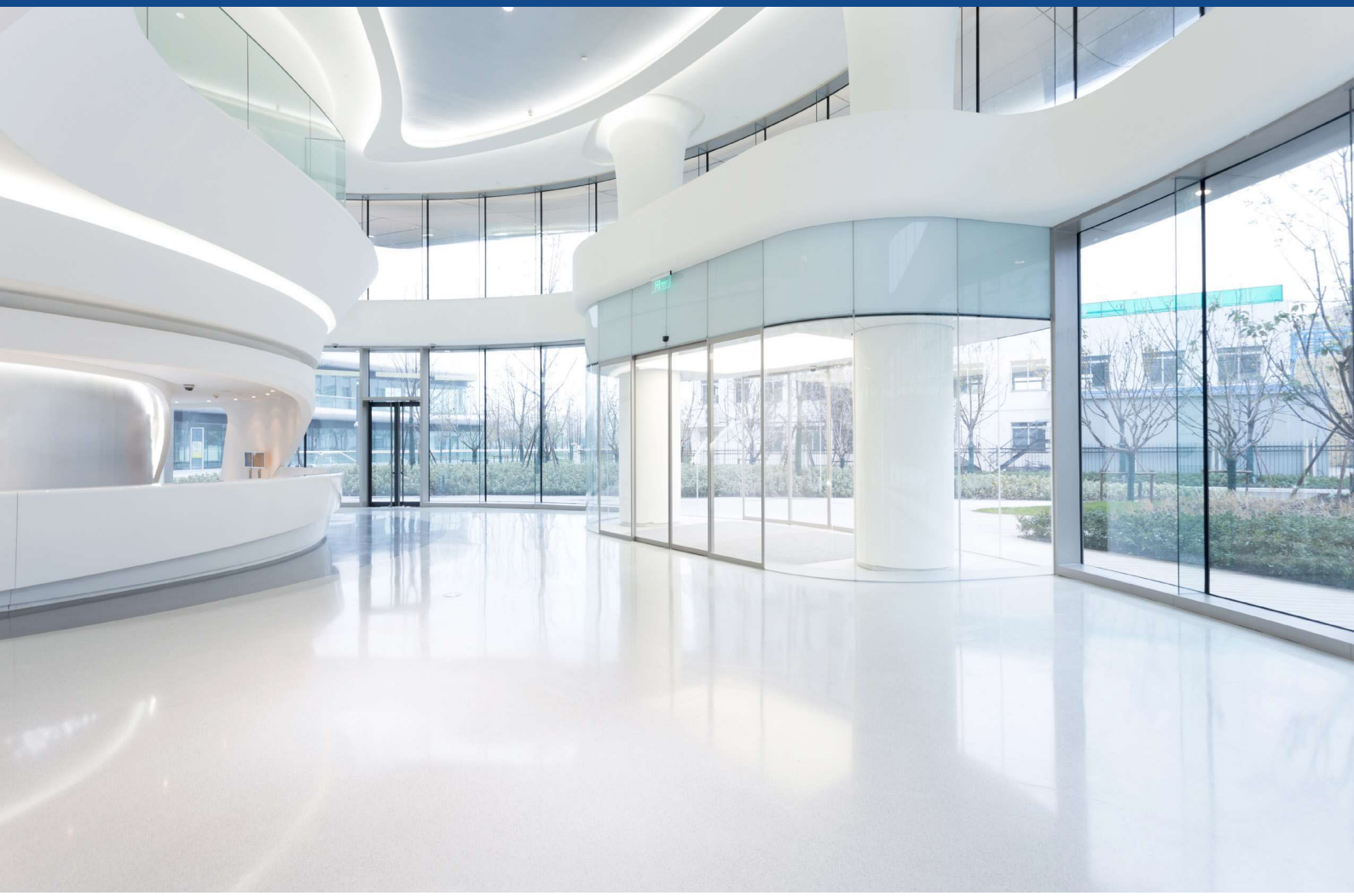
At Facade Glass Fin Curtain Wall System//

The glass-fin full-glass curtain wall is a curtain wall with a large piece of glass and a supporting frame of glass. It is also called a glass frame glass curtain wall.

Full Transparency And Full View.

It is a glass curtain wall with full transparency and full view. Large pieces of glass are supported on the glass frame in the form of rear-mounted type, seam type, flush type, protruding type and so on.

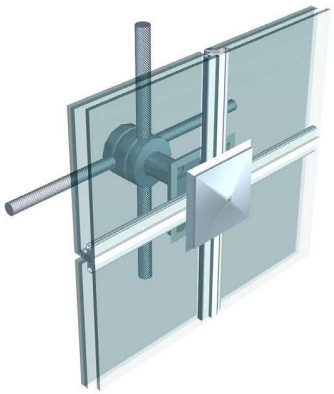
When the large piece of glass and the glass frame of the glass-ribbed full-glass curtain wall are low in floor height, the glass is installed in the lower inlay groove, and there is a telescopic gap between the upper inlay groove bottom and the glass. When the layer height is high, because the glass is taller and the length is relatively large, if the glass is installed in the lower mosaic groove, the glass's own weight will deform the glass and cause the glass to break, so the hanging type is required. That is, the large piece of glass and the glass frame are equipped with special fixtures on the upper part to hang the glass, and there is a telescopic gap between the bottom of the inlay groove and the glass.



Solution

At Facade Glass Fin Curtain Wall System//

The positive cable type point-supported glass curtain wall is composed of glass panels, a connection system and a cable support system.



Artistically Beautiful Curtain Wall

It is a kind of artistically beautiful curtain wall of the point-supported glass curtain wall branch that appeared in glass curtain wall in the middle and late 1990s. structure type.

The cable-type glass curtain wall has the characteristics of large glass frameless, no large supporting steel structure, light and transparent, wide vision, and lightweight supporting structure, which enhances the aesthetics of the building's interior and exterior.

Solution

At Facade Steel Curtain Wall//

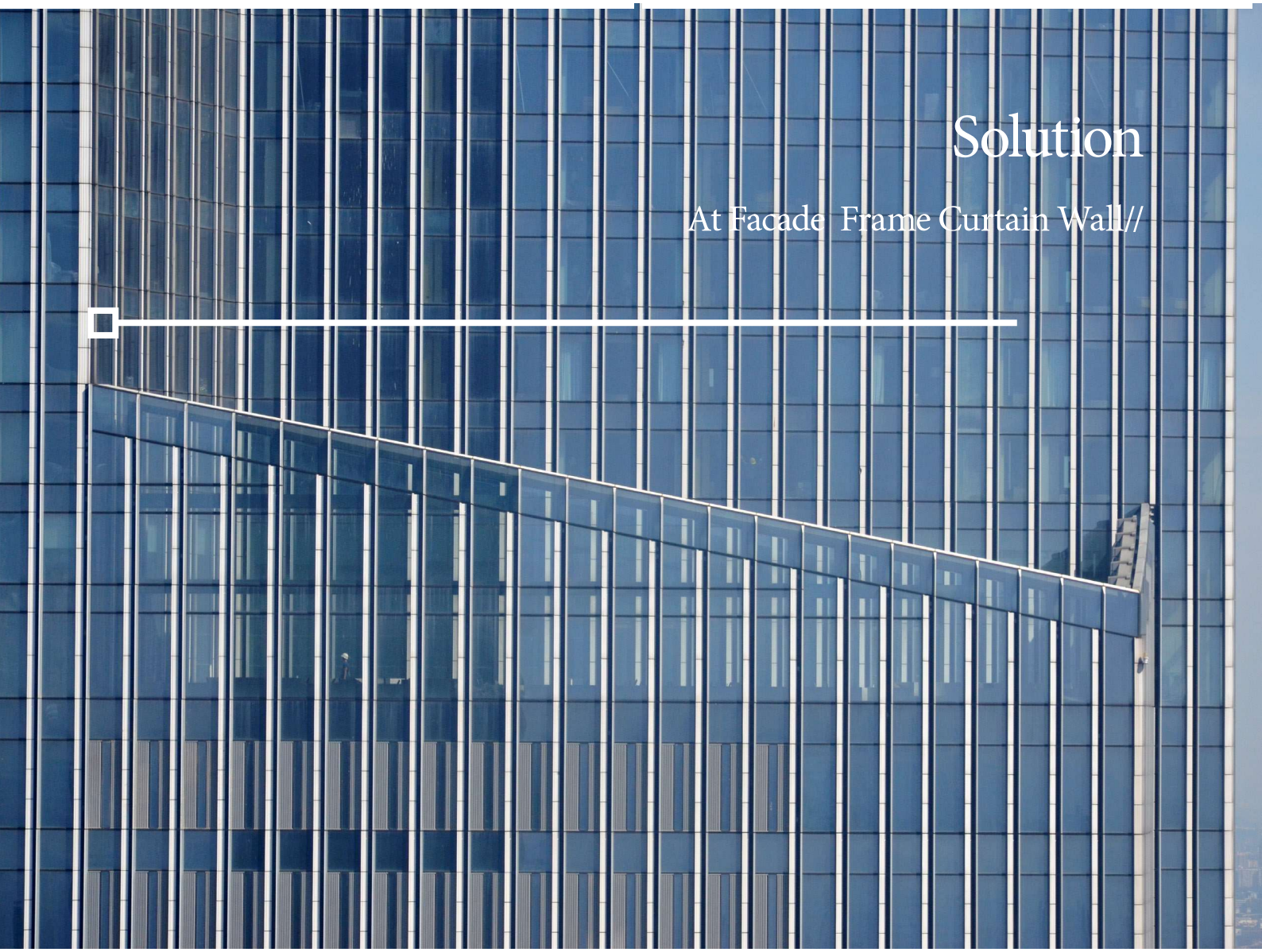
Special curtain walls for steel structure construction projects, including glass, aluminum alloy support system, aluminum veneer cladding decoration system, fixed system, etc.,

Solution

At Facade Frame Curtain Wall/

Exposed frame glass curtain wall

Horizontal hidden frame glass curtain wall



Solution

At Facade Frame Curtain Wall//

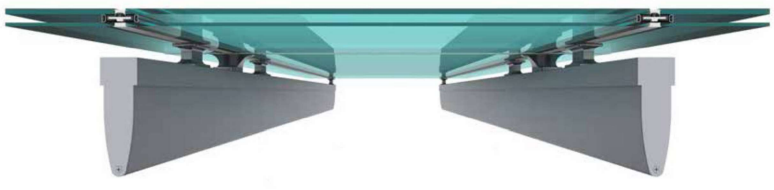
Vertical hidden frame glass curtain wall

All hidden frame glass curtain wall

Solution

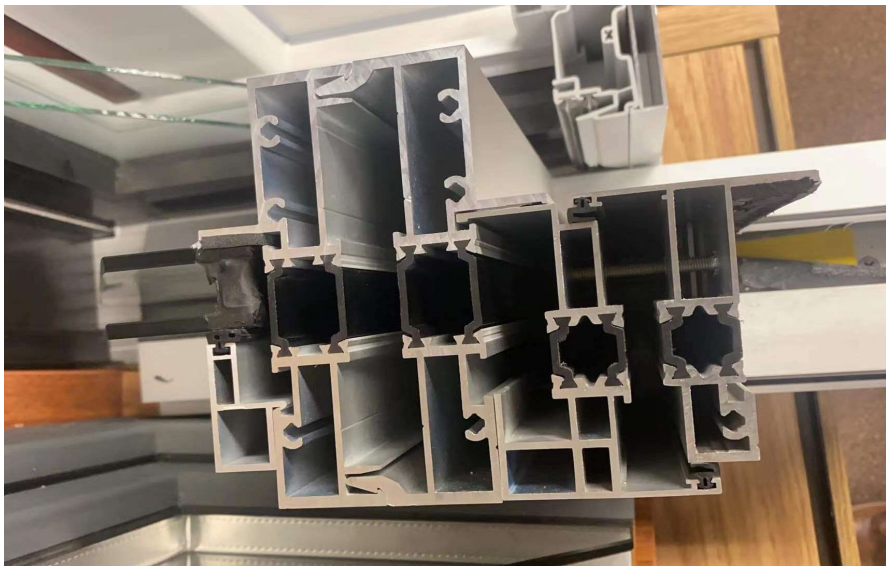
At Facade Frame Curtain Wall//

Floats curtain wall



It is a new type of curtain wall – a mullion only system where the glass is held away from the mullion so the glass wall visually ‘floats’

Window Wall



Solution

At Facade Frame Curtain Wall//

Solution

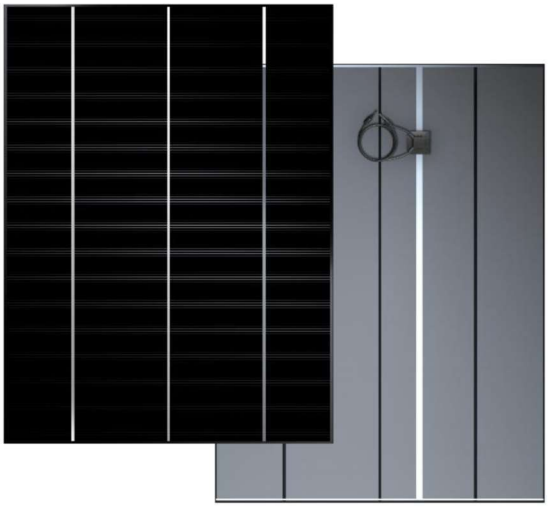
AT FACADE BIPV(Building Integrated Photovoltaic) SYSTEM//

- CdTe Power Glass-Low light power generation, high conversion rate.
- Large single piece size, can be customized.
- Multi-color meets beautiful design.
- System integration design, easy to use.

CdTe Power Glass

COM-M1

Marble series



Product features

High power generation
Compared with other photovoltaic technologies, it has outstanding advantages in power generation performance in hot and humid environments, and performs best

Low temperature coefficient
Little affected by temperature , with the increase of temperature, the power attenuation is small

Small occlusion loss
Being shielded has little impact on power generation, small hot spot effect, low power generation loss, and guarantees product life and safe used

Adapt to harsh environments
It can be installed and used in mountains, deserts, and coastal defenses. It is a marble building material that can generate electricity

Perfect integration with architecture
The color pattern can be customized, the style is diverse, beautiful and generous, the price is affordable, and it can be used in the farm house at a low price

Environmental protection and safety
Energy saving and emission reduction, the only building material that can create value for the owner

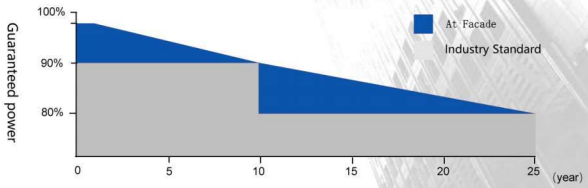
Product certification

IEC/EN 61215-2/61730
DIN V VDE 0126-3, DIN V VDE V 0126-5
UL1703, ULC/ORD-C1703-1
Safety level： class II
Fire rating : Class A

Product Warranty

10-year product warranty

25-year linear power output guarantee



CdTe Power Glass

COM-M1

Marble series

Electrical parameters under STC

Number		COM-M1-250W	COM-M1-240W	COM-M1-230W	COM-M1-220W
Maximum power	Pmax (W)	250	240	230	220
Power tolerance	(W)	±3%			
Maximum power Voltage	Vmpp (V)	137.0	132.0	128.0	125.0
Maximum power Current	Impp (A)	1.82	1.82	1.79	1.77
Open Circuit Voltage	Voc (V)	181.0	176.0	174.0	169.0
Short Circuit Current	Isc (A)	2.04	2.04	2.03	2.03
Conversion efficiency	(%)	13.0	12.5	12.0	11.5

STC (standard test conditions): irradiance 1000W/m², battery temperature 25℃, air quality AM1.5

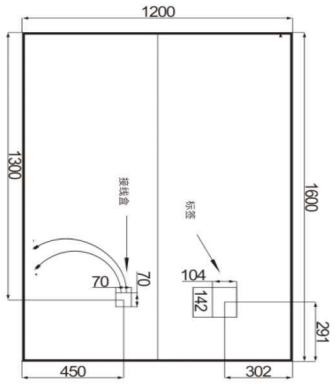
Mechanical data

Module Dimension	1600*1200*26.9mm (junction box included)
Thickness	6.9mm
Thickness with Junction Box	26.9mm
Area	1.92m²
Weight	30kg
Cable cross section	2.5mm²,+1000/-1000
Bypass Diode	HY6A10S
Front Glass	3.2mm ultra white float glass
Back Glass	3.2mm semi-tempered glass
Cell Type	CdTe thin film semi-conductor
Number of Cells	215*4pcs
Encapsulation	POE/EVA
Packaging	30pcs/pallet

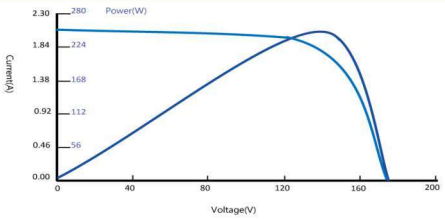
OPERATING CONDITION

Maximum System Voltage	1000V
Limiting Reverse Current	3.5A
Operating Temperature Range	-40℃~+85℃
Load Rating(wind/snow)	2400Pa/3600Pa
Hail Test	Passed
Waterproof Rating	IP67

ENGINEERING DRAWING



I-V CURVE



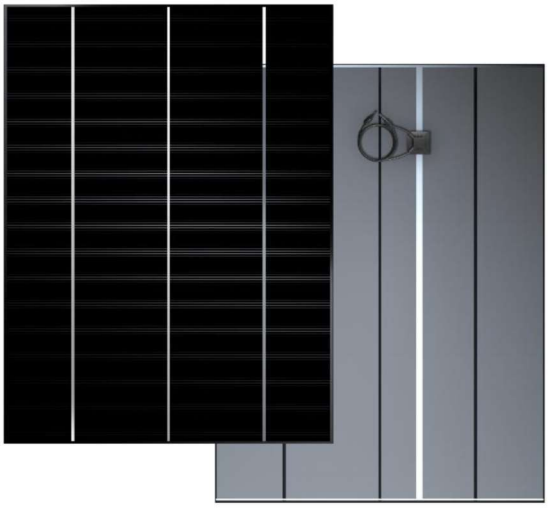
TEMPERATURE CHARACTERISTICS

NOCT (nominal operating cell temperature)	42.3±2℃
Temperature Coefficient of Pmax	-0.294%/℃
Temperature Coefficient of Voc	-0.348%/℃
Temperature Coefficient of Isc	+0.0249%/℃

CdTe Power Glass

COM-M2

Marble series



Product features

High power generation
Compared with other photovoltaic technologies, it has outstanding advantages in power generation performance in hot and humid environments, and performs best

Low temperature coefficient
Little affected by temperature , with the increase of temperature, the power attenuation is small

Small occlusion loss
Being shielded has little impact on power generation, small hot spot effect, low power generation loss, and guarantees product life and safe used

Adapt to harsh environments
It can be installed and used in mountains, deserts, and coastal defenses. It is a marble building material that can generate electricity

Perfect integration with architecture
The color pattern can be customized, the style is diverse, beautiful and generous, the price is affordable, and it can be used in the farm house at a low price

Environmental protection and safety
Energy saving and emission reduction, the only building material that can create value for the owner

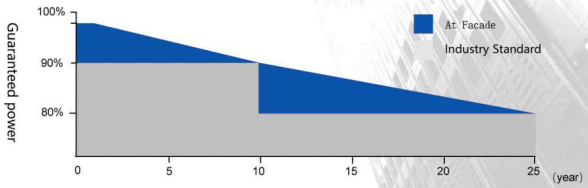
Product certification

IEC/EN 61215-2/61730
DIN V VDE 0126-3, DIN V VDE V 0126-5
UL1703, ULC/ORD-C1703-1
Safety level： class II
Fire rating : Class A

Product Warranty

10-year product warranty

25-year linear power output guarantee



CdTe Power Glass

COM-M2

Marble series

Electrical parameters under STC

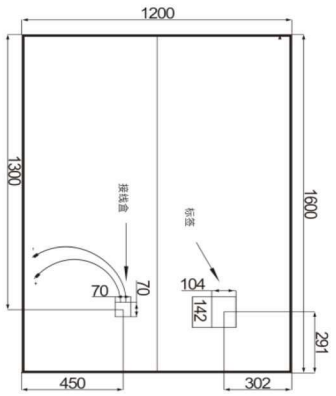
Number		COM-M1-250W	COM-M1-240W	COM-M1-230W	COM-M1-220W
Maximum power	Pmax (W)	250	240	230	220
Power tolerance	(W)	±3%			
Maximum power Voltage	Vmpp (V)	137.0	132.0	128.0	125.0
Maximum power Current	Impp (A)	1.82	1.82	1.79	1.77
Open Circuit Voltage	Voc (V)	181.0	176.0	174.0	169.0
Short Circuit Current	Isc (A)	2.04	2.04	2.03	2.03
Conversion efficiency	(%)	13.0	12.5	12.0	11.5

STC (standard test conditions): irradiance 1000W/m², battery temperature 25℃, air quality AM1.5

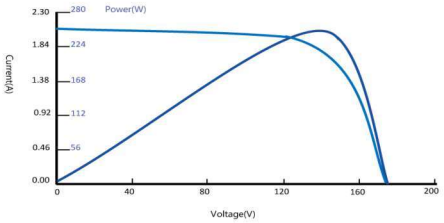
Mechanical data

Module Dimension	1600*1200*26.9mm (junction box included)
Thickness	6.9mm
Thickness with Junction Box	26.9mm
Area	1.92m²
Weight	30kg
Cable cross section	2.5mm²,+1000/-1000
Bypass Diode	HY6A10S
Front Glass	3.2mm ultra white float glass
Back Glass	3.2mm semi-tempered glass
Cell Type	CdTe thin film semi-conductor
Number of Cells	215*4pcs
Encapsulation	POE/EVA
Packaging	30pcs/pallet

