



NorthGlass Online



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Processed Glass



NorthGlass Company Profile

Luoyang North Glass Technology Co., Ltd., simply called as "NorthGlass", was established by Mr. Gao Xueming, Chairman of the board, in Luoyang National High & New Technology Development Zone on 18th, May, 1995. It is the earliest Chinese enterprise being engaged in the developing, design and manufacturing of glass deep-processing equipments. In 2011, NorthGlass created a precedent in glass deep processing machine industry, going public at Shenzhen Stock Exchange (stock code: 002613). Today, NorthGlass have developed into a high-tech industry group with complete industrial chain and continuous innovation capability, composed by 5 production bases respectively in Luoyang, Shanghai,

Tianjin, Beijing and Guangdong, with the integrated abilities of R&D, manufacture, sales and service in the fields of glass deep-processing equipments and upscale processed glass products. Adhering to the enterprise spirit of "Innovating forever, Striving for success", NorthGlass independently developed the main products of glass tempering furnace, Low-E coating machine and upscale processed glass as the core competitiveness. Furthermore, NorthGlass have also expanded our product series with general and HVLS industrial fans, glass automation system, glass storage system, glass cutting machine, screen printing machine, automotive glass pre-processing line, etc., up to now

more than 300 product models in total. NorthGlass is the strongest & largest developer and manufacturer in the field of glass deep-processing equipments. Our major product, flat/bent glass tempering furnace, is ranking the first of worldwide industry within last 14 years since 2002, according to the production and sales quantity. The cumulative domestic market share is almost 50%, and 4000 NorthGlass glass tempering furnaces are running in 83 countries around the world. The Low-E coating line developed and produced by NorthGlass is becoming one of the global leaders in glass coating industry and led to a rapid development of coated glass industry in China. More than 20 coating machines have been put into production within last 10 years.

Another key product for NorthGlass is upscale deep-processed glass, which have been widely applied in a lot of famous construction projects all over the world, for example "Sun Valley" & "Shiliupu Pier" of 2010 Shanghai Expo, "Bird Nest" & "Water Cube" of 2008 Beijing Olympics, China National Center for the performance arts, New Beijing South Railway Station, Beijing Capital International Airport, Shanghai Tower, Abu Dhabi International Airport, Singapore Changi Airport, Vietnam APEC Exhibition Center, Leadenhall Building in London, Van Gogh Museum in Amsterdam, etc. Meanwhile, NorthGlass is also one of two qualified architectural glass suppliers for the most famous electronics company in

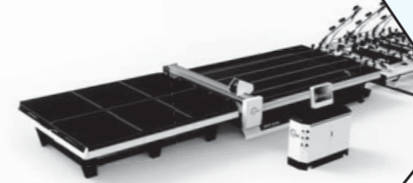
the world, for its dozens of retail stores in the world as well as new Headquarters Building in Silicon Valley. NorthGlass's products have been sold not only in China, but also exported in more than 80 countries in the world, such as USA, UK, Germany, France, Japan, Russia, Middle East, Southeast Asia, etc., via NorthGlass's complete domestic and international sales and service network. While meeting domestic markets with new products and constantly developing international market, NorthGlass gradually built up a global marketing & service network integrated with "Sales, Service and Technical Support", based in China and expanded to the world, which basically

ensure the realization of the goal "Building NorthGlass as the industry's first brand". NorthGlass has more than 20 sets of advanced production testing equipments and labs, get the certifications of ISO9001, 3C, CE, UL, etc., and own more than 100 patents. NorthGlass is awarded as "the Top Hundred Enterprises of Henan", "the Meritorious Enterprise of Henan" and "the Meritorious Enterprise of Luoyang". The Chairman of NorthGlass board, Mr. Gao Xueming, is awarded as "the Representative of China Building Material Industry during 30 years' Reform and Opening" and "Outstanding Contributor" of Luoyang National High & New Technology Development Zone.

