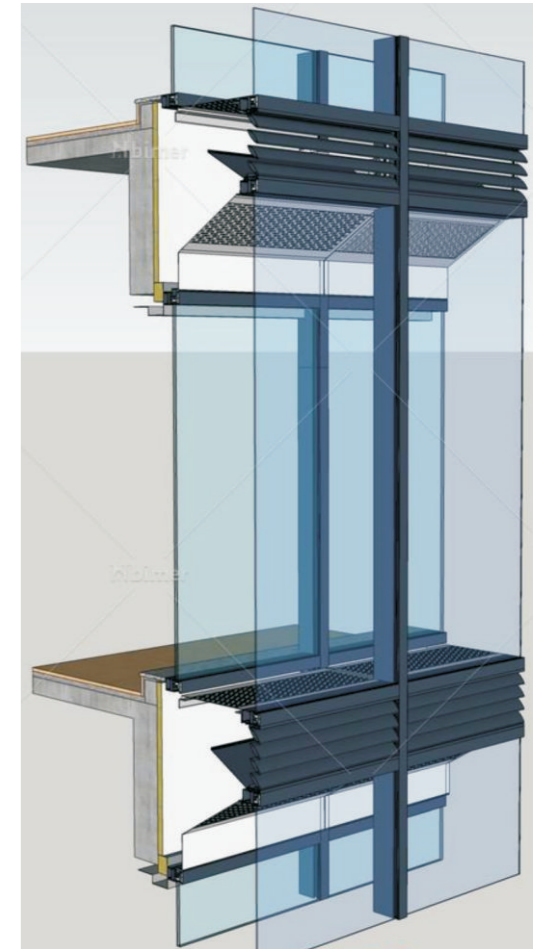
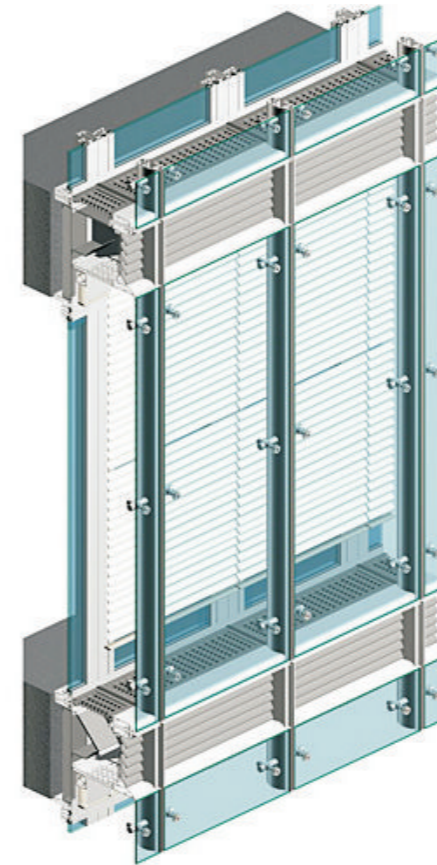


## DOUBLE-SKIN RESPIRABLE GLASS CURTAIN WALL



## DOUBLE-SKIN RESPIRABLE GLASS CURTAIN WALL



Double-Skin respirable glass curtain wall (also called hot dual channel walls) is an energy saving curtain wall. Divided according to the principle of ventilation natural ventilation and forced ventilation in two systems, namely the outer circle of double curtain wall system and the inner circle of double curtain wall system.

### Fundamental:

The inner circle of double walls is an active energy saving glass curtain wall, the basic principle is to design a double-glazed greenhouse space is formed, and then in different ways, in the summer when it is hot air exclusion greenhouse outdoors in winter the introduction of solar thermal controlled room, so the whole building in the cold season can save a lot of energy. Also it can increase the general or smart shade systems to prevent the strong ultraviolet radiation of intense heat in summer and further improve the performance of double skin insulated summer.

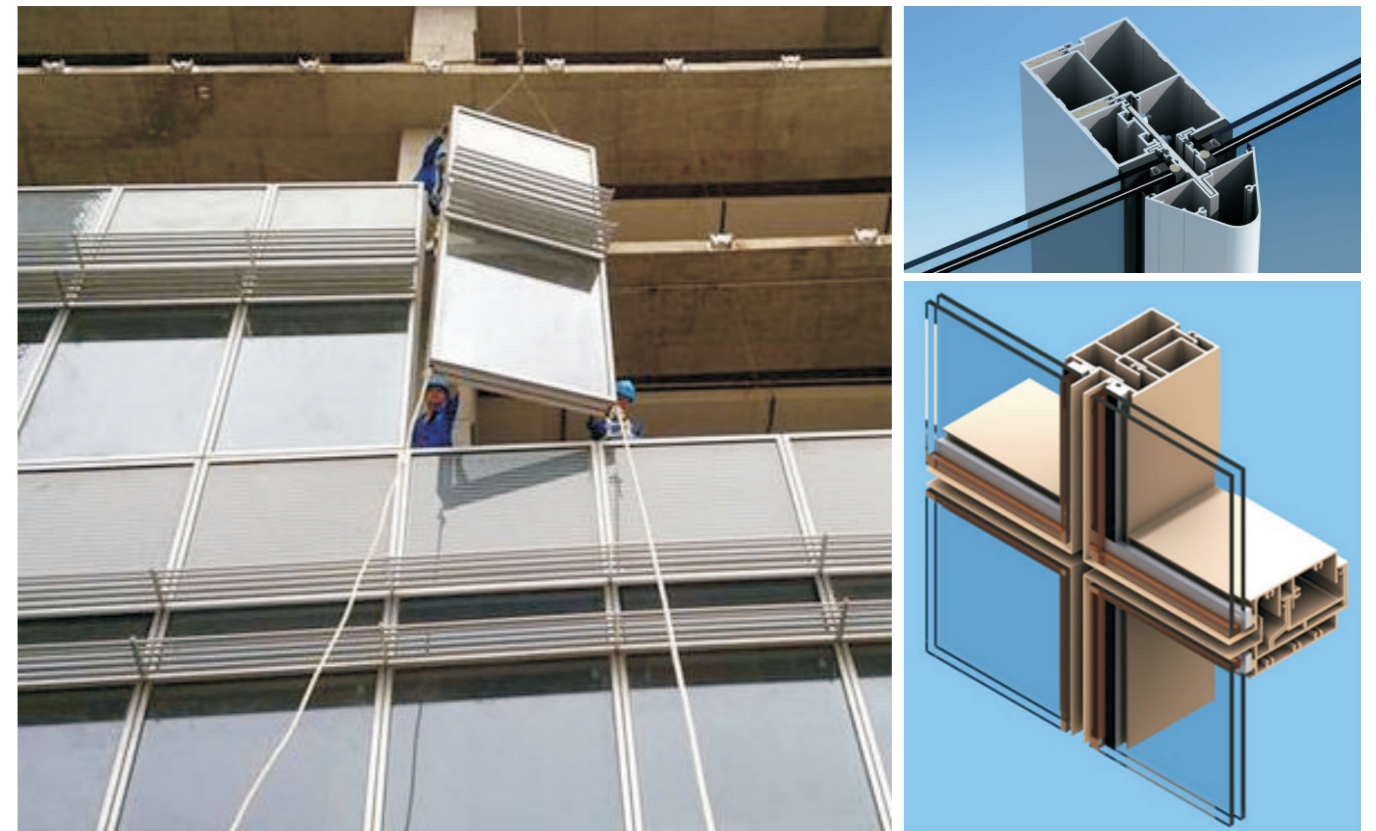
Construction and performance characteristics:

- 1: Basic structure: the outer layer of closed walls and inner walls with a sealed inlet and the composition of the inner and outer walls to act on the same architecture (frame system or unit system), an intermediate layer may be provided shade air louvers.
- 2, has excellent insulation properties, the average heat transfer coefficient K value can reach  $0.96W / m^2K$ .
- 3, good insulation properties, weighted sound reduction  $RW > 45dB$ , to the user a quiet, peaceful life, working environment.
- 4, curtain wall systems often need mechanical ventilation with professional, provide fresh air and to achieve energy recovery, the specific flow rate according to different places to determine, the largest up to  $100m^3 / h$ ,
- 5, with the blinds can be realized freely adjust the indoor light, easy to control the comfort of the indoor environment.
- 6: can be added as needed natural air into the interior of the sash channel, direct introduction of fresh outdoor air to improve indoor air quality.

## UNITIZED GLASS CURTAIN WALL



## UNITIZED CURTAIN WALL



Unitized curtain wall is an outer maintenance system for high-grade buildings that matches the international trend of the industry. It features standardized design and informationalized procedures. The production and processing is all finished in factories and properly follows processes, and the on-site installation is conducted by machinery.

Unitized curtain wall building curtain is very mature high-end curtain wall products. Unitized curtain wall technology makes contribution to the implementation of standardized and modularized curtain wall, production.

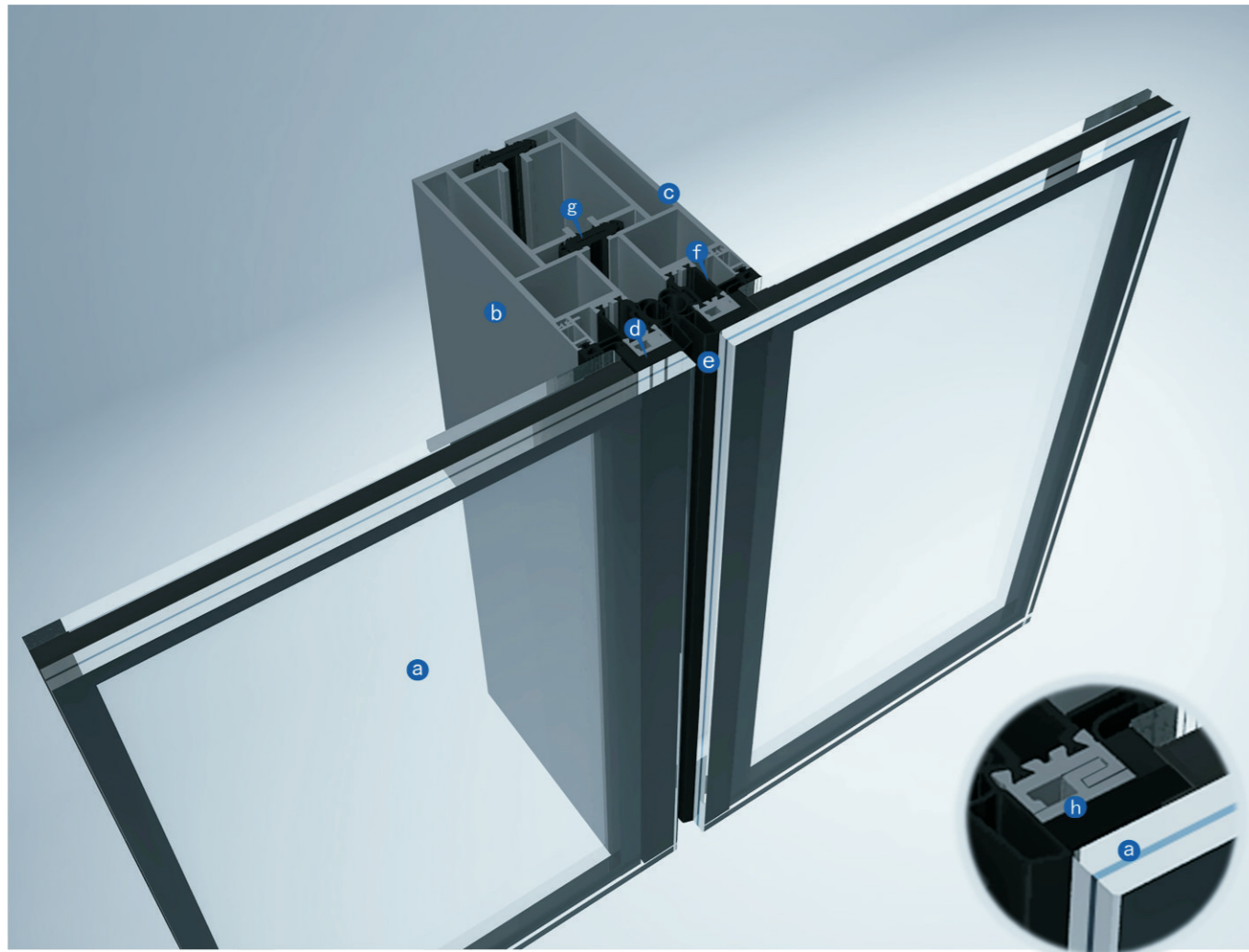
### **Main Features of Unitized Curtain Wall:**

1. Industrialized production, high accurate assembly, effective control of construction schedule, distinct economic and social benefits.
2. Adoption of structural sealing between units, no need for on-site filling of sealant, no impact of weather on sealing, strong adaptability to displacement of the main structure, applicable to super high-rise and high-rise buildings and steel structures.
3. Excellent performance in air tightness, water proofing as well as wind load deformation and plane deformation, compliance with high requirements of environmental protection and energy conservation.