ENGINEERING DRAWING



I-V CURVE



OPERATING CONDITION

Maximum System Voltage	1000V
Limiting Reverse Current	3.5A
Operating Temperature Range	-40℃~+85℃
Load Rating(wind/snow)	2400Pa/3600Pa
Hail Test	Passed
Waterproof Rating	IP67

TEMPERATURE CHARACTERISTICS

NOCT (nominal operating cell temperature)	42.3±2℃
Temperature Coefficient of Pmax	-0.294%/℃
Temperature Coefficient of Voc	-0.348%/℃
Temperature Coefficient of Isc	+0.0249%/℃

CdTe Power Glass

COM-S5

Stone series
Riverstones

Product certification

IEC/EN61215 IEC/EN61730
GB/T29551
JGJ102
Fire rating : Class A

Product features

High power generation
Compared with other photovoltaic technologies, it has outstanding advantages in power generation performance in hot and humid environments, and performs best

Low temperature coefficient
Little affected by temperature , with the increase of temperature, the power attenuation is small

Small occlusion loss
Being shielded has little impact on power generation, small hot spot effect, low power generation loss, and guarantees product life and safe used

Adapt to harsh environments
It can be installed and used in mountains, deserts, and coastal defenses. It is a marble building material that can generate electricity

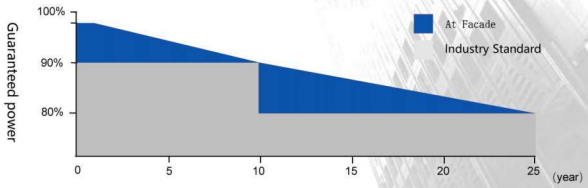
Perfect integration with architecture
The color pattern can be customized, the style is diverse, beautiful and generous, the price is affordable, and it can be used in the farm house at a low price

Environmental protection and safety
Energy saving and emission reduction, the only building material that can create value for the owner

Product Warranty

10-year product warranty

25-year linear power output guarantee



CdTe Power Glass

COM-S5

Stone series
Riverstones

Electrical parameters under STC

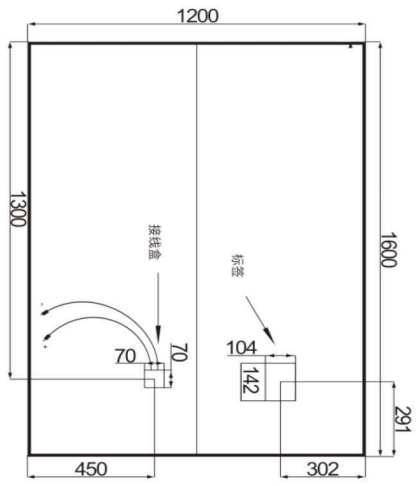
Number		COM-S5-240W	COM-S5-230W	COM-S5-220W
Maximum power	Pmax(W)	240	230	220
Power tolerance	(W)	±3%	±3%	±3%
Maximum power Voltage	Vmpp(V)	136.2	130.3	126.3
Maximum power Current	Impp(A)	1.8	1.77	1.73
Open Circuit Voltage	Voc(V)	178.2	173.7	170.2
Short Circuit Current	Isc(A)	2.03	2.02	1.97
Reverse current threshold	(A)	3.5	3.5	3.5

STC (standard test conditions): irradiance 1000W/m², battery temperature 25℃, air quality AM1.5

Mechanical data

Module Dimension	1600*1200*37mm (junction box included)
Thickness	17mm
Thickness with Junction Box	37mm
Area	1.92m²
Weight	74kg
Cable cross section	2.5mm²,+1000/-1000
Bypass Diode	HY6A10S
Front Glass	6mm ultra white float glass
Back Glass	6mm semi-tempered glass
Cell Type	CdTe thin film semi-conductor
Number of Cells	215*4pcs
Encapsulation	PVB

ENGINEERING DRAWING



OPERATING CONDITION

Maximum System Voltage	1000V
Limiting Reverse Current	3.5A
Operating Temperature Range	-40℃~+85℃
Load Rating(wind/snow)	2400Pa/5400Pa
Hail Test	Passed
Waterproof Rating	IP67

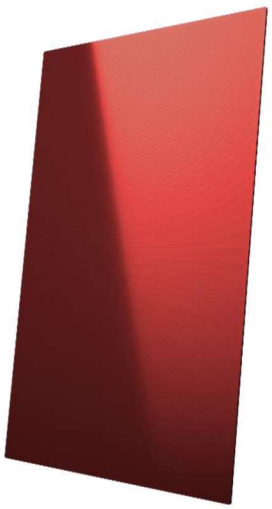
TEMPERATURE CHARACTERISTICS

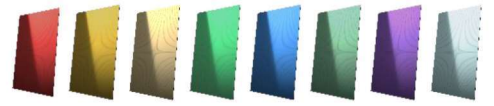
NOCT (nominal operating cell temperature)	45±2℃
Temperature Coefficient of Pmax	-0.189%/℃
Temperature Coefficient of Voc	-0.396%/℃
Temperature Coefficient of Isc	+0.061%/℃

CdTe Power Glass

COM-S8

Rainbow Series-Ⅲ





Chinese Red | Imperial gold | Brocade gold | Forest green | sky blue | Stellar green | Taro purple | Snowflake silver

Product certification

IEC/EN61215 IEC/EN61730

GB/T29551

JGJ102

Fire rating : Class A

Product features

High power generation

Compared with other photovoltaic technologies, it has outstanding advantages in power generation performance in hot and humid environments, and performs best

Low temperature coefficient

Little affected by temperature , with the increase of temperature, the power attenuation is small

Small occlusion loss

Being shielded has little impact on power generation, small hot spot effect, low power generation loss, and guarantees product life and safe used

Adapt to harsh environments

It can be installed and used in mountains, deserts, and coastal defenses. It is a marble building material that can generate electricity

Perfect integration with architecture

The color pattern can be customized, the style is diverse, beautiful and generous, the price is affordable, and it can be used in the farm house at a low price

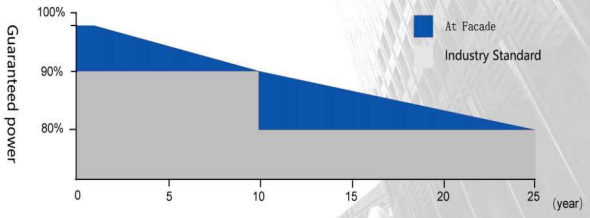
Environmental protection and safety

Energy saving and emission reduction, the only building material that can create value for the owner

Product Warranty

10-year product warranty

25-year linear power output guarantee



CdTe Power Glass

COM-S8

Rainbow Series-Ⅲ

Electrical parameters under STC

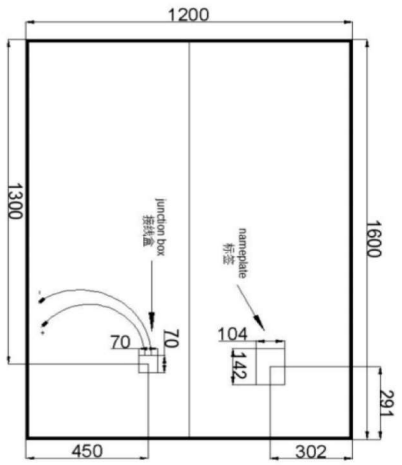
Number		COM-S8-sky blue		COM-S8-Taro purple		COM-S8-Chinese Red	
Maximum power	Pmax(W)	220	210	210	200	160	150
Power tolerance		±3%					
Maximum power Voltage	Vmpp(V)	139.7	138.8	139.9	137.1	139.5	139.2
Maximum power Current	Impp(A)	1.58	1.52	1.51	1.5	1.12	1.08
Open Circuit Voltage	Voc(V)	179.6	178.3	178.1	177.6	177.8	176.9
Short Circuit Current	Isc(A)	1.7	1.68	1.68	1.64	1.3	1.22
Reverse current threshold	(A)	3.5	3.5	3.5	3.5	3.5	3.5

STC (standard test conditions): irradiance 1000W/m², battery temperature 25℃, air quality AM1.5

Mechanical data

Module Dimension	1600*1200*31mm	1600*1200*37mm
Thickness	11mm	17mm
Thickness with Junction Box	31mm	37mm
Area	1.92m²	1.92m²
Weight	50kg	74kg
Cable cross section	2.5mm²	2.5mm²
Conductor length	900mm，0~+5mm	900mm，0~+5mm
Bypass Diode	HY6A10S	HY6A10S
Front Glass	3.2mm ultra white float glass	6mm ultra white float glass
Back Glass	3.2mm semi-tempered glass	6mm semi-tempered glass
Cell Type	CdTe thin film semi-conductor	CdTe thin film semi-conductor
Encapsulation	PVB/POE	PVB/POE
Number of Cells	215*4	215*4

ENGINEERING DRAWING



OPERATING CONDITION

Maximum System Voltage	1000V
Limiting Reverse Current	3.5A
Operating Temperature Range	-40℃~+85℃
Load Rating(wind/snow)	2400Pa/5400Pa
Hail Test	Passed
Waterproof Rating	IP67

TEMPERATURE CHARACTERISTICS

NOCT (nominal operating cell temperature)	45±2℃
Temperature Coefficient of Pmax	-0.189%/℃
Temperature Coefficient of Voc	-0.396%/℃
Temperature Coefficient of Isc	+0.061%/℃

CdTe Power Glass

COM-CA2

Rainbow Series-Ⅱ

Product certification

IEC/EN61215 IEC/EN61730

GB/T29551

JGJ102

Fire rating : Class A

Product features

High power generation

Compared with other photovoltaic technologies, it has outstanding advantages in power generation performance in hot and humid environments, and performs best

Low temperature coefficient

Little affected by temperature , with the increase of temperature, the power attenuation is small

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Perfect integration with architecture

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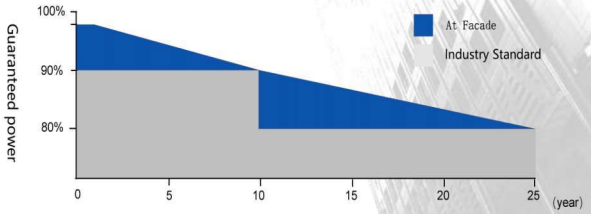
Environmental protection and safety

Energy saving and emission reduction, the only building material that can create value for the owner

Product Warranty

10-year product warranty

25-year linear power output guarantee



CdTe Power Glass

COM-CA2

Rainbow Series-Ⅱ

Electrical parameters under STC

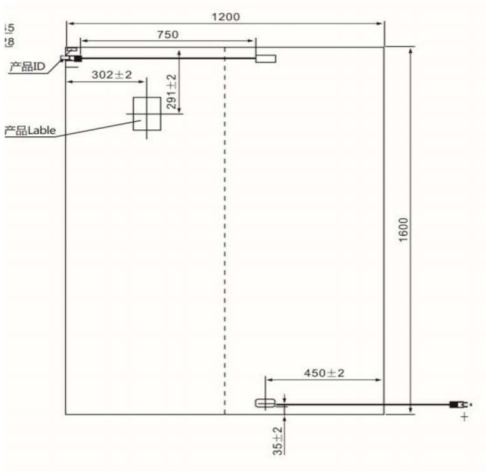
Number		COM-CA2-T30	COM-CA2-T40	COM-CA2-T50
Film removal rate		30%	40%	50%
Maximum power	Pmax(W)	150	130	100
Power tolerance	%	±3	±3	±3
Maximum power Voltage	Vmpp(V)	132	131	130
Maximum power Current	Impp(A)	1.21	1.05	0.86
Open Circuit Voltage	Voc(V)	176	175	175
Short Circuit Current	Isc(A)	1.39	1.21	1.01

STC (standard test conditions): irradiance 1000W/m², battery temperature 25℃, air quality AM1.5

Mechanical data

Module Dimension	1600*1200*27mm	1600*1200*30.5mm
Thickness	7mm	10.5mm
Thickness with Junction Box	27mm	30.5mm
Area	1.92m²	1.92m²
Weight	30kg	45kg
Cable cross section	2.5mm²	2.5mm²
Conductor length	900mm，0~+5mm	900mm，0~+5mm
Bypass Diode	HY6A10S/No	HY6A10S/No
Front Glass	3.2mm ultra white float glass	3.2mm ultra white float glass
Back Glass	3.2mm semi-tempered glass	6mm semi-tempered glass
Cell Type	CdTe thin film semi-conductor	CdTe thin film semi-conductor
Encapsulation	PVB	PVB
Number of Cells	215*4	215*4

ENGINEERING DRAWING



OPERATING CONDITION

Maximum System Voltage	1000V
Limiting Reverse Current	3.5A
Operating Temperature Range	-40℃~+85℃
Load Rating(wind/snow)	2400Pa/5400Pa
Hail Test	Passed
Waterproof Rating	IP67

TEMPERATURE CHARACTERISTICS

NOCT (nominal operating cell temperature)	45±2℃
Temperature Coefficient of Pmax	-0.189%/℃
Temperature Coefficient of Voc	-0.396%/℃
Temperature Coefficient of Isc	+0.061%/℃

CdTe Power Glass

COM-Z2

Sealed insulating glass unit

Product features

High power generation

Compared with other photovoltaic technologies, it has outstanding advantages in power generation performance in hot and humid environments, and performs best

Low temperature coefficient

Little affected by temperature , with the increase of temperature, the power attenuation is small

Small occlusion loss

Being shielded has little impact on power generation, small hot spot effect, low power generation loss, and guarantees product life and safe used

Safety and energy saving

Low-E + hollow layer + CdTe laminated power generation glass structure, with excellent thermal performance and excellent air tightness, sound insulation, heat insulation, thermal insulation

Perfect integration with architecture

Color thickness adjustable, various styles, beautiful and generous, in line with the requirements of modern architecture

Environmental protection and safety

Energy saving and emission reduction, the only building material that can create value for the owner

Product certification

IEC/EN61215 IEC/EN61730

GB/T11944

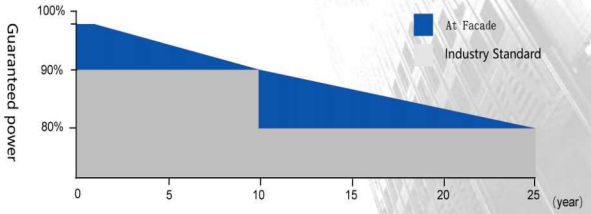
JGJ102

Fire rating : Class A

Product Warranty

10-year product warranty

25-year linear power output guarantee



CdTe Power Glass

COM-Z2

Sealed insulating glass unit

Electrical parameters under STC

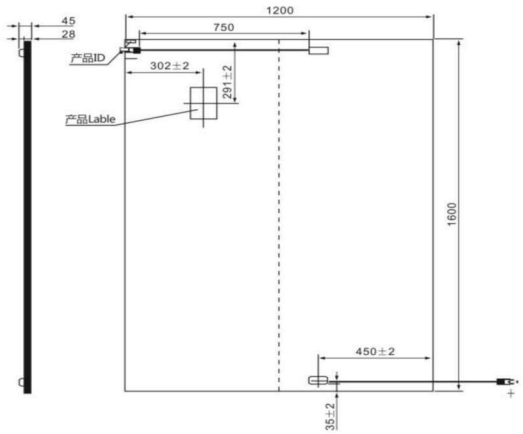
Number		COM-Z2-150W	COM-Z2-140W	COM-Z2-80W	COM-Z2-70W
Film removal rate	(%)	/	/	40%	40%
Maximum power	Pmax(W)	150	140	80	70
Power tolerance	(W)	0-+10	0-+10	0-+5	0-+5
Maximum power Voltage	Vmpp(V)	135.34	131.60	132.22	130.12
Maximum power Current	Impp(A)	1.109	1.064	0.567	0.541
Open Circuit Voltage	Voc(V)	176.30	174.40	172.26	169.16
Short Circuit Current	Isc(A)	1.2992	1.2672	0.713	0.683
Reverse current threshold	(A)	3.5	3.5	3.5	3.5

STC (standard test conditions): irradiance 1000W/m^2, battery temperature 25℃, air quality AM1.5

Mechanical data

Module Dimension	1600*1200*45.3mm (junction box included)
Thickness	28mm
Thickness with Junction Box	45.3mm
Area	1.92m^2
Weight	75kg
Cable cross section	2.5mm^2
Conductor length	750/850/950/1050mm，0~+5mm
Bypass Diode	HY6A10S/No
Front Glass	6mm (Low-E) tempered glass
Air layer	12mm (12A)
Middle layer glass	3.2mm ultra white float glass
Back Glass	6mm semi-tempered glass
Cell Type	CdTe thin film semi-conductor
Number of Cells	210*4
Encapsulation	PVB/POE
Packaging	16pcs/pallet

ENGINEERING DRAWING



OPERATING CONDITION

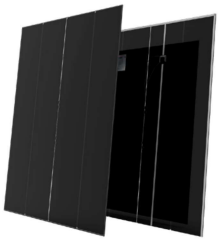
Maximum System Voltage	1000V
Limiting Reverse Current	3.5A
Operating Temperature Range	-40℃~+85℃
Load Rating(wind/snow)	2400Pa/5400Pa
Hail Test	Passed
Waterproof Rating	IP67

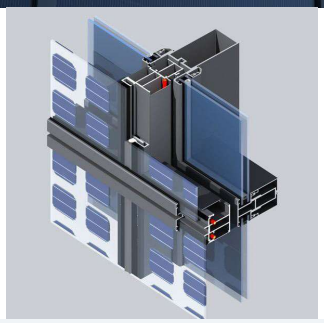
TEMPERATURE CHARACTERISTICS

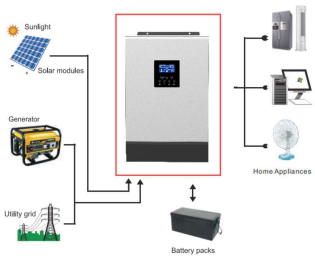
NOCT (nominal operating cell temperature)	45±2℃
Temperature Coefficient of Pmax	-0.189%/℃
Temperature Coefficient of Voc	-0.396%/℃
Temperature Coefficient of Isc	+0.061%/℃

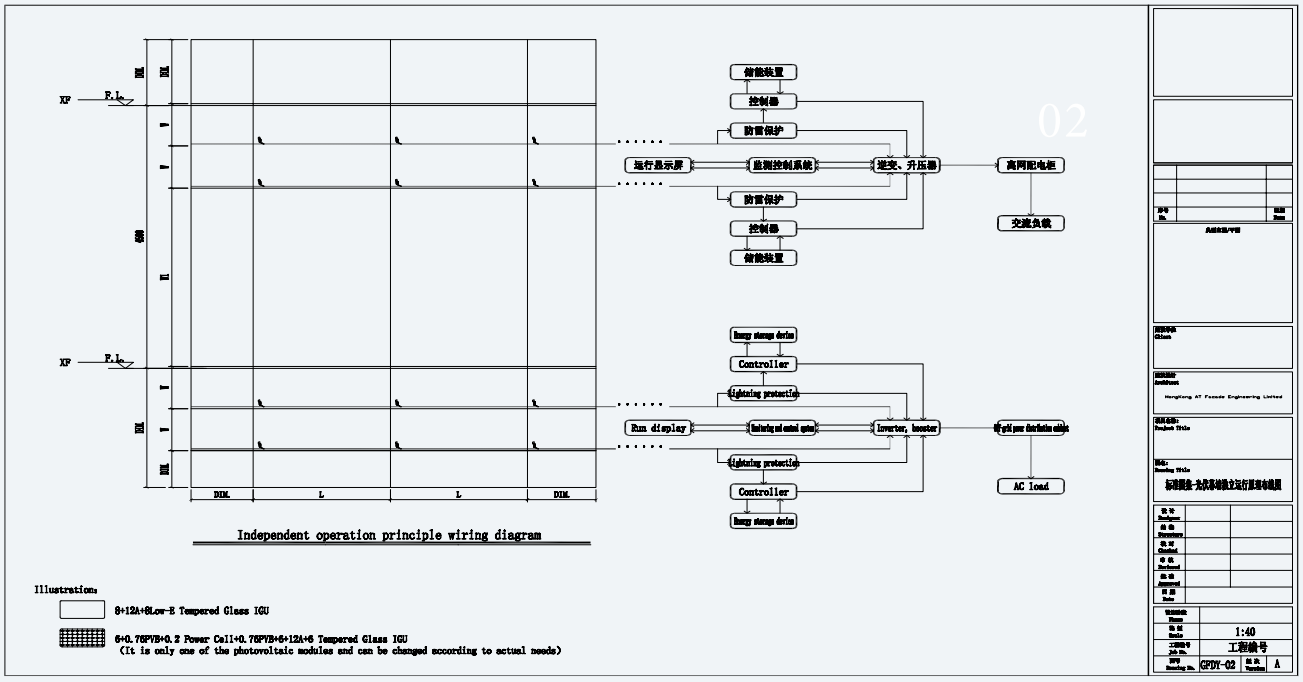
AT FACADE BIPV PROJECT

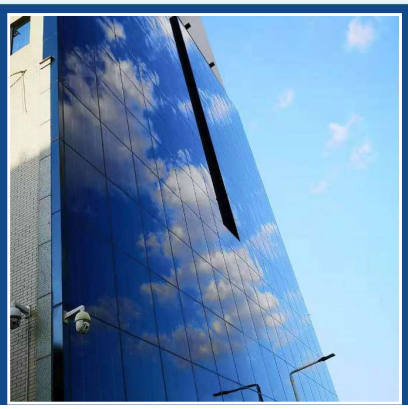
(Electronic Control System Design And Products)

