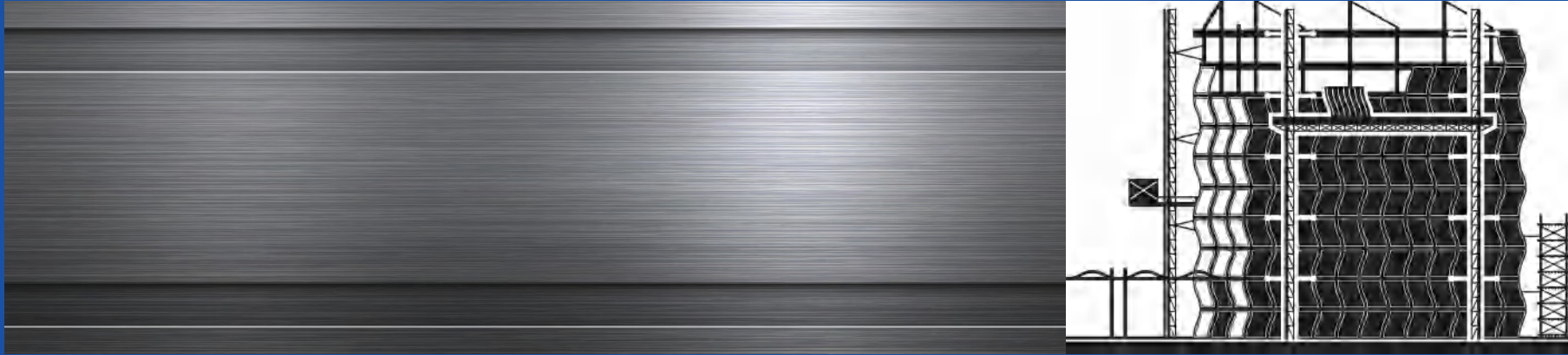




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Qingdao Kangdeli Industrial & Trading Co.,Ltd



Aluminum Panel Curtain Wall Project

Construction method of aluminum curtain wall

- Construction drawing design documents

The aluminum panel curtain wall project should have detailed architectural and structural design and construction drawing documents, including the aluminum panel curtain wall. Various materials and accessories used in the wall project, the shape and façade division of the aluminum curtain wall, the specifications, colors, gloss and installation direction, quantity, position and post-embedding of pre-embedded parts and post-installed parts on the main structure of aluminum panel curtain wall, the pulling force of the aluminum panel curtain wall, the connection between the frame column of the aluminum panel curtain wall and the embedded parts of the main structure, the connection between the column and the beam, panel installation, equipment for lightning protection, fire protection, thermal insulation and moisture-proof materials of aluminum panel curtain wall, aluminum panel frame and connection, anti-corrosion treatment of parts, various deformation joints, connection nodes of wall corners, glue injection width and thickness of aluminum plate curtain wall, etc.

- Material requirements

- (1) Plate

The thickness of the single-layer aluminum plate is 2.5mm, and its surface treatment thickness and material should conform to the current industry standard "Building Building Curtain Walls" and "Aluminum Alloy Rolled Sheets" and other relevant regulations.

- (2) Profile steel and aluminum profiles

Specifications and dimensions of steel and aluminum profiles shall comply with design regulations.

- (3) Building sealing materials and silicone structural sealants

Quality requirements for building sealants and silicone structural sealants, in line with design requirements and industry standards.





- Main machinery and tools

- (1). Mechanical equipment

- Impact drill, grinding wheel cutter, electric welding machine, rivet gun, electric screwdriver.

- (2). Main equipment

- Screwdriver, pliers, wrench, wire sinker, spirit level, steel tape measure.

- Construction conditions

- (1). The main structure has been completed. During the construction of the main body, the embedded parts or post-installed parts have been embedded according to the design requirements.

- (2). The construction organization design of curtain wall installation has been completed and has been reviewed and approved by relevant departments.

- (3). Curtain wall materials have been supplied as planned and fully furnished. Material varieties and specifications of components and accessories, the color and performance meet the design requirements.

