SECTION 085169 – METAL STORM WINDOWS

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Aluminum double hung, storm/screen units for exterior and interior applications for [**existing**] windows.

* + - 1. REFERENCE STANDARDS
				1. Architectural Aluminum Manufacturers Association; "Voluntary Specifications for Aluminum Insulating Products for Storm Windows & Sliding Glass Doors, ANSI/AAMA 1002.10.”
			2. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.

Include catalogue sheets, specifications, and manufacturer’s installation instructions for window units.

USE PARAGRAPH BELOW WITH EPD REQUIREMENT WHEN PROJECT ESTIMATE IS $1M OR MORE.

* + - * 1. Submit an Environmental Product Declaration (EPD) from the manufacturer for glass within this specification section, if available. A statement of the contractor’s good faith effort to obtain the EPD shall be provided if not available.

Manufacturer-provided EPDs must be Product Specific Type III (Third-Party Reviewed), in adherence with ISO 14025 *Environmental labels and declarations*, ISO 14044 *Environmental management – Life cycle assessment*, and ISO 21930 *Core rules for environmental product declarations of construction products and services.*

* + - * 1. Shop Drawings:

Include fabrication details and connections to adjacent construction.

Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

* + - * 1. Samples:

Retain one of the next two subparagraphs. Select first subparagraph for large projects.

Combination window unit, complete with required features.

Corner section of frame and each insert type, 12 x 12 inches.

Retain “Color Samples” if required.

Color Samples: Manufacturer's standard color finishes.

* + - * 1. Product Schedule: For storm windows. Use same designations indicated on Drawings.
				2. Quality Control Submittals:

Qualification Data: For Installer.

Certificate: Affidavit required under Quality Assurance Article.

Sample Warranties: For manufacturer's warranties.

* + - * 1. Contract Closeout Submittals:

Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications: An installer acceptable to storm window manufacturer for installation of units required for this Project.
				2. Each unit shall bear the AAMA Certification Program label.
				3. Certification: Affidavit by the manufacturer, certifying that the window units meet the contract requirements.
			2. WARRANTY

When warranties are required, verify with Director’s Representative's that warranties stated in this article are not less than remedies available to Director’s Representative under prevailing local laws.

* + - * 1. Manufacturer's Warranty: Manufacturer agrees to repair or replace storm windows that fail in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Failure to meet performance requirements.

Structural failures including excessive deflection, water leakage, condensation, and air infiltration.

Faulty operation of movable sash and hardware.

Deterioration of materials and finishes beyond normal weathering.

Failure of insulating glass.

Verify available warranties and warranty periods for units and components. Some manufacturers might insist that warranty periods begin on date of manufacture or sale.

Warranty Period:

Window: [**10**] <**Insert number**> years from date of Substantial Completion.

Warranty period for aluminum finish depends on type. Baked-on enamel finishes often have 10-year warranties; high-performance fluoropolymer finishes often have 20-year warranties.

Aluminum Finish: [**10**] [**20**] <**Insert number**> years from date of Substantial Completion.

1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS
				1. Units shall comply with air infiltration test performance Class 15, minimum, of ANSI/AAMA 1002.10.

Edit subparagraphs below to suit project.

External Application: Air infiltration shall not exceed 1.0 cfm per foot of crack perimeter at a pressure of 1.56 psf (25 mph).

Internal Application: Air infiltration shall not exceed 0.50 cfm per foot of crack perimeter at a pressure of 1.56 psf (25 mph).

* + - 1. MANUFACTURERS

* + - * 1. [Basis-of-Design Product:](http://www.specagent.com/Lookup?ulid=11597) Subject to compliance with requirements, provide ProVia; Concord Double Hung Window or equal.

Retain option in "Source Limitations" paragraph below for doors if furnished by aluminum-frame manufacturer.

* + - * 1. Source Limitations: Obtain metal storm windows from single source from single manufacturer.
				2. Description: Units shall have 2 glazed insert panels and one screened insert panel, each in its own track, making inserts self-storing and allowing each insert to travel the full length of the frame.
			1. MATERIALS
				1. Master Frame and Insert Members: 6063 T5 extruded aluminum. Minimum wall thickness .050 inch.
				2. Glass: Double strength "B" quality (DSB) clear.
				3. Glazing Spline: Reusable virgin vinyl, designed for wrap-around (marine) glazing.
				4. Insect Screens: Aluminum mesh, 18 x 16, 0.011 inch wire diameter, black or charcoal color finish; FS RR-W-365, Type VII.
				5. Fasteners:

Stainless steel, self-tapping screws, No. 7, pan head, slotted.

Aluminum wood screws, No. 8, round head, slotted.