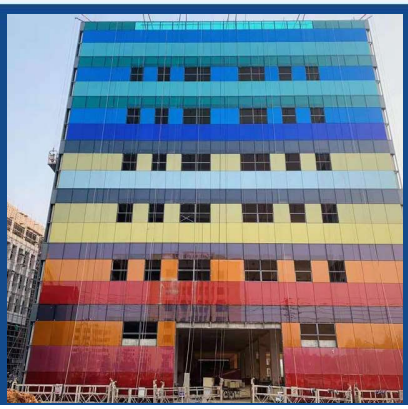




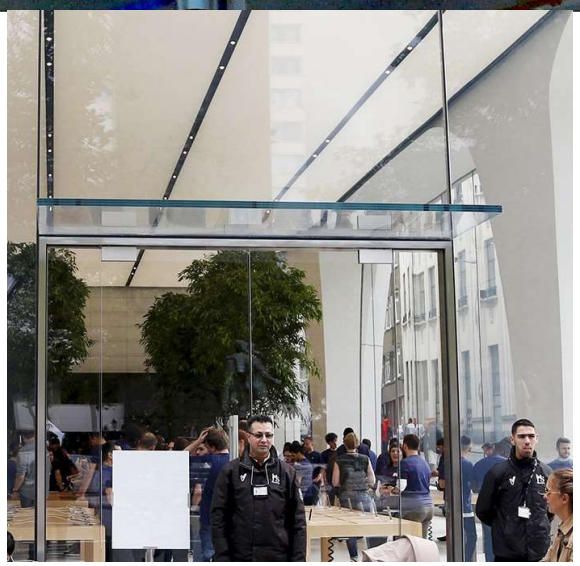








AT Facade Glass Canopy System//



At Facade Glass Room And Corridor System//

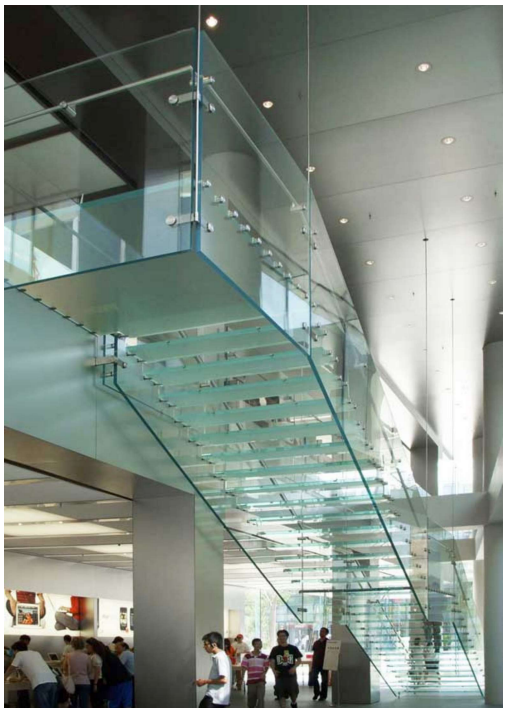
At Facade Glass Stairs System//

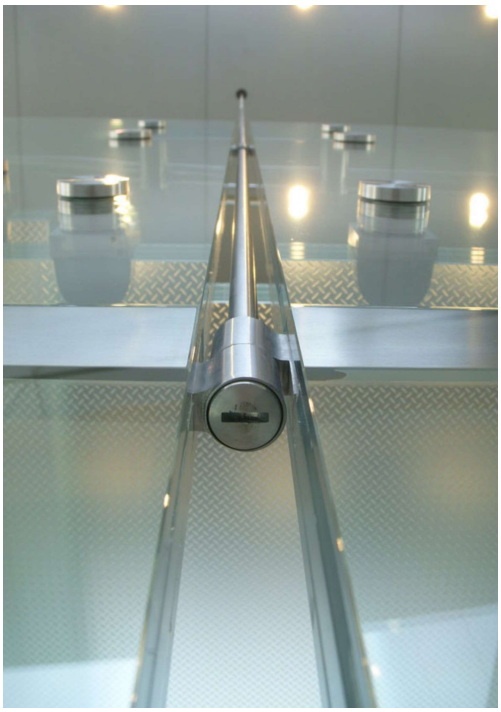
High-end

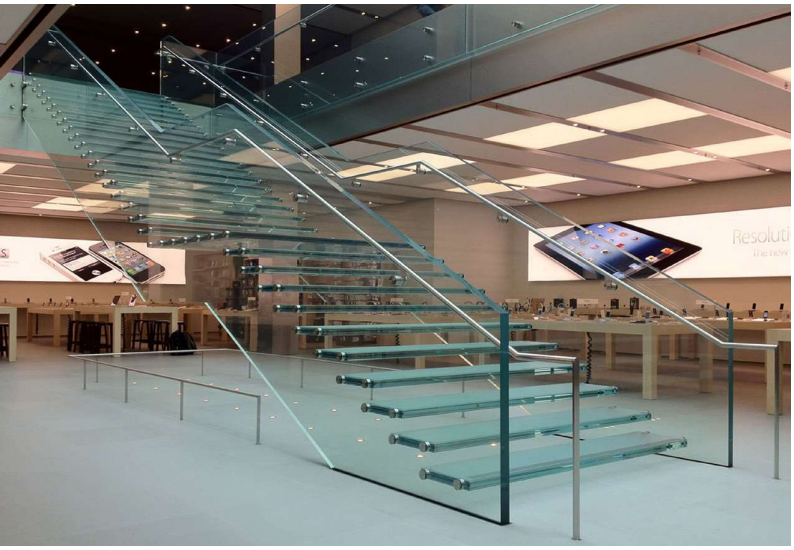
Building Interior

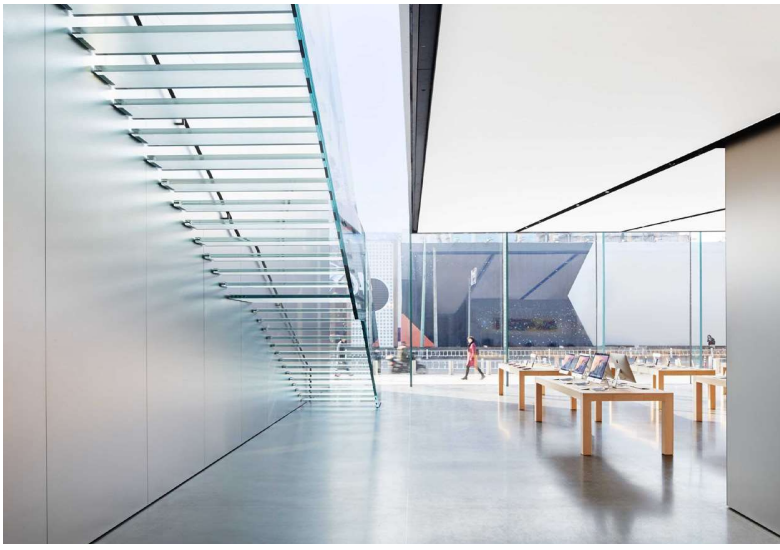
Decoration

Solutions









At Facade Glass Balustrade System//

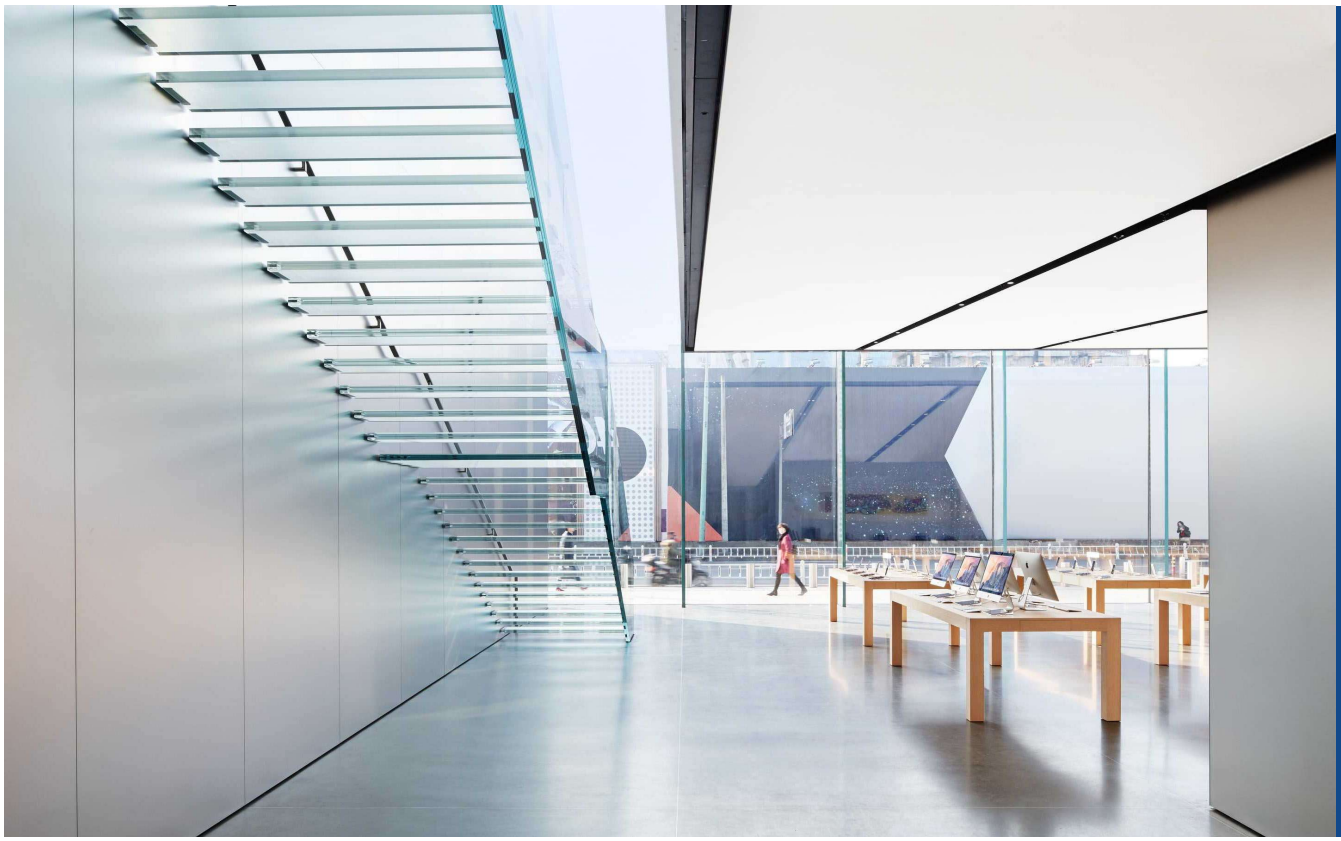
Safe And Reliable ;

Minimalist Design;

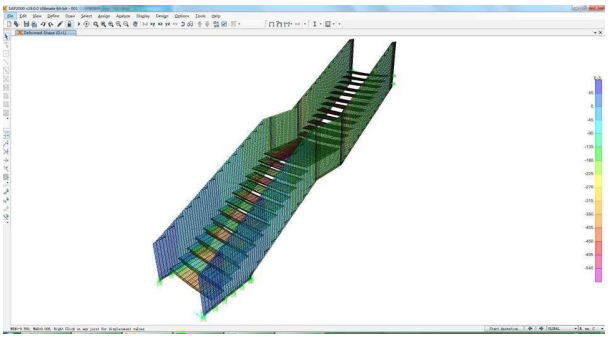
Full View To appreciate The Beauty Of Nature;




At Facade Shower Room System//



SAP2000
FOR GLASS STAIRES



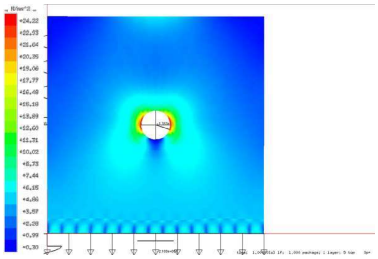
Structural analysis

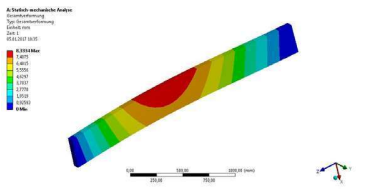
Structural analysis technology is divided into two aspects.
The first is the structural safety analysis of the curtain wall system. This analysis takes into account of local wind pressure, earthquake resistance, snow load, and other factors that affect the curtain wall panel.

The study begins with the embedded hardware, connection part, aluminum profile choice, and the glass panel.
This selection and other aspects of the system are verified to ensure the project's stability and reliability.

The second is the structural analysis of the structural glass.

As a professional architectural glass manufacturer, our company provides complete solutions in the application of all-glass stairs, all-glass houses, all-glass corridors, and all-glass floors while providing structural safety analysis for the system to ensure the project's stability and reliability.





Technology

01 STRUCTURAL ANALYSIS

02 THERMOMECHANICAL AND OPTICS ANALYSIS

03 SOUND INSULATION ANALYSIS

04 WIND PRESSURES ANALYSIS

05 WATER & AIRTIGHTNESS TESTING

06 FIREPROOF DESIGN

07 LIGHTNING PROTECTION DESIGN

08 ENERGY SAVING

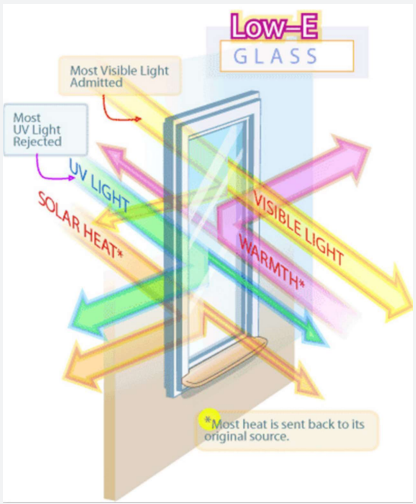
09 ARTISTIC

10 COST CONTROL ADVICE

11 BASIC PARAMETER DATA

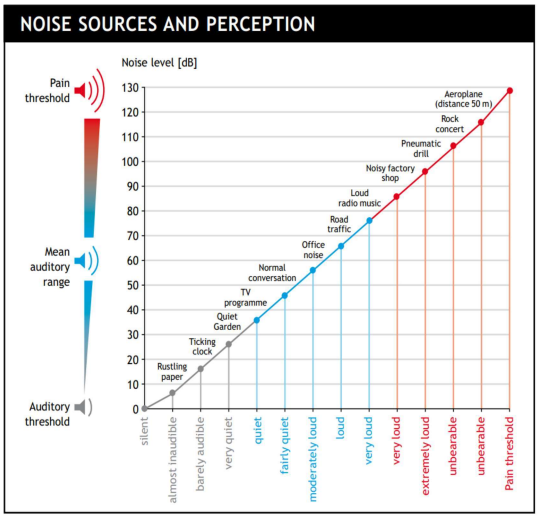
Thermomechanical and optics analysis

We use window 7.7 provided by the Berkeley Laboratory in the United States for optical and thermal glass analysis and test key parameters such as U value and light transmittance and reflectivity.



We collect our experimental test data for sound insulation testing to ensure that each glass meets the design description according to the specified parameters and international standards.

SOUND INSULATION ANALYSIS



There are 4 main ways to test the quality of sound insulation:

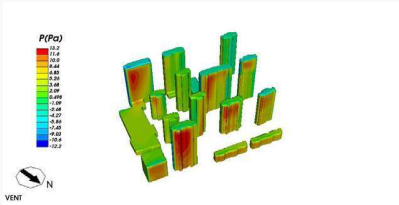
The first is to increase the glass's thickness, however this solution can only partially improve the glass's sound insulation performance.

The second uses ordinary PVB laminated glass as an excellent solution to significantly improve the facade's sound insulation.

In the third, we use the soundproofing film of Christaffre from Germany to improve ordinary laminated glass's sound insulation performance.

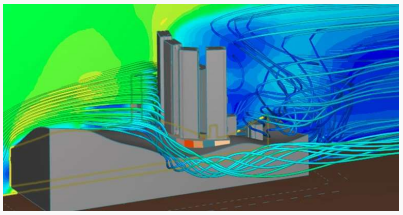
The fourth soundproofing solution is the use of insulating glass, especially three-glass two-cavity glass, which provides excellent sound insulation. And thermal engineering performance makes this kind of glass reappear in everyday projects. This technology is available at AT Facade.

SOUND INSULATION ANALYSIS

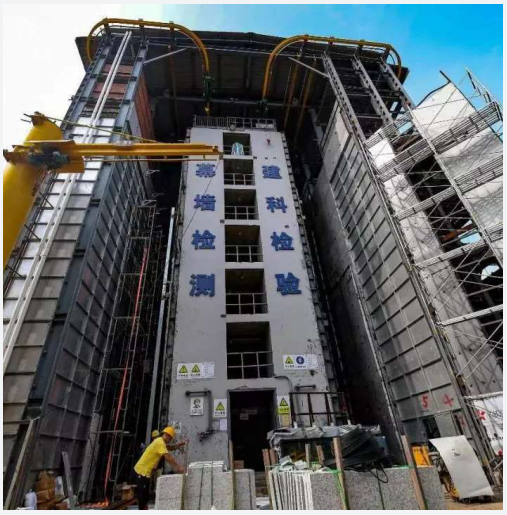


The wind pressure test is a very important performance parameter of the facade maintenance structure, combined with toughened, semi-tempered, structural glass and other solutions.

It gives a perfect and economical solution for the main body of the building—improving production technology and cost optimization. The facade is a four-sided, supported model for finite element analysis. We guarantee the validity of the shell analysis and the system's stability.



WATER & AIRTIGHTNESS TESTING



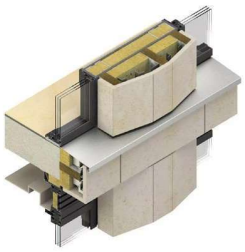
As water tightness and airtightness are parts of the facade's envelope, we must pay attention to the design and production reference factors.

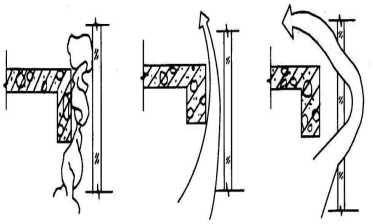
We carry out the hydrophobic composition from the structural design, cooperate with the EPDM sealing system, and strictly implement the quality standards during the production process.

We pay attention to every detail, especially the ones related to the sealant, hole position selection, and production design arrangement of the nodes.

During the installation process, strict construction principles and steps will also provide reliable protection for the system's watertight and airtight arrangements

FIREPROOF DESIGN





As a part of the fire protection design of the facade and curtain wall, we follow international safety standards to ensure the fire protection design between floors and other details concealed in the projects are applied.

PLEASE FEEL FREE TO CONTACT OUR DESIGNERS AND ENGINEERS FOR ADDITIONAL INFORMATION ON OUR TECHNOLOGY.

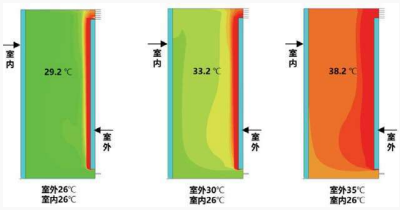
LIGHTNING PROTECTION DESIGN

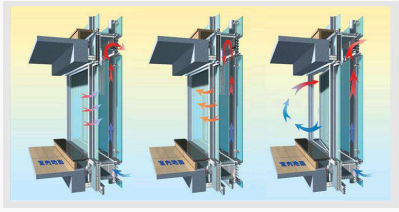
AT Facade, the design of the curtain wall lightning protection follows international standards and safety measures to ensure integrity at the highest standards.

ENERGY SAVING

As an important aspect for modern buildings, green energy-saving provides design and product guarantees for the control of future maintenance costs.

We actively develop energy-saving glass, door, and window curtain wall systems, and through the development of Low-E glass, we can achieve a minimum U value of 0.76w/m2.c.

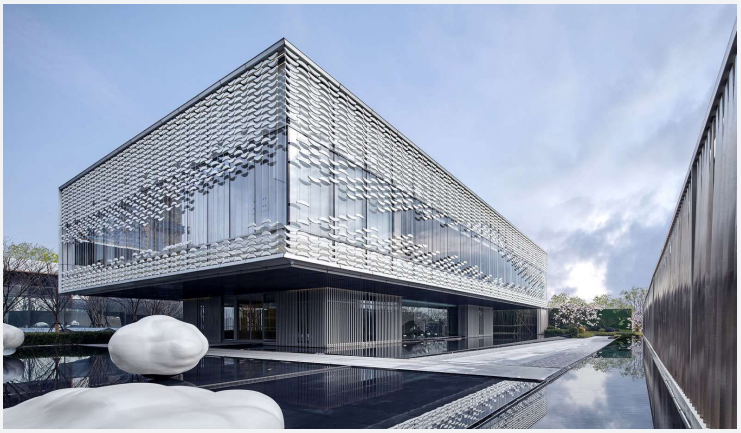


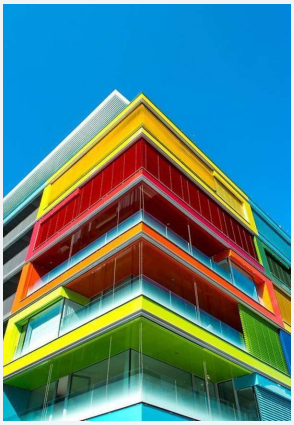


ARTISTIC

As the building's main body, the facade can display the project's added value while maintaining its functionality.