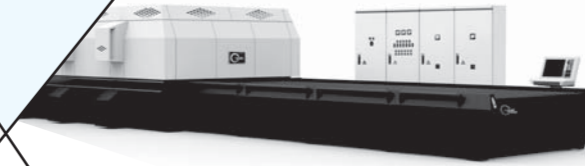
NorthGlass History

- In 1994, NorthGlass produced the first domestic "Horizontal Roller Flat/Bent Glass Tempering Furnace".
- In 1995, Luoyang North Glass Technology Co., Ltd. was established.
- In 1999, Beijing North Glass Safety Glass Co., Ltd. was established.
- In 2004, NorthGlass' s new generation glass tempering furnace with "Super Flat & Spotless" technology was developed, which changed the old history that tempered glass must have inherent defects of serious iridescence and distortion, and bring a new quality standard to the world's industry.
- In 2005, Shanghai North Glass Technology Industrial Co., Ltd. was established.
- In 2008, the first Low-E glass coating machine independently developed by Shanghai NorthGlass Coating Technology Co., Ltd. was put into commercial production, which ended the history of no China domestic Low-E coating equipment.
- In 2009, the world' s most famous electronics company decided to build their Asian Flagship Store in Shanghai, and thence started the cooperation with NorthGlass of supplying architectural glass for totally 58 Stores up to now.
- In 2009, NorthGlass successfully developed the world's first super-large bent glass tempering furnace, which can produce the bent tempered glass with size up to 18 meters height and 3.6 meters bent edge. This furnace pushes the world' s glass tempering technology to a new high level.
- In 2011, NorthGlass went public at Shenzhen Stock Exchange, simply called as "NorthGlass Corp." with stock code 002613.
- In 2012, Tianjin North Glass Industrial Technical Co., Ltd. was established with a total investment of 500 million RMB, and rapidly becomes the world' s leading architectural glass supplier.
- In 2014, as NorthGlass subsidiary, Tianjin North Glass Industrial Technical Co., Ltd. signed the contract with the world' s most famous electronics company and will provide the special architecture structural glass to their new headquarters office building.
- In 2015, NorthGlass invested and established Shanghai North Glass Automation Technology Co., Ltd., who opened a new chapter in glass deep processing industry 4.0.
- In 2015, NorthGlass celebrated her 20th Anniversary and changed the new LOGO.
- In 2015, NorthGlass merged partial business of Shenzhen Juisun Screen Printing Machinery Co., Ltd. and whole business of Dongguan Byronic Machinery and Equipment Co., Ltd., then established a new subsidiary -- Guangdong NorthGlass.
- In 2016, Together with Lianxun Capital, NorthGlass set up an industrial fund-" NorthGlass Fund", and took the first step to march toward eco-friendly architecture industry, starting new business of microcrystalline foaming materail recycled from tailings and establishing a new company called "Beijing NorthGlass SiNest Technology Co., Ltd."
- In 2017, NorthGlass merged the business of Dongguan Henghechang Glass Co., Ltd., setting foot in consumer electronics market.

