

SECTION 085113 ALUMINUM WINDOWS

This suggested guide specification has been developed using the current edition of the Construction Specifications Institute (CSI) "Manual of Practice," including the recommendations for the CSI 3 Part Section Format and the CSI Page Format. Additionally, the development concept and organizational arrangement of the American Institute of Architects (AIA) MASTERSPEC Program has been recognized in the preparation of this guide specification. Neither CSI, AIA, USGBC nor ILFI endorse specific manufacturers and products. The preparation of the guide specification assumes the use of standard contract documents and forms, including the "Conditions of the Contract," published by the AIA.

PART 1 - GENERAL

1.1 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 Summary

- A. Section includes Kawneer Architectural Aluminum Windows including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of window units.
 - 1. Types of aluminum windows include:
 - a. Kawneer Series 512 Ventrow Thermal Ventilator
 - b. Horizontal Ventilator
 - c. 3-19/32" (91.3 mm) frame depth

EDITOR NOTE: BELOW RELATED SECTIONS ARE SPECIFIED ELSEWHERE HOWEVER KAWNEER RECOMMENDS SINGLE SOURCE RESPONSIBILITY FOR ALL OF THESE SECTIONS AS INDICATED IN PART 1.6 QUALITY ASSURANCE.

- B. Related Sections:
 - 1. 072700 "Air Barriers"
 - 2. 079200 "Joint Sealants"
 - 3. 083213 "Sliding Aluminum-Framed Glass Doors"
 - 4. 084113 "Aluminum-Framed Entrances and Storefronts"
 - 5. 084313 "Aluminum-Framed Storefronts"
 - 6. 084329 "Sliding Storefronts"
 - 7. 084413 "Glazed Aluminum Curtain Walls"
 - 8. 084433 "Sloped Glazing Assemblies"
 - 9. 086300 "Metal-Framed Skylights"

1.3 Definitions

- A. Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

1.4 Performance Requirements

- A. General Performance: Aluminum ventilator system shall withstand the effects of the following performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. 512 Ventrow Thermal Ventilator System Performance Requirements:
 - 1. Air tightness shall meet the (select up to A3) rating when tested in accordance with CAN/CSA-A440 Windows.
 - 2. Water infiltration shall meet the (select up to B7) rating when tested in accordance with CAN/CSA-A440 Windows.
 - 3. Windload resistance for ventilators shall meet the (select up to C5) rating when tested in accordance with CAN/CSA-A440 Windows.
 - 4. Condensation resistance temperature index of the frame shall be a minimum of 55.7 when tested in accordance with CAN/CSA-A440 Windows.
- C. Environmental Product Declarations (EPD): Shall have a Type III Product-Specific EPD.

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1.5 Submittals

EDITOR NOTE: ADD RECYCLED CONTENT SECTION IF REQUIRED TO MEET PROJECT REQUIREMENTS AND/OR GREEN BUILDING CERTIFICATIONS SUCH AS LEED, LIVING BUILDING CHALLENGE (LBC), ETC. ARE REQUIRED.

*** IF RECYCLED CONTENT REQUIREMENTS ARE NOT SPECIFIED - PRIME (ZERO RECYCLED CONTENT) ALUMINUM COULD BE SUPPLIED.**

- A. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of aluminum window indicated.
1. Recycled Content:
 - a. Provide documentation that aluminum has a minimum of 50% mixed pre- and post-consumer recycled content with a sample document illustrating project specific information that will be provided after product shipment.
 - b. Once product has shipped, provide project specific recycled content information, including:
 - 1) Indicate recycled content; indicate percentage of pre- and post-consumer recycled content per unit of product.
 - 2) Indicate relative dollar value of recycled content product to total dollar value of product included in project.
 - 3) Indicate location recovery of recycled content.
 - 4) Indicate location of manufacturing facility.
 2. Environmental Product Declaration (EPD):
 - a. Include a Type III Product-Specific EPD created from a Product Category Rule.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances and installation details.
- C. Samples for Initial Selection: For units with factory-applied color finishes including samples of hardware and accessories involving color selection.
- D. Samples for Verification: For aluminum ventilator and components required.
- E. Product Schedule: For aluminum ventilator. Use same designations indicated on Drawings.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for each type, class, grade, and size of aluminum window. Test results based on use of downsized test units will not be accepted.