The achieved structure is unique and beautiful through our artistic glass, especially the all-glass curtain wall, all-glass staircase, and frameless fence. Such excellent systems provide added value for our projects.





COST CONTROL ADVICE

Cost control is an essential link in the initial stage of the design and the production process. We will provide our client with a preliminary budget reference based on the characteristics of the proposal.

SIMULTANEOUSLY, WE WILL OPTIMIZE THE PRODUCTION, PACKAGING, AND TRANSPORTATION PROCESSES ACCORDING TO THE PRODUCTION SCHEDULE TO ACHIEVE THE BEST POSSIBLE COST.

BASIC PARAMETER DATA

Physical Parameters of glass

ITEM	Parameters		
	GLASS	STEEL	ALUMINUM ALLOY
Density(KN/M³)	25.00	78.50	27.00
Elastic Modulus(MPa)	70000	206000	65800
Shear Modulus(MPa)	28000	80000	27000
Poisson's Ratio	0.23	0.26	0.3
Tensile Strength(Annealed glass)/(MPa)	45	235-345	160-265
Compressive Strength/(MPa)	800	235-345	160-265
Moh's Hardness	5-6(HB)	179(HB)	95(HB)
Melting point/°C	600	1450-1460	658
Thermal Expansion Coefficient/K^(-1)	9X10^(-6)	12X10^(-6)	24X10^(-6)

Mechanical Performance Data Sheet

Glass (T)	Wind Resistance (ƒg(MPa))	Thermal Stress (MPa)		
		Surface Tension	Self Tensile Stress	Tensile Strength
4-10	84.00	100	32-46	59-62
12-19	72.00	100	32-46	59-62
>=20	59.00	100	32-46	59-62

Remarks:The data is based on calculation and testing by SSMGLASS Testing Center under standard condition

Design value of glass strength(fg)

ITEM	Thickness(MM)	Facade/N·MM^{-2}	Side Facede/N·MM^{-2}
Float Glass	4-10	28.00	19.50
	12-19	24.00	17.00
	>=20	20.00	14.00
Tempered Glass	4-10	84.00	58.80
	12-19	72.00	50.40
	>=20	59.00	41.30

Note:

1.The strength design value of laminated glass and insulating glass can be determined according to the type of glass used;

2.When the strength standard value of tempered glass does not reach three times the strength standard value of float glass, the values in the table should be adjusted according to the actual measurement results.

3.The strength design value of the semi-tempered glass can be twice that of the float glass. When the strength standard value of the semi-tempered glass does not reach twice the strength standard value of the float glass, the design value should be adjusted according to the actual measurement results.

4.The side facade refers to the section of the glass after cutting, and its width is the thickness of the glass

Warpage tolerance of the flat tempered glass

Glass thickness(T)	Arched		Wave
	The length of the glass(L)		
	L=<2,000 MM	L>=2,000 MM	0.30%
T=<6MM	0.40%	0.50%	
T=8MM,10MM,12MM	0.30%	0.30%	
T=15MM,19MM	0.30%	0.30%	

Note: In the case of matching door glass or direct butt installation between glass and glass, the uniformity deviation of warpage is less than or equal to 3.0MM, (after tempering, the matching mark must be made and the customer is required to install according to the matching glass); single-piece door glass warps Please refer to the above table for the degree requirements

At Facade System Structure Calculation Report(Case)//

RIU HOTEL AND RESORTS

Fin Glass Façade System

Calculation Report

Calculated by: Young

2021-1-29

A. Basic Design Information:

1. Fin Structure System Description

The glass curtain wall is supported by vertical fin glass, which carry all of the load and transfer the load to main structure.

2. Design Criteria

ASTM-A36 Standard specification for carbon steel
ASTM E-1300 Standard Practice for Determining Load Resistance of Glass in Bui¬¬¬l-dings
BS 5950-1-2000 Structural use of steelwork in building
JGJ-102 Technical specification for glass curtain wall
JGJ-257 Technical specification for cable structures

3. Material

3.1 Insulated Glass (Façade Glass)
Glass net thickness: T = 1/2 "+1/2 "A+1/4 " (1/SH-02)
Glass net thickness: T = 1/2 "+1/2 "A+1/4 " (4/SH-03)
Density: 25000 N/m³
Modulus of elasticity: 70000 MPa
Poisson ratio: 0.2
Coefficient of thermal expansion: 1E-05
Strength: 73.0 MPa (ASTM E-1300 See Appendix B)

3.2 Laminated Glass (Fin Glass)
Glass net thickness: T = 1.12" (1/2 "+0.12SGP+1/2 ")
Density: 25000 N/m³
Modulus of elasticity: 70000 MPa
Poisson ratio: 0.2
Coefficient of thermal expansion: 1E-05
Strength: 73.0 MPa (ASTM E-1300 See Appendix B)

4. Load Combination

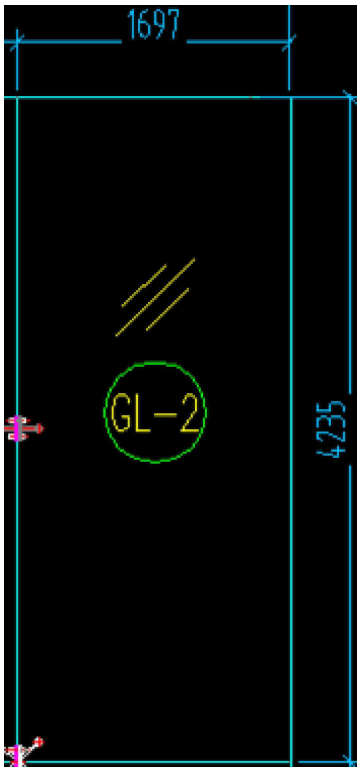
Working combination (Serviceability limit state)
S-1: DL+ WL
Wind load: 1.7 KPa(35PSF)

At Facade System Structure Calculation Report(Case)//

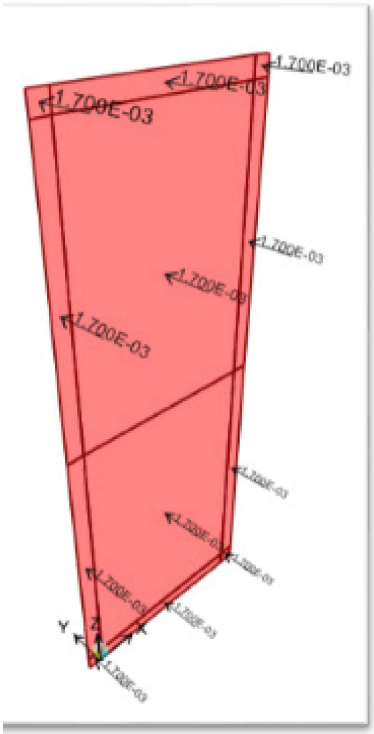
B. Glass Panel SAP2000 Calculation
1. Glass Panel Parameter
I. Façade Glass
Max. Glass panel size: 166.7" *66.8"
Glass thickness: 1/2 "+1/2 "A+1/4 " Insulated Glass
II. Fin Glass
Fin glass Height: 263". (1/SH-02)
Fin glass Height: 161.26". (4/SH-03)
Fin glass Width: 18".
Glass thickness: 1.12" (1/2 "+0.12SGP+1/2 ")

2. Glass Panel Performance Criteria
Allowable deflection of point supported face glass: S/60……(AS-1288-2006)

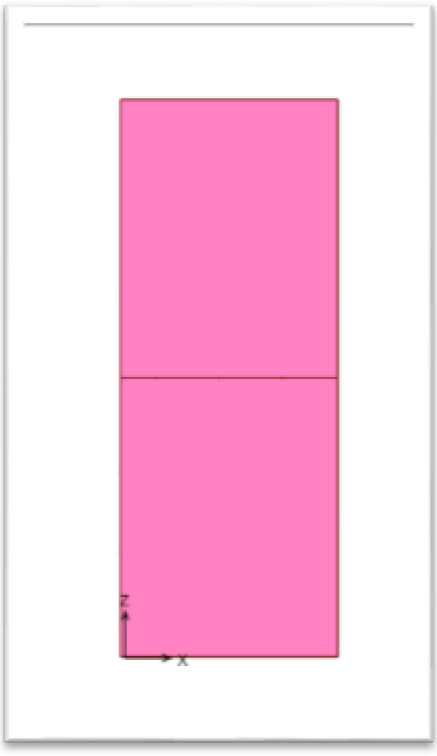
3. Sap2000 Calculation Max. Glass panel size: 166.7" *66.8"



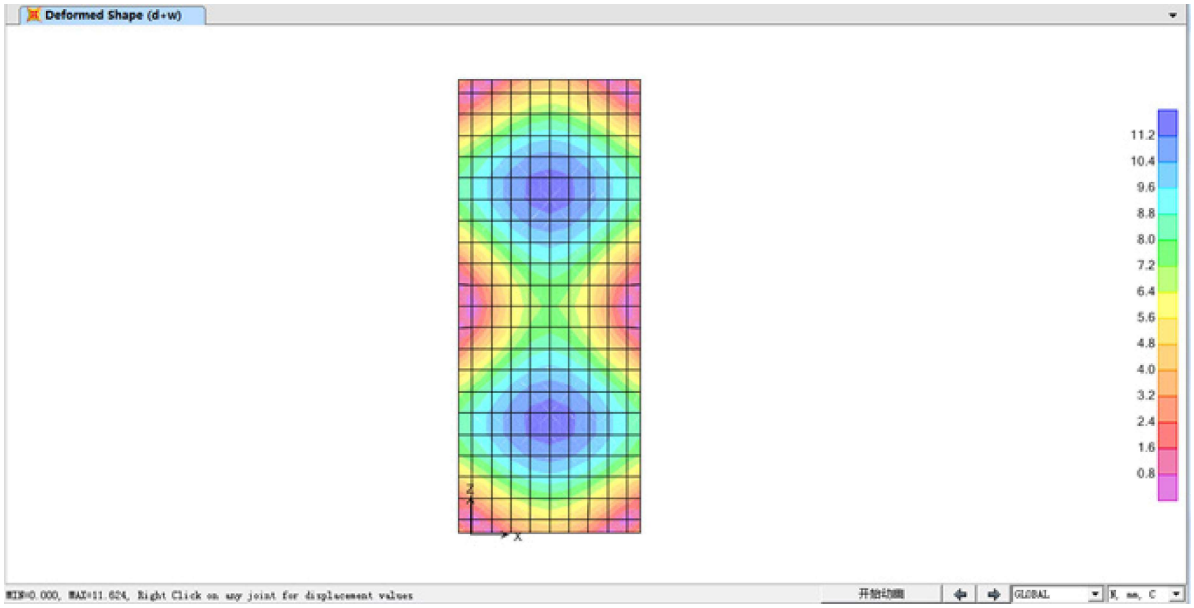
Max. Glass panel size



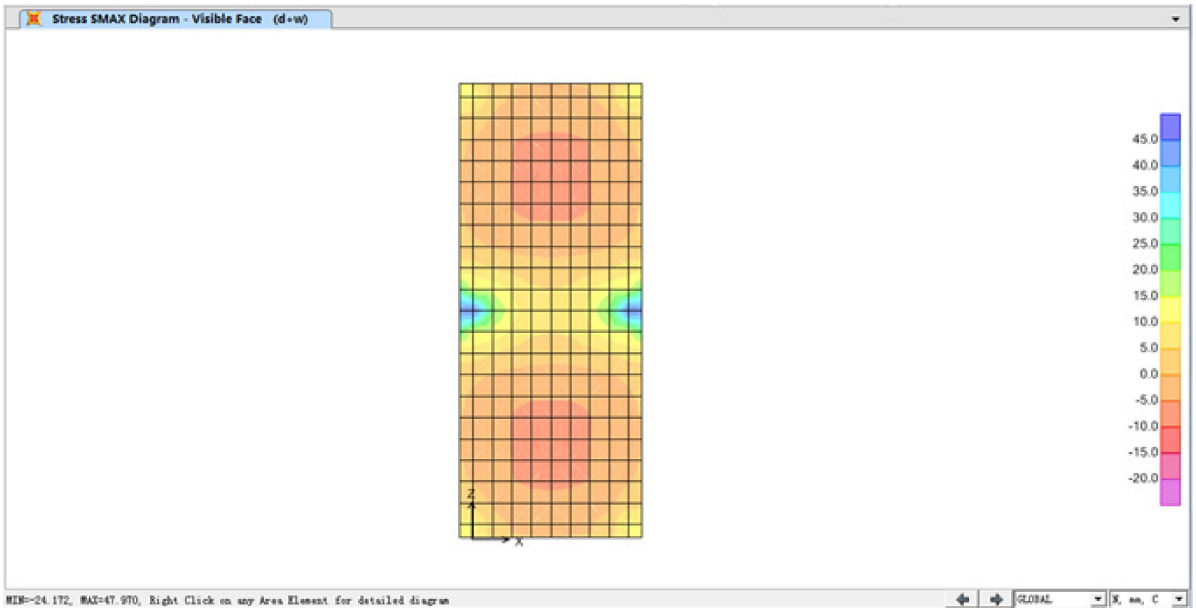
Wind load



S-1: DL+ WL



Deformation (δmax =11.624mm=0.46")

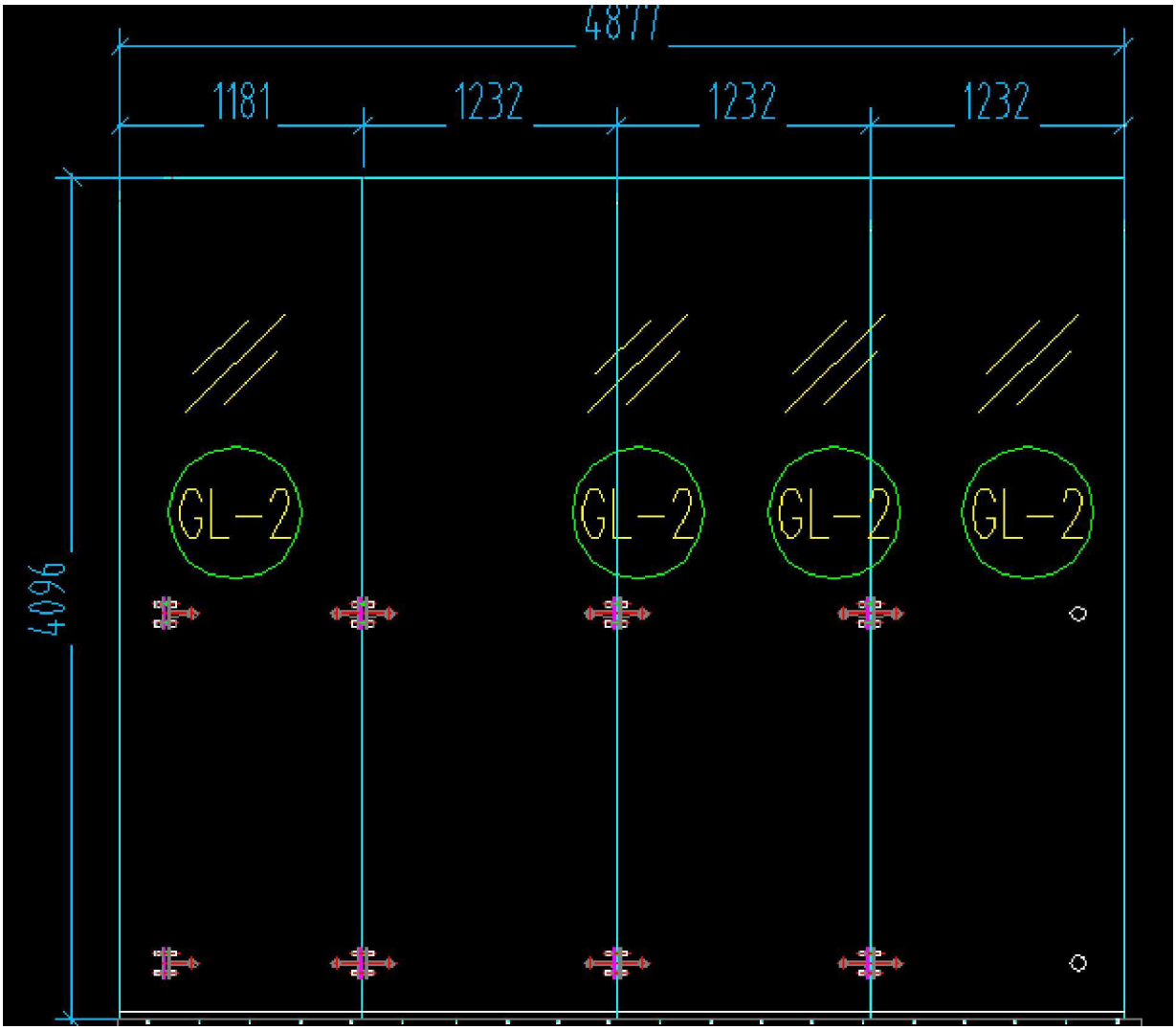


Max. Stress(σmax =47.97Mpa)

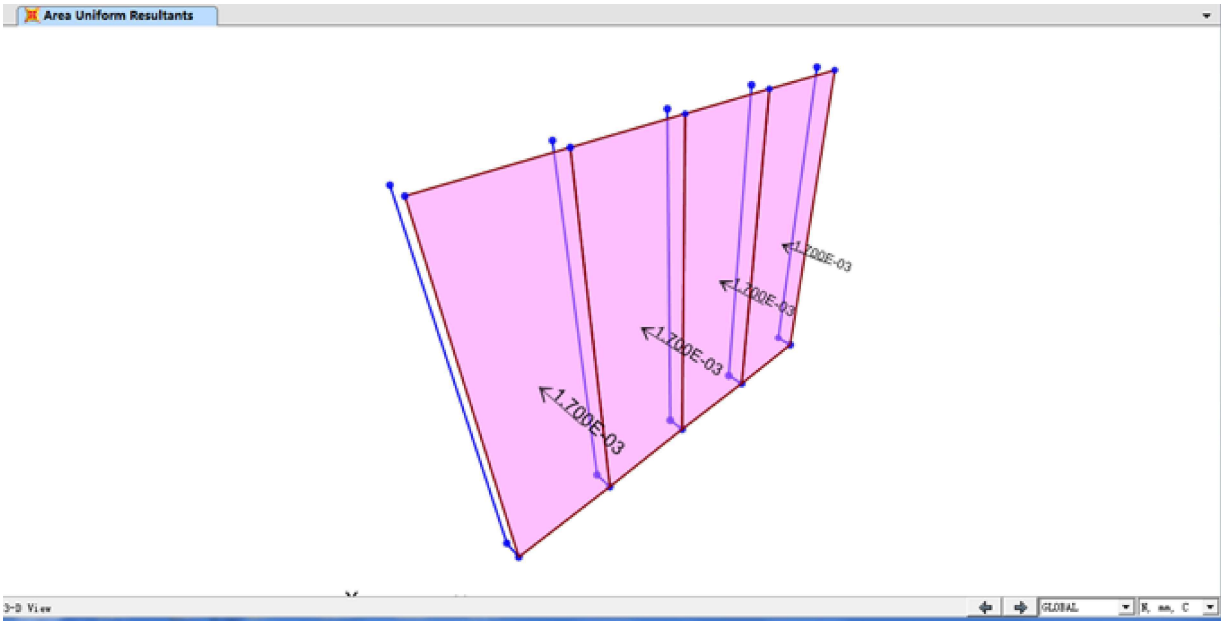
Max. Stress(σmax =47.97Mpa)
Conclusion
Deformation Check
Maximum deformation: δmax = 0.46” < S /60= 1.39” ……...…….. OK
Strength Check
Maximum stress: σmax = 47.97MPa <σs1= 73.0 Mpa …..…….....OK

At Facade System Structure Calculation Report(Case)//

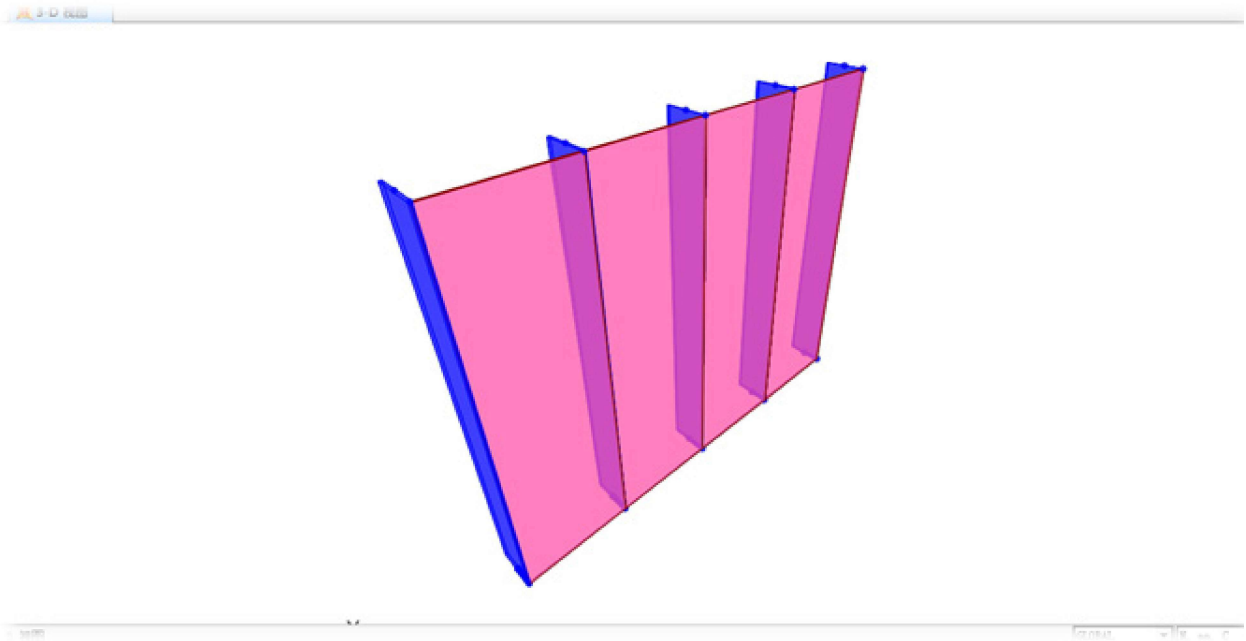
C.Fin System SAP2000 Calculation(4/SH-03)