## Unitized Curtain Wall Left-right Mullion Connection Details

### • Product Specification

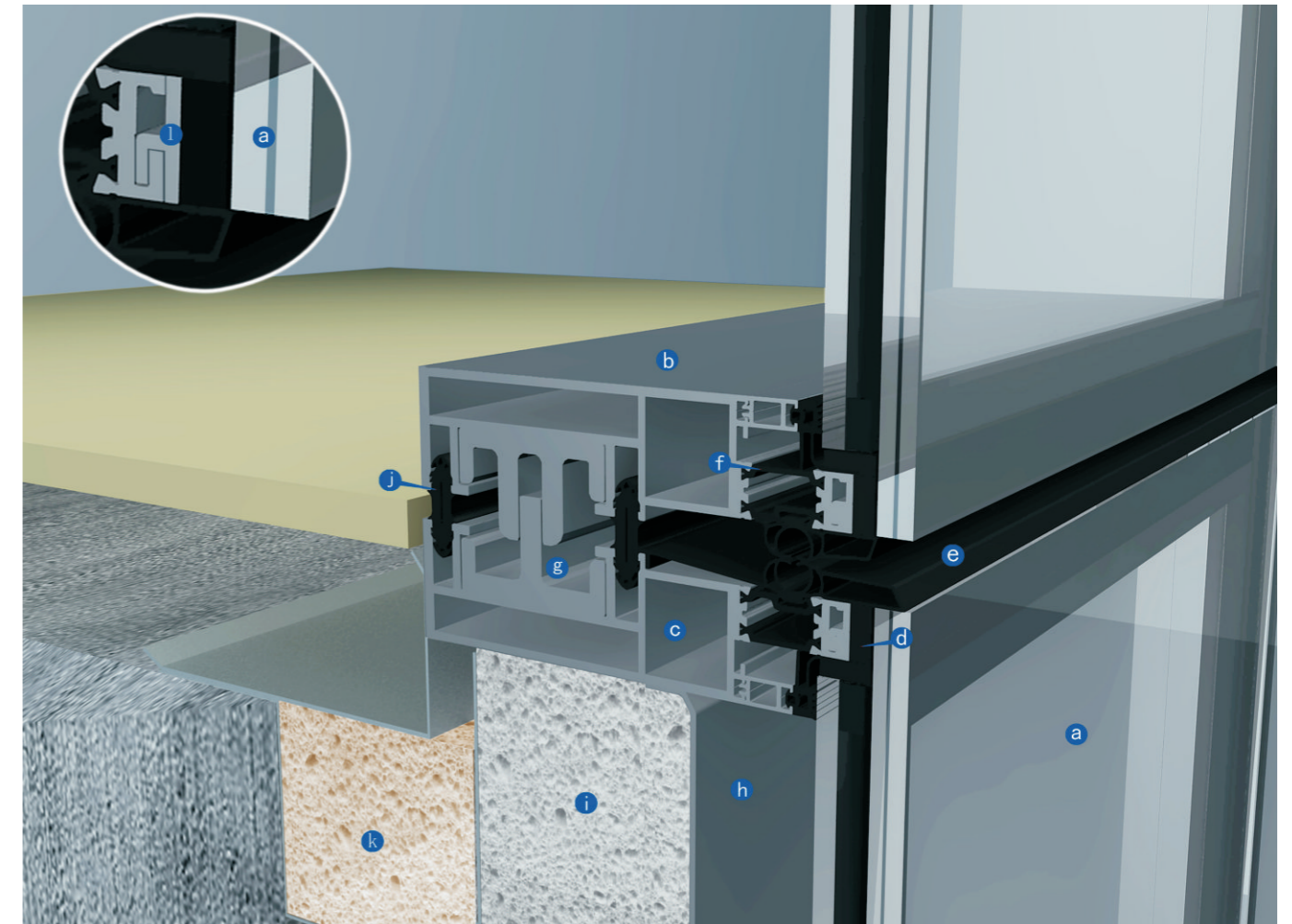
- a. Insulated tempered laminated glass
- b. Aluminum left-mullion of the unit
- c. Aluminum right-mullion of the unit
- d. Structural silicone sealant
- e. Rubber strip
- f. Aluminum thermal break strip
- g. EPDM strip
- h. Aluminum-hook sub-frame for glass panel's maintenance and replacement



## Unitized Curtain Wall Upper-lower Transom Connection Details

### • Product Specification

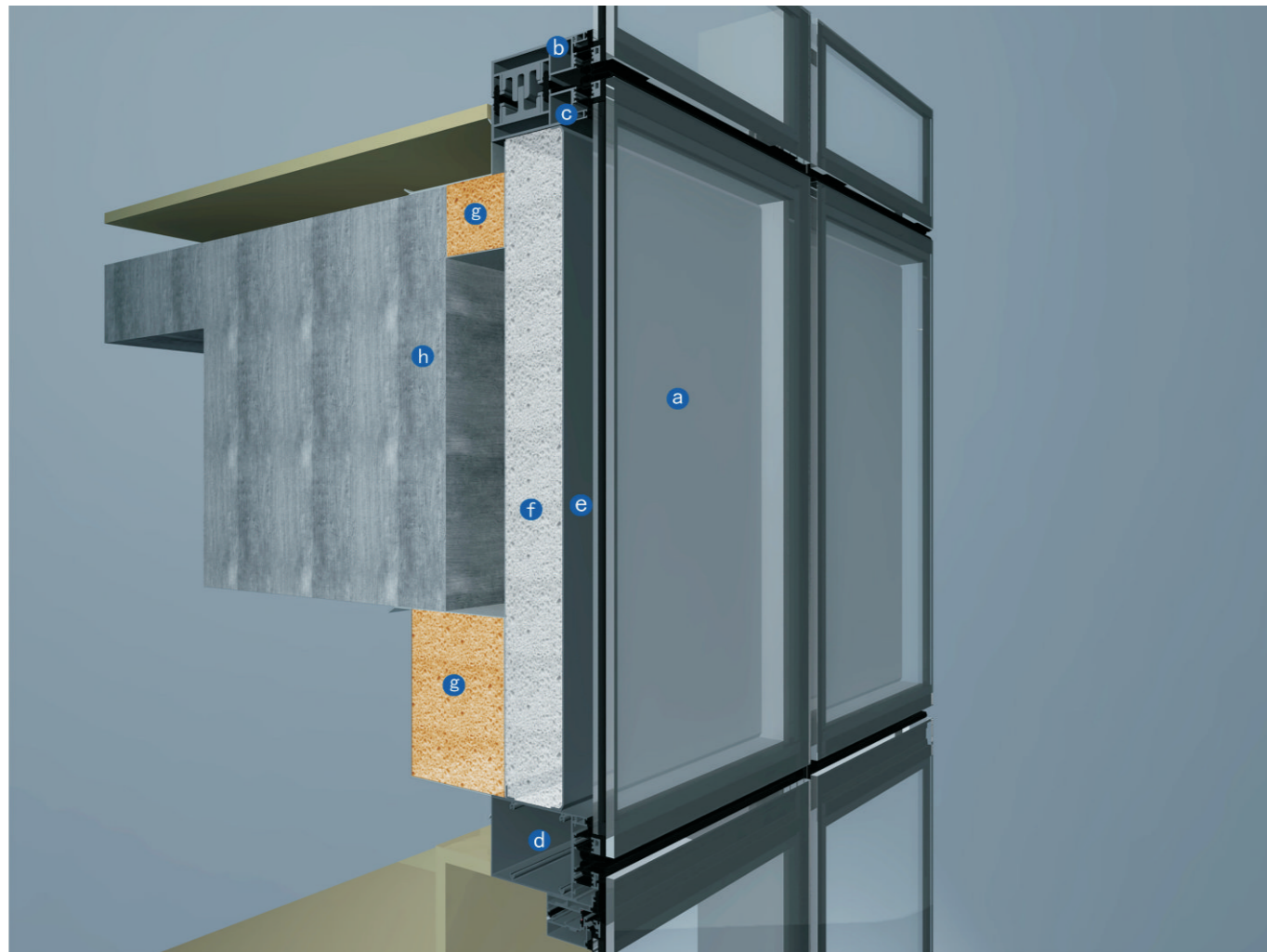
- a. Insulated tempered laminated glass
- b. Aluminum lower-transom of the unit
- c. Aluminum upper-transom of the unit
- d. Structural silicone sealant
- e. Water-proof rubber strip
- f. Aluminum thermal break strip
- g. Transom core insert
- h. Aluminum back panel
- i. Insulation cotton
- j. EPDM rubber strip
- k. Fire-proof barrier
- l. Aluminum-hook sub-frame for glass panel's maintenance and replacement



## Unitized Curtain Wall Interlayer Fire-proof Section Details

### • Product Specification

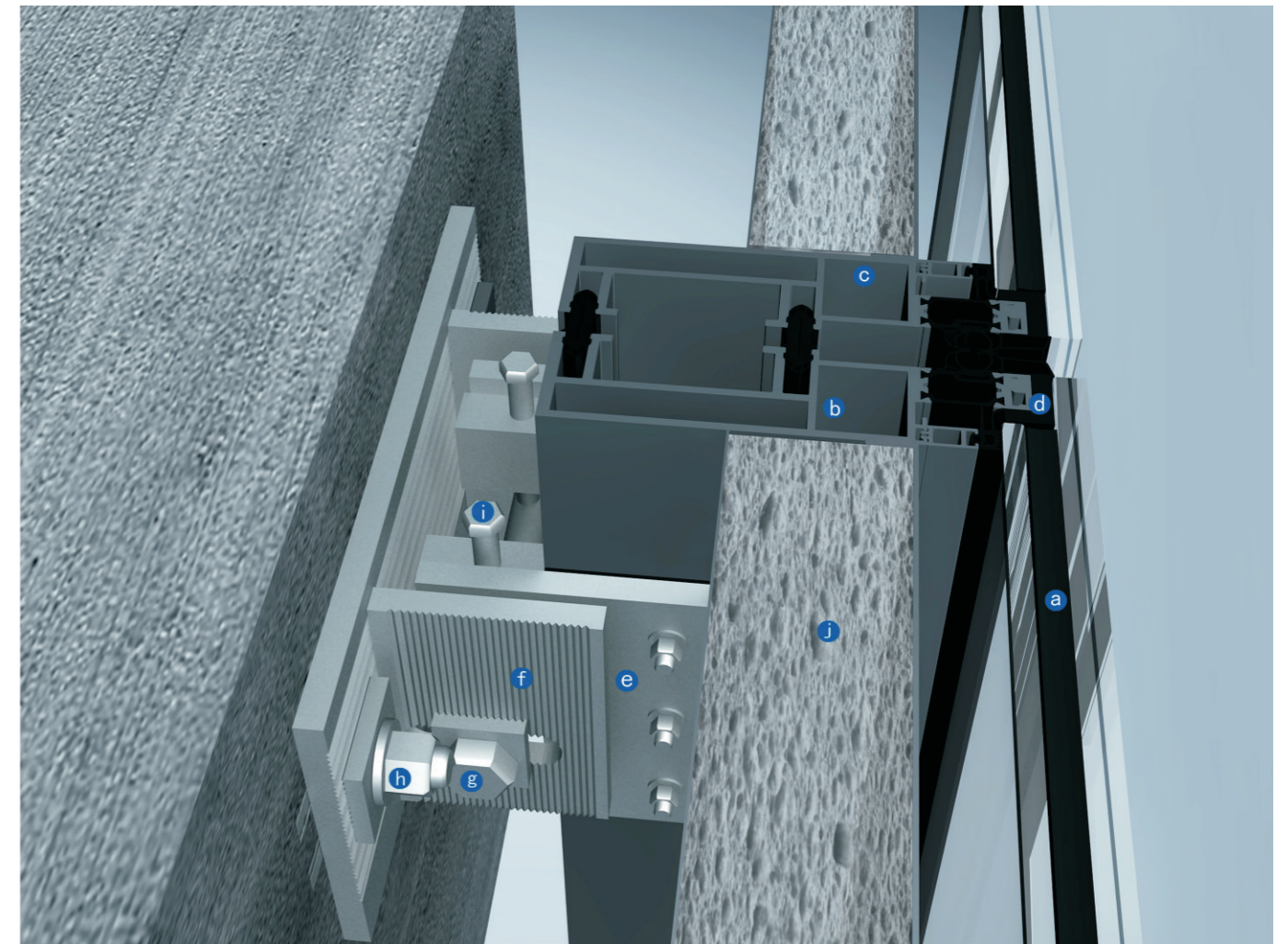
- a. Insulated tempered laminated glass
- b. Aluminum upper-transom
- c. Aluminum lower-transom
- d. Aluminum transom
- e. Aluminum back panel
- f. Insulation cotton
- g. 100mm fire stop cotton/1.5mm galvanized steel sheet
- h. Concrete structure beam