1.6 Quality Assurance

- A. Installer Qualifications: An installer which has had successful experiences with installation of the same or similar units required for this project and other projects of similar size and scope.
- B. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by inclusion of test reports, and calculations.
- C. Source Limitations: Obtain aluminum ventilators through one source from a single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum ventilators and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements." Do not modify size and dimensional requirements.
 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Build mockup for type(s) of ventilator(s) indicated, in location(s) shown on Drawings.
- F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.7 Project Conditions

- A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 Warranty

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
 1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Basis-of-Design Product:
1. Kawneer Company Inc.
 2. Series 512 Ventrow Thermal Ventilator - Horizontal
 3. 3-19/32" (91.3 mm) frame depth

EDITOR NOTE: PROVIDE INFORMATION BELOW INDICATING APPROVED ALTERNATIVES TO THE BASIS-OF-DESIGN PRODUCT.

- B. Subject to compliance with requirements, provide a comparable product by the following:
1. Manufacturer: (_____)
 2. Series: (_____)
 3. Profile dimension: (_____)
 4. Performance Grade: (_____)
- C. Substitutions: Refer to Substitutions Section for procedures and submission requirements.
1. Pre-Contract (Bidding Period) Substitutions: Submit written requests ten (10) days prior to bid date.
 2. Post-Contract (Construction Period) Substitutions: Submit written request in order to avoid window installation and construction delays.
 3. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
 4. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for window system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum windows for a period of not less than ten (10) years. (Company Name)
 5. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
 6. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.
- D. Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal change order signed by the Owner and Contractor.

2.2 Materials

- A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish and not less than 0.080" (2.03 mm) wall thickness at any location for the main frame and sash members.

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** IF RECYCLED CONTENT REQUIREMENTS ARE NOT SPECIFIED - PRIME (ZERO RECYCLED CONTENT) ALUMINUM COULD BE SUPPLIED.*

1. Recycled Content: Shall have a minimum of 50% mixed pre- and post-consumer recycled content.
 - a. Indicate recycled content; indicate percentage of pre-consumer and post-consumer recycled content per unit of product.
 - b. Indicate relative dollar value of recycled content product to total dollar value of product included in project.
 - c. Indicate location recovery of recycled content.
 - d. Indicate location of manufacturing facility.
- B. Thermal Barrier: The thermal barrier shall be Kawneer IsoLock™ with a nominal 3/8" (6.5 mm) separation consisting of a two-part, chemically curing high density polyurethane which is mechanically and adhesively bonded to the aluminum.
- C. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors, and other components.
- D. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- E. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- F. Sealant: For sealants required within fabricated windows, provide window manufacturer's standard, permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

2.3 Window System

- A. 512 Ventrow Thermal Ventilator - Horizontal

2.4 Glazing

- A. General: None required

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2.5 Hardware

- A. General: None required

2.6 Accessories

- A. General: None required

2.7 Fabrication

- A. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
1. Profiles that are sharp, straight, and free of defects or deformations.
 2. Accurately fit joints; make joints flush, hairline and weatherproof.
 3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
 4. Physical and thermal isolation of glazing from framing members.
 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 6. Provisions for field replacement of glazing.
 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- B. Frame Joinery: Screw-Spline, Factory sealed frame and vent corner joints.

2.8 Aluminum Finishes

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

EDITOR NOTE: CHOOSE THE APPROPRIATE FINISH BELOW BASED ON PROJECT REQUIREMENTS.

- B. Factory Finishing:
1. Kawneer Permanodic™ AA-M10C21A44 / AA-M45C22A44, AAMA 611, Architectural Class I Color Anodic Coating (Color _____).
 2. Kawneer Permanodic™ AA-M10C21A41 / AA-M45C22A41, AAMA 611, Architectural Class I Clear Anodic Coating (Color #14 Clear) (Optional).
 3. Kawneer Permanodic™ AA-M10C21A31, AAMA 611, Architectural Class II Clear Anodic Coating (Color #17 Clear) (Standard).
 4. Kawneer Permafluor™ (70% PVDF), AAMA 2605, Fluoropolymer Coating (Color _____).
 5. Kawneer Permادize™ (50% PVDF), AAMA 2604, Fluoropolymer Coating (Color _____).
 6. Kawneer Permacoat™ AAMA 2604, Powder Coating (Color _____).
 7. Other: Manufacturer _____ Type _____ Color _____.

PART 3 - EXECUTION**3.1 Examination**

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weather tight window installation.
1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches (76.2 mm) of opening.
 3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
 4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. Install aluminum framed system level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weather tight construction.
- D. Install aluminum framed system and components to drain condensation, water penetrating joints, and moisture migrating within system to the exterior.
- E. Separate aluminum from dissimilar materials to prevent corrosion or electrolytic action at points of contact.

3.3 Adjusting, Cleaning, And Protection

- A. Adjust operating sashes, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weather tight closure. Lubricate hardware and moving parts.
- B. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- E. Protect surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

DISCLAIMER STATEMENT

This guide specification is intended to be used by a qualified construction specifier. The guide specification is not intended to be verbatim as a project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.

END OF SECTION 085113

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