Finite Analysis Element

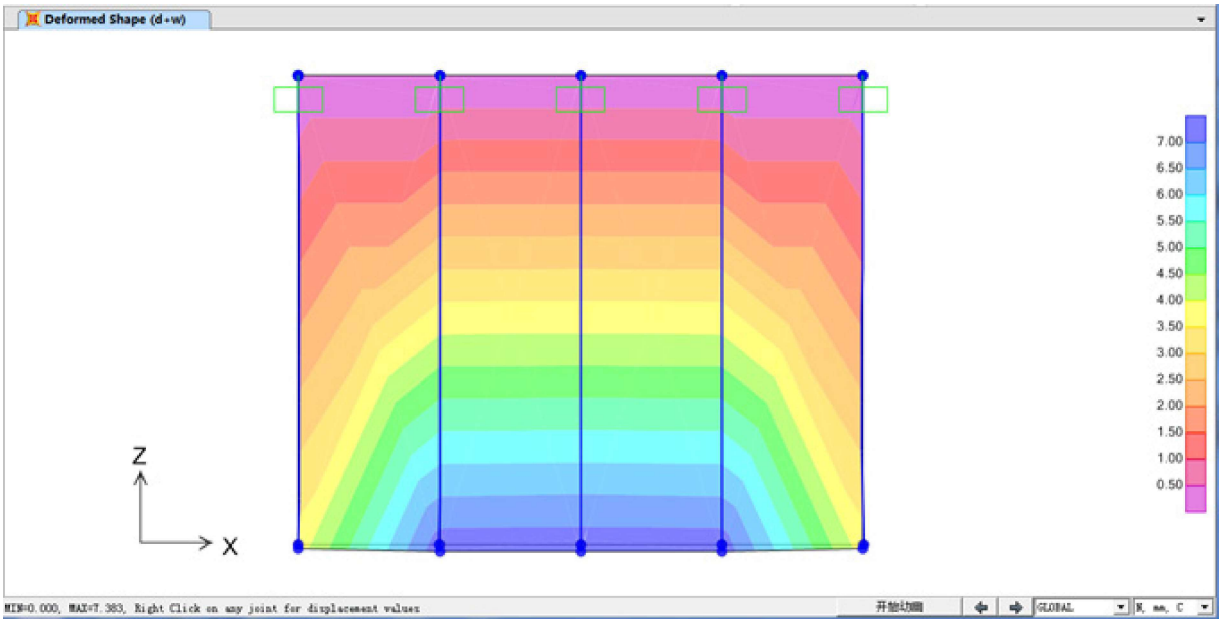


Wind Load(1.7Kpa)

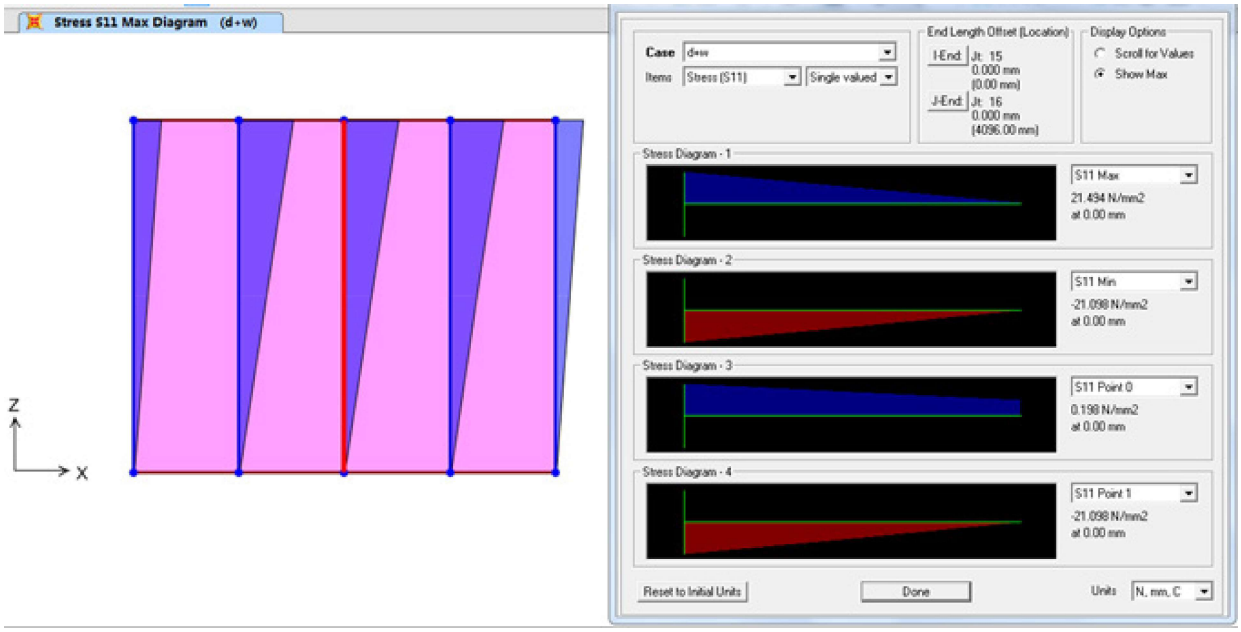


S-1: DL+ WL

At Facade System Structure Calculation Report(Case)//



ass Deformation δmax =7.383mm=0.29"



Fin Glass Stress σmax = 21.494 MPa

D. Conclusion

1. Fin Glass Deformation Check

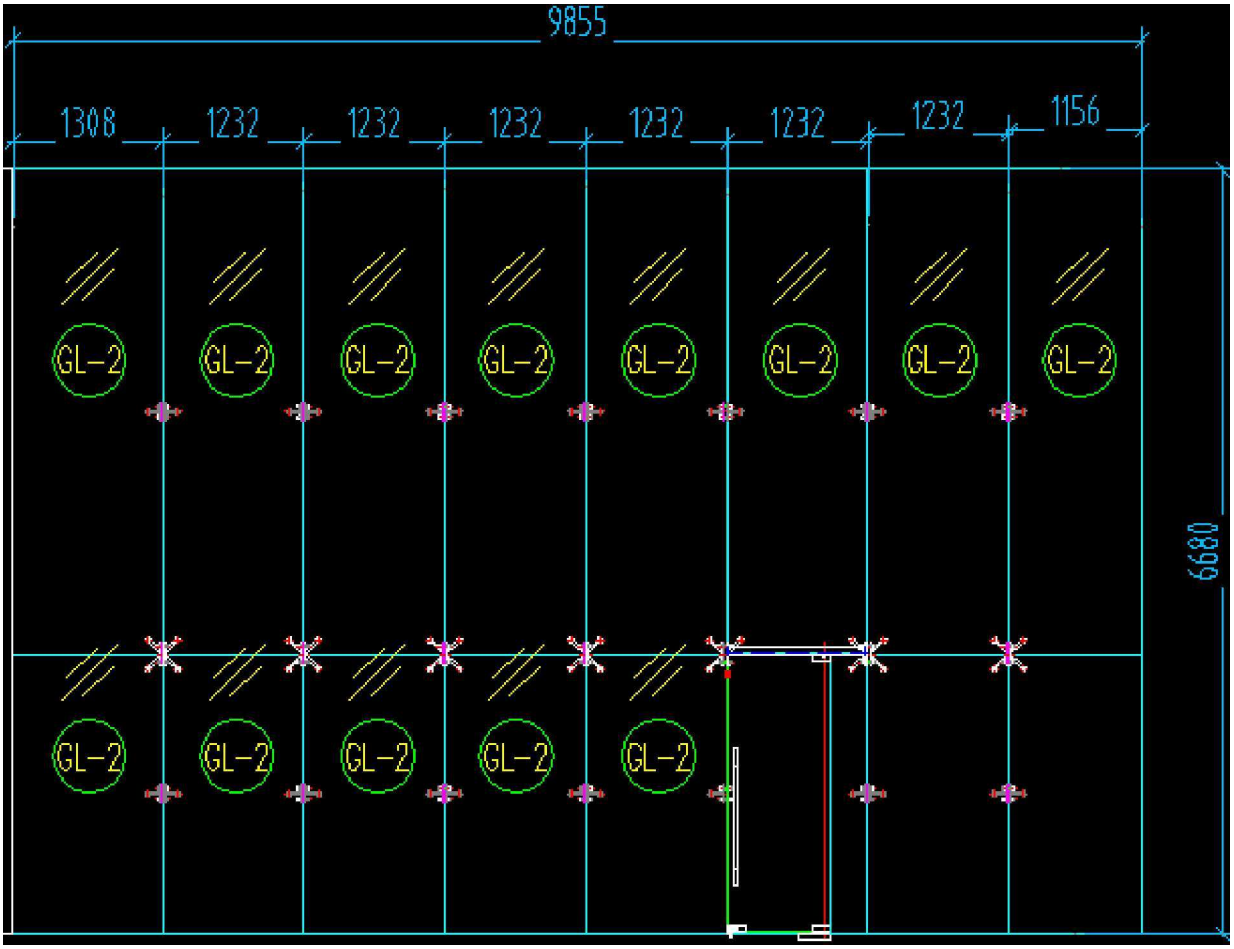
Maximum deformation: δmax = 0.29" < δall = L1/180= 0.896"……..….. OK

2. Fin Glass Strength Check

Maximum Strength: σmax = 21.494MPa < σall = 73.0 MPa (Fin Glass)……..……..OK

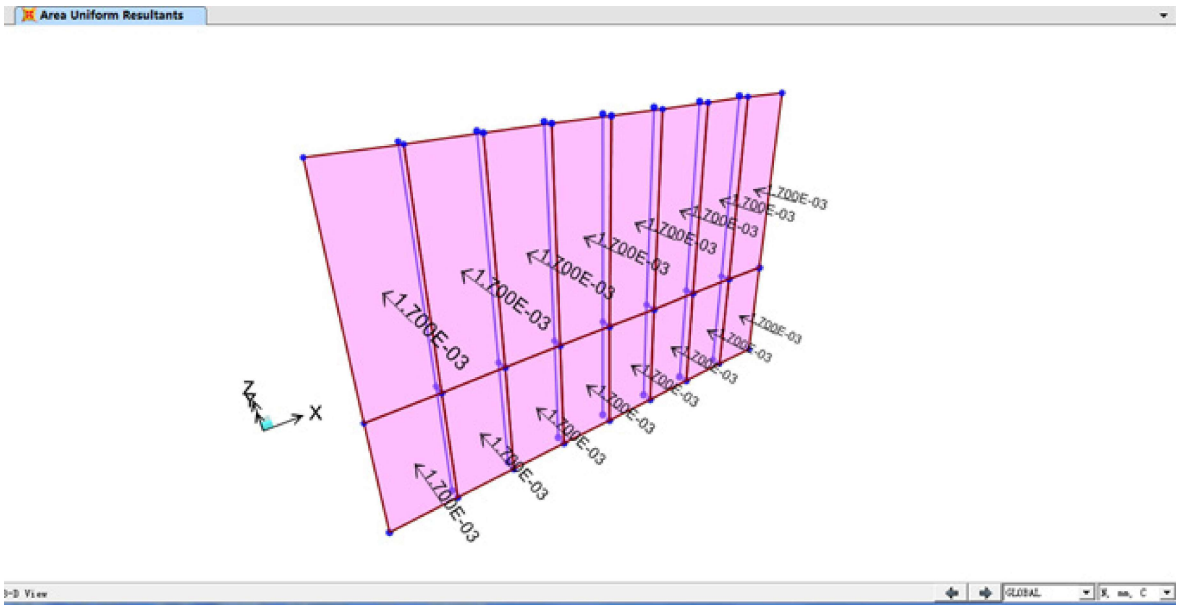
Hence, this Fin is qualified for the project.

E.Fin System SAP2000 Calculation (1/SH-02)

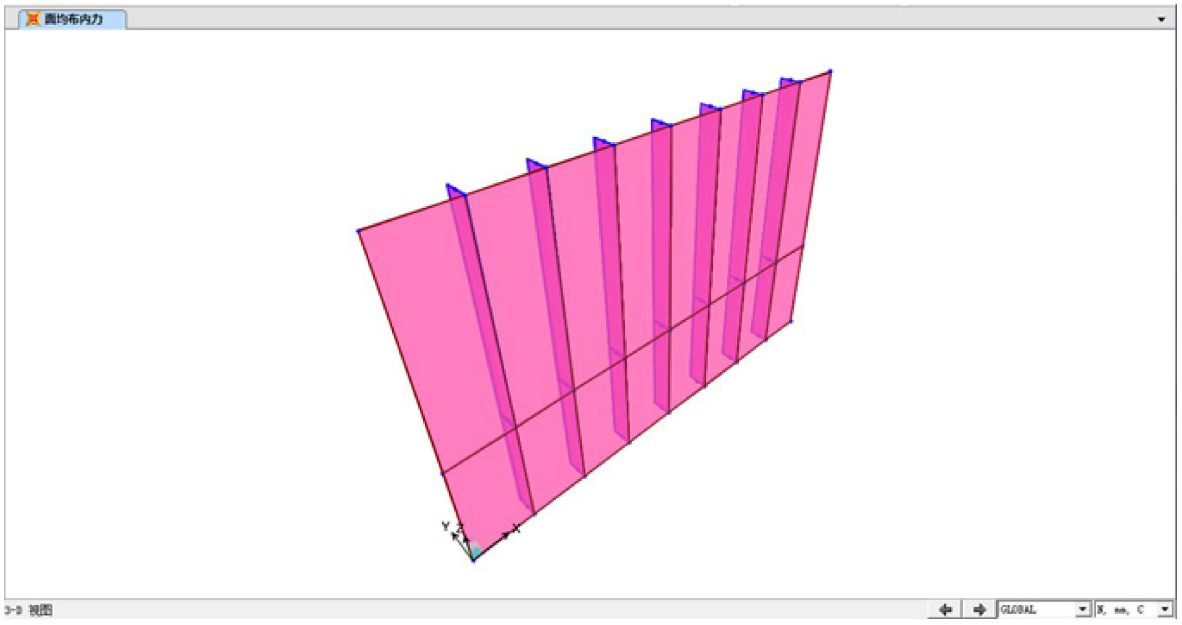


Finite Analysis Element

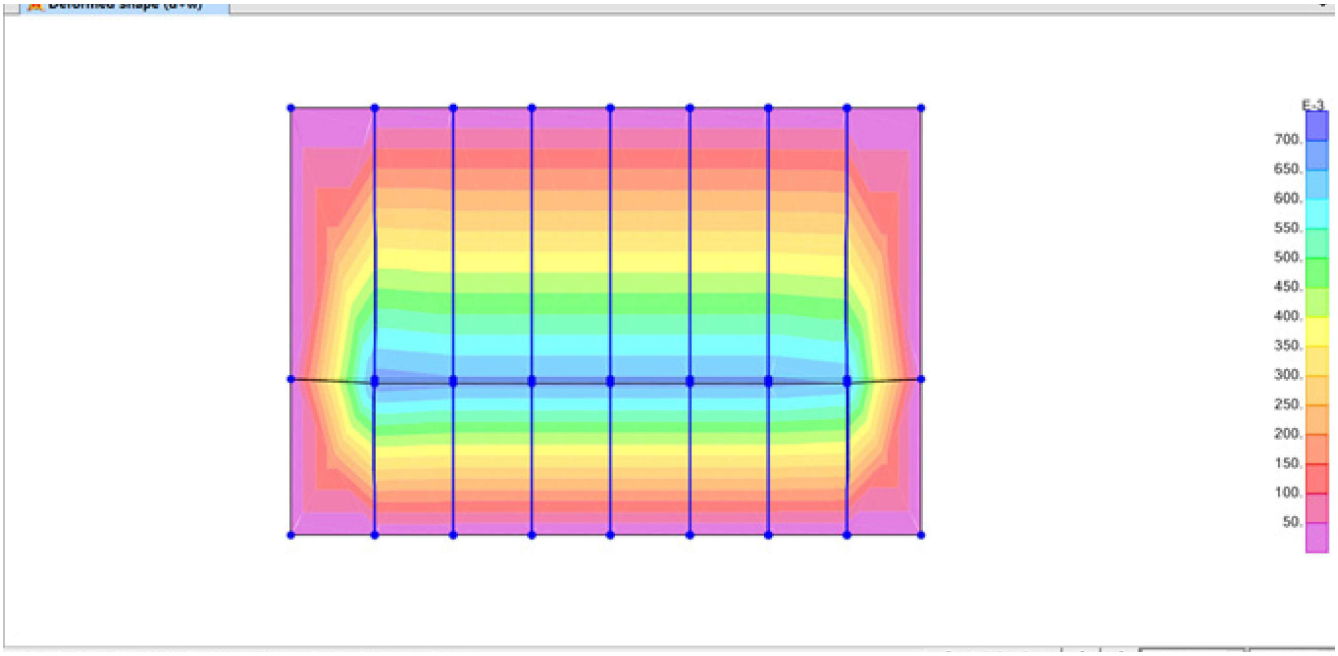
At Facade System Structure Calculation Report(Case)//



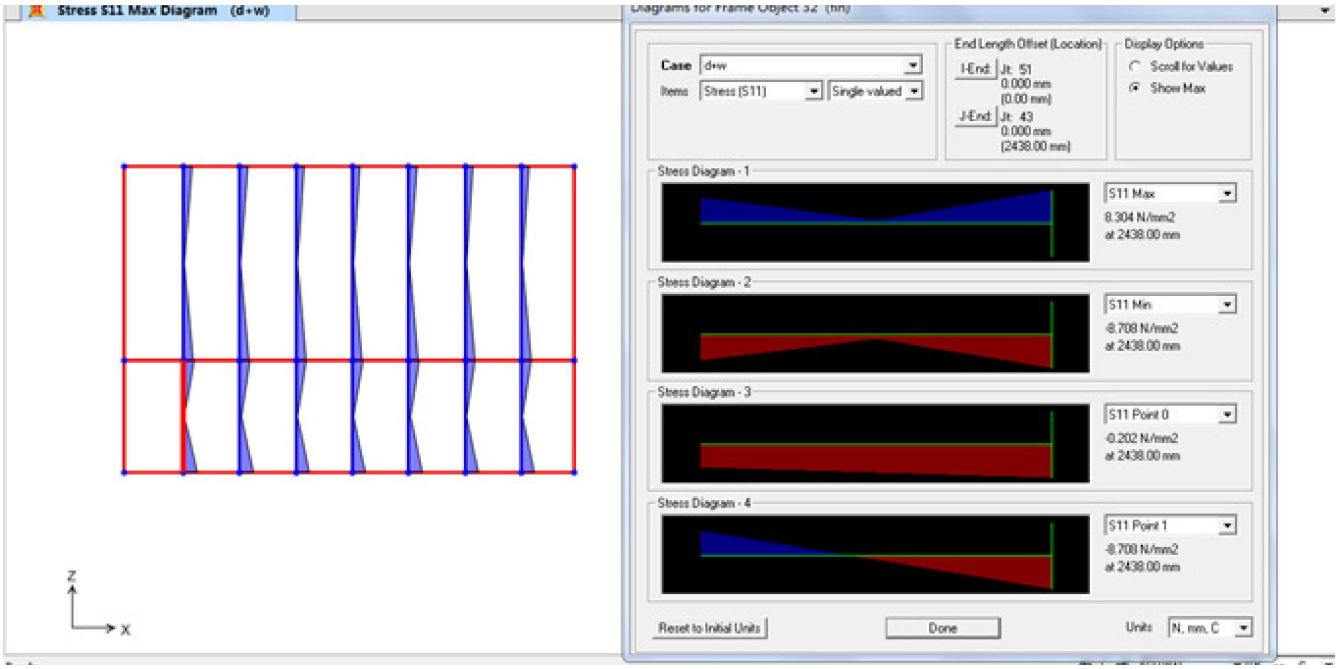
Wind Load(1.7Kpa)



S-1: DL+ WL



ass Deformation δmax =0.69mm=0.027"



Fin Glass Stress σmax = 8.71 MPa

At Facade System Structure Calculation Report(Case)//

F.. Conclusion

1. Fin Glass Deformation Check

Maximum deformation: δmax = 0.027” < δall = L1/200= 1.315”……..….. OK

2. Fin Glass Strength Check

Maximum Strength: σmax = 8.71MPa < σall = 73.0 MPa (Fin Glass)……..……..OK

Hence, this Fin is qualified for the project.

