INSTRUCTIONS TO SPECIFIER

This guide specification is intended to be edited for specific project requirements. Fenex LLC. is not responsible for edited versions of this section used for individual projects.

This guide specification section has automatic paragraph numbering to facilitate editing. The styles are compatible with styles used in AVITRU MasterSpec® so that the edited section can be easily reformatted to the user’s preferences.

Coordinate cross references to other specification sections in this section with actual specification section numbers and titles.

Text in **bold** within square brackets **[ ]** are editing options. Angle brackets **< >** are used to indicate where user text is to be inserted.

SECTION 084114 - METAL-FRAMED FLOOD PROOF GLAZED ASSEMBLIES

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
   * + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
      1. SUMMARY
         1. Section Includes:

Fenex Corporation metal framed flood proof window assemblies.

Storefront systems.

Window systems.

Curtain wall systems.

* + - * 1. Related Requirements:

Retain subparagraph below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 084126 "All-Glass Entrances and Storefronts" for systems without aluminum support framing.

Section 081216 "Aluminum Frames" for interior aluminum framing.

Section 084113 "Aluminum-Framed Entrances and Storefronts."

Section 084400 "Curtain Wall and Glazed Assemblies."

Section 084600 "Window Wall Assemblies."

Section 085500 "Pressure-Resistant Windows."

Section 088000 "Glazing."

Section 088800 "Special Function Glazing."

* + - 1. ALLOWANCES

Retain paragraph below if testing is paid for by Contractor under an allowance.

* + - * 1. [**Preconstruction laboratory mockup**] [**source quality control**] [**and**] [**field quality control**] is part of testing and inspecting allowance.
      1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at [**Project site**] <**Insert location**>.

If needed, insert list of conference participants not mentioned in Section 013100 "Project Management and Coordination."

Required Attendees: Include representatives of Fenex at all meetings involving the installation and coordination of the work of this section with other construction.

<**Insert requirements**>.

* + - 1. SUBMITTALS
         1. Product Data: For each type of product.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

* + - * 1. Shop Drawings: For metal framed flood-proof systems. Include plans, elevations, sections, full-size details, and attachments to other work.

Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.

Include full-size isometric details of each type of vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:

Joinery, including concealed welds.

Anchorage.

Expansion provisions.

Glazing.

Flashing and drainage.

Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.

Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs below for two-stage Samples.

* + - * 1. Samples for Initial Selection: For units with factory-applied color finishes.
        2. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

Retain "Fabrication Sample" Paragraph below to verify details of assembly.

* + - * 1. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:

Joinery, including concealed welds.

Anchorage.

Expansion provisions.

Glazing.

Flashing and drainage.

Retain "Delegated-Design Submittal" Paragraph below if design services have been delegated to Contractor. See Section 014000 "Quality Requirements" for additional requirements.

* + - * 1. Delegated-Design Submittal: For metal framed, glazed flood-proof systems including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

Retain "Preconstruction Laboratory Mockup Testing Submittals" Paragraph below if specifying Project-specific preconstruction testing in "Preconstruction Testing" Article as Contractor's responsibility.

* + - * 1. Preconstruction Laboratory Mockup Testing Submittals:

Testing Program: Developed specifically for Project.

Test Reports: Prepared by a qualified preconstruction testing agency for each mockup test.

Record Drawings: As-built drawings of preconstruction laboratory mockups showing changes made during preconstruction laboratory mockup testing.

Coordinate "Qualification Data" Paragraph below with qualification requirements in Section 014000 "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

* + - * 1. Qualification Data:

For Installer[**and laboratory mockup testing agency**].

For professional engineer's experience with providing delegated-design engineering services of the kind indicated, including documentation that engineer is licensed in the [**jurisdiction**] [**state**] in which Project is located.

* + - * 1. Energy Performance : Based on NFRC testing requirements. For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
        2. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by [**manufacturer and witnessed by a qualified testing agency**] [**a qualified testing agency**].

Retain "Quality-Control Program" Paragraph below if Project includes two-sided structural glazing. ASTM C1401 recommends establishing a written quality-control program for fabrication, installation, and post-construction maintenance of structural-sealant-glazed storefronts.

* + - * 1. Quality-Control Program: Developed specifically for Project, including fabrication and installation, according to recommendations in ASTM C1401. Include periodic quality-control reports.
        2. Source quality-control reports.