## Unitized Curtain Wall Bracket Hook-connection System

### • Product Specification

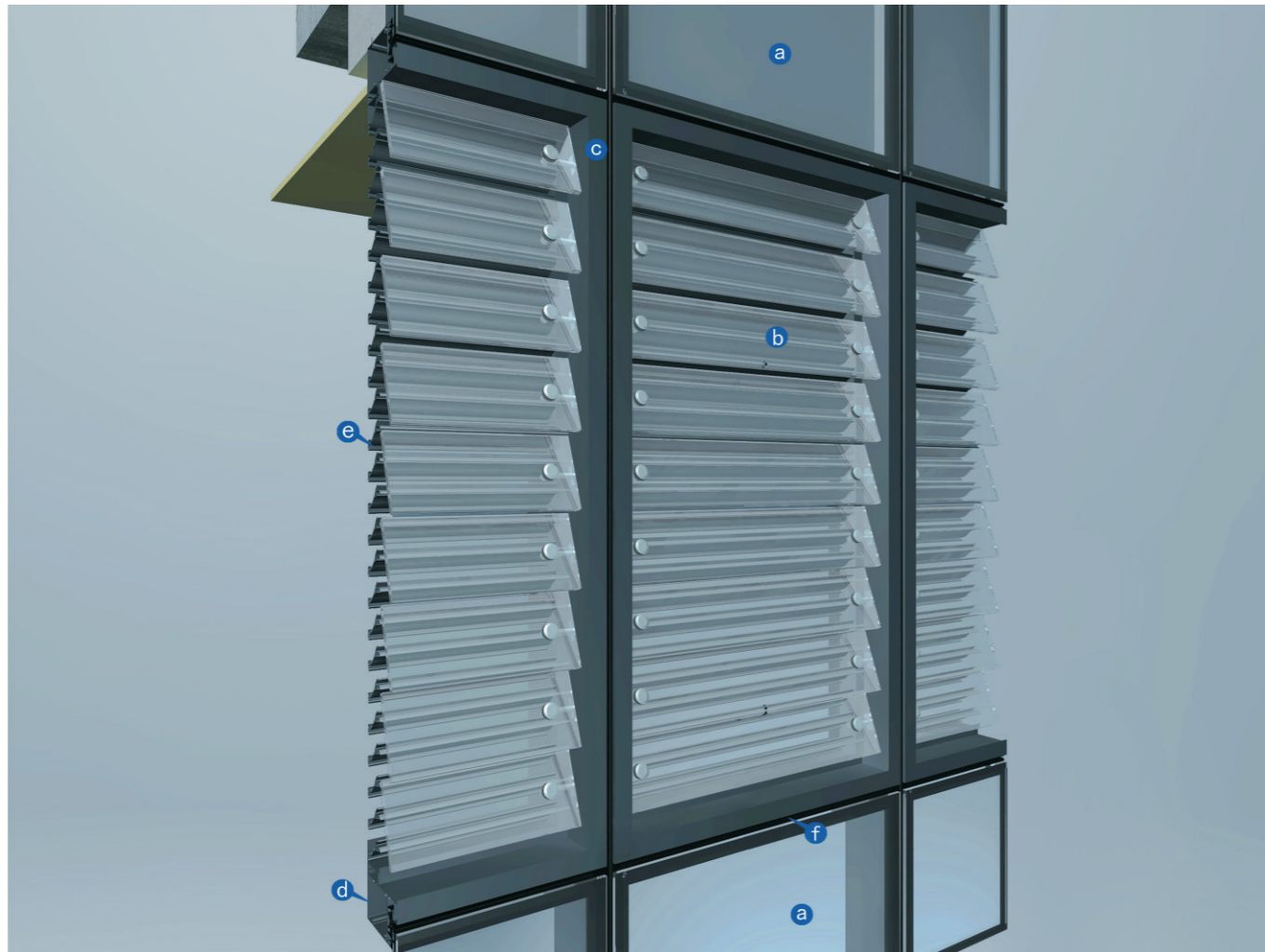
- a. Insulated tempered laminated glass
- b. Aluminum left-mullion
- c. Aluminum right-mullion
- d. Structural silicone sealant
- e. Adjustable hook-bracket
- f. Bracket connector
- g. Stainless steel screw
- h. T-shape screw
- i. Stainless steel up-down micro adjustable screw
- j. Insulation cotton



## Unitized Curtain Wall Glass Louver Partial Elevation

### • Product Specification

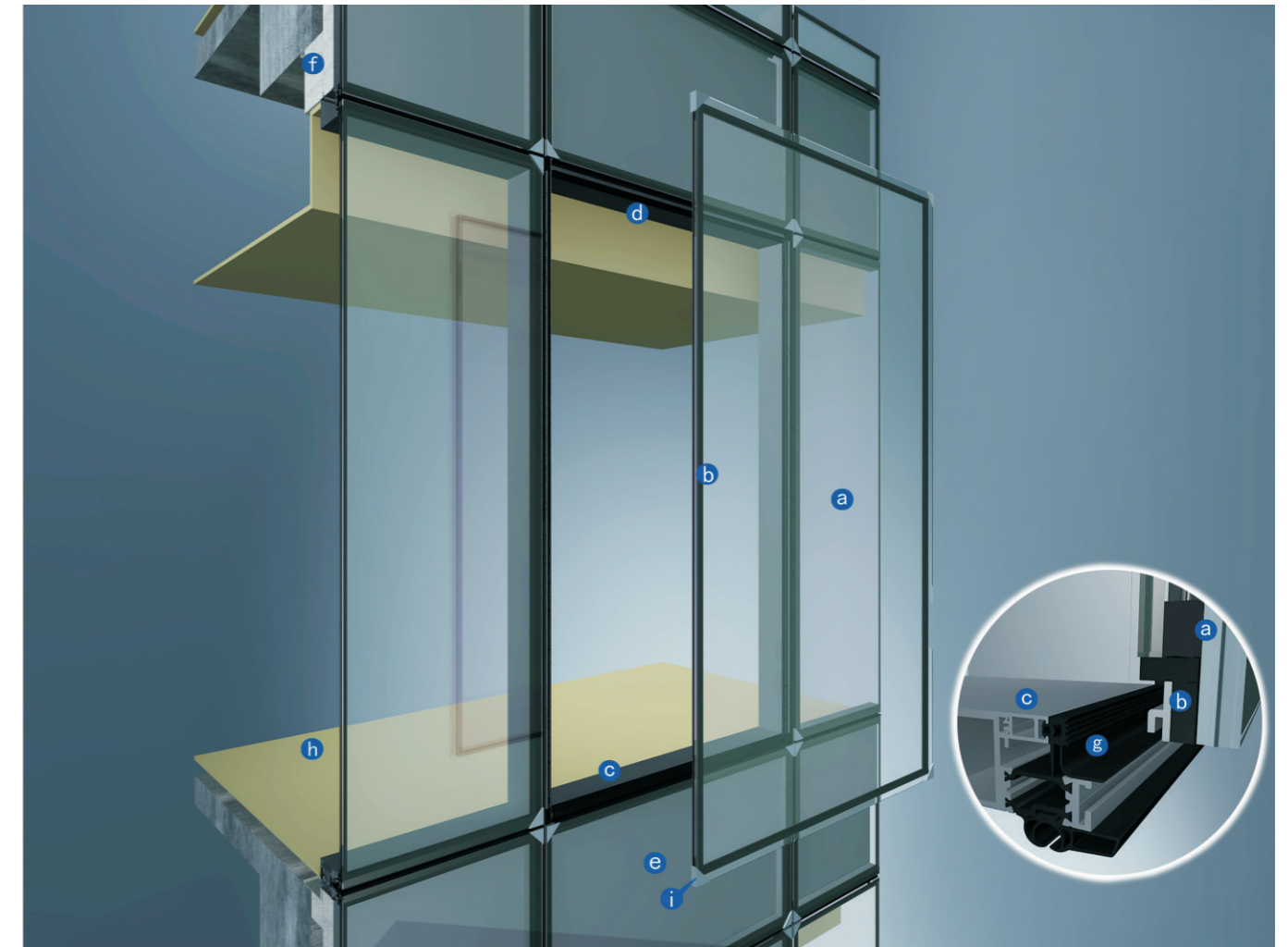
- a. Insulated tempered laminated glass
- b. Laminated glass louver blade
- c. Aluminum frame
- d. Aluminum transom
- e. Aluminum louver pieces
- f. Water-proof rubber strip



## Unitized Curtain Wall Glass Panel Replacement Diagram

### • Product Specification

- a. Lower aluminum mullion
- b. Middle aluminum mullion
- c. Insulated tempered laminated glass+aluminium back panel
- d. 100mm fire-proof cotton
- e. Water-proof rubber strip
- f. Floor decorative cladding
- g. Glass clamp



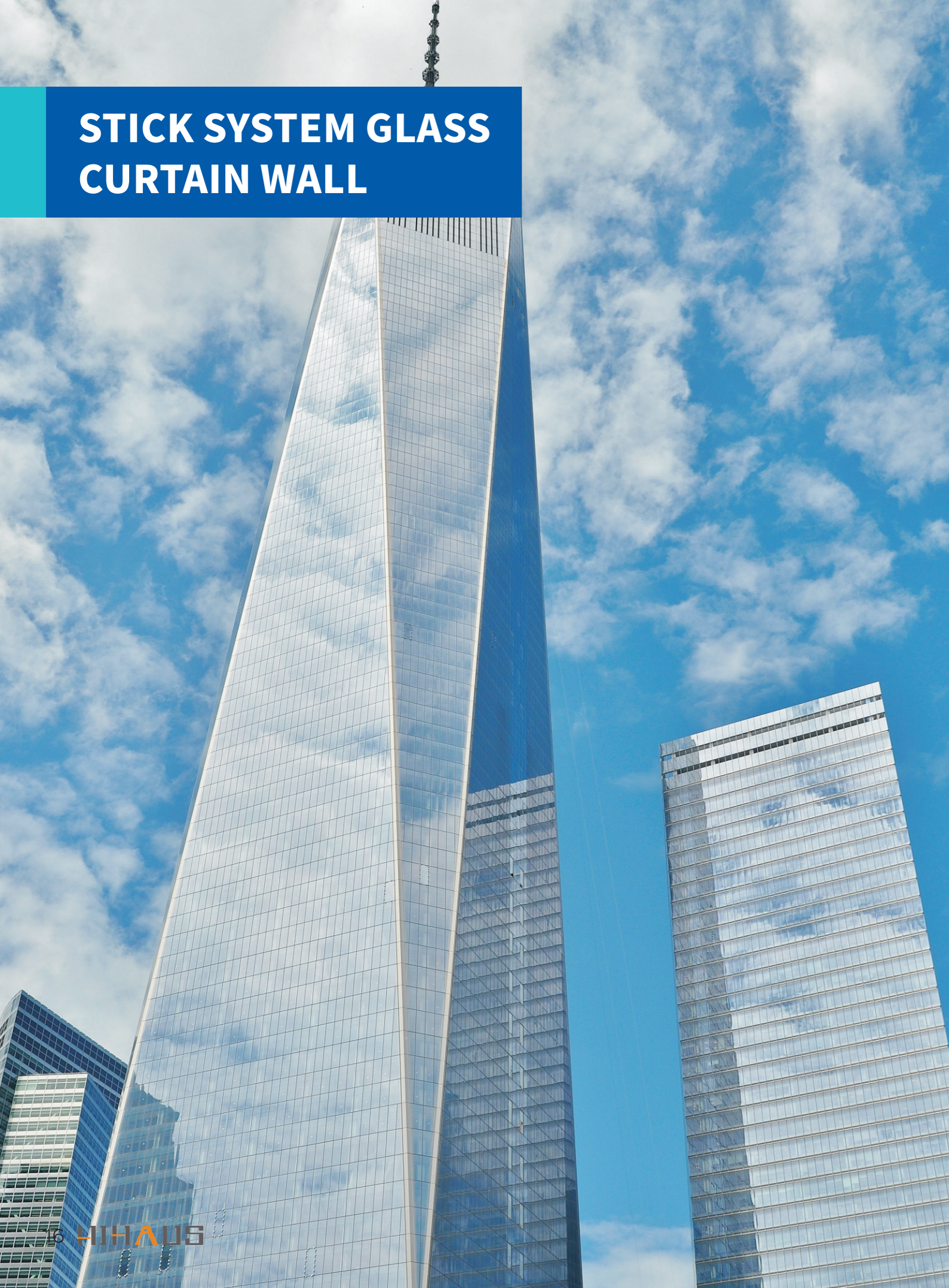
# Unitized Curtain Wall Unit Hoisting and Installation Diagram