APPENDIX A:

Table 8 — Suggested limits for calculated deflections

a) *Vertical deflection of beams due to imposed load*	
Cantilevers	Length/180
Beams carrying plaster or other brittle finish	Span/360
Other beams (except purlins and sheeting rails)	Span/200
Purlins and sheeting rails	See **4.12.2**
b) *Horizontal deflection of columns due to imposed load and wind load*	
Tops of columns in single-storey buildings, except portal frames	Height/300
Columns in portal frame buildings, not supporting crane runways	To suit cladding
Columns supporting crane runways	To suit crane runway
In each storey of a building with more than one storey	Height of that storey/300
c) *Crane girders*	
Vertical deflection due to static vertical wheel loads from overhead travelling cranes	Span/600
Horizontal deflection (calculated on the top flange properties alone) due to horizontal crane loads	Span/500

Table 8 — Suggested limits for calculated deflections

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Tops of columns in single-storey buildings, except portal frames	Height/300
Columns in portal frame buildings, not supporting crane runways	To suit cladding
Columns supporting crane runways	To suit crane runway
In each storey of a building with more than one storey	Height of that storey/300
c) *Crane girders*	
Vertical deflection due to static vertical wheel loads from overhead travelling cranes	Span/600
Horizontal deflection (calculated on the top flange properties alone) due to horizontal crane loads	Span/500

APPENDIX B:

E 1300 – 04ε1

X9. APPROXIMATE MAXIMUM EDGE STRESS FOR GLASS

X9.1 The purpose of this appendix is to provide a conservative estimate for the maximum allowable edge stress (*allowable*) for glass lites associated with a maximum probability of breakage (P_b) less than or equal to 0.008 for a 3-s load duration.[8]

X9.2 This maximum allowable edge stress can be used for the design of glass shapes and support conditions where edge stress is significant. This includes applications where the glass is not supported on one or more edges. A conservative allowable edge stress value for a 3-s duration can be found in Table X9.1.

TABLE X9.1 Allowable Edge Stress

	Clean Cut Edges, MPa (psi)	Seamed Edges, MPa (psi)	Polished Edges, MPa (psi)
Annealed	16.6 (2400)	18.3 (2650)	20.0 (2900)
Heat-strengthened	N/A[A]	36.5 (5300)	36.5 (5300)
Tempered	N/A	73.0 (10 600)	73.0 (10 600)

[A] N/A–Not Applicable.

X9.3 The maximum edge stress in the glass lite should be calculated using rigorous engineering analysis, which takes into account large deflections, when required. This maximum calculated stress must be less than the maximum allowable stress.

[8] Walker, G. R., and Muir, L. M., "An Investigation of the Bending Strength of Glass Louvre Blades," *Proceedings of the 9th Australian Conference on the Mechanics of Structures and Materials*, Sydney, Australia, August, 1984.

APPENDIX C:

X5. DETERMINATION OF IG LOAD SHARE FACTORS

X5.1 The Load Sharing (LS) between the lites of a sealed IG unit is assumed to be proportional to the stiffness of the lites, that is, the glass thickness raised to the power of 3. (Where membrane stresses predominate, the exponent is less than 3 but this regime is outside the range of typical architectural glass design.)

X5.2 For the LS factors in Table 5, the LS factor for lite No. 1 is:

$$LS1 = (t_1^3 + t_2^3)/(t_1^3) \quad (X5.1)$$

where:
t_1 = minimum thickness of lite No. 1, and
t_2 = minimum thickness of lite No. 2.

Similarly the LS factor for lite No. 2 is:

$$LS2 = (t_1^3 + t_2^3)/(t_2^3) \quad (X5.2)$$

NOTE X5.1—The orientation of the IG unit is not relevant. Either lite No. 1 or No. 2 can face the exterior.

Under short duration loads laminated glass is assumed to behave in a monolithic-like manner. The glass thickness used for calculating load sharing factors for short duration loads is the sum of the thickness of glass of the 2 plies (in accordance with Table 1).

X5.3 Under long duration loads laminated glass is assumed to behave in a layered manner. The load sharing is then based on the individual ply thicknesses of the laminated glass. The load share factor for one ply of the laminated lite of an IG composed of: monolithic glass, air space, laminated, is:

$$LS_{ply} = (t_1^3 + 2 \times t_{ply}^3)/(t_{ply}^3) \quad (X5.3)$$

where t_{ply} is the thickness of one glass ply of the laminate.

SSMGLASS

青岛晖阳玻璃有限公司
QINGDAO SSMG GLASS CO.,LTD

THERMOTECHNICAL AND OPTICS PERFORMANCE DATA

DATE:2019/10/14
P2 1

项目名称 PROJECT :ORMISTON TOWN CENTRE
产品膜系 LOW-E NO.:OFFLINE D70
反射颜色 REFL. COLOR.:CLEAR
产品配置 COMBINATION:
ITME 1 DGU-6MM CLEAR LOW-E(D70,2#) TEMPERED GLASS+12ARGON+6MM CLEAR TEMPERED GLASS

可见光 VISIBLE LIGHT(%)			太阳能 SOLAR ENERGY(%)		U值 U-VALUE(W/m².K)		遮阳系数SC	紫外线透过率%	得热系数 SHGC	
透光率	外反射	内反射	透过率	反射率	SUMMER	WINTER	SHADING	UV	SOLAR HEAT GAIN	Tdw-ISO(%)
TRANSMITTANCE	REFL.-OUT	REFL.-IN	TRANSMITTANCE	REFLECTANCE	12ARGON		COEFFICIENT	TRANSMISSION %	COEFFICIENT	
64.00	10.00	12.00	27.00	32.00	1.40	1.50	0.37	21.00	0.42	49.00

项目名称 PROJECT :ORMISTON TOWN CENTRE
产品膜系 LOW-E NO.:ONLINE SFC70
反射颜色 REFL. COLOR.:CLEAR
产品配置 COMBINATION:
ITME 2 8MM CLEAR LOW-E(SFC70,2#) TEMPERED GLASS

可见光 VISIBLE LIGHT(%)			太阳能 SOLAR ENERGY(%)		U值 U-VALUE(W/m².K)		遮阳系数SC	紫外线透过率%	得热系数 SHGC	隔音效果
透光率	外反射	内反射	透过率	反射率	SUMMER	WINTER	SHADING	UV	SOLAR HEAT GAIN	COMPREHENSIVE
TRANSMITTANCE	REFL.-OUT	REFL.-IN	TRANSMITTANCE	REFLECTANCE			COEFFICIENT	TRANSMISSION%	COEFFICIENT	SOUND INSULATION
68.00	9.00	11.00	36.00	7.00	2.73	3.56	0.67		0.47	

项目名称 PROJECT :ORMISTON TOWN CENTRE
产品膜系 LOW-E NO.:ONLINE SFC70
反射颜色 REFL. COLOR.:CLEAR
产品配置 COMBINATION:
ITME 3 4MM CLEAR LOW-E(SFC70,2#) GLASS+0.38 CLEAR PVB+4MM CLEAR GLASS

可见光 VISIBLE LIGHT(%)			太阳能 SOLAR ENERGY(%)		U值 U-VALUE(W/m².K)		遮阳系数SC	紫外线透过率%	得热系数 SHGC	隔音效果
透光率	外反射	内反射	透过率	反射率	SUMMER	WINTER	SHADING	UV	SOLAR HEAT GAIN	COMPREHENSIVE
TRANSMITTANCE	REFL.-OUT	REFL.-IN	TRANSMITTANCE	REFLECTANCE			COEFFICIENT	TRANSMISSION%	COEFFICIENT	SOUND INSULATION
67.00	9.00	11.00	36.00	7.00	2.73	3.56	0.67	0.01	0.47	

THE ABOVE DATA ARE CALCULATED BY SOFTWARER WIINDOW 7.7 (NFR(100-2010))BY LAWRENCE BERKELEY LABORATORY,USA,EXCEPT FOR THE LABELING CRITERIA.

Services

01 Detaled Design

02 Processing

03 Non-standard customization

04 R&D and Testing

05 System quality contral

06 Delivery

07 Customs clearance

08 Installation guide

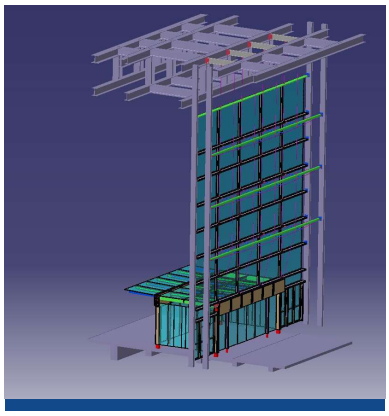
09 Sample and standard colors

01: Detailed design

At facade, we have 16 senior design teams ready to serve in any project in a professional, rigorous and enthusiastic manner.

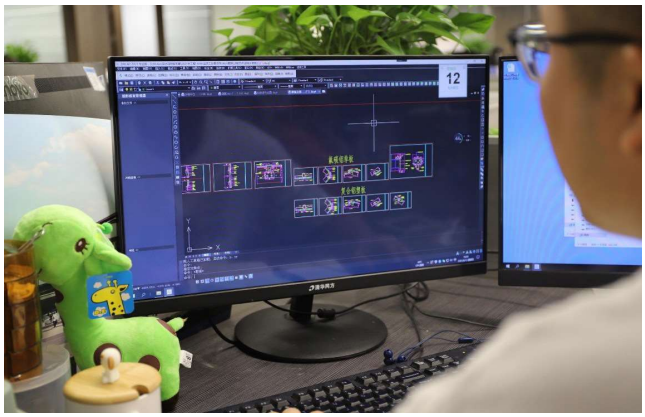
In line with the architectural design drawings and the local code requirements, the external facade is systematically designed, and then according to the project scheme confirmed by the customer, the detailed technical competition and quality standards are provided for the production of glass, aluminum profiles and hardware

This is a reliable and clear basis for the next step of production and processing, ensuring the smooth delivery of the curtain wall system.



BIM ON FACADE

System modeling, intuitive and accurate



Completion of construction drawings confession

Design teams

we have 16 senior design teams

02: Processing

AT Facade's has a proven advantage in the production and processing of curtain wall glass (especially the production of toughened glass, laminated safety glass, insulating glass, energy-saving Low-E glass, etc.) and the production, processing, and assembly of aluminum profiles.

Based on our company's years of experience in the curtain wall industry, we have established a hardware supply system that has superiority in ++product reliability, stability, time, and cost. It can provide a reliable guarantee for our project's smooth progress. We collaborate with Jianlang Group to develop and produce hardware.

The Hardware fixing systems, aluminum profile support system, and glass panel system are finally pre-assembled in our factory by a combination system of quality management and control.

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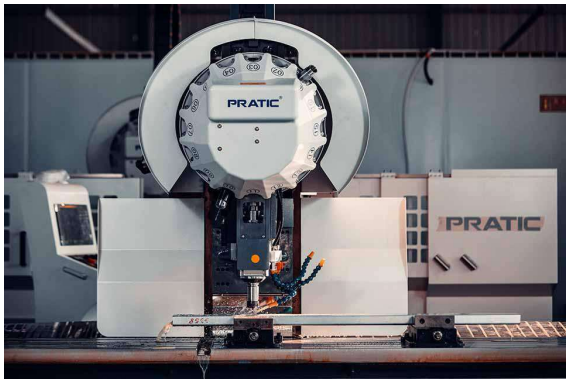

03: Non-standard customization

we support non-standard customization.

The curtain wall has more architectural value as an external facade system, and each building has its unique design and structure.

With the development of production technology and the changes in people's aesthetics, we actively respond to the trends.

We work with the production and application of super-large glass, breakthroughs in curved surfaces, from single bending tempering to multi-curved tempering. We have production and application delivery experience and have completed many important landmark building projects.

Green and energy-saving is the core issue of curtain walls building . We have developed soft Low-E series of energy-saving glass through a selective filtering process of light, energy-saving materials with different shading coefficients, different transmittances, and different U-value coefficients. It satisfies most of the architectural glass applications.

The processing and customization of aluminum profiles are also one of our core advantages: we have a production workshop of 30,000 square meters, and more than 230 employees provide support for our projects.

The key to customizing hardware is to be stable and reliable and meet structural mechanics' design requirements.

Finally, in pursuit of aesthetics, we have been collaborating with Kinlong Group to provide unconditional endorsement of the hardware's stability.

04: R & D and Testing

aT Facade has always adhered to the development of a learning culture inside our organization.

We are laboratory-based on the fundamental principles of exploring, discovering, and serving facts and truths that actively respond to the needs of customer projects. Through our R&D team, we test the convenience and experimentation of the production workshop.

More importantly, we have a resilient and open spirit that welcomes new challenges. We actively explore green and energy-saving alternatives and provide solutions for the building's facade.

Throughout our testings, we have explored the double breathing glass. The glass overcomes the hollow glass's stability as a unit caused by the expansion and contraction of the gas in the hollow cavity caused by the temperature change of the hollow glass.

The hollow glass's internal pressure is adjusted through

the built-in airbag to ensure the stability of the hollow glass unit. At the same time, the flatness of the glass provides a reliable environment, it also supplies a stable and reliable glass unit for the facade while ensuring its flatness and beauty.

The second highlight is the application of aerogels. The U-shaped glass seals the aerogels. Because aerogels have excellent thermal and sound insulation effects and ideal visible light transmission, we have developed many ideas based on this finding. We will actively take the next steps: to explore the use of aerogel in insulating glass, strive to innovate, and provide more excellent solutions for each unique facade.

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05: System quality control

This service is our absolute advantage – the curtain wall industry is subdivided into curtain wall design consulting, aluminum profile production and processing, hardware production and processing, glass production and processing, field installation, and other modules.

At present, the curtain wall system's quality control is mainly in the processing and production of profiles, but the quality of the facade curtain wall comes from the quality of the glass units.

We can provide a one-stop overall curtain wall solution for large, medium, and small projects by having strict control of the production cycle, pre-assembly, and system quality management based on our superiority in glass and aluminum profile production and processing.

BIM ON FACADE

System modeling, intuitive and accurate

Design teams

we have 16 senior design teams

Completion of construction drawings confession

06: Delivery

our deliveries are accurate, safe and on time.

As a professional glass manufacturer, we have produced, packaged and exported tens of thousands of packaged glass. From simple processing with small size to processing with specific dimensional requirements, we have achieved the highest professional level in accuracy, safety, and timeliness.

One of the difficulties in the production, processing, and export of curtain walls is packaging and transportation and the major issue here is the glass. In this regard, we have reached the top standard in the industry. We consider and prepare for the order and availability of the installation, from the very beginning of the production.

We provide unique identification for each piece of glass and one-to-one correspondence with the packaging, ensuring that the project site can easily retrieve the wooden box's contents after receiving the product. While ensuring availability, it also ensures the ease of use, safety, and reliability for the optimal transportation cost.

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07: Customs clearance

we have years of overseas customer service experience which allowed us to develop a rigorous and reliable export operation team to serve on our projects

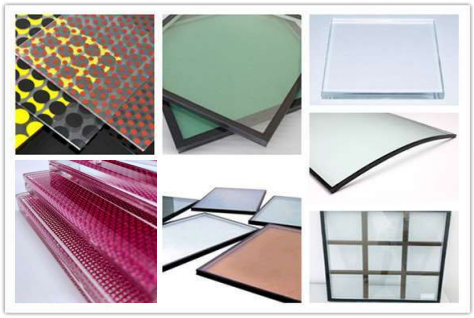
The professional export operation team provides timely and accurate customs clearance documents to ensure prompt delivery of containers at the port without incurring additional costs.

08: Installation guide

From the beginning of the scheme design, we proactively think of possible problems of on-site installation, and accurately coded and marked each product on the project construction drawings and products.
our professional installation guidance team provide full technical guidance for the smooth delivery of the project.

09: Sample and standard colors

we provide free samples and references for the project party to make the right choices and recommend our excellent product samples according to their design requirements and specifications.



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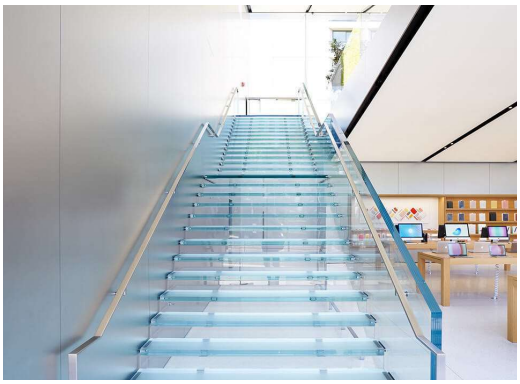
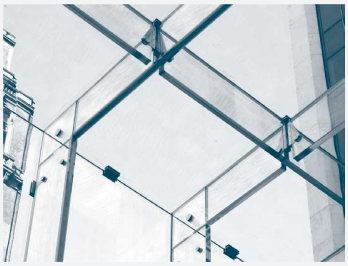
At Facade Project Gallery//

America Area





Project: New York Hotel

Location: New York, U.S.A
AT Facade Products Application: SSMGLASS-The structural glass inlaid with hardware is used as a staircase with a length of 11M, two sets, providing a better solution for commercial decoration; A large number of structural glasses, ultra-long and ultra-wide glass panels provide visual effects that have never been experienced before. The design of glass houses and corridors makes the ceiling decorated with the best effect.

America Area

Project:Avian hotel

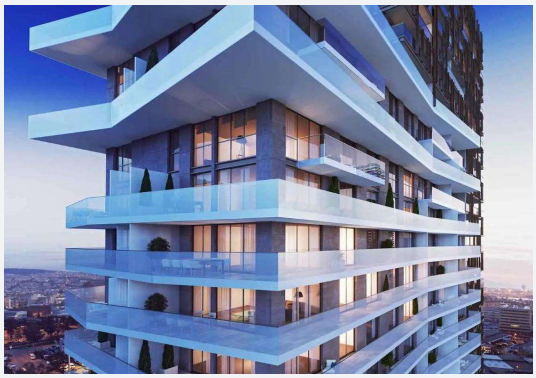
Location:Toronto Canada

AT Facade Products Application:SSMGLASS-IGU low-e glass with tempered and heat soaked for Facade

Project:MILLENNIUM PARK

Location:PANAMA

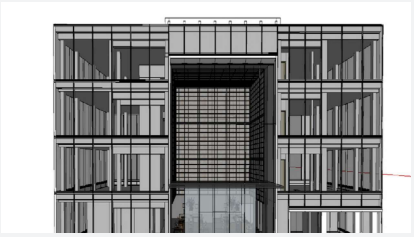
AT Facade Products Application:SSMGLASS-IGU green low-e glass with 75Alum Profiles system



Project:Apartment

Location:Ottawa Canada

AT Facade Products Application:SSMGLASS-clear laminate glass -Full glass fence



Project:New York Hotel

Location:New York , U.S.A

AT Facade Products Application:SSMGLASS-Zipper connection curtain wall system.

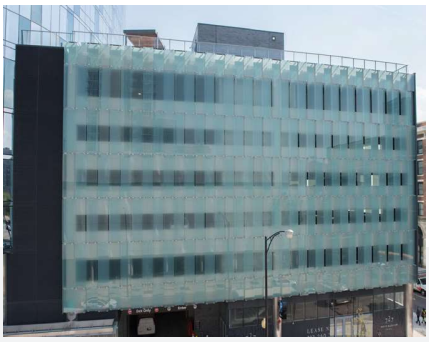
At Facade Project Gallery//

Europe Area

Project:BOQ

Location:Spain Europe

AT Facade Products Application:SSMGLASS-IGU low-e tempered glass for windows,10MM tempered for Fence



Project:307th

Location:Italy Europe

AT Facade Products Application:SSMGLASS-The 12MM Acid-etched tempered glass used as the building facade reduces light reflection .

Project:IV Castle Lane A.p

Location:U.K

AT Facade Products Application:SSMGLASS-Curved Tempered IGU for windows

Project:U.K curtain wall

Location:U.K

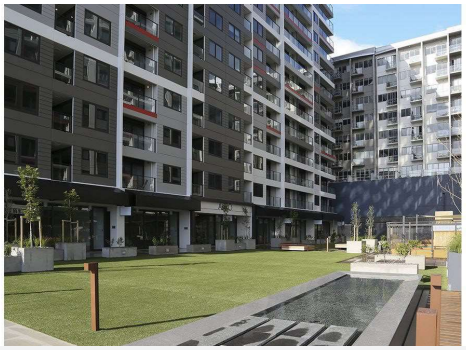
AT Facade Products Application:SSMGLASS-Curved Tempered Laminated glass for facade.

