

SECTION 08520 ALUMINUM WINDOWS

PART 1 – GENERAL

1.1 SECTION INCLUDES

1. Aluminum framed single/double glazed sliding/Hinged /fixed windows system.

RELATED SECTIONS

1. Section 05500 Metal Fabrications.
2. Section 08110 Steel Doors and Frames.
3. Section 08710 Hardware.
4. Section 09300 Tiles.

REFERENCES

1. ASTM E90 – Standard Test Methods for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
2. ASTM E283 – Standard Test Method for Determining the Rate of Air Leakage through Exterior Window, Curtain Walls, and Doors under Specified Pressure Differences Across the Specimen.
3. ASTM E 330 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
4. ASTM E 547 – Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
5. ASTM F 588 – Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact.

SUBMITTALS

1. Submit under provisions of Section 01330.
2. Test Reports: Submit certified independent laboratory test reports verifying compliance with all test requirements and structural calculations prepared by approved structural engineer and indicating adequacy of all installed materials to meet the uniform and structural load requirements.
3. Provide manufacturer's installation instructions, and include maintenance information on regular cleaning and stain removal.

4. Shop Drawings: Submit shop drawings, showing anchors, glazing details, hardware, operators and other components not included in manufacturer's standard data.

QUALITY ASSURANCE

1. Manufacturer Qualifications: Minimum ten (10) years experience producing aluminum windows.
2. Installer Qualifications: Use installers that are experienced and skilled in the installation of aluminum windows of the type specified.
3. Field Sample: Provide a Field Sample for evaluation of surface preparation techniques and application workmanship.
 - A. Do not proceed with remaining work until workmanship, color, and sheen are approved by Engineer.
 - B. Test Procedures: Test shall be in accordance with ASTM E 283 and E 330.
 1. Air Infiltration (perform before water test).
 2. Uniform load deflection Test.
 3. Uniform load structural Test.

DELIVERY, STORAGE, AND HANDLING

1. Deliver windows to project site in undamaged condition; handle windows to prevent damage to components and to finishes.
2. Store products in manufacturer's unopened package store in an area that is protected from the elements, in a manner recommended by the products manufacturer until ready for installation.

WARRANTY

1. Provide written ten (10) years warranty signed by manufacturer that products are free of material or manufacturing defects. Defects are defined to include uncontrolled leakage of water, corner or joint failure, and abnormal aging or deterioration.
2. Include repair or replacement of defective units for ten (10) years from end of defects liability period.

PART 2 – PRODUCTS MANUFACTURERS

- A. Manufacturer with experience in the specified product and approved by the Engineer.

MATERIALS

A. Details: Refer to windows schedule, hardware schedule and detailed drawings for full details.

B. Thermal Insulated Sliding Window System

With 120 mm (double track) basic frame depths

Design features:

Designed as a sliding construction with two guide tracks.

Vent profiles and tandem rollers for vent weights of up to 150 kg / 300kg must be used.

The fixed glazing is fitted in the outer frame / vent frame.

The bottom, replaceable tracks are made of stainless steel. In the joint area,

the outer frames have plastic cover profiles.

Vent profiles can have structural reinforcements to suit requirements.

Glass thicknesses from 8 mm to 32 mm can be used.

The frame connections of the outer frame and vent profiles are made with

precision corner cleats.

Profile basic depths:

Outer frame 120 mm

Vent frame 50 mm

Profile face widths:

Outer frame, side and top 17

mm Outer frame, bottom

17 mm

Vent frame 84 mm

Vent frame (top light)

41 mm	
Vent sash bar, flush	78 mm
Vent sash bar, rebated	88 mm
Minimum Thickness Of aluminum profile	1.6 mm
Sound reduction index [dB]	40
Air permeability	Class 4
Water tightness	E1200
Burglar resistance	RC2
Wind load resistance	B3

C. Thermally Insulated Self-Supporting Aluminum Façade System

As a mullion/transom construction for multi-storey façades with an internal and external face width of 50 mm.

Design features:

The construction must be sealed from outside using aluminum pressure plates to suit the infill thicknesses.

Load-bearing structure:

The load-bearing structure of the façade construction consists of rectangular multi-chamber hollow profiles.

The load-bearing profiles are on the room side.

All profile edges are rounded.

The transom profiles are notched and overlap the mullions where they intersect, so that any moisture is reliably drained away.

On multi-storey façades, all horizontal joints must be constructed using the joint connectors and joint tolerance seals belonging to the system.

Appropriate system-based aluminum insert profiles and half profiles, as well as expansion joint seals, must be used for vertical expansion and assembly joints.

Glazing / insert units:

All glazing, even in the insert units, lies in the same plane. The glazing gaskets

made from weather-resistant, black EPDM on the room side are of different

depths in the mullions and transoms (6 mm offset).

Two individual gaskets made from weather-resistant, black EPDM, with a height of 5 mm, are positioned on the outside. Molded gasket intersections made

from EPDM must be used where mullions and transoms join.

In principle two individual gaskets and butyl tape must be used on faceted areas

and for roof glazing.

Ventilation:

Rebate base ventilation and vapor pressure equalization are achieved at all four

corners of each module field into the mullion rebate.

For field drainage and ventilation, appropriate openings must be made in the

aluminum pressure plates, cover caps and gaskets.

Profile face widths:

Mullion, assembly mullion, transom 50 mm

Profile basic depths:

Mullion 105 mm

Transom 110 mm

Cover cap (mullion) 20 mm

Cover cap (transom) 15 mm

Aluminum profile thickness:

Million Side and Transom 2.1 mm
Top 5.8 mm

PART 3 – EXECUTION

3.01 EXAMINATION

1. Do not begin installation until openings have been properly prepared.
2. Notify the Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

1. Clean surfaces thoroughly prior to installation.
2. Prepare the best result for the project conditions.

3.03 INSTALLATION

1. Install windows and related components in accordance with approved shop drawings and manufacturer's requirements.
2. Erect materials plumb, level, and true relative to the building structure, maximum variation from plumb and level not exceeding (3mm in 3m).
3. Apply caulking at all points between masonry concrete elements and aluminum outer frame, apply in a manner to ensure airtight and watertight continuous perimeter seal so as to prohibit seepage of cold air into the insulated cavity.

FIELD QUALITY CONTROL

1. Window manufacturer shall repair or replace window units not meeting specified performance requirements.
2. Windows shall pass the test requirements in the (General Technical Specifications for Buildings, the First Volume of Civil Works and Architectural issued by the Ministry of Public Works and Housing, Edition 2, 1996) for air and water leakage in the site.

CLEANING

1. After installation, remove all sealants, caulking, and other misplaced materials from all surfaces, including adjacent work.

2. Thoroughly clean window frames, casings, and glass using materials and methods recommended by the window and glass manufacturer that do not cause defacement of work.

PROTECTION

1. Protect installed products until completion of project.
2. Touch-up, repair or replace damaged products before end of defects liability period.

END OF SECTION

ARCHITECTURAL LIST OF RECOMMENDED MANUFACTURES

Curtain Wall

- Petra Aluminum Co.
- AL-FAQEER INDUSTRIAL Co.
- Ragheb Kalbouneh & Partners Co. - Technical Aluminium &
- Glass
- Or equivalent.