## • Product Specification

- a. Insulated tempered laminated glass
- b. Aluminum left-mullion
- c. Aluminum right-mullion
- d. Aluminum upper-transom
- e. Aluminum lower-transom
- f. Water-proof rubber strip
- g. EPDM rubber strip
- h. Unit transom core insert

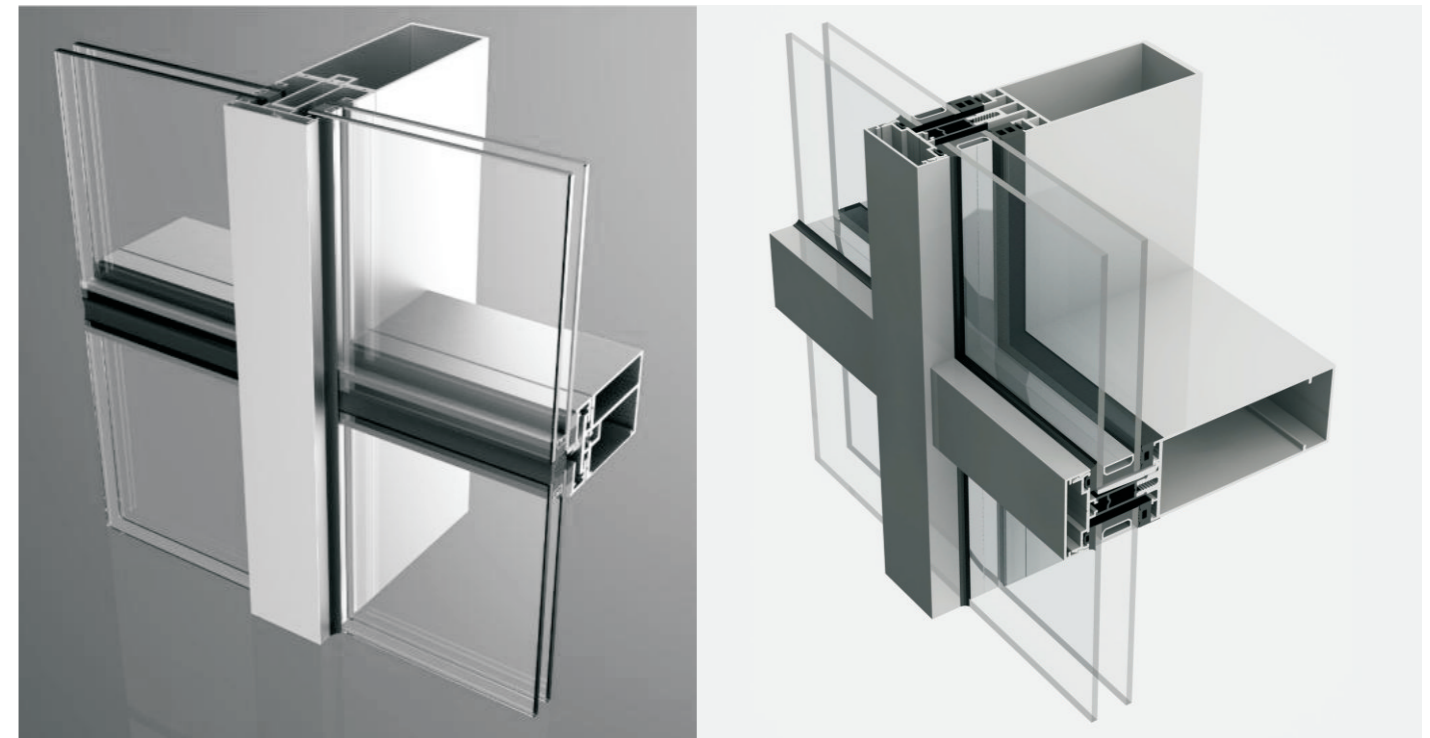
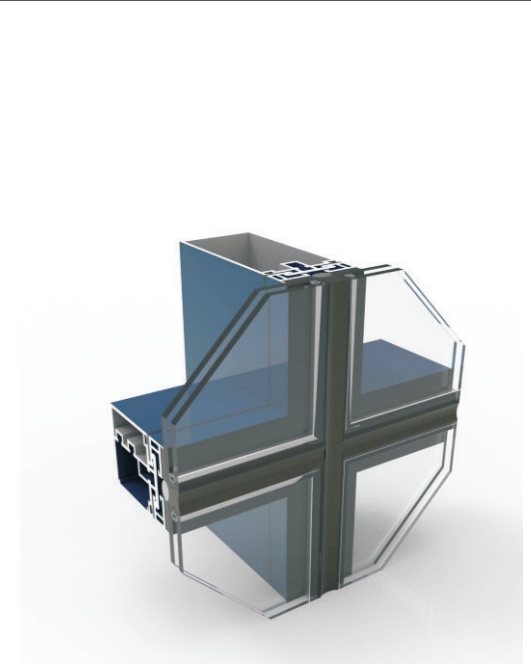


# STICK SYSTEM GLASS CURTAIN WALL



## Aluminum frame stick glass curtain wall can be classified as following types:

- **Exposed Frame Curtain Wall:**  
It is frame supported curtain wall and the aluminum frame are visible on the exterior of the panel.
- **Hidden Frame Curtain Wall:**  
It is a frame supported curtain wall and the aluminum frame are completely invisible on the exterior panel.
- **Semi-hidden Frame Curtain Wall:**  
It is a frame supported curtain wall and the vertical or horizontal aluminum frame is visible on the exterior panel.

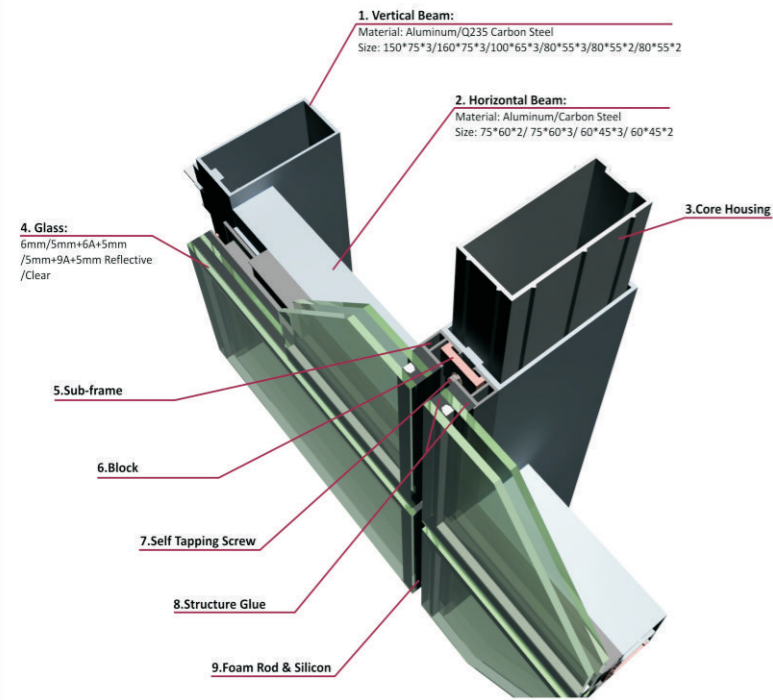


### Features Description

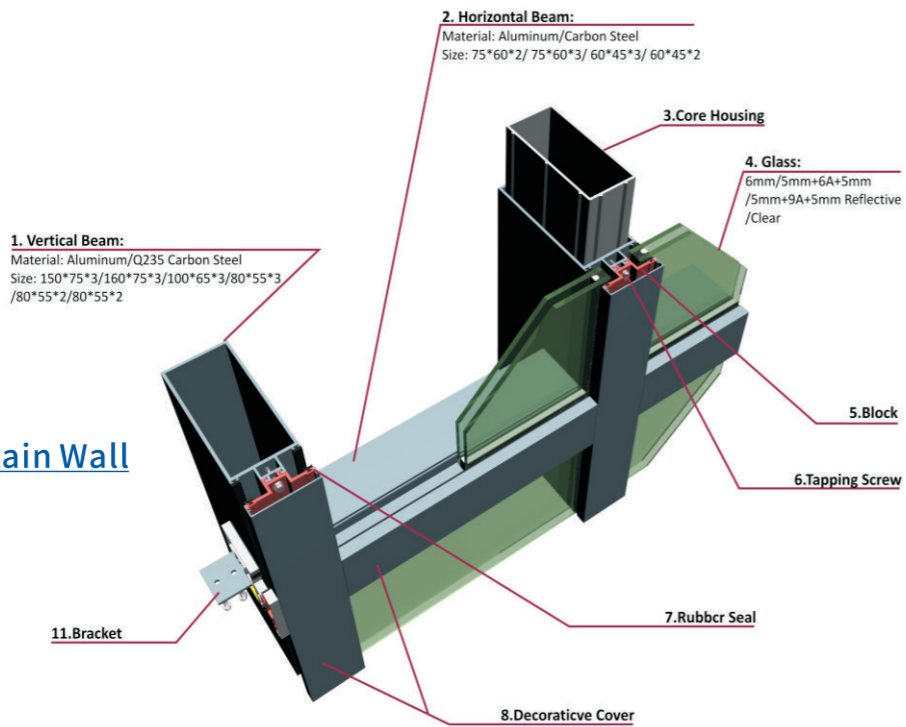
Long pieces of aluminum are inserted between floors vertically and horizontally between vertical members to support and transfer the load of the glass back to structure. Framing members may be fabricated in a shop, but glazing is typically performed at the jobsite. One of the benefits of stick-built systems is that it is more economic and can accommodate complicated jobsite conditions. The lead times are often much shorter than the unitized system for fabricated materials to be delivered to the site and allow for less up front staging.