Retain "Field quality-control reports" Paragraph below if Contractor is responsible for field quality-control testing and inspecting.

* + - * 1. Field quality-control reports.
        2. Sample Warranties: For special warranties.
        3. Maintenance Data: For metal framed flood-proof glazed systems to include in maintenance manuals.

Retain "Maintenance Data for Structural Sealant" Paragraph below if Project includes two-sided structural glazing.

* + - * 1. Maintenance Data for Structural Sealant: For structural-sealant-glazed storefront to include in maintenance manuals. Include ASTM C1401 recommendations for post-installation-phase quality-control program.
      1. QUALITY ASSURANCE
         1. Installer Qualifications: Fenex Corporation USA or installer approved by Fenex, LLC.
         2. Sealants: Sealant manufacturer to perform pull tests for sealant/substrate compatibility.
         3. Field Measurements: Provided by Dealer/Installer on signed and sealed Drawings.
      2. WARRANTY

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

* + - * 1. Product Warranty: Refer to Conditions of the Fenex LLC. warranty for project warranty provisions.

After every flood event, product must be inspected according to manufacturer's instructions.

* + - * 1. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes that shows evidence of deterioration of factory-applied finishes within specified warranty period.

Retain first subparagraph below for factory-painted finishes. Coordinate color fading and chalking limits with finishes retained in Part 2.

Deterioration includes, but is not limited to, the following:

Color fading more than 5 Delta E units when tested according to ASTM D2244.

Chalking in excess of a No. 8 rating when tested according to ASTM D4214.

Cracking, checking, peeling, or failure of paint to adhere to bare metal.

Coordinate "Warranty Period" Subparagraph below with "Aluminum Finishes" Article. AAMA 2604 is intended to represent five years of performance; AAMA 2605 is intended to represent 10 years of performance. Some manufacturers also offer a 20-year warranty. Verify available warranties and warranty periods for finishes.

Warranty Period: 10 <**Insert number**> years from date of Substantial Completion.

1. PRODUCTS
   * + 1. STOREFRONT SYSTEMS
          1. Source Limitations: Obtain all components metal-framed passive flood mitigation storefront, including framing and accessories, from Floodproofing.com in partnership with Fenex, LLC.
          2. Basis of Design: Fenex, LLC, exclusively.
          3. Description: Aluminum or stainless-steel framed storefront for passive flood mitigation applications.
          4. Performance:

Fenex is not responsible for host structure performance. All host structure deformations and expected effects that can be transferred to the system shall be provided on a site-specific basis, so it can be checked by delegated engineer and manufacturer.

General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

Stainless steel or Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.

Thermal stresses transferring to building structure.

Glass breakage.

Noise or vibration created by wind and thermal and structural movements.

Loosening or weakening of fasteners, attachments, and other components.

Failure of operating units.

Air Leakage: No infiltration when tested per ASTM E283 and TAS 202 at [1.57 psf][6.24 psf]<insert value>.

Hydrostatic and Impact Flood Mitigation, ANSI/FM Global 2510 Section 4.3.

Up to 10 ft. Static Water Test for captured system.

Up to 4 ft. Static Water Test for outside structurally glazed system.

Dynamic Impact test of 600 joules, performed with a 110lb wood log (miter cut at 15 degrees)

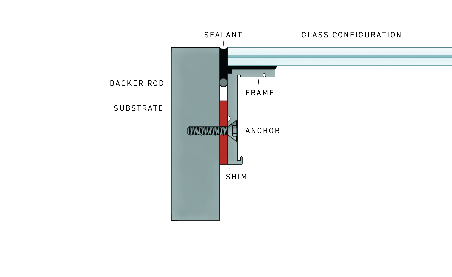
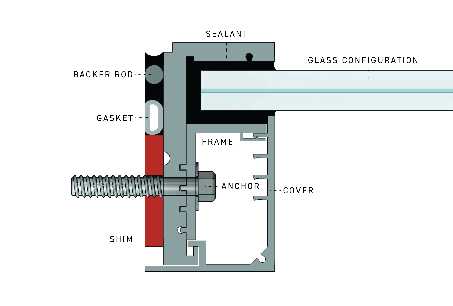
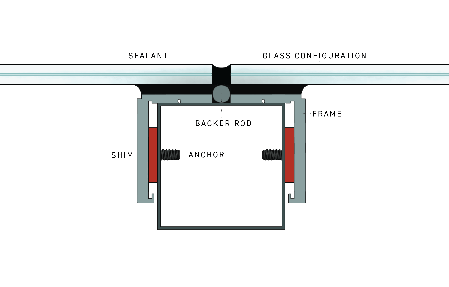
Structural: Test according to ASTM E330/E330M, 501and TAS 202-Design Pressure plus or minus 120 P.S.F.