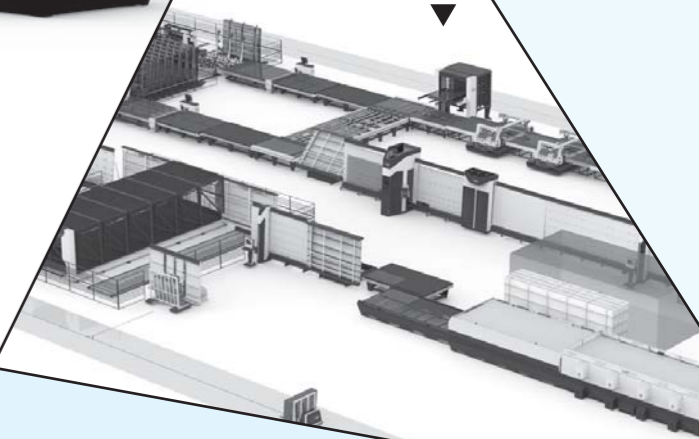
Glass Cutting Machine ▼



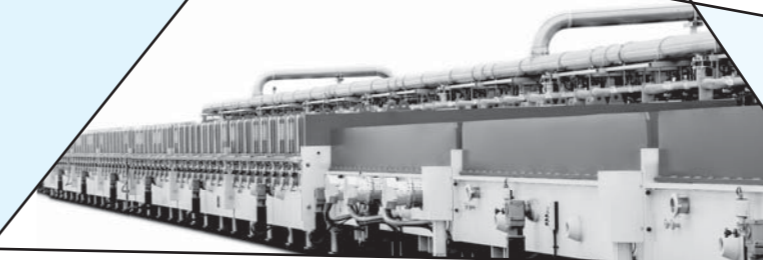
Glass Tempering Furnace ▼



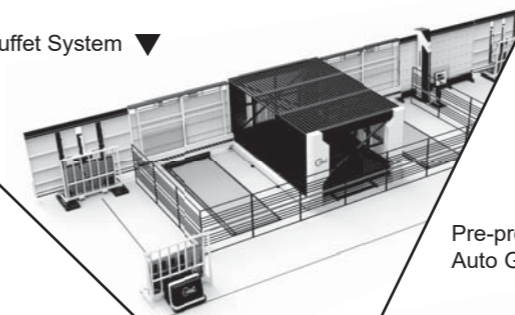
Glass Automation System ▼



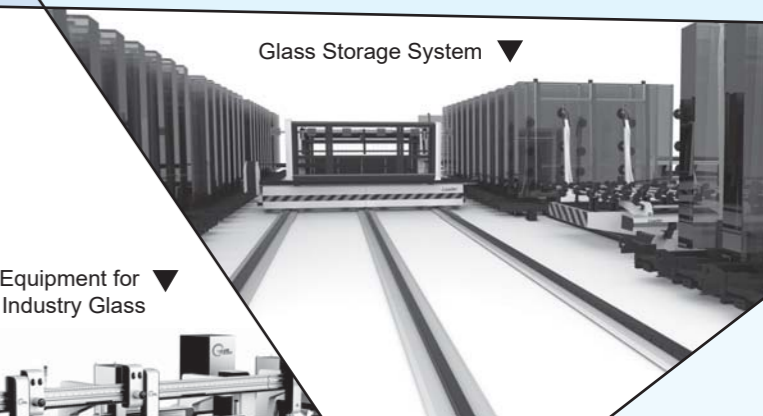
Low-E Coating Machine ▼



Vertical Buffet System ▼



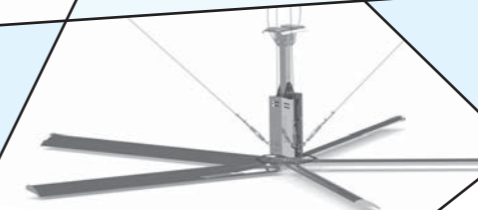
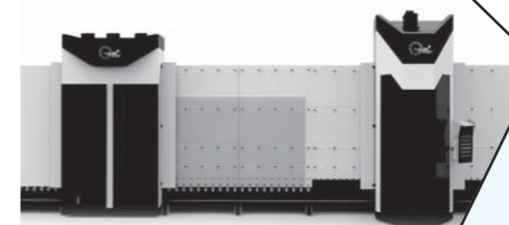
Glass Storage System ▼



Pre-processing Equipment for Auto Glass and Industry Glass ▼

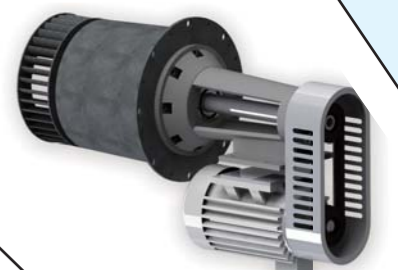


Vertical Glass Seaming Machine ▼

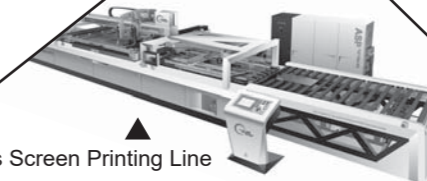


HVLS Fan ▲

General Fan ▼



Glass Screen Printing Line ▲



Five Production Bases

Luoyang NorthGlass,

Full name of "Luoyang North Glass Technology Co., Ltd.", the headquarters and parent company of NorthGlass:

Tempering Furnace Business Unit

As the largest and core BU of NorthGlass, "Tempering Furnace" developed the first domestic "Horizontal Roller Hearth Flat/Bent Glass Tempering Furnace", as well as the world's largest bent glass tempering furnace which has been used to produce super-oversized curved tempered glass for retail flagship stores of the world's most famous consumer electronics company. TG1 series tempering furnace recently developed by TFBU is NorthGlass's latest and top level product which has the significant advantages of intelligence and energy-saving with world's leading quality level.