- (4). The scaffolding or hanging basket for installing the curtain wall is ready.



- Curtain wall construction operation technology

1. Before the curtain wall is produced, the design and construction drawings of the building should be checked, and the building should be checked. Re-measurement, adjust the deviation in the curtain wall drawings according to the actual measurement results, and can only be processed and assembled after the design unit agrees.

2. The equipment and tools used for processing curtain wall components should meet the requirements of the processing accuracy of curtain wall components. The tools should be regularly checked for metrology.

3. When using silicone structural sealant to bond the fixed components, the glue injection should be at a temperature above 15° C and below 30° C. It is carried out in a clean and ventilated room with a relative humidity of more than 50%, and the width and thickness of the glue should meet the design requirements.

4. During the processing and production of curtain wall components:

1) The curtain wall structural members should be straightened and adjusted before cutting;

2) The allowable deviation of the beam length of the curtain wall should be $\pm 0.5\text{mm}$, and the allowable deviation of the column length should be $\pm 1.0\text{mm}$, the allowable deviation of the end slope should be -15° ;

3) The cutting end shall not be deformed due to processing, and shall not have burrs;

4) The allowable deviation of the hole position should be $\pm 0.5\text{mm}$, the allowable deviation of the hole distance should be $\pm 0.5\text{mm}$, and the cumulative deviation should not be greater than $\pm 1.0\text{mm}$;

5) The anti-rust treatment on the surface of the steel structure shall comply with the relevant provisions of the current national standard "Code for Construction and Acceptance of Steel Structure Engineering".



5. Aluminum plate processing:

1) The variety, specification and color of the aluminum sheet should meet the design requirements; the thickness of the fluorocarbon resin coating on the surface of the sheet should be meet the design requirements.

2) Processing of single-layer aluminum plate.

①When the single-layer aluminum plate is bent, the radius of the outer arc of the bending should not be less than 1.5 times the thickness of the plate;

②Electric bolts can be used to fix the stiffeners of the single-layer aluminum plate, but it should be ensured that the outer surface of the aluminum plate should not be deformed or faded. color, the fixation should be firm;

③ The fixed ears of the single-layer aluminum plate should meet the design requirements. The fixed ears can be welded, riveted or the board is directly punched, and should be positioned accurately, easy to adjust, and fixed firmly;

④The four peripheries of the single-layer aluminum plate members should be in the form of riveting, bolting or gluing and mechanical connection. It should be fixed, and the rigidity of the components should be good and the fixing should be firm. There should be no gaps in between.

5) Install the aluminum plate

According to the construction drawing, use rivets or bolts to fix the aluminum alloy plate veneer on the steel frame piece by piece. Leave a gap of 10~15mm in order to adjust the installation error. When the metal plate is installed, the deviation between left and right and up and down should not be large at 1.5mm.

6) Handle the board seam

After cleaning the surface of the metal plate and the frame with detergent, immediately place it in the gap between the aluminum plates. Sealing strips or weatherproof rubber strips, and then inject materials such as silicone weather-resistant glue. The glue should be full and there should be no gaps or air bubble.

7) Deal with curtain wall closing

The end of the wall panel and the keel part can be covered by the aluminum plate for the closing treatment.

8) Dealing with deformation seams

When dealing with deformation joints, we must first pay attention to the needs of building expansion and settlement, and at the same time, it should also achieve decorative effects.

9) Clean up the board

Remove the protective tape on the board surface and clean the board surface.









- Quality standard

Part I The main control project

1. The various materials and accessories used in the aluminum panel curtain wall project should meet the design requirements and the current national production Product standards and engineering technical specifications. Inspection method: Check the product certificate, performance test report, material acceptance record and re-inspection report.

2. The shape and façade division of the aluminum panel curtain wall should meet the design requirements.

Inspection method: observation; ruler inspection.

3. The variety, specification, color, gloss and installation direction of the aluminum plate should meet the design requirements.

Inspection method: observe; check the entry acceptance record.