## Stick Curtain Wall 3D Diagram

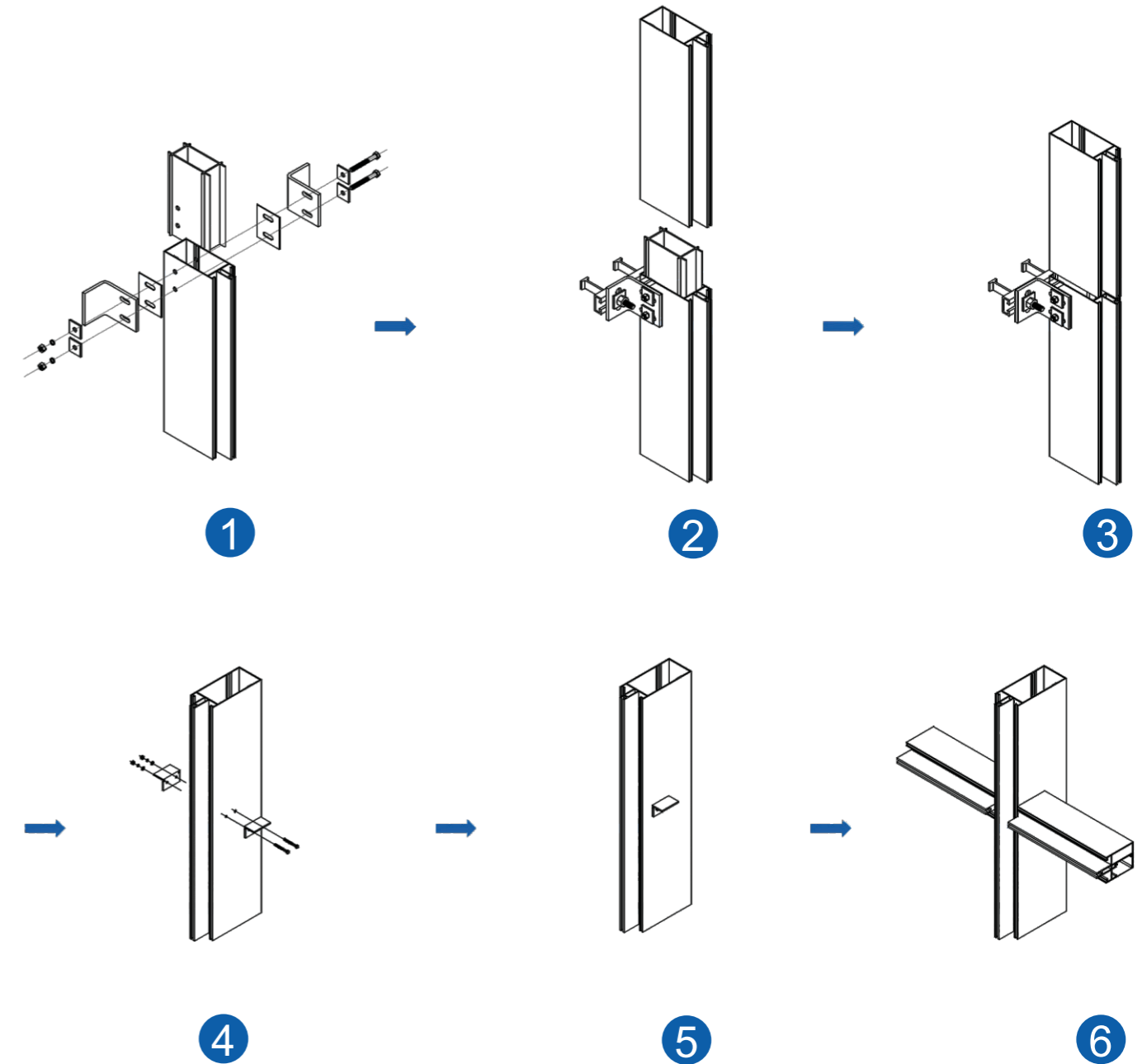
### Hidden-frame Stick Curtain Wall



### Exposed-frame Stick Curtain Wall



## Mullion&Transom Installation Diagram





## Stick Curtain Wall 3D Diagram

### • Product Specification

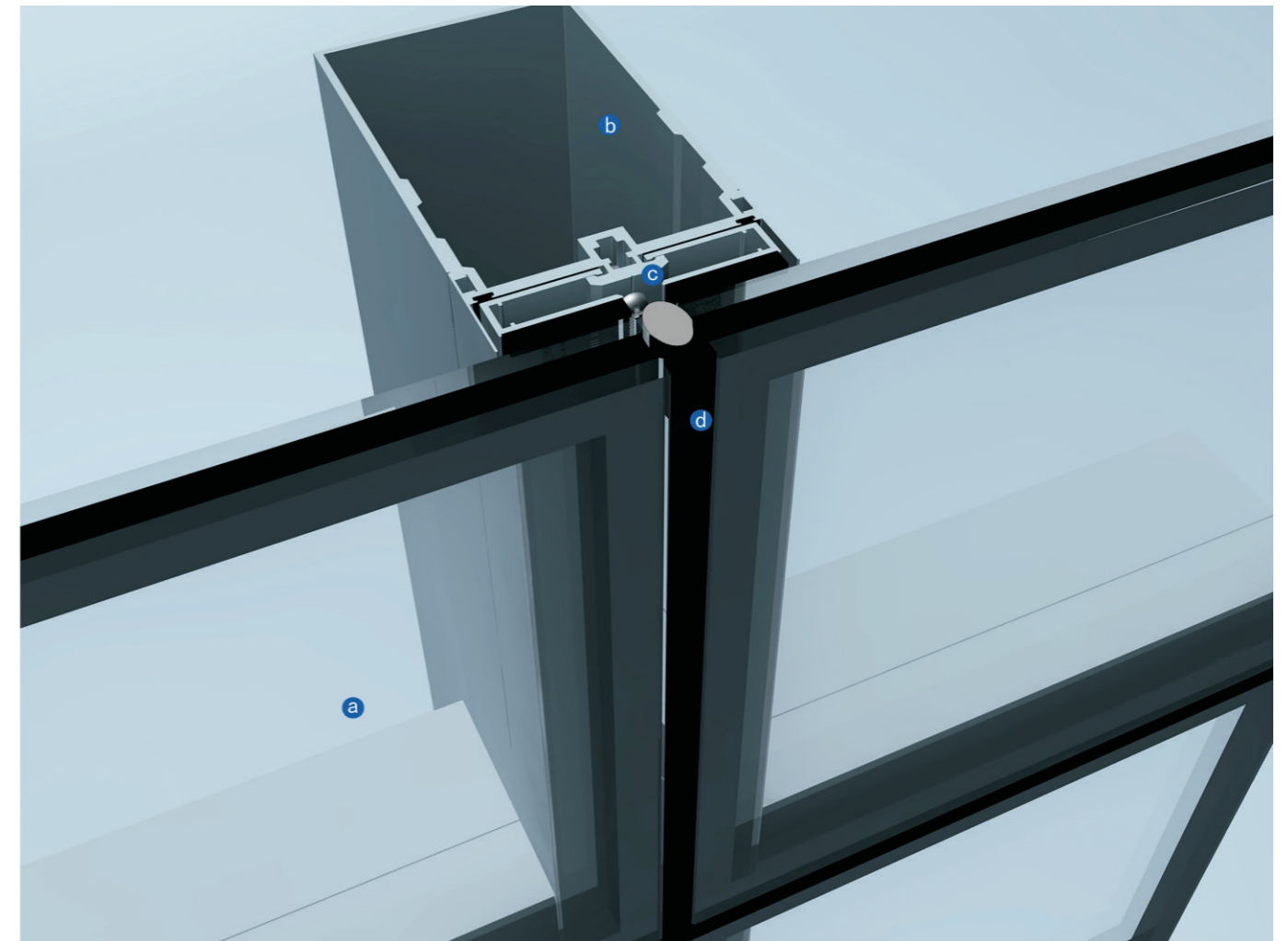
- a. Double insulated tempered glass
- b. Aluminum glass frame
- c. One-sided rubber
- d. Aluminum mullion
- e. Aluminum core housing
- f. Rubber strip & foam rod
- g. Anti-corrosion gasket
- h. Galvanized Angle steel fittings
- i. Aluminum clamp block & bolt



## Glass Curtain Wall Cross Section Drawing

### • Product Specification

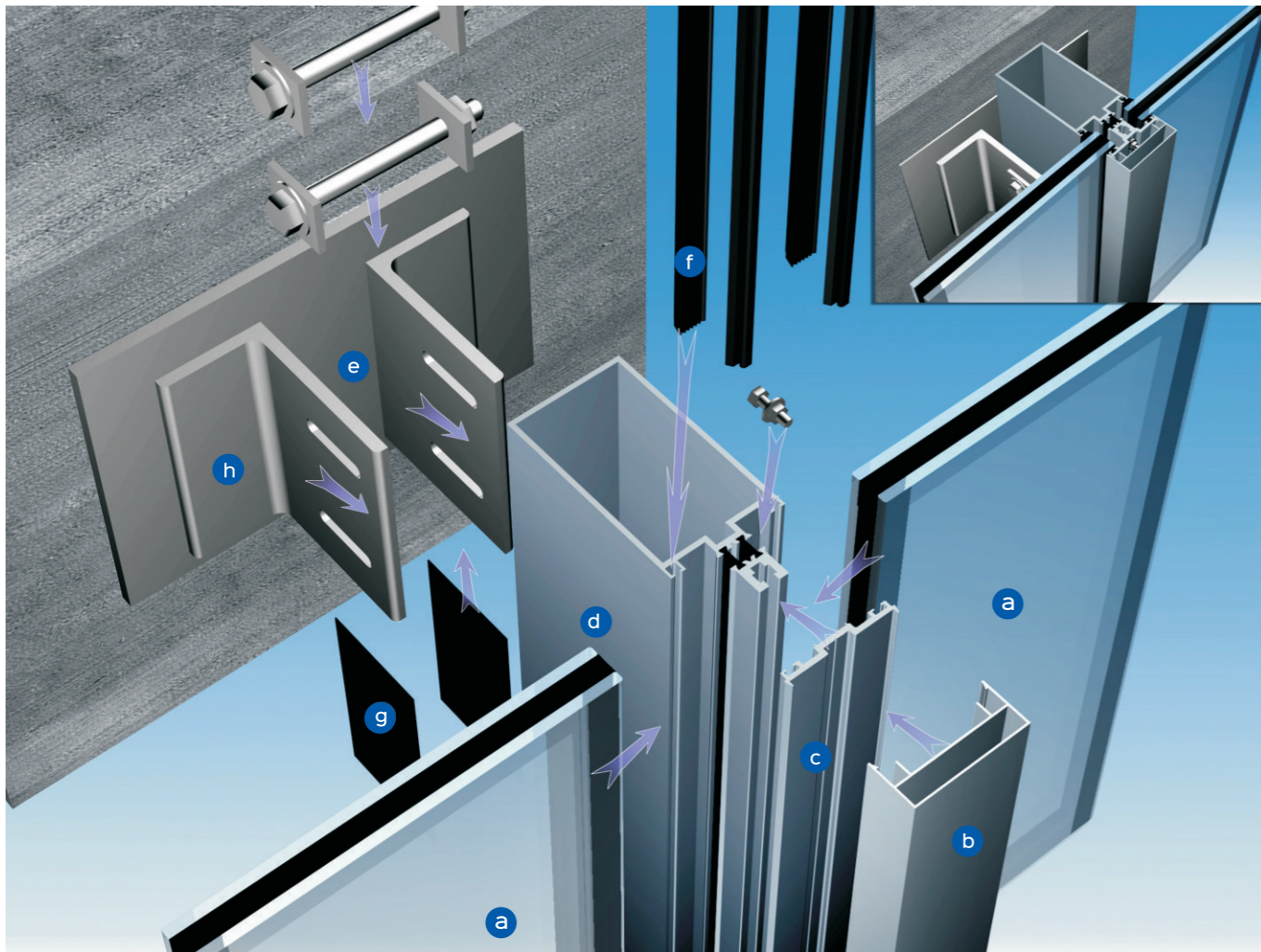
- a. Insulated glass
- b. Aluminum mullion
- c. Aluminum clamp
- d. Foam Rod & sealant



## Exposed Frame Curtain Wall Section Drawing

### • Product Specification

- a. Double insulated tempered glass
- b. Aluminum exposed frame cover plate
- c. Aluminum vertical clamp plate
- d. Aluminum mullion
- e. Embedded part
- f. Sealing rubber strip
- g. Anti-corrosion gasket
- h. Galvanized angle steel fittings

