

SECTION 08 51 13
ALUMINUM WINDOWS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. The Aluminum Association, Incorporated (AA): Designation System for Aluminum Finishes.
2. American Architectural Manufacturers Association (AAMA):
 - a. 101, Voluntary Specifications for Aluminum and Poly(Vinyl Chloride) (PVC) Prime Windows and Glass Doors.
 - b. 701, Combined Voluntary Specification for Pile Weather Strip.
 - c. 800, Voluntary Specification and Test Methods for Sealants.
 - d. 2605, Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings and Aluminum Extrusions and Panels.
3. ASTM International (ASTM):
 - a. A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - b. B456, Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
 - c. B633, Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
 - d. C509, Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.
 - e. C864, Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
 - f. D3656, Standard Specification for Insect Screening and Louver Cloth Woven from Vinyl-Coated Glass Yarns.
 - g. E283, Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - h. E330, Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - i. E331, Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
4. Glass Association of North America (GANA): Glazing Manual.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
 - a. Large scale details and layout of windows, operators, anchorages, and adjoining construction with all materials indicated accurately to scale.
 - b. Manufacturer's literature including brochures or catalogs, specifications, instructions, and standard details illustrating products proposed for use and other window products available.
2. Samples: Finish on aluminum in sets of two, indicating light and dark extremes, to be used in evaluating products furnished.

B. Informational Submittals:

1. Manufacturer's Certification of Compliance, in accordance with Section 01 67 00, Product Requirements.
2. Reports of factory quality control tests.

1.03 QUALITY ASSURANCE

- A. All Units: Meet construction and testing requirements of AAMA 101.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store window units in vertical upright position and off the ground on dunnage, preferably inside a building.
- B. Protect units from weather, abuse, defacement, and damage.
- C. Store units inside in areas free of dust and corrosive fumes, as close as possible to point of installation.
- D. Prevent contaminants from contacting aluminum.
- E. Keep water away from stored units and assemblies.
- F. Handle units according to recommendations of AAMA.

1.05 SPECIAL GUARANTEE

- A. Provide manufacturer's extended guarantee or warranty, with beneficiary named in writing, as special guarantee. Special guarantee shall provide for correction, or at option of Contracting Officer, removal and replacement of Work specified in this specification section found defective during period of 10 years after date of Substantial Completion. Duties and obligations for

correction or removal and replacement of defective Work shall be as specified in General Conditions.

PART 2 PRODUCTS

2.01 WINDOWS

A. Manufacturers and Products:

1. Kawneer; 8400TL Thermal Windows.
2. Or equal.

B. Physical Characteristics:

1. Aluminum: Proper alloy and temper to meet specified requirements.
2. Hardware: Corrosion-resistant and compatible with aluminum; suitable for intended use and the same as used on the tested units.
3. Sliding Aluminum Windows:
 - a. Meet requirements of AAMA 101 Designation VS-C20.
 - b. Frame Corners: Self-aligning, rigid, and watertight.
4. Fixed Windows:
 - a. Meet requirements of AAMA 101 Designation FW-C20.
 - b. Provide polyvinyl chloride thermal break separator between inside and outside for all frames.
5. Finish:
 - a. Finish components after fabrication, except those that may be prefinished as specified.
 - b. Exposed framing members shall be free of scratches and other surface blemishes.
 - c. Pigmented Organic Coating: Conform to AAMA 2605, color as shown in Window Schedule as shown on the Drawings.

C. Functional Characteristics: None.

D. Performance Characteristics:

1. Tests:
 - a. Resistance to Air Infiltration: No greater than 0.06 cfm per square foot of fixed area, as tested in accordance with ASTM E283.
 - b. Resistance to Water Infiltration: No leakage in frame at test pressure difference of 8 psf, as tested in accordance with ASTM E331.

- c. Resistance to Uniform Loading:
 - 1) When tested under load of 30 psf, in accordance with ASTM E330:
 - a) Maximum Deflection: No greater than 1/175 times span for any member.
 - b) When load is removed, no evidence of permanent deformation or damage.