4. The number and position of the embedded parts and the rear embedded parts on the main structure of the aluminum panel curtain wall and the tension of the latter embedded parts the pull-out force must meet the design requirements.

Inspection method: Check the pull-out force test report and the concealed engineering acceptance record.

5. The connection between the column of the aluminum panel curtain wall and the embedded parts of the main structure, the connection between the column and the beam, the connection of the panel. The installation must meet the design requirements, and the installation must be firm.

Inspection method: check by hand; check the acceptance record of concealed works.

6. The fireproof, thermal insulation and moisture-proof materials of the aluminum panel curtain wall should meet the design requirements, and should be dense, Uniform and consistent thickness.

Inspection method: Check the acceptance records of concealed works.

7. The anti-corrosion treatment of aluminum frame and connectors should meet the design requirements.

Inspection method: Check the acceptance records and construction records of concealed works.

8. The lightning protection device of the aluminum panel curtain wall must be reliably connected with the lightning protection device of the main structure.

Inspection method: Check the acceptance records of concealed works.

9. The connection nodes of various deformation joints and wall corners should meet the design requirements and technical standards.

Inspection methods: observation; check the acceptance records of concealed works.

10. The glue injection of the plate joints of the aluminum plate curtain wall should be full, dense, continuous, uniform, without bubbles, and the width and thickness should meet the design requirements and technical standards.

Inspection methods: observation; ruler inspection; inspection of construction records.

11. The aluminum panel curtain wall should have no leakage.

Inspection method: Water spray inspection is carried out on the leak-prone parts.

Part II General items

1. The surface of the aluminum plate should be flat, clean and consistent in color.

Inspection method: observation.

2. The bead of the aluminum panel curtain wall should be straight, clean, with tight interfaces and firm installation.

Inspection method: observation; folding check.

3. The sealant joint of the aluminum panel curtain wall should be horizontal and vertical, with the same depth, uniform width, smooth and straight.

Inspection method: observation.

4. The drip line and flowing water slope on the aluminum curtain wall should be correct and straight.

Inspection method: observe; check with a spirit level.

5. The surface quality and inspection method of the aluminum plate per square meter shall meet the requirements of the following table.

Surface quality and inspection method of sheet metal per square meter

Item	Inspection	Allowable deviation	Inspection method
1	Obvious scratches and minor scratches with length>100mm	Not allowed	Observe
2	Minor scratches with length≤100mm	<8pieces	Check with steel ruler
3	Total scratch area	≤500mm	Check with steel ruler





- Finished product protection

1. Protective measures should be formulated for the skeleton, aluminum plate and seal of the aluminum panel curtain wall, so as not to cause it to collide and change, shape, discoloration, etc.
2. Adhesion on the surface of the panel curtain wall and its skeleton during construction should be removed in time.
3. The cleaning agent used to clean the panel should be tested for corrosion. Clean water should be used in time after cleaning rinse well.

- Safety measures

1. Construction personnel must undergo safety training, be assessed and issued certificates, and work with certificates. Before starting each process, the chief and the safety officer shall do a good job in the written safety technical disclosure.
2. The construction equipment used to install the aluminum panel curtain wall should be strictly inspected before use.
3. Electric shock protectors should be installed on electric tools. And power tools should be tested for insulation voltage.
4. Construction workers should wear safety helmets, seat belts, and carry tool bags.
5. When the installation of high-rise aluminum curtain wall and the construction of the upper structure intersect, the frame should be placed under the construction layer of the structure. Set up a protective net; at a height of 3m from the ground, a horizontal safety net of 6m should be set up.
6. During on-site welding, a fire hopper should be installed below the weldment.
7. High-altitude operations are strictly prohibited in strong winds, thunderstorms, and heavy snow above level 6.
8. Care should be taken to prevent solvent poisoning of the sealing material during use, and the solvent should be kept well to avoid fire.