Oceania Area

Project:WAKEFIELD HOSPITAL

Location:New Zealand Oceania

AT Facade Products Application:SSMGLASS-IGU 6MM CLEAR LOW-E (PDE70)Tempered glass for Facade



Project:Sugar Tree

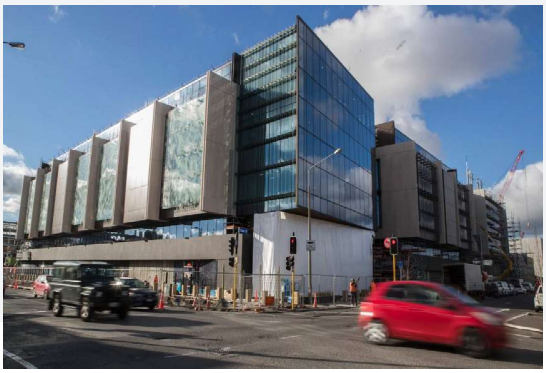
Location:New Zealand Oceania

AT Facade Products Application:SSMGLASS-6MM gray tempered IGU glass for the windows

Project:Metlifecare

Location:New Zealand Oceania

AT Facade Products Application:SSMGLASS-IGU for windows,



Project:KPMG Building

Location:New Zealand Oceania

AT Facade Products Application:SSMGLASS-10+10 green color laminated glass with tempered and heat soaked for Facade

At Facade Project Gallery//

Asian Area

Project:Shangrao Mildal School

Location:Jiangxi China

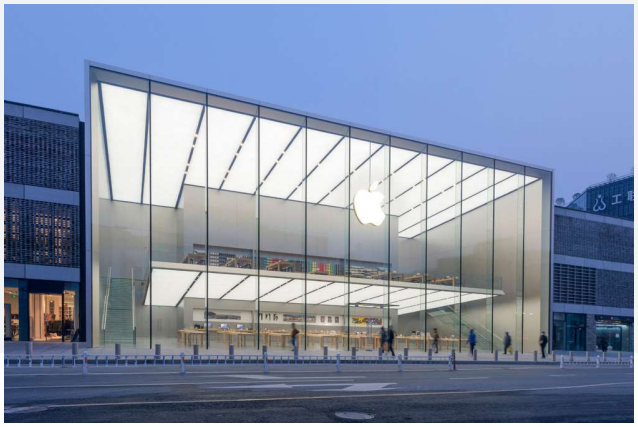
AT Facade Products Application:SSMGLASS-COM-S8 CdTe Power Glass, for BIPV building SYSTEM , from Design to processing

Adopt BIPV design concept
The world's most advanced weak light power generation technology (CdTe) is adopted. According to the comprehensive design of curtain wall and electrification, high-efficiency power generation can be realized on the basis of realizing the original functions of curtain wall. Besides meeting the point demand of the building itself, there will be surplus power to support the power consumption of other buildings.
It is a very successful power generation curtain wall project;

Project:HAITIAN CENTER

Location:Qingdao China

AT Facade Products Application:SSMGLASS-hight quality Low-e Tempered glass IGU for the facade, and will Pure laminated glass for Interior decoration



Project:Apple 4S Sales Center

Location:Hangzhou China

AT Facade Products Application:SSMGLASS-The use of oversized hollow glass, high-quality glass elements for interior decoration

Middle East Area

Project:Qatar National Bank

Location:Doha,Qatar,Middle East

AT Facade Products Application:SSMGLASS-IGU LOW-E Glass for Facade,Bulletproof Glass for Interior decoration

Project:Club Villas at DuBai Hills

Location:Dubai,UAE,Middle East

AT Facade Products Application:SSMGLASS-Super clear safety art silver mirror

Project:KIA&Hyundai Showroom

Location:Dubai,UAE,Middle East

AT Facade Products Application:SSMGLASS-10+10 pure laminated glass for Facade,12+3.04SGP+12 Low-iron Tempered glass with fin for structure

Project:AI Juraina Mall

Location:Sharjah,UAE,Middle East

AT Facade Products Application:SSMGLASS-IGU LOW-E Glass for Facade,,6+1.52PVB+6 CLEAR Tempered glass for the fence

At Facade Project Gallery//

Project:Pommy Cinema

Location:Spain Europe

AT Facade Products Application:SSMGLASS-IGU low-e tempered glass for windows,10MM tempered for Fence

Africa Area

Project:CJCIETC ORDA

Location:Ethiopia East Africa

AT Facade Products Application:SSMGLASS-Clear tempered glass for the glass door

Project:NIB INTERNATIONAL BANK

Project:Ethiopia telecom headquarters

Location:Ethiopia East Africa

AT Facade Products Application:SSMGLASS-6MM EURO BRONZE IGU glass for the facade,Bulletproof Glass for Interior decoration

Location:Ethiopia East Africa

AT Facade Products Application:SSMGLASS-IGU 75 Thermal insulation aluminum windows with IGU low-e tempered glass for this building

Build a classic project together//

1.Professional glass production and processing capabilities

2.Supply advantages of integrated hardware and aluminium profiles

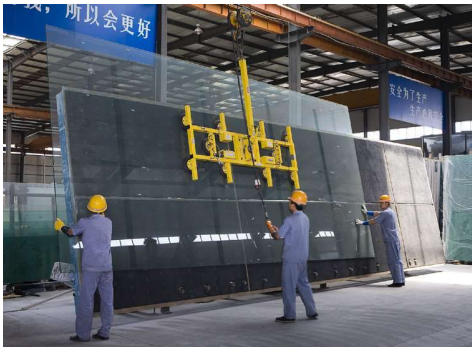
3.Rich data and experience in international engineering services

4.We are always by your side to create a classic project together.

At Facade Factory & Equipment//

Oversides Glass Cutting

Oversides Glass Cutting



Oversides Glass Cutting

3660*20000MM CNC Automatic Cutting Machine

3660*18000MM CNC Polish

3660*18000MM DIP Tech Digital Printing

3660*18000MM Continuous Silk Screen Printing Workshop

3660*18000mm Flat &Curved Tempering Furnace

2440*5000mm Imported Tamer Tempering Furnace

3660*20000MM Heat Soaked Furnace

3660*18000MM Constant Temperature,Constant Wet ,Dust-free laminated room

3660*18000MM Constant Temperature,Constant Wet ,Dust-free laminated room

At Facade Factory & Equipment//

3660*20000MM Autoclave

2700*8000MM Automatic argn filling Production line

Fumigation-free plywood packaging workshop

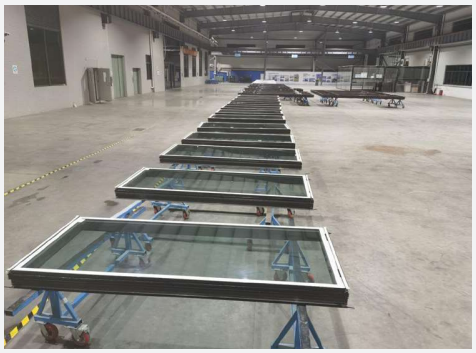
Automatic profile cutting center

Automatic CNC milling hole center

Automatic CNC milling hole center

CNC UPVC four-side welding center

Door and window curtain wall processing and assembly workshop



Finished product maintenance workshop

Packing workshop

Logistics, loading, shipping

Logistics, loading, shipping

At Facade Key Equipment List Table//

Item	Equipment Name	Number	Size Range (MM)	Precision	Our Advantage
1	Cutting Line	5	60*60 TO 3660*18,000	±1MM	Precisely cut extra large, extra thick, extra wide and extra long glass(3660*18000MM)
2	Grinding Edge Line	5	60*60 TO 3660*18,000	±2MM	Fine grinding and polishing of oversized, special-shaped, high-quality glass
3	Silk Screen Printing Line	2	100*300 TO 3660*12,000	±0.01MM	Single color, multi-color overprinting, suitable for mass production of a single product, imported high-temperature ceramic ink, accurate color performance
4	Digital Printing Line	2	100*300 TO 3660*12,000	±0.01MM	Spain imported DIP Tech equipment, using German imported high-temperature ceramic ink, high-quality color reproduction
5	Tempering Furnace	5	100*300 TO 3660*18,000	±2MM	It can process 3660*18000MM sur-large plate glass;3MM thickness can tempered ,the most complete bending radius
6	Multi Curvature Furnace	4	300*300 TO 3300*500	±3MM	The most accurate, the largest curved surface of multi-curved tempered glass
7	Heat Soaked Furnace	1	100*100 TO 3660*18,000	±0MM	The largest hot dip furnace in Asia, strictly implementing standards(EN14179-2005)
8	Laminated Glass Production Line	3	100*100 TO 3660*18,000	±1MM	Seamless docking of PVB,SGP,laminated glass
9	Autoclave	5	100*100 TO 3660*18,000	±0MM	The largest hot dip furnace in Asia
10	IGU Prodction Line	3	300*300 TO 3660*18,000	±2MM	Argon filling on production line
11	Automatic Profile Cutting Center	1	TO 11500	±0.5MM	Efficient, precise, and excellent incision
12	Automatic CNC milling hole center	1	TO 11500	±0.5MM	Ensure accurate size positioning and excellent splicing performance
13	CNC UPVC four-side welding center	1	TO6000	±0.5MM	Automatic corner cleaning, stable and reliable welding quality

At Facade Absolute Advantage//

Professional Manufacturer of Architectural Super Large Size/Structural/ Decorative Glass Perfect Glass Facade System

Certifications

CR
公 司 註 冊 處
COMPANIES REGISTRY

編號 3086759
No.

公司註冊證明書
CERTIFICATE OF INCORPORATION

***

本人謹此證明
I hereby certify that

HONGKONG AT FACADE ENGINEERING LIMITED 香港暉陽幕牆工程有限公司

於本日根據香港法例第622章《公司條例》 is this day incorporated in Hong Kong under the Companies Ordinance
在香港成立為法團，此公司是一間
(Chapter 622 of the Laws of Hong Kong), and that this company is
有限公司。 a limited company.

本證明書於二〇二一年九月十七日發出。
Issued on 17 September 2021 .

香港
特別行政區公司註冊處處長徐麗貞
Ms Kitty TSUI
Registrar of Companies
Hong Kong Special Administrative Region

註 Note:

There are no secrets to success. It is the result of preparation, hard work, and learning from failure.

Team Leader's

CEO:Architectural, Technical, Systematic, Perfect.

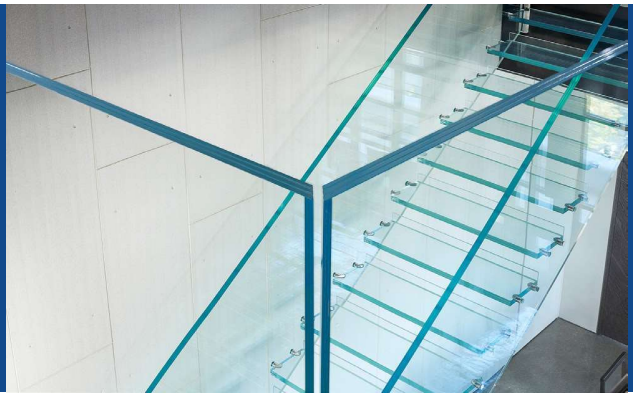
CTO:Explore, discover and serve facts and truths.

CBO:Brand is a solid promise.

COO:Excellent quality,Reasonable price, Delivery ontime.

C R - HONGKONG AT FACADE ENGINEERING LIMITED

Tax no: 73377359



Glass Factory Info

The glass processing factory invested by AT Facade in provides us with perfect services

ID card for international trade

Australian Safety Certification

The standard is:AS/NZS:2208.1996

For safety glass material in building

ISO 9001 Quality Certification

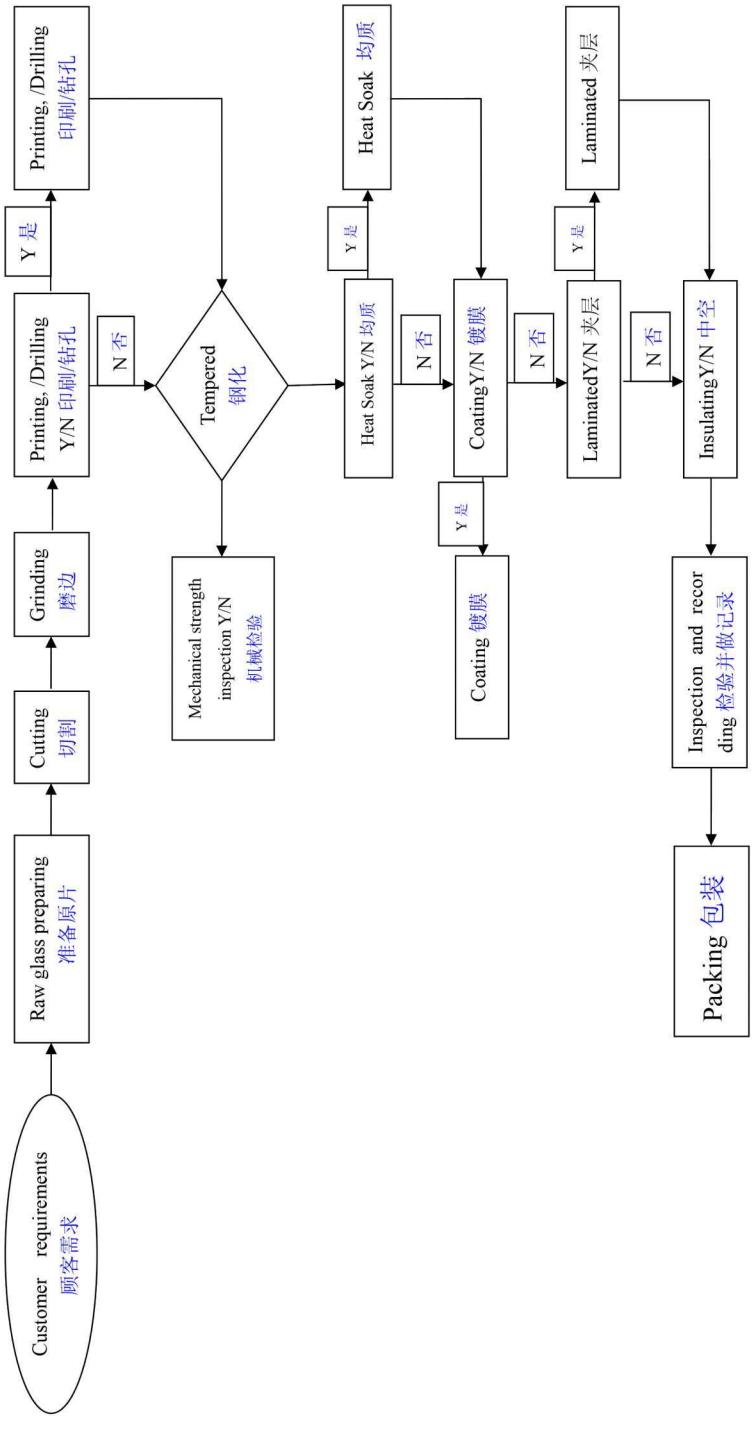
ISO International Certification conducts systematic audits of our production environment and products to meet standard requirements

Quality Control Plan

1. The following standards are used in quality inspection unless otherwise specified:

1. **Glass raw material shall meet ASTM C1036.**
2. **Heat Strengthened / Tempered glass shall conform to AS/NZS 2208 Class A.**
3. **Low-E glass shall meet ASTM C 1376.**
4. **Insulated glass unit Manufacture in accordance with AS/NZS 4666**
5. **Laminated Glass shall be in accordance with ASTM C1172, ISO12543 and Shall conform to AS/NZS 2208 Class A.**
6. **Heat soaked test : EN14179-2**

2. Production Process



3.. H.S. /Tempered Glass Quality Control Plan

Process	Items	Control standard		Inspection frequency/Qty	Inspection instrument	Responsible staff	Inspection record	Remark
Loading, Cutting Grinding Drilling	Glass quality	ASTM C 1036		Visual check	Steel tap measure	Operator Quality inspector	HS, FT glass Quality Control record	---
	Edge grinding							
	Dimensional tolerance	0，-2.0	L ⩽ 2000	Random check, 1 per batch				
		+2.0，-2.0	2000 < L ⩽ 3000					
		+2.0，-2.0	L > 3000					
	Diagonal tolerance	⩽ 2mm	L ⩽ 2500					
		⩽ 3mm	L > 2500					
HS/ Tempered	Surface compressive stress	ASTM C 1048		Random check,, 1 per batch	GASP, grazing angle surface polarimeter	Quality inspector FT operator	HS, FT glass Quality Control record, FT quality control/parameter record	Roller wave direction should parallel with the width.
	fragmentation	Tempered glass: 4 - 12mm > 40 pcs Other thickness >30 pcs		Random check, 1 per hour	Pointed steel tool, ruler			
		THK ⩽ 6mm,24-52Mpa THK > 6mm，discussed		Random check, 1 per hour	grazing angle surface polarimeter			
	Roller wave	0.15mm or less in any 300mm length		Must measure at first load. Random check, 1 per hour	300mm guide rail feeler guage			
	Bow	⩽ 0.30%		Must measure at first load. Random check, 1 per hour	Steel tape measure Thin thread			
Unloading	Surface quality	ASTM C 1036		100% checked by unloading operator.	Visual check	Operator	HS, FT glass Quality Control record	---
Packing	Packing condition	Process card		100% visual check before packed. On line random check, 6 times or more per shift by quality inspector	Steel tap measure	Operator Quality inspector		Process card must be clear and accurate so that next coating process will be performed correctly.

4.. Heat Soaked Glass Quality Control Plan

Process	Items	Control standard	Inspection frequency/Qty	Inspection instrument	Responsible staff	Inspection record	Remark
Loading,	Glass quantity, Thermocouple position	EN 14179-2	100% check	N/A	Heat soaked furnace operator	Heat soak report	---
Heat Soaked	Heating curve	EN 14179-2	Every load	N/A	Heat soaked furnace operator Quality inspector	Heat soak report	---

5.. Low-E Glass/Reflective Glass Coating Quality Control Plan

Process	Items	Control standard	Inspection frequency/Qty	Inspection instrument	Responsible staff	Inspection record	Remark
Loading	Glass surface, direction	Operation instruction	100% check	Visual check,	Loading operator	Self inspection record by operator	---
Coating	Transmittance, color, resistance	Coating specification	100% check for every order	Online spectrophotometer	Quality inspector	LOW E Inspection record by QC	---
	Transmittance, reflectance	Coating specification	Random check, 1 per 2 hours	Colorquest			
	Reflectance, reflected color	Coating specification	Random check, 1 per 2 hours	Miniscan			
	Optical & aesthetic quality	ASTM C 1376 - 03	Random check, 1 per 2 hours	Visual check			
Unloading	Surface quality	ASTM C 1036	100% check	Visual check	Unloading operator	Self inspection record by operator	---
Point Defect		Following table	1 piece	Visual	QC	Have	
Linear Defect		Following table	1 piece	Visual	QC	Have	

Coated Glass Quality Control - Pinhole and Scratch

①Pinhole	Allowable Internal dirts (S: Glass Area ㎡)		
	d (Diameter)≤0.8 ㎜	0.8 ㎜<d≤1.6㎜	1.6㎜<d≤2.5㎜
	Do not allow together	Center: 3.0×S pinhole spacing 300㎜ at least Edge(75㎜ area): Do not allow together	Center: None Edge(75㎜ area): Less than 3
	(Less than 20 points (d≤0.8 ㎜), in 100㎜*100㎜)		
⑤Scratch on coating face	0.1 ㎜≤W≤0.3㎜, L≤60㎜	W>0.3㎜, L>60㎜	
	Do not allow	Do not allow	
	Under Natural Light Condition, The distance of 1m of glass is not visible		
Glass Scratch	Light scratch	Heavy scratch	
	Under Natural Light Condition, The distance of 600㎜ of glass is not visible	Within 1*100㎜, less than 4 points in 1m*1m (spacing >300㎜)	

6. IGU Glass Quality Control Plan

Process	Items	Control standard		Inspection frequency/Qty	Inspection instrument	Responsible staff	Inspection record	Remark
Pairing	Glass type	Process card		100% check	Visual check	Loading operator	---	---
	Glass pairing tolerance,	≤2.0mm ≤3.0mm ≤4.0mm	L≤1000mm 1000<L≤3000mm L>3000mm	Random check, 1 per 2 hours	Steel tape measure	Quality inspector	Double glass QC record	---
Desiccant filling	Desiccant moisture absorbing test	Temperature difference ≥35℃		Inspect before every shift starts Inspect after change of desiccant container	Thermometer Electric balance Beaker	Quality inspector	Double glass QC record	---

Butyl seal	Butyl seal continuity	Butyl width tolerance 2-6mm. Seal must be continuous.	100% check by operator Random check, 1 per 2 hours by quality inspector	Visual check Long steel ruler	Operator Quality inspector	Double glass QC record	---
Secondary seal	Butterfly test	Mixed sealant must be even.	Inspect before every shift starts Inspect after change of sealant container	Visual check	Quality inspector	Double glass QC record	---
	Snap Test	Exhibits cohesive failure					
Performance test	Dew point test	no condensation on glass surface at -40℃.	Random check, 1 per shift	Dew point test apparatus	Quality inspector	Double glass dew point test record	---
Packing	Double glass edge & surface quality	ASTM C 1036	100% visual check before packed. On line random check, 1 per 2 hours by quality inspector.	Steel tape measure	Operator, Quality inspector	Double glass packing quality control record	1 .Do not pack if sealant is not completely cured. 2. If sealant does not cure after 8 hrs, do not pack and report to the QC dept.
	Butyl seal Low-E coating appearance	Butyl width tolerance 2-6mm Specified Low-E coating position					
	Sealant type Sealant depth	As per order specification					
	Packing label	As per order specification					
Width of edge deletion		Silicon depth +10mm	100% check	Steel tape measure	Operator	---	---
The straightness control of edge deletion		The difference between widest & narrowest within 2mm	100% check	Steel tape measure	Operator	---	---

7. Laminated Glass Quality Control Plan

Schedule	Items	Control standard	Inspection frequency/Qty	Inspection instrument	Responsible staff	Inspection record	Remark
Assembly	Glass cleaning & dryness	dry and clean	100% check	Visual check	Operator	Laminating glass control record	---
	Assembly room temperature & humidity	Process specification	Random check, 1 per hour	Visual check	Operator		---
Autoclave	lamination	ASTM C1172 AS/NZS 2208	100% check by operator 1 per 2 hours by quality inspector	Visual check	Operator Quality inspector		---
	appearance	ASTM C1172 AS/NZS 2208	100% check by operator Random check , 1 per 2 hours by quality inspector	Visual check	Operator Quality inspector		---
Packing	quantity, surface quality	ASTM C1172 AS/NZS 2208	100% visual check before packed. On line random check 1 per 2 hours by quality inspector	Visual check	Operator Quality inspector		---
mismatching		L⩽2500mm，3mm L＞2500mm，4mm	Random check, 1 per hour	Steel tape measure	Quality inspector		--