2.02 MATERIALS

A. Anchors and Fasteners:

- 1. Physical Characteristics:
 - a. Exposed: Aluminum, Type 304 stainless steel, or ASTM B456 nickel-plated brass.
 - b. Concealed: Aluminum, cadmium-plated steel, ASTM B633 or ASTM A123 zinc-plated steel, or Type 304 stainless steel.
 - c. Concealed anchors may be of carbon steel, painted after fabrication with zinc chromate primer.
 - d. Other Fasteners and Components: Carbon steel or ASTM B456 Nickel plus Chromium plated.
- 2. Functional Characteristics: None.
- 3. Performance Characteristics: None.

B. Sealants:

- 1. Physical Characteristics:
 - a. AAMA 800 to seal metal to metal, nonworking joints.
 - b. Color to be compatible with adjacent materials.
- 2. Functional Characteristics: None.
- 3. Performance Characteristics: None.

C. Weatherstripping:

- 1. Physical Characteristics: High-quality materials capable of meeting environmental exposure and performance requirements.
- 2. Functional Characteristics: None.
- 3. Performance Characteristics:
 - a. Pile Weatherstrip: AAMA 701.
 - b. Closed Cell Elastomer: ASTM C509.
 - c. Dense Elastomer: ASTM C864.

D. Glass and Glazing: As specified in Section 08 80 00, Glazing.

E. Window Sill: As specified in Section 06 41 00, Architectural Wood Casework.

2.03 ANCILLARY MATERIALS

A. Isolation Tape:

1. Manufacturers and Products:
 - a. Tremco; 440.
 - b. Or equal.
2. Physical Characteristics: 100 percent solid polyisobutylene cross-linked butyl, preformed sealant.
3. Functional Characteristics: Used for non-compression glazing of vision lites.
4. Performance Characteristics: AAMA 800-92.

B. Isolation Paint: Provide as specified in Section 09 90 00, Painting and Coating.

C. Screens:

1. Physical Characteristics: Furnish rigid metal frame screens to match window frames for operating vents and sash.
2. Functional Characteristics: None.
3. Performance Characteristics: ASTM D3656, Class 1, 18 by 16 mesh.

2.04 FABRICATION

A. Fabricate and assemble frame, sash, and ventilator members into windows and window systems in accordance with reviewed Shop Drawings, and as required by AAMA 101.

B. Mechanical fasteners, welded components, and hardware items shall not bridge thermal barriers unless the window units tested also have thermal bridges.

C. Sealing Insulating Glass Units: Designed so that water entering space around unit will drain and not remain in contact with edge seal of the glass.

D. Glazing Beads:

1. Sloped and coped to uniformly tight hairline joints at corners.
2. Material may be prefinished.

PART 3 EXECUTION

3.01 PREPARATION

- A. Verify dimensions by taking measurements at the Site.
- B. Verify that openings are within allowable dimensional tolerances, are plumb, level, clean, and provide a solid anchoring surface.
- C. Verify conformance with Shop Drawings and that dimensions and conditions are correct before installing windows.

3.02 INSTALLATION

- A. Window and Window Components:
 - 1. Plumb and align window faces in a single plane for each wall plane.
 - 2. Erect windows and materials square and true and in proper alignment with other work, anchored to maintain position when subjected to normal thermal and building movement and 30 pounds per square foot wind loads.
 - 3. Install in accordance with manufacturer's instructions.
 - 4. Installation shall be weathertight.
- B. Coat aluminum surfaces in contact with masonry with isolation paint, sealant, or isolation tape cut to neat line.

3.03 GLAZING

- A. Glass may be factory or field installed.
- B. Install in accordance with Section 08 80 00, Glazing, and glass manufacturer's instructions.

3.04 ADJUSTING AND CLEANING

- A. Remove protective materials and clean windows with potable water, or water with household soap or detergent.
- B. Inspect and readjust glazed ventilators as necessary for free operation at completion.
- C. Adjust windows for proper operation after installing.
- D. Lubricate hardware and movable units.
- E. Leave windows in closed position after adjusting and cleaning.

3.05 PROTECTION

- A. Protect installed window units from materials that could cause damage, such as lime, mortar, runoff from concrete and copper, careless handling of tools, weld splatter, acids, roofing asphalt, solvents, and abrasive cleaners.

3.06 SCHEDULE

- A. For window types, sizes, glass, and other requirements, see Window Schedule as shown on the Drawings.

END OF SECTION