- Construction precautions

1. Pay attention to ensure that the board surface is flat and the seams are flush. For this purpose, the fixing of the connecting piece should be ensured during the construction, and the When the connector is fixed, the wire is positioned, and the quality of the metal plate is strictly checked before the plate is installed.
2. The measurement and lay-out of the high-rise aluminum panel curtain wall should be carried out under the condition that the wind force is not greater than level 4. every day Check the verticality of the curtain wall regularly.
3. After the connecting parts and expansion bolts or the rear parts of the embedded parts on the wall are welded firmly, rust prevention should be carried out in time.
reason.
4. The contact surfaces of different metals should be separated by gaskets.
5. The gap between the surrounding of the curtain wall and the main structure should be filled with fireproof thermal insulation materials; The surface is sealed with sealant, and the seams should be tight and watertight.
6. The anti-rainwater leakage performance inspection should be carried out during the construction of the curtain wall.





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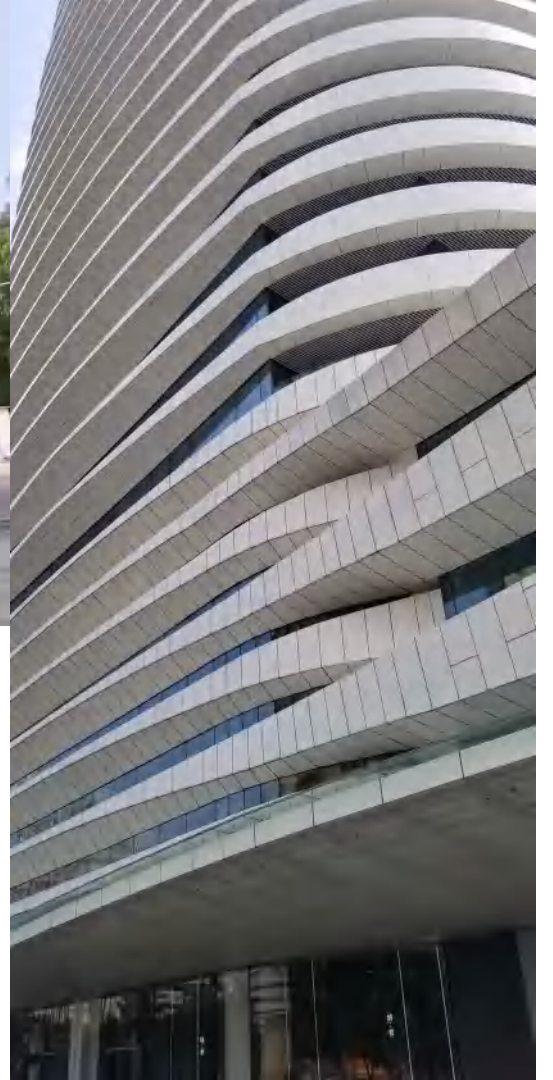