Design Pressure: ANSI 501, plus or minus 120 P.S.F.

* + - * 1. Hurricane Impact: ASTM 1996 and TAS 201 up to missile level “A”, “B”, “C”, & “D”.

Contact Fenex for more available framing options.

* + - * 1. Framing Members: Manufacturer's extruded- or formed-metal framing members of thickness required and reinforced as required to support imposed loads.

Glazing System: **[Captured** **structurally sealed on all sides**] [**Outside glazed structural sealant on all sides**]

Glazing Plane: [**Front**] <**Insert location**>.

Finish: [**High-performance organic finish**] [**Superior-performance organic finish**].

Fabrication Method: Pre-glazed, factory manufactured system, shipped ready to install.

Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

Stainless Steel: Alloy and temper recommended by manufacturer for type of use and finish indicated.

Fenex engineers can assist with the design of the steel reinforcement.

Steel Reinforcement: As required by manufacturer.

* + - * 1. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
        2. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
      1. WINDOW SYSTEMS
         1. Basis of Design: Fenex, LLC, exclusively.
         2. Description: Metal framed windows for passive flood mitigation applications.

Fenex provides both aluminum and steel framed flood-proof window systems. Retain one or both next two paragraphs below.

* + - * 1. Aluminum Windows: : Aluminum extrusions.

Thermally Improved Construction: Fabricate frames, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.

* + - * 1. Types: Provide the following types in locations indicated on Drawings:

Fixed.

* + - * 1. Windborne-Debris Impact Resistant Laminated Glass: ASTM C1172
        2. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

Generally, retain "Exposed Fasteners" Subparagraph below. Revise if exposed fasteners are permitted.

Exposed Fasteners: For application of hardware, use fasteners that match finish hardware being fastened.

* + - 1. STRUCTURAL WALL SYSTEMS
         1. Source Limitations: Obtain all components of curtain wall **[and glazed assemblies]** systems, including framing and accessories, from Fenex or suppliers approved by manufacturer.
         2. Basis of Design: Fenex, LLC, exclusively.
         3. Description: Aluminum or stainless steel framed unitized window wall systems for passive flood mitigation applications.
         4. Performance:

Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design curtain wall **[and glazed assemblies].**

Fenex is not responsible for host structure performance. All host structure deformations and expected effects that can be transferred to the system shall be provided on a site-specific basis, so it can be checked by delegated engineer and manufacturer.

General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.

Stainless steel or Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.

Thermal stresses transferring to building structure.

Glass breakage.

Noise or vibration created by wind and thermal and structural movements.

Loosening or weakening of fasteners, attachments, and other components.

Failure of operating units.

Air Leakage: No infiltration when tested per ASTM E283 and TAS 202 at [1.57 psf][6.24 psf]<insert value>.

Hydrostatic and Impact Flood Mitigation, ANSI/FM Global 2510 Section 4.3.

Up to 10 ft. Static Water Test for captured system.

Up to 4 ft. Static Water Test for outside structurally glazed system.

Dynamic Impact test of 600 joules, performed with a 110lb wood log (miter cut at 15 degrees)

Structural: Test according to ASTM E330/E330M, 501and TAS 202-Design Pressure plus or minus 120 P.S.F.

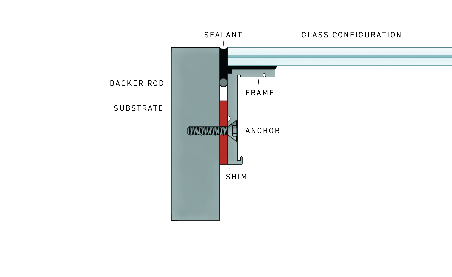
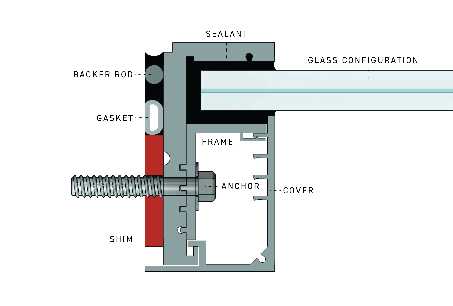
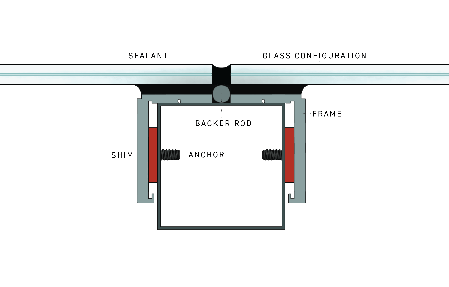
Design Pressure: ANSI 501, plus or minus 120 P.S.F.