Contact//

At Facade sincerely invite you from all over the world to Join us

H.Q

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At Facade Paint Standard Color Card//

RAL 1000 Grünbeige CMYK 10 10 50 10	RAL 1001 Beige CMYK 0 20 50 20	RAL 1002 Sandgelb CMYK 0 20 60 10	RAL 1003 Signalgelb CMYK 5 20 90 0	RAL 1004 Goldgelb CMYK 5 30 100 0
RAL 1005 Honiggelb CMYK 10 30 100 0	RAL 1006 Maisgelb CMYK 5 30 90 0	RAL 1007 Narzissengelb CMYK 0 40 100 0	RAL 1011 Braunbeige CMYK 30 40 70 0	RAL 1012 Zitronengelb CMYK 10 10 90 0
RAL 1013 Perlweiß CMYK 0 5 20 10	RAL 1014 Elfenbein CMYK 0 10 40 10	RAL 1015 Hellelfenbein CMYK 0 5 30 10	RAL 1016 Schwefelgelb CMYK 10 0 90 0	RAL 1017 Safrangelb CMYK 0 30 70 0
RAL 1018 Zinkgelb CMYK 0 0 80 0	RAL 1019 Graubeige CMYK 5 20 40 40	RAL 1020 Olivgelb CMYK 1 5 30 40	RAL 1021 Rapsgelb CMYK 0 10 100 0	RAL 1023 Verkehrsgelb CMYK 0 10 90 0
RAL 1024 Ockergelb CMYK 30 40 70 10	RAL 1026 Leuchtgelb CMYK 0 0 100 0	RAL 1027 Currygelb CMYK 10 20 90 40	RAL 1028 Melonengelb CMYK 0 30 100 0	RAL 1032 Ginstergelb CMYK 0 30 90 10
RAL 1033 Dahliengelb CMYK 0 30 90 0	RAL 1034 Pastellgelb CMYK 0 30 80 0	RAL 1037 Sonnengelb CMYK 0 40 100 0	RAL 2000 Gelborange CMYK 0 50 100 0	RAL 2001 Rotorange CMYK 0 80 100 20
RAL 2002 Blutorange CMYK 0 90 100 0	RAL 2003 Pastellorange CMYK 0 52 100 0	RAL 2004 Reinorange CMYK 0 70 100 0	RAL 2005 Leuchtorange CMYK 0 75 75 5	RAL 2007 Leuchthellorange CMYK 0 50 100 0
RAL 2008 Hellrotorange CMYK 0 60 100 0	RAL 2009 Verkehrsorange CMYK 5 70 100 0	RAL 2010 Signalorange CMYK 0 70 100 10	RAL 2011 Tieforange CMYK 0 55 100 0	RAL 2012 Lachsorange CMYK 0 60 70 0

RAL 3000 Feuerrot
CMYK 0 100 100 20

RAL 3001 Signalrot
CMYK 20 100 90 10

RAL 3002 Kaminrot
CMYK 10 100 90 20

RAL 3003 Rubinrot
CMYK 0 100 100 40

RAL 3004 Purpurrot
CMYK 20 100 100 60

RAL 3005 Weinrot
CMYK 20 100 80 40

RAL 3007 Schwarzrot
CMYK 60 100 70 80

RAL 3009 Oxidrot
CMYK 5 90 100 80

RAL 3011 Braunrot
CMYK 20 100 100 40

RAL 3012 Beigerot
CMYK 5 50 50 10

RAL 3013 Tomatenrot
CMYK 20 90 100 20

RAL 3014 Altrosa
CMYK 0 70 30 10

RAL 3015 Hellrosa
CMYK 0 50 20 10

RAL 3016 Korallenrot
CMYK 0 90 90 20

RAL 3017 Rosé
CMYK 0 80 50 10

RAL 3018 Erdbeerrot
CMYK 5 90 70 5

RAL 3020 Verkehrsrot
CMYK 0 100 100 10

RAL 3022 Lachsrot
CMYK 0 60 70 0

RAL 3024 Leuchtrot
CMYK 0 80 90 0

RAL 3026 Leuchthellrot
CMYK 0 80 100 0

RAL 3027 Himbeerrot
CMYK 0 100 70 20

RAL 3031 Orientrot
CMYK 20 100 90 20

RAL 4001 Rotlila
CMYK 60 70 5 10

RAL 4002 Rotviolett
CMYK 40 100 90 5

RAL 4003 Erikaviolett
CMYK 10 70 10 0

RAL 4004 Bordeauxviolett
CMYK 60 100 50 20

RAL 4005 Blaulila
CMYK 60 100 5 10

RAL 4006 Verkehrspurpur
CMYK 50 100 0 10

RAL 4007 Purpurviolett
CMYK 70 100 20 60

RAL 4008 Signalviolett
CMYK 60 90 0 10

RAL 4009 Pastellviolett
CMYK 40 40 30 0

RAL 4010 Telemagenta
CMYK 10 90 30 0

RAL 5000 Violettblau
CMYK 100 40 5 40

RAL 5001 Grünblau
CMYK 90 20 0 80

RAL 5002 Ultramarinblau
CMYK 100 70 0 40

RAL 5003 Saphirblau
CMYK 100 50 0 80

RAL 5004 Schwarzblau
CMYK 100 100 70 40

RAL 5005 Signalblau
CMYK 100 40 0 40

RAL 5007 Brillantblau
CMYK 80 20 0 40

RAL 5008 Graublau
CMYK 60 0 0 90

At Facade Paint Standard Color Card//

RAL 5009 Azurblau CMYK 90 30 10 40	RAL 5010 Enzianblau CMYK 100 40 5 40	RAL 5011 Stahlblau CMYK 100 60 10 80	RAL 5012 Lichtblau CMYK 90 30 10 10	RAL 5013 Kobaltblau CMYK 100 60 0 60
RAL 5014 Taubenblau CMYK 50 20 0 40	RAL 5015 Himmelblau CMYK 100 30 0 10	RAL 5017 Verkehrsblau CMYK 100 20 5 40	RAL 5018 Türkisblau CMYK 90 10 40 10	RAL 5019 Capriblau CMYK 100 50 20 10
RAL 5020 Ozeanblau CMYK 100 0 40 80	RAL 5021 Wasserblau CMYK 100 20 50 10	RAL 5022 Nachtblau CMYK 100 100 40 40	RAL 5023 Fernblau CMYK 80 40 10 20	RAL 5024 Pastellblau CMYK 70 20 10 20
RAL 6000 Patinagrün CMYK 80 20 60 20	RAL 6001 Smaragdgrün CMYK 90 30 90 10	RAL 6002 Laubgrün CMYK 90 40 90 10	RAL 6003 Olivgrün CMYK 80 50 80 20	RAL 6004 Blaugrün CMYK 100 50 60 40
RAL 6005 Moosgrün CMYK 100 60 90 20	RAL 6006 Grauoliv CMYK 90 80 90 20	RAL 6007 Flaschengrün CMYK 80 50 80 60	RAL 6008 Braungrün CMYK 70 50 70 80	RAL 6009 Tannengrün CMYK 90 50 90 60
RAL 6010 Grasgrün CMYK 70 10 80 40	RAL 6011 Resedagrün CMYK 70 30 70 5	RAL 6012 Schwarzgrün CMYK 100 80 100 20	RAL 6013 Schilfgrün CMYK 40 20 60 40	RAL 6014 Gelboliv CMYK 80 50 90 60
RAL 6015 Schwarzoliv CMYK 80 60 70 40	RAL 6016 Türkisgrün CMYK 100 30 80 0	RAL 6017 Maigrün CMYK 80 20 100 10	RAL 6018 Gelbgrün CMYK 70 0 90 0	RAL 6019 Weißgrün CMYK 35 0 40 0
RAL 6020 Chromoxidgrür CMYK 90 60 80 20	RAL 6021 Blaßgrün CMYK 50 10 50 10	RAL 6022 Braunoliv CMYK 90 80 100 20	RAL 6024 Verkehrsgrün CMYK 90 10 80 10	RAL 6025 Farngrün CMYK 80 30 90 10

RAL 6026 Opalgrün CMYK 100 30 70 40	RAL 6027 Lichtgrün CMYK 60 0 30 0	RAL 6028 Kieferngrün CMYK 100 60 100 0	RAL 6029 Minzgrün CMYK 100 20 100 5	RAL 6032 Signalgrün CMYK 90 10 80 0
RAL 6033 Minttürkis CMYK 80 20 50 0	RAL 6034 Pastelltürkis CMYK 60 10 40 0	RAL 7000 Fehgrau CMYK 50 10 5 40	RAL 7001 Silbergrau CMYK 10 0 0 40	RAL 7002 Olivgrau CMYK 30 30 50 40
RAL 7003 Moosgrau CMYK 30 20 40 40	RAL 7004 Signalgrau CMYK 0 0 0 45	RAL 7005 Mausgrau CMYK 30 10 20 60	RAL 7006 Beigegrau CMYK 0 10 30 60	RAL 7008 Khakigrau CMYK 30 40 70 40
RAL 7009 Grüngrau CMYK 20 50 40 80	RAL 7010 Zeltgrau CMYK 20 5 30 80	RAL 7011 Eisengrau CMYK 40 10 20 80	RAL 7012 Basaltgrau CMYK 20 0 10 80	RAL 7013 Braungrau CMYK 10 10 40 80
RAL 7015 Schiefergrau CMYK 40 10 10 80	RAL 7016 Anthrazitgrau CMYK 60 30 30 80	RAL 7021 Schwarzgrau CMYK 50 10 5 95	RAL 7022 Umbragrau CMYK 30 20 40 80	RAL 7023 Betongrau CMYK 40 20 40 40
RAL 7024 Graphitgrau CMYK 80 60 50 40	RAL 7026 Granitgrau CMYK 60 20 30 80	RAL 7030 Steingrau CMYK 20 10 20 40	RAL 7031 Blaugrau CMYK 60 30 30 40	RAL 7032 Kieselgrau CMYK 0 0 20 40
RAL 7033 Zementgrau CMYK 30 10 30 40	RAL 7034 Gelbgrau CMYK 5 5 40 40	RAL 7035 Lichtgrau CMYK 5 0 5 20	RAL 7036 Platingrau CMYK 10 10 10 40	RAL 7037 Staubgrau CMYK 30 20 20 40
RAL 7038 Achatgrau CMYK 30 10 20 20	RAL 7039 Quarzgrau CMYK 50 40 50 40	RAL 7040 Fenstergrau CMYK 20 5 10 40	RAL 7042 Verkehrsgrau A CMYK 30 10 20 40	RAL 7043 Verkehrsgrau B CMYK 30 10 20 80

At Facade Paint Standard Color Card//

RAL 7044 Seidengrau CMYK 0 0 15 30	RAL 7045 Telegrau 1 CMYK 20 10 10 40	RAL 7046 Telegrau 2 CMYK 30 10 10 40	RAL 7047 Telegrau 4 CMYK 0 0 5 20	RAL 8000 Grünbraun CMYK 50 50 80 10
RAL 8001 Ockerbraun CMYK 40 60 90 10	RAL 8002 Signalbraun CMYK 60 80 80 10	RAL 8003 Lehmbraun CMYK 50 70 80 10	RAL 8004 Kupferbraun CMYK 40 80 80 10	RAL 8007 Rehbraun CMYK 60 70 80 20
RAL 8008 Olivbraun CMYK 50 60 70 20	RAL 8011 Nußbraun CMYK 10 60 100 80	RAL 8012 Rotbraun CMYK 5 100 100 80	RAL 8014 Sepiabraun CMYK 30 60 100 80	RAL 8015 Kastanienbraun CMYK 0 90 100 80
RAL 8016 Mahagonibraur CMYK 40 80 80 80	RAL 8017 Schokoladenbraun CMYK 60 80 80 80	RAL 8019 Graubraun CMYK 90 90 80 80	RAL 8022 Schwarzbraun CMYK 100 100 80 95	RAL 8023 Orangebraun CMYK 20 70 100 20
RAL 8024 Beigebraun CMYK 30 60 70 40	RAL 8025 Blaßbraun CMYK 40 50 60 40	RAL 8028 Terrabraun CMYK 20 50 70 80	RAL 9001 Cremeweiß CMYK 0 0 10 5	RAL 9002 Grauweiß CMYK 5 0 10 10
RAL 9003 Signalweiß CMYK 0 0 0 0	RAL 9004 Signalschwarz CMYK 100 90 100 80	RAL 9005 Tiefschwarz CMYK 100 100 100 95	RAL 9006 Weißaluminiur CMYK 0 0 0 40	RAL 9007 Graualuminium CMYK 0 0 0 60
RAL 9010 Reinweiß CMYK 0 0 5 0	RAL 9011 Graphitschwarz CMYK 100 100 100 80	RAL 9016 Verkehrsweiß CMYK 3 0 0 0	RAL 9017 Verkehrsschwar CMYK 100 90 100 95	RAL 9018 Papyrusweiß CMYK 10 0 10 20

RAL-Liste, alphabetisch sortiert

A	
Achatgrau	7038
Altrosa	3014
Anthrazitgrau	7016
Azurblau	5009
B	
Basaltgrau	7012
Beige	1001
Beigebraun	8024
Beigegrau	7006
Beigerot	3012
Betongrau	7023
Blaßbraun	8025
Blaßgrün	6021
Blaugrau	7031
Blaugrün	6004
Blaulila	4005
Blutorange	2002
Bordeauxviolett	4004
Braunbeige	1011
Braungrau	7013
Braungrün	6008
Braunoliv	6022
Braunrot	3011
Brillantblau	5007
C	
Capriblau	5019
Chromoxidgrün	6020
Cremeweiß	9001
Currygelb	1027
D	
Dahliengelb	1033
E	
Eisengrau	7011
Elfenbein	1014
Enzienblau	5010
Erdbeerrot	3018
Erikaviolett	4003
F	
Farngrün	6025
Fehgrün	7000
Fenstergrau	7040
Fernblau	5023
Feuerrot	3000
Flaschengrün	6007
G	
Gelbgrau	7034
Gelbgrün	6018
Gelboliv	6014
Gelborange	2000
Ginstergelb	1032
Goldgelb	1004
Granitgrau	7026
Graphitgrau	7024
Graphitschwarz	9011
Grasgrün	6010
Graualuminium	9007
Graubeige	1019
Graublau	5008
Graubraun	8019
Grauoliv	6006
Grauweiß	9002
Grünbeige	1000
Grünblau	5001
Grünbraun	8000
Grüngrau	7009
H	
Hellelfenbein	1015
Hellrosa	3015
Hellrotorange	2008
Himbeerrot	3027
Himmelblau	5015
Honiggelb	1005
K	
Kaminrot	3002
Kastanienbraun	8015
Khakigrau	7008
Kieferngrün	6028
Kieselgrau	7032
Kobaltblau	5013
Korallenrot	3016
Kupferbraun	8004
L	
Lachsorange	2012
Lachsrot	3022
Laubgrün	6002
Lehmbraun	8003
Leuchtgelb	1026
Leuchthellorange	2007
Leuchthellrot	3026
Leuchtorange	2005
Leuchtrot	3026
Lichtblau	5012
Lichtgrau	7035
Lichtgrün	6027
M	
Mahagonibraun	8016
Maigrün	6017
Maisgelb	1006
Mausgrau	7005
Melonengelb	1028
Minttürkis	6033
Minzgrün	6029
Moosgrau	7003
Moosgrün	6005
N	
Nachtblau	5022
Narzissengelb	1007
Nußbraun	8011
O	
Ockerbraun	8001
Ockergelb	1024
Olivbraun	8008
Olivgelb	1020
Olivgrau	7002
Olivgrün	6003
Opalgrün	6026
Orangebraun	8023
Orientrot	3031
Oxidrot	3009
Ozeanblau	5020
P	
Papyrusweiß	9018
Pastellblau	5024
Pastellgelb	1034
Pastellorange	2003
Pastelltürkis	6034
Pastellviolett	4009
Patinagrün	6000
Perlweiß	1013
Platingrau	7036
Purpurrot	3004
Purpurviolett	4007
Q	
Quarzgrau	7039
R	
Rapsgelb	1021
Rehbraun	8007
Reinorange	2004
Reinweiß	9010
Resedagrün	6011
Rosé	3017
Rotbraun	8012
Rotlila	4001
Rotorange	2001
Rotviolett	4002
Rubinrot	3003
S	
Safrangelb	1017
Sandgelb	1002
Saphirblau	5003
Schiefergrau	7015
Schilfgrün	6013
Schokoladenbraun	8017
Schwarzblau	5004
Schwarzbraun	8022
Schwarzgrau	7021
Schwarzgrün	6012
Schwarzoliv	6015
Schwarzrot	3007
Schwefelgelb	1016
Seidengrau	7044
Sepiabraun	8014
Signalblau	5005
Signalbraun	8002
Signalgelb	1003
Signalgrau	7004
Signalgrün	6032
Signalorange	2010
Signalrot	3001
Signalschwarz	9004
Signalviolett	4008
Signalweiß	9003
Silbergrau	7001
Smaragdgrün	6001
Sonnengelb	1037
Stahlblau	5011
Staubgrau	7037
Steingrau	7030
T	
Tannengrün	6009
Taubenblau	5014
Telegrau 1	7045
Telegrau 2	7046
Telegrau 4	7047
Telemagenta	4010
Terrabraun	8028
Tieforange	2011
Tiefschwarz	9005
Tomatenrot	3013
Türkisblau	5018
Türkisgrün	6016
U	
Ultramarinblau	5002
Umbragrau	7022
V	
Verkehrsblau	5017
Verkehrsgelb	1023
Verkehrsgrau A	7042
Verkehrsgrau B	7043
Verkehrsgrün	6024
Verkehrsorange	2009
Verkehrspurpur	4006
Verkehrsrot	3020
Verkehrsschwarz	9017
Verkehrsweiß	9016
Violettblau	5000
W	
Wasserblau	5021
Weinrot	3005
Weißaluminium	9006
Weißgrün	6019
Z	
Zeltgrau	7010
Zementgrau	7033
Zinkgelb	1018
Zitronengelb	1012

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Systematic
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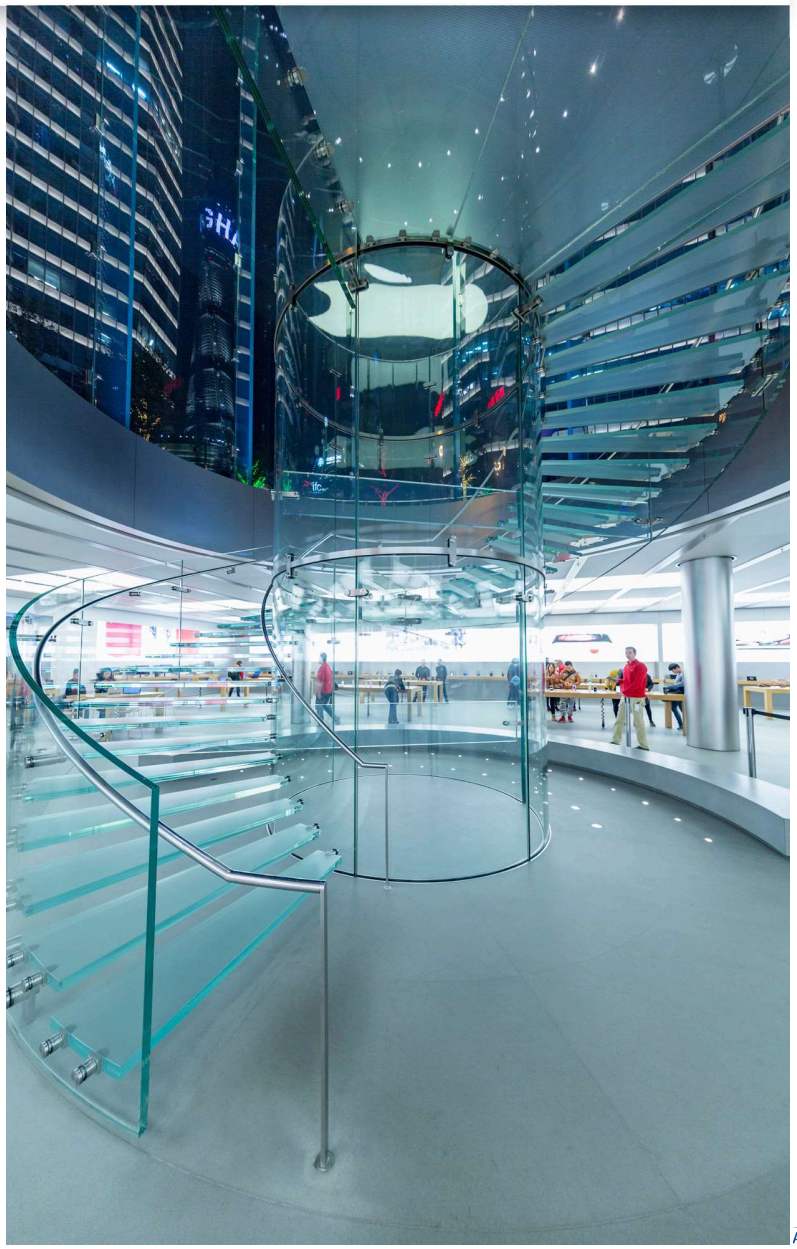

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