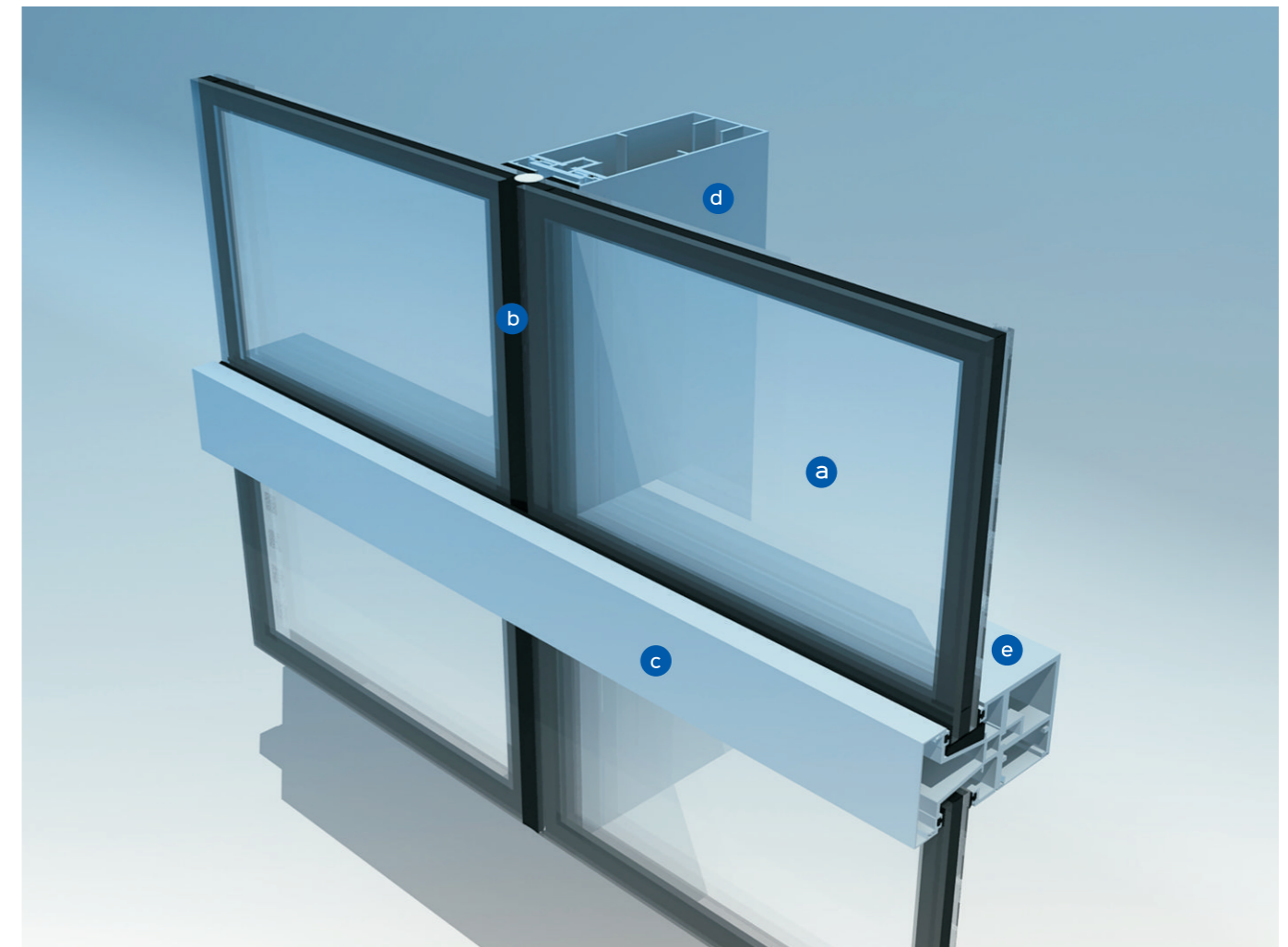


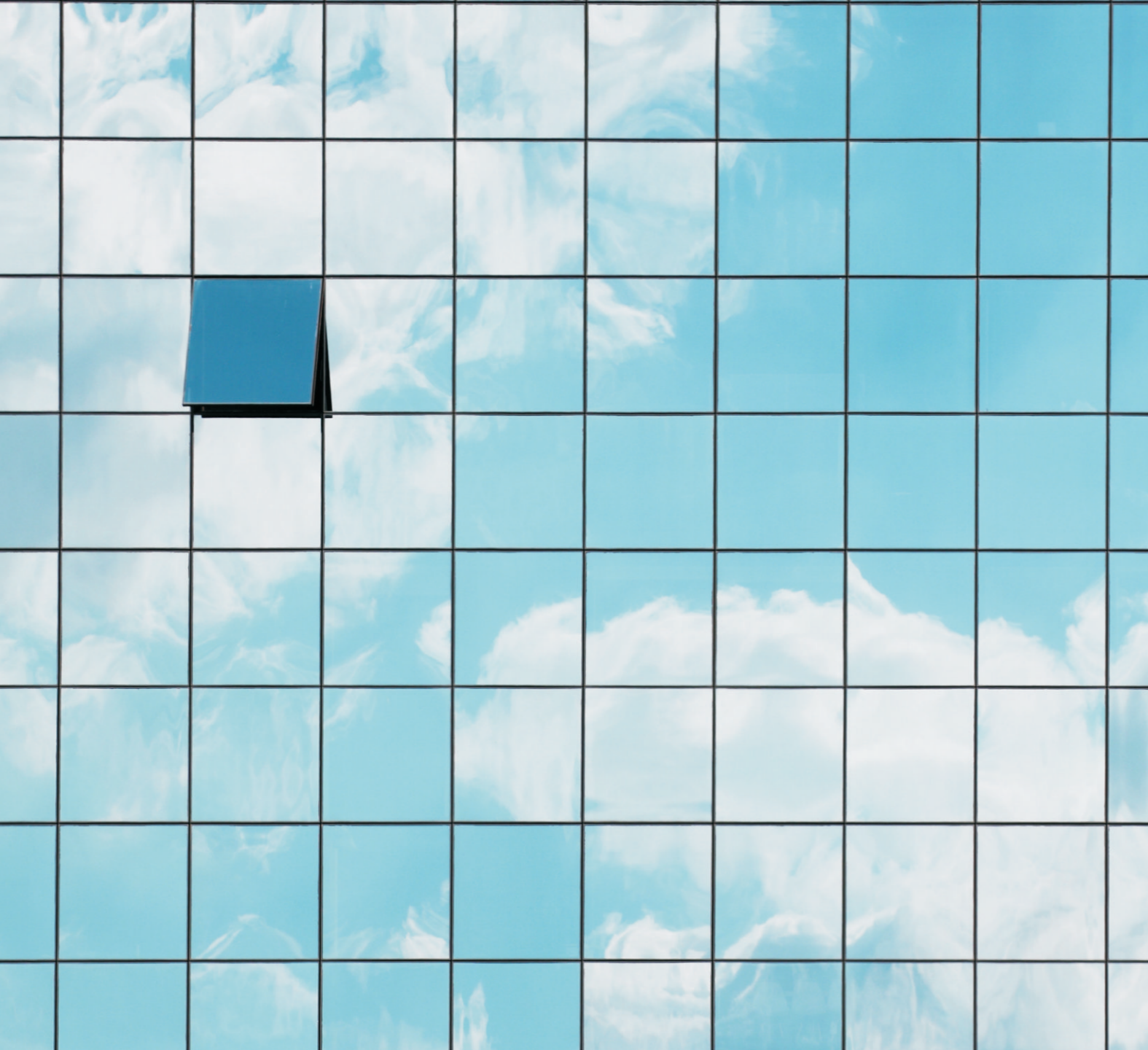
## Stick Curtain Wall Section Details

### • Product Specification

- a. insulated tempered glass
- b. Sealant gap
- c. The horizontal frame decorated panel
- d. Aluminum mullion
- e. Aluminum transom

### Horizontally-exposed semi-hidden frame curtain wall





## Hidden frame glass curtain wall

- Can't see any frame from outdoor ,all the façade looks like one piece ,very smooth and concise.
- Hidden frame glass curtain wall looks very modern and luxury, also can Reflect the surrounding landscape.
- The installation will be more easy and have better water tightness as the glass already attached on the sub-frame at factory.

## Exposed frame glass curtain wall

- With flexible construction methods and mature technique, it is a structural form of curtain wall applied most widely at present.
- The façade of the building will have the beauty of line as the metal frame are visible on the exterior of the panel.
- Hidden Frame Curtain Wall is very cost-efficient and delivery time is shorter as no need sub-frame.

# STICK SYSTEM GLASS CURTAIN WALL (WITHOUT SUBFRAME)



This type glass curtain wall is another widely used external protection system as the system is very simple. Stick System Glass curtain wall (without subframe) wall is a frame supported curtain wall, for which glass panels fixed on the mullion and transom directly. The load received by the unit components of the panel materials will be transmitted to the main structure via the mullions.

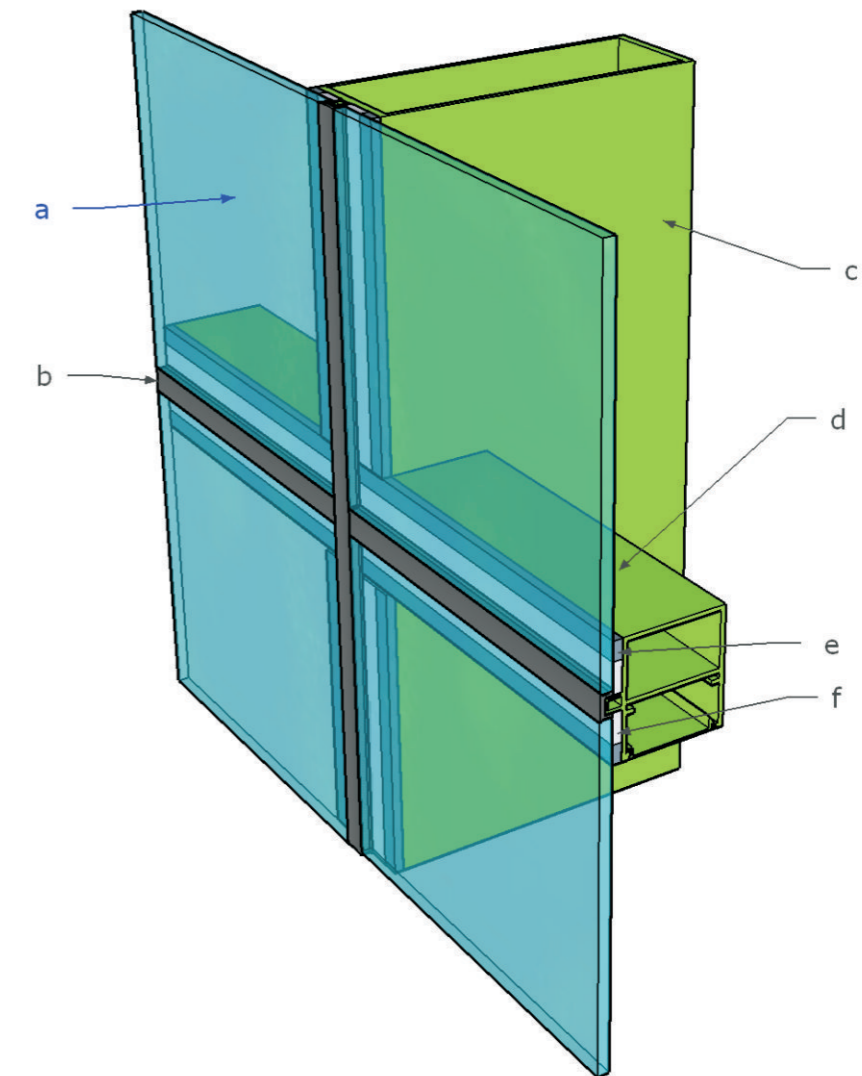
## Main Features of Stick System Glass Curtain Wall (Without Subframe):

1. The cost is much less as need less aluminum profile and less assembly procedure.
2. As all the fabrication job finished at jobsite, will have more high requirement for the site condition and technician.
3. This type glass curtain wall normally used for the building less than 10 floors.

## Stick system glass curtain wall (without subframe)

### • Product Specification

- a .Single tempered glass
- b .Weather-resistant silicone sealant
- c .Aluminum mullion
- d .Aluminum transom
- e .Double-sided adhesive tape
- f .Structural silicone sealant





# POINT SUPPORTED CURTAIN WALL

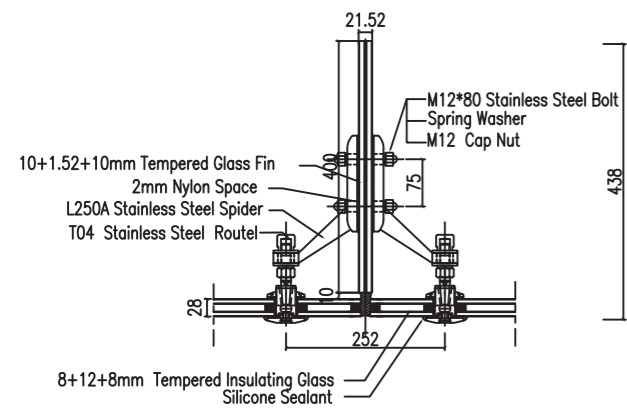
## Point Supported Curtain Wall

- Steel Truss Type
- Steel Tube Type
- Glass Fin Type
- Tension Truss (with rods) Type
- Tension Truss (with cables) Type
- Self-balancing Cable Truss Type
- Single-layer Cable Net Type

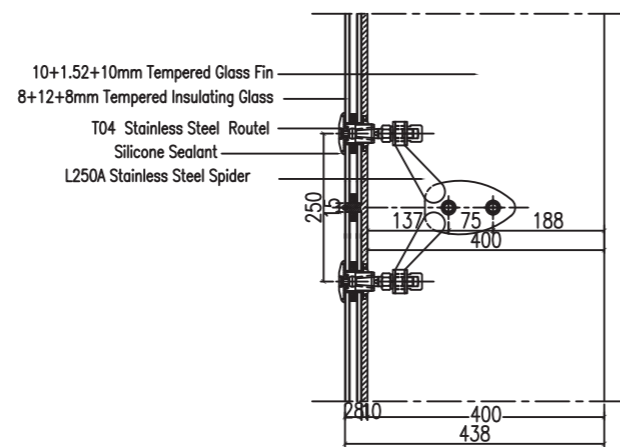
### Main Features of Point Supported Curtain wall

1. Diversified forms of the Supporting structure, can meet the requirements of different architects and project owners for the structure and exterior facade of buildings.
2. Firm and graceful structure, and exquisite and practical components can integrate the metal structure with the permeability of glass to achieve harmony between interior and exterior spaces of the building.
3. The glass is connected to the spider by spherical hinge; it is perfect for accommodation of distortion.