Luoyang Glass Division

Mainly producing Low-E coated glass, "super flat & spotless" tempered glass, curved tempered glass with large arc length, SGP laminated glass and screen printed glass. NorthGlass pioneered the "super flat & spotless" glass tempering technology, which is the perfect quality state of flat tempered glass. It has the most complete kit factory in Middle West regions with the strongest processing capability of high-end architectural glass. Supplying oversize curtain wall glass for well-known landmark buildings, such as Xi'an Twin Towers, China Railway Center of Xi'an, etc..

Luoyang NorthGlass Taixin Fan Technology Co., Ltd.

Engaged in manufacture of various general & industrial fans, with main products of high-speed train cooling fan, convection hot fan, motor sweeper fan, etc. NorthGlass's high-speed train cooling fan is equipped in the most advanced CRH380 high-speed train as the transformer cooling, contributing to the fast development of Chinese high-speed train industry.



Shanghai NorthGlass, full name of "Shanghai North Glass Technology Industrial Co., Ltd." **Shanghai North Glass Coating Technology Industrial Co., Ltd.**, is a specialized vacuum coating equipment manufacturer with rich experience in large area deposition. We can not only provide customized equipments such as architectural coating machine, automotive coating machine, vertical display coating machine and sputtering devices (end block and magnet bar etc.), but also complete vacuum technology solutions and services.

Shanghai Coated Glass Division, is a company with main products including Float Low-E glass, Tempered Low-E glass and so on.

Shanghai North Glass Automation Technology Co., Ltd., engaged in R&D and manufacture of glass storage, cutting, grinding, cleaning and complete automation solutions for glass processing factory.

Shanghai Glass Division, which is the subsidiary company of NorthGlass, with the strong support of R&D and equipment manufacturing capabilities from its headquarter, puts NorthGlass newest "super flat & spotless" tempering furnace into producing different types of special glass, such as irregular glass, hyperbolic glass, ultra-wide glass, super thick glass, etc. Its main projects includes Shanghai Center Skirt Building, Disney Tomorrowland, etc..

Shanghai Equipment Manufacturing Division, is a large, comprehensive high-tech company, engaging in equipment manufacturing for glass deep processing as well as other machinery products.



Tianjin NorthGlass, full name " Tianjin North Glass Industrial Technical Co., Ltd."

With a total investment RMB 500 million and plant area 100' 000 sqm, plus NorthGlass' s advanced technology and professional R&D team, Tianjin NorthGlass is being developed to the world' s leading supplier of architectural glass, specialized in producing super-oversized tempered, laminated, insulated, digital printed glass with high quality. Up to now, Tianjin NorthGlass have undertaken and completed a number of domestic & international landmark construction projects, for example the new headquarters and 58 Stores of the world's most famous consumer electronics company, National Bank of Kuwait, etc. Tianjin NorthGlass' s main production equipments, such as Low-E coating line (annual productivity 8 million sqm), flat/bent glass tempering furnace, laminating line, insulating line and other auxiliary equipments, are all with super-oversize of maximum glass length 18m.



Beijing NorthGlass, full name " Beijing North Glass Safety Glass Co., Ltd. "

Featured products: Insulated glass, tempered glass, laminated glass, screen printing glass and printing glass, being used in such building projects as "Bird' s Nest", "Water Cube" of 2008 Beijing Olympics and China National Center for the Performance Arts, etc., sparing no effort in fast technology upgrading and automation system renovation.



Guangdong NorthGlass, full name "Guangdong NorthGlass Juisun Glass Technology Industrial Co., Ltd."

A new glass technology company invested by NorthGlass Group, mainly engaging in the R&D and manufacture of glass screen printing machine and automotive glass pre-processing line. By integrating the advantaged resources of NorthGlass and Juisun, Guangdong NorthGlass are aiming to build the first-class automotive glass pre-processing equipments in China.



Toughened Glass

With dimensions of 3.6 m x 18.0 m and "Roller Waves" of less than 0.08 mm, NorthGlass Toughened Glass is the largest and highest quality heat treated glass available in the world. By making use of our parent company's unique tempering machines, anisotropies are maintained at an absolute minimum, resulting in unparalleled levels of clarity. Northglass is a glass supplier who is committed to maintaining exceptionally high standards of quality.