Screw anchors, tubular, lead cored, braided fiber.

Revise “Sealant” and add specific requirements if Section 079200 “Joint Sealants” is not used in the project.

* + - * 1. Sealant: Refer to Section 079200 “Joint Sealants.”
				2. Sash Locks: Two-piece, comprised of die cast bolt and operating spring. Lock at each side of operating sash.
				3. Finish: **[Clear-anodized aluminum] [Color-anodized aluminum] [Factory-applied, baked-enamel or powder-coat finish] [High-performance organic finish] <Insert requirement>**.

Retain "Color" subparagraph below if frame finish is color-anodized aluminum, baked-enamel or powder-coat finish, or high-performance organic finish.

Color: **[As indicated by manufacturer's designations] [Match Director’s Representative's sample] [As selected by Director’s Representative from manufacturer's full range] [Light bronze] [Medium bronze] [Dark bronze] [Black] <Insert color>.**

* + - 1. FABRICATION
				1. Master Frame: Interlocking stiles and rails of tubular or flat construction accurately machined to produce hair-line joints and securely fastened at the corners with two screws per corner.

Stiles shall have intermediate stops to enable the positioning of the glass insert for desired ventilation control and slide-by design to allow glass insert to be raised without interruption to full stop position when operating hardware is released.

Integral weatherstripped channels designed to receive the inserts in a tongue and groove manner.

Weep holes in the sill section of the frame.

* + - * 1. Expanders: Sleeve type, or flat type interlocking stile and rail expanders. Weep holes in the bottom rail expander.
				2. Glazing Insert Frames: Fabricate with mitered corners with hair-line joints. Furnish corner reinforcements as necessary to securely fasten members together. Insert must be repairable without damage to materials. Fabricate with weatherstripped integral interlock at meeting rail and integral fin that projects into master frame.
				3. Screen Insert Frame: Fabricate with mitered corners with hair-line joints. Furnish corner reinforcements as necessary to securely fasten members together. Provide integral flange that overlaps the side members of the master frame. Weatherstrip top member and side members of the insert to provide maximum bug control. Secure screen cloth with a vinyl spline rolled into a receiver groove.

Retain “Fixed Sash” if required. Drawings must indicate shape and location.

* + - * 1. Fixed Sash: Fabricate frames of 1/4 x 2 inch and 1/4 x 1-1/2 inch aluminum channels. Set glass in elastic glazing compound. Furnish required stops, closures, and fasteners.
			1. GENERAL FINISH REQUIREMENTS
				1. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
			2. FINISHES

If retaining more than one finish in paragraphs below, indicate location of each on Drawings or by inserts.

* + - * 1. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.
				2. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.

"Baked-Enamel or Powder-Coat Finish" paragraph below references AAMA standard for pigmented organic coating on extrusions and panels.

* + - * 1. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

Only a few manufacturers offer high-performance finishes; verify availability. If specific products are required, name coating manufacturers and products.

* + - * 1. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2604 and containing not less than [**50**] [**70**] percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
1. EXECUTION

Insert requirements for special installations such as coping for window cleaners’ bolts, or other obstructions.

* + - 1. EXAMINATION
				1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. PREPARATION

Below covers normal spot treatment of substrates only. If existing surfaces are in poor condition, use other sections such as painting. Make sure conditions have been checked. Edit if necessary.

* + - * 1. Clean contact surfaces. Remove paint snods and other removable obstructions that may prevent full unit contact. Touch up bare wood and ferrous metal surfaces with primer and paint. Build up indented surfaces with filler.
			1. INSTALLATION
				1. Install the window units in accordance with the manufacturer's written instructions, except as shown or specified otherwise.
				2. Anchor master frames near each corner and at not more than 16 inches oc between corners with the following fasteners:

To Wood: No. 8, round head, slotted aluminum wood screws.

To Metal: No. 7, pan head, slotted, self-tapping stainless steel screws.

To Masonry: No. 8, round head, slotted aluminum wood screws in lead cored, braided fiber screw anchors.

Retain next paragraph for permanent installation where no removal for maintenance painting is anticipated.

* + - * 1. Apply continuous bead of sealant around mating surface of main frame. Keep drainage holes free of sealant.
				2. Adjust sliding panels for easy manual operation.

Retain “Fixed Sash” paragraph below if required.

* + - * 1. Fixed Sash: Anchor to the combination units in accordance with manufacturer's recommendations. Install necessary stops and closures.
			1. ADJUSTING, CLEANING, AND PROTECTION
				1. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.
				2. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
				3. Keep protective films and coverings in place until final cleaning.
				4. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
				5. Protect window surfaces from contact with contaminating substances resulting from construction operations. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written instructions.

END OF SECTION 085169