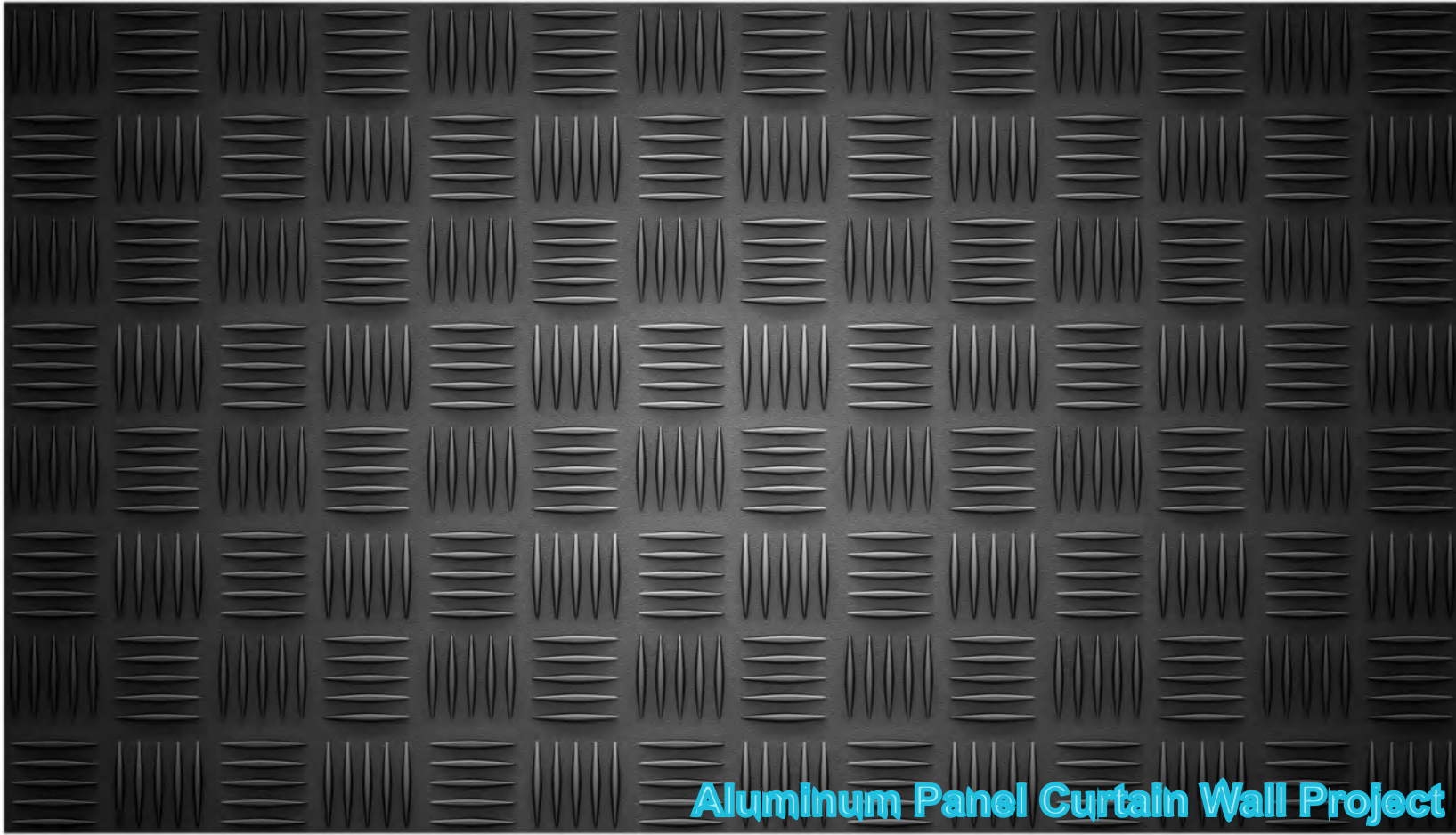
- Project acceptance

1. The following documents and records shall be checked during acceptance of curtain wall project;

- 1) Construction drawings, structural calculations, design instructions and other design documents of the curtain wall project.
 - 2) The confirmation document of the architectural design unit for the curtain wall engineering design.
 - 3) Product qualification certificates and performance of various materials, hardware accessories, components and components used in the curtain wall project Test report, entry acceptance record and re-inspection report.
 - 4) The certification certificate and random inspection certificate of silicone structural adhesive used in curtain wall projects; imported silicone structural adhesive Commodity inspection certificate; the silicone structural adhesive compatibility and peel adhesion test report issued by the national designated testing agency.
 - 5) On-site pull-out strength test report of post-embedded parts.
 - 6) Wind pressure resistance performance, air permeability performance, rainwater leakage performance and plane deformation performance detection of curtain wall Report.
 - 7) Recording of temperature and temperature of glue application and maintenance environment; record of mixing test of two-component silicone structural adhesive Records and pull-off test records.
 - 8) Lightning protection device test records.
 - 9) Acceptance records of concealed works.
 - 10) Processing and production records of curtain wall components and assemblies; curtain wall installation and construction records.
2. On-site inspection content of aluminum panel curtain wall project:
 - 1) Pre-embedded or post-embedded.
 - 2) The connection node of the component.
 - 3) Deformation joints and structural nodes at the corners of the wall.
 - 4) Curtain wall lightning protection device.

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