The strength and safety characteristics of Fully Toughened Glass are guaranteed by processing temperatures greater than 600°C and a subsequent rapid cooling cycle.

NorthGlass Toughened Glass offers highest resistance to bending, impact loads, live loads and thermal shock. Fully toughened glass with its unique breakage pattern also ensures that the glass meets industry relevant safety characteristics.

NorthGlass Heat soak provides a decreased risk of spontaneous breakage as it is heat-soak tested for nickel-sulfide inclusions in accordance with appropriate standards.

FT : fully toughened
HS : heat strengthened
FTH : fully toughened and heat soak tested

Maximum Size:
Flat Tempered 3600mm×18000mm
Curved Tempered 3600mm×18000mm

The representative cases of NorthGlass :
National Center of Performing Arts
Leadenhall Building
One Blackfriars Road in London

Laminated Glass

Laminated Glass consists of multiple layers of glass laminated together with highly tear resistant interlayers. The choice of interlayer depends on the application. Stiff interlayers are generally preferred for structural glass applications while softer interlayers demonstrate advantages for noise reduction or in the event of bomb blast.

NorthGlass Laminated Glass can be laminated using float glass, heat strengthened or fully toughened glass. With a maximum dimension of 3.6 m x 18.0 m or 4.0 m x 8.0 m, NorthGlass provides the largest laminated glass units in the world.

Maximum Size: 3600mm x 18000mm
Minimum Size: 300mm x 300mm

The representative cases of NorthGlass:
Abu Dhabi International Airport
Beijing Phoenix Center
Manchester City Hall
Bloomberg Building

ENTRANCE

Curved Glass

Curved Glass is an essential element of modern, free form architecture. To meet the current market requirements NorthGlass Curved Glass is produced by using three different production processes. This enables NorthGlass to produce curved glass of the highest quality and best safety characteristics for each individual project. Depending on the glass build up, coatings and bending geometry, dimensions of 3.6 m x 18.0 m are achievable.

FT or HS : cylindrical curved, heat strengthened glass.
AN : annealed, gravity bent glass.
CB : cold bend glass which is bent during the lamination process.

Maximum Size: $3600\text{mm} \times 18000\text{mm}$, $2440\text{mm} \times 5000\text{mm}$ (convex)
Minimum Size: $300\text{mm} \times 600\text{mm}$
Minimum radius of curvature : 600mm
Thickness: 4mm-19mm

The representative cases of NorthGlass:
EXPO Shiliupu Pier
Guangzhou Opera House
National Aquatics Center-Water Cube
Shanghai Culture Center
Beijing Junhao Center Square



Insulating Glass

To protect the environment and to comply with national building regulations, Insulating Glass Units are a necessity of modern glass architecture. NorthGlass Insulating Glass Units, can be provided as double glazed or triple glazed. In combination with our High-Performance Coatings and Argon gas filling, U-Values of 0,50 W/m²K are achievable.

With our new production line for the assembly of Insulating Glass Units, NorthGlass can produce flat or curved, double or triple glazed units with a maximum dimension of up to 3.6 m x 18.0 m. Due to our unique assembly process, stepped glass edges can be established along all sides. Together with our strong focus on quality, NorthGlass is the leading supplier for oversized insulating glass units in the world.

Maximum Size: $3600\text{mm} \times 18000\text{mm}$
Minimum Size: $300\text{mm} \times 300\text{mm}$

The representative cases of NorthGlass:
Headquarters of the world's most famous consumer electronics company
Hong Kong Causeway Bay retail store of the world's most famous consumer electronics company



World's Top Consumer Electronics Pudong Store



World's Top Consumer Electronics Hangzhou Xihu Store

Printed Glass

Digital Printed Glass provides designers with additional architectural freedom. The variety of colours and patterns is infinite. The ceramic ink is then fired into the glass surface during the heat treatment. From there on the glass can be coated, curved, laminated or assembled into insulating glass units. The maximum dimensions are 3.3 m x 18.0 m.

Maximum Size: 3300mm×18000mm
Minimum Size: 300mm×300mm
Thickness: 3mm-19mm

The representative cases of NorthGlass:
National Stadium-Brid's Nest
National Aquatics Center-Water Cube
Abu Dhabi International Airport
Shanghai Tower



Coated Glass

High performance coatings can not only improve the energy performance of the glass facade but provide a unique appearance to the building. With our in house coating line NorthGlass is able to provide clients with custom made coatings. With a total length of 260 m, NorthGlass operates the largest coating machine in the world and can make glass units with dimensions up to 3.3 m x 18.0 m.