## Point Supported Curtain Wall---Glass Fin Type



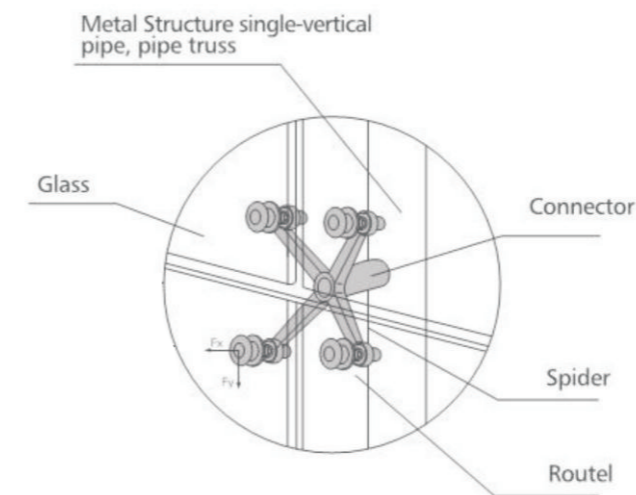
Cross-Cutting Section Drawing



Vertical Section Drawing

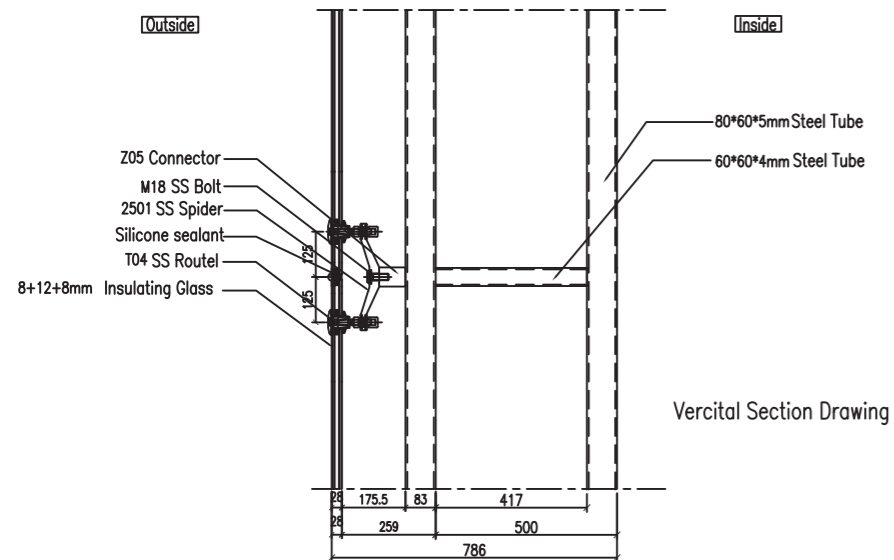
Glass Fin Type offers a design concept both for interiors and exteriors with maximum transparency . The spider and glass collocation make it more contemporary and science and technology feeling.

## Point Supported Curtain Wall-Steel Tube Type



Steel Tube Type is the earliest Point Support Glass curtain wall and also the most widely used . It combined the stability of steel structure and lightness of glass, which make it strong vitality and provides a new design space for architects.

## Point Supported Curtain Wall---Steel Truss Type



Steel Truss Type normally for large-span area , normally for public building , high lobby. Steel truss type is cost-efficient as can get bigger flexural strength with same amount of material. Steel truss type is also easy to install.

## Point Supported Curtain Wall---Tension Cable Type

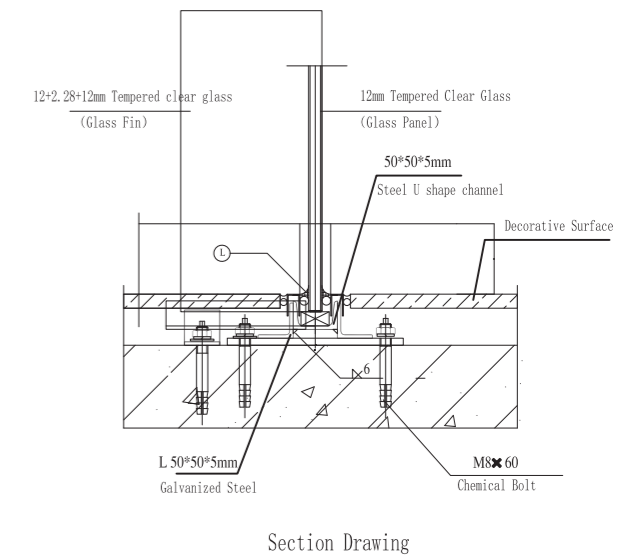


Tension cable point supported glass facade systems that comprise of pre-stressed cable-net, glass panes and glass support attachments; are commonly used in airport terminals, hotel lobbies, and trade centres. Tension Cable Type have higher requirement for installation .

# FULL GLASS CURTAIN WALL



## Full Glass Curtain Wall



Full glass curtain wall glass curtain wall of glass and glass panel consisting of ribs. Full glass curtain wall into the lower end of the support floor- (trough) glass walls and glass curtain wall hanging. Its performance characteristics are as follows:

- 1. excellent permeability, to create a distribution and integration of space inside and outside the building, to achieve harmony between man and nature.
- 2. the support structure for the glass to maximize space and create transparent.
- 3. the surface of the glass with glass ribbed transparent structural adhesive connection, can absorb deformation in different directions.
- 4. can be made according to the needs of the construction embedded functions, flush or undershot.
- 5. hanging folders to avoid buckling damage resulting glass occur.
- 6. large-span all-glass curtain wall anchor rib can use glass curtain wall.
- 7. mainly for public buildings and shopping malls decorated lobby window decoration.

### Full-glass Curtain Wall

The full-glass curtain wall consists of glass fins and glass panels, which is classified into hanging type, bottom-supported type and hidden cable glass fin type. Main Features of Full-glass Curtain Wall:

- 1. Full-glass curtain wall is fully transparent and all-in-view, and pursues exchange and integration between the inner and outer spaces. People could clearly see the whole structural system of the glass, so as to turn the structural system from supporting role to performance visibility and to demonstrate a sense of architectural aesthetics, type, hierarchy and space impression.
- 2. The system is light in weight, and features simple selection of material, processing in factories, fast construction and convenient maintenance. Also, it's easy to clean.
- 3. For the effect of enriching architectural elevation, this system is unparalleled, and is a perfect embodiment of the modern science and technology in the building decoration.