Maximum Size: 3300mm×18000mm
Minimum Size: 300mm×300mm

The representative cases of NorthGlass:
Shanghai Natural History Museum
Xi'an Greenland Center Twin-Tower
SLAN Center Business Landmark
National Bank of Kuwait
Canadian-Manulife Building
Shanghai Tower
6 Shenton Way



National Stadium-Brid's Nest



National Bank of Kuwait

The Representative Cases of NorthGlass



National Grand Theater



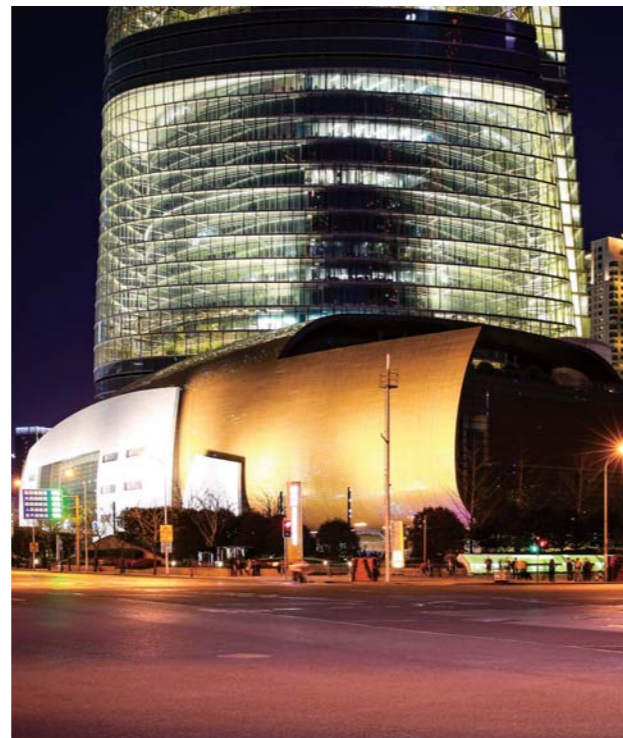
Canadian Manulife Building



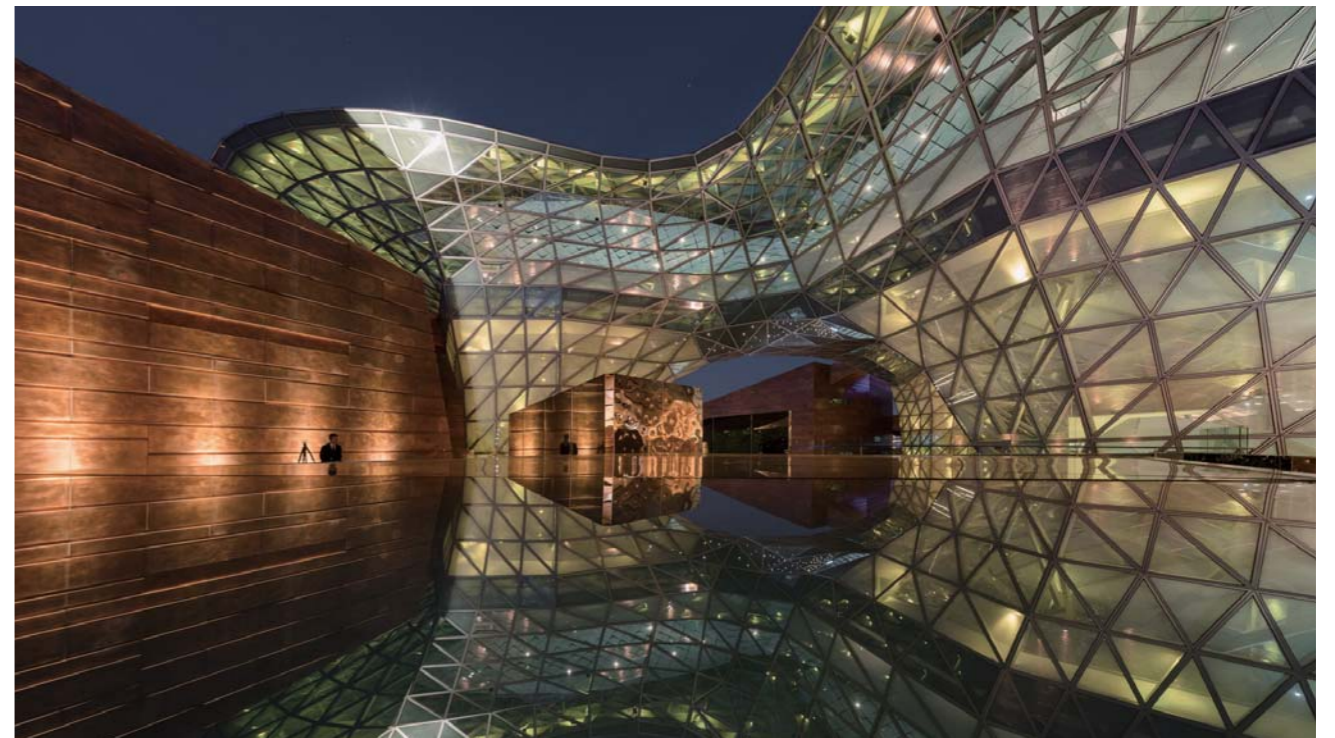
National Aquatics Center-Water Cube



Hangzhou G20 Stadium



Shanghai Tower



World Expo Museum

The Representative Cases of NorthGlass



Shanghai Disney Resort-Tomorrow Land



Sichuan Airlines Center



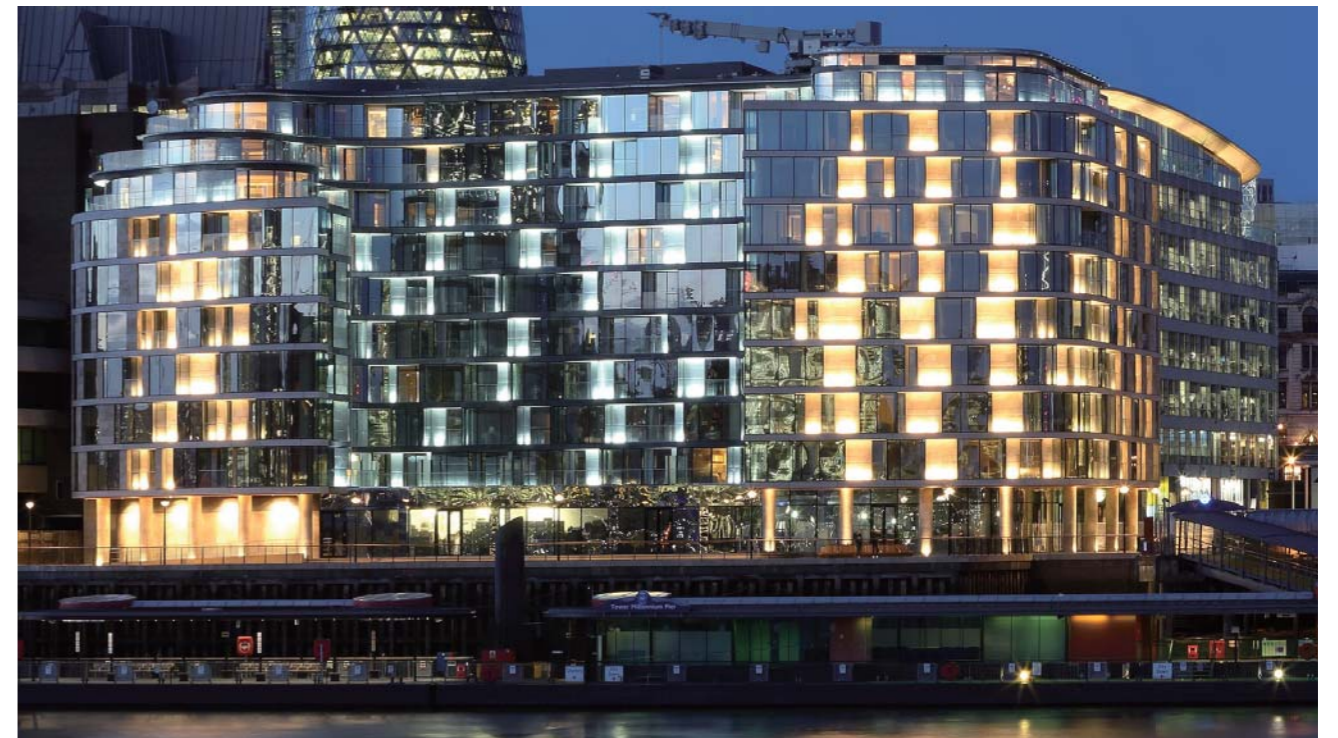
Shanghai Suhe Bay Bulgari Hotel



Central Park Plaza



Beijingnan Railway Station

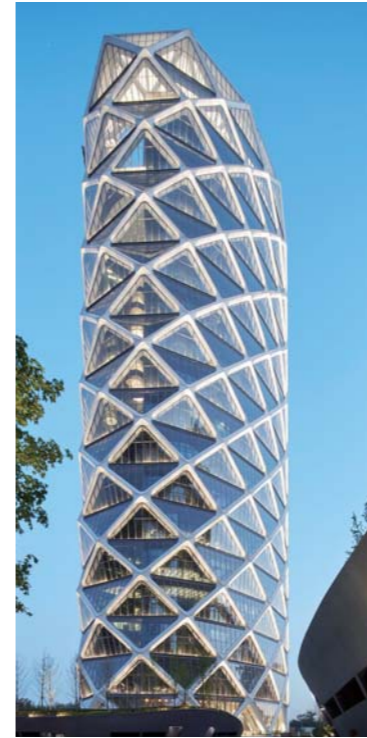


London Three Quays

The Representative Cases of NorthGlass



Van Gogh Museum in Amsterdam



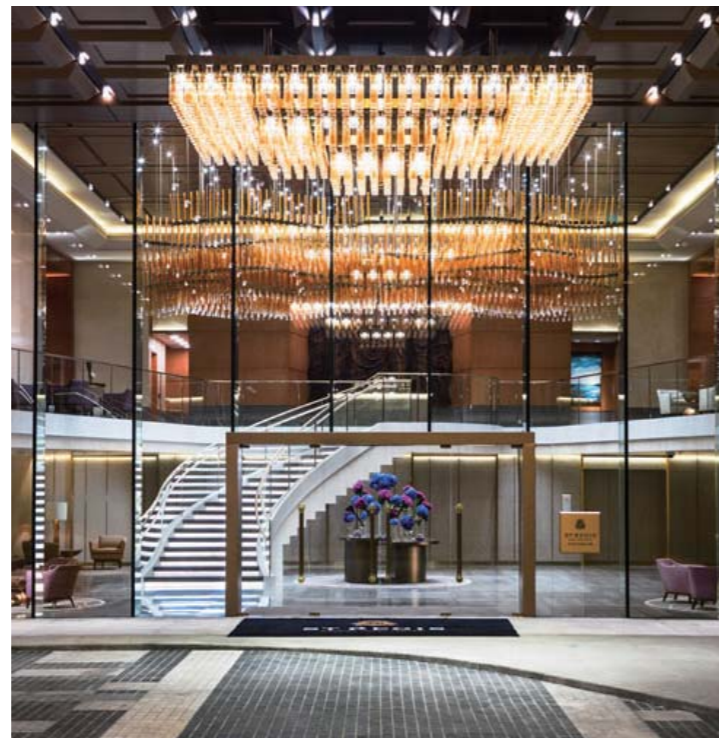
Beijing Baoli International Building



World's Top Consumer Electronics Dubai Store



Phoenix TV Media Center



The St. Regis Macao, Cotai Central



Guangzhou Central Tower

NorthGlass Facilities
for
Architectural Glass

Processing plant area
200,000 m²

Data \ Facility	Tempering furnace	Coating line	Insulated line	Laminated line	DIP-TECH digital print
Quantity	17	3	11	8	1
Max. size (mm)	3600x18000 8000x4000	3300x18000	3600x18000	3600x18000	3300x18000

Data \ Facility	CNC	Grinding machine	Screen printing line	Autoclave	Heat soak furnace
Quantity	3	11	5	10	7
Max. glass size (mm)	3300x18000	3600(wide)x100(thick) 3300x6000	3300x6000	3600x18000	3600x18000