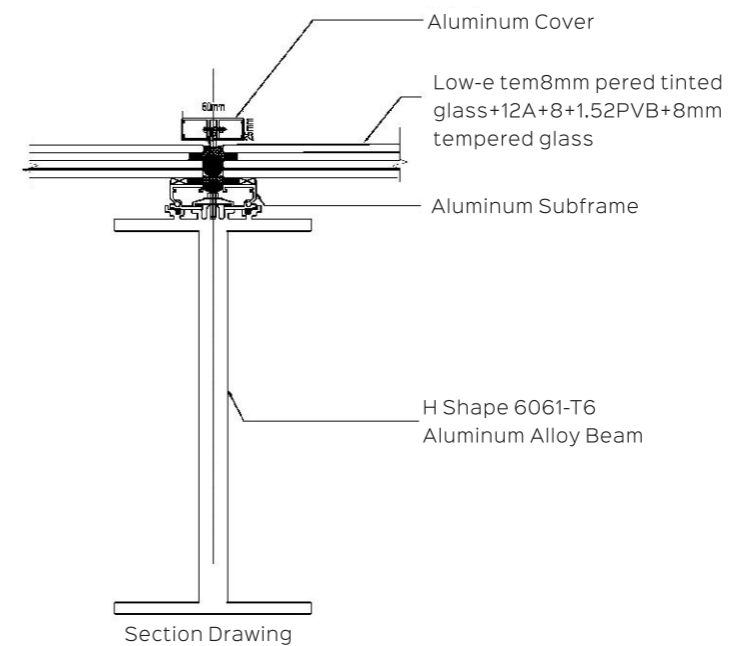
# GLASS DOME



## Aluminum shell structure dome

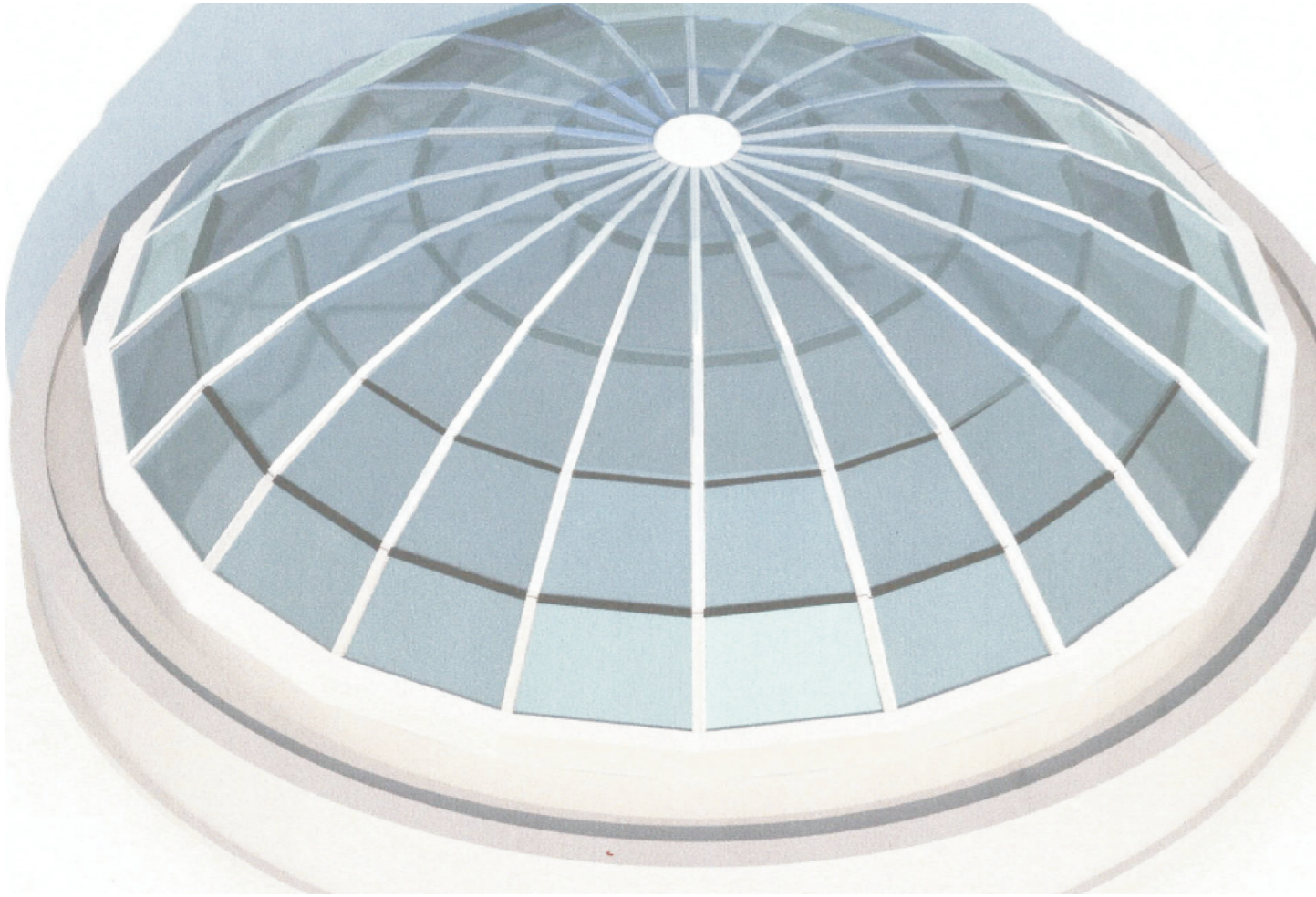


### Bangladesh military museum

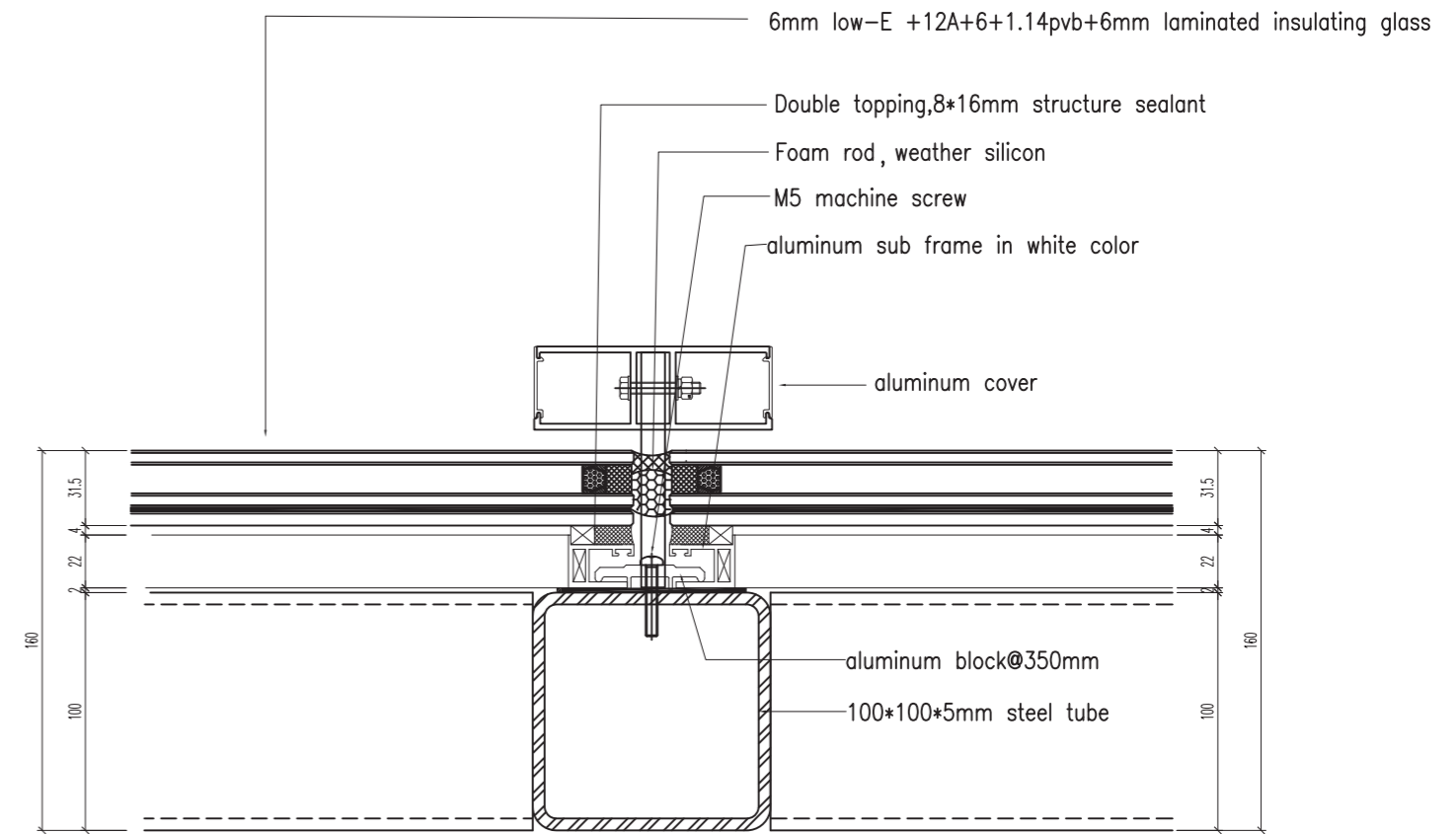


For aluminum shell structure dome, aluminum's lightweight characteristics allows for larger clear-span cover capability than steel structures and other materials . With no corrosion or the need to repaint to protect the structure over time, there is little-to-no maintenance costs associated with an aluminum dome. Aluminum shell structure dome mainly for big span dome and cover solution for big storage.

## Steel Structure Dome

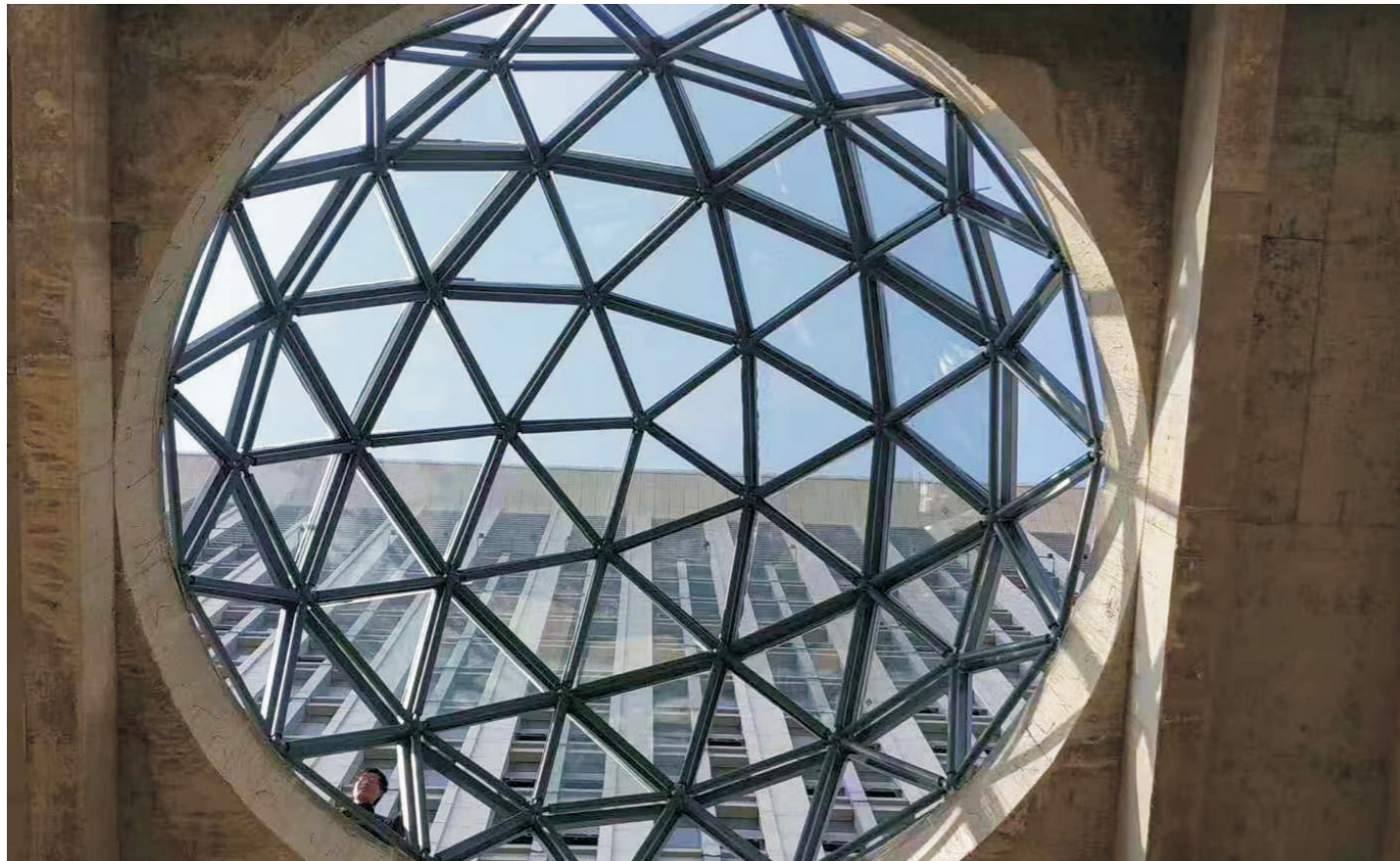


## Steel Structure Dome



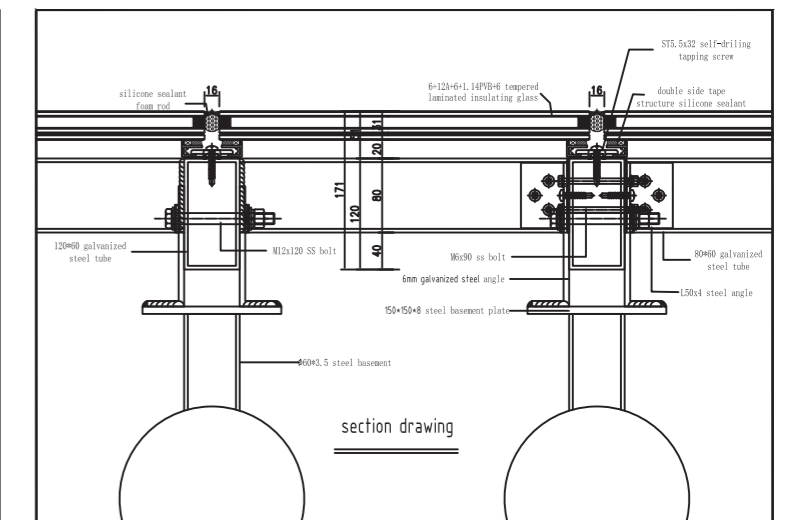
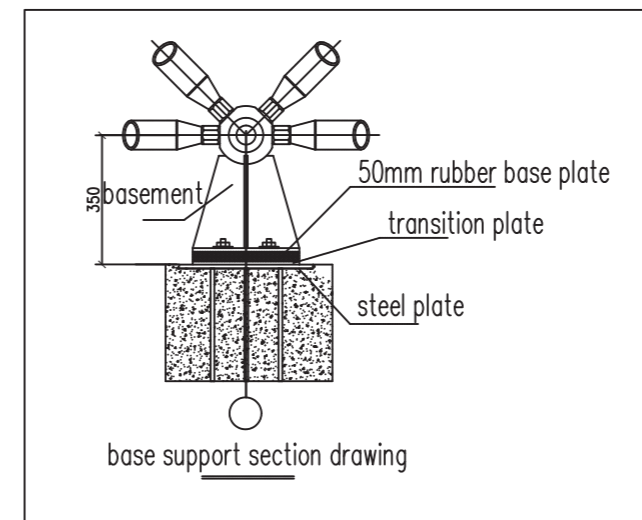
Steel structure dome is consist of steel frame and glass panel, which is are very mature dome system and widely used in dome industry. In order to ensure the accuracy, normally onstall the frame structure first , then measurement the glass panel size and start the glass production.

## Steel Single Layer Reticulated Shell Dome



Steel Single Layer Reticulated Shell Dome is very cost-efficient solution for small dome (Diameter is less than 15meter).

## Space Truss Structure Shell Dome



Space Truss Structure Shell Dome is very widely used in big-span dome and building roof. Steel truss type is also cost-efficient as can get bigger flexural strength with same amount of material

# ALUMINUM PANEL CURTAIN WALL



## Aluminum Panel Curtain Wall Section Details

### • Product Specification

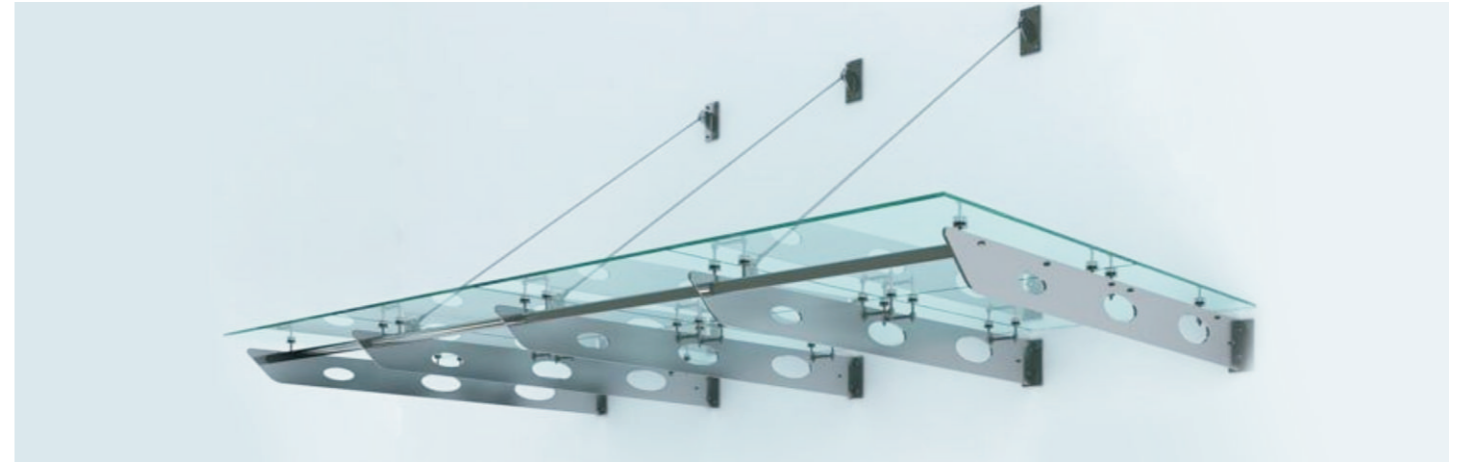
- a. Single aluminum panel
- b. M12×120 stainless steel bolt
- c. 40×40×4mm galvanized steel angle
- d. Cast-in plate
- e. 20×20×2.5mm aluminum angle
- f. 125×80×8mm galvanized steel angle
- g. 90×50×4mm galvanized steel tube



# GLASS CANOPY



## Glass Canopy



Glass Canopy-Spider Type



Glass Canopy-Stick type

A glass canopy provides an attractive and practical feature to a building. Usually placed outside entrance doors a canopy protects people entering the building, keeps the weather away from the doors and allows natural light through to the entrance area.