* + - * 1. Hurricane Impact: ASTM 1996 and TAS 201 up to missile level “A”, “B”, “C”, & “D”.

Contact Fenex for more available framing options.

* + - * 1. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

Construction: Thermally improved <**Insert description**>.

Glazing System: Retained mechanically with gaskets on two sides and structural sealant on two sides.

Glazing Plane: [**Front**] <**Insert location**>.

Finish: [High-performance organic finish]

* + - * 1. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
        2. Materials:

Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

Sheet and Plate: ASTM B 209 (ASTM B 209M).

Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).

Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.

Structural Profiles: ASTM B 308/B 308M.

Retain "Steel Reinforcement" Subparagraph below for internal steel reinforcement of aluminum framing members; revise to suit Project.

Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.

Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.

Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.

Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

* + - * 1. Glazing: Comply with Section 088000 "Glazing."
        2. Structural Glazing Sealants: ASTM C 1184, chemically curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in curtain-wall assembly indicated.

Color: Black.

* + - * 1. Concealed Flashing: [**Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials**] [**Dead-soft, 0.018-inch- (0.457-mm-) thick stainless steel, ASTM A 240/A 240M of type recommended by manufacturer**].
      1. GLAZING

Contact Fenex for more available glass types and thicknesses.

* + - * 1. Glazing CPSC 16 CFR 1201 - ANSI Z97.1 - ASTM E1300: [Comply with Section 088000 "Glazing."]

(1-1/32 inch) - ½ inch Tempered / 0.090” SGP/ ½ inch Tempered (or heat strength).

(1-1/8 inch) - ½ inch Tempered / 0.180 inch SGP/ ½ inch Tempered (or heat strength).

(1-3/4 inch) - ½ inch Tempered / 0.090” SGP/ ½ inch Tempered / 0.090” SGP/ ½ inch Tempered (or heat strength).

(2-3/4 inch) - ½ inch Tempered / 0.090 inch SGP/ 1/4 inch Tempered, ¾ inch Air, ½ inch Tempered / .090 SGP/ ½ inch Tempered (or heat strength).

* + - * 1. Spandrel Glass: Glazing with Manufacturer's custom decorative layer factory-applied on [interior glazing surface.] [laminated glass interlayer.]

Retain first option in "Glazing Sealants" Paragraph below for products based on manufacturer's standard systems.

* + - * 1. Glazing Sealants: Provide Tremco.

SGT921: Structural Glazing Tape

ProGlaze II: 2 Part Silicone for glass to frame installation

Spectrum [1] [2] Silicone: Perimeter seal.

Retain "Structural Glazing Sealants" and "Weatherseal Sealants" paragraphs below for two-sided structural-sealant-glazed storefront systems.

* + - * 1. Structural Glazing Sealants: ASTM C1184 chemically curing silicone formulation that is compatible with system components with which it comes in contact; specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in storefront system indicated.

Color: Black .

Weatherseal sealants in "Weatherseal Sealants" Paragraph below provide weather resistance for structural-glazed sealants. Delete paragraph if not required or where structural sealant is also weatherseal sealant.

* + - * 1. Weatherseal Sealants: ASTM C920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and structural-sealant-glazed storefront manufacturers for this use.

Color: Match structural sealant.

* + - 1. MATERIALS
         1. Sheet and Plate: ASTM B209 (ASTM B209M).
         2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221 (ASTM B221M).
         3. Extruded Structural Pipe and Tubes: ASTM B429/B429M.
         4. Stainless Steel: 304 or 316 Structural Stainless-Steel ASTM A240.
         5. Structural Profiles: ASTM B308/B308M.

Retain "Steel Reinforcement" and "Steel Reinforcement Primer" paragraphs below for internal steel reinforcement of aluminum framing members; revise to suit Project.

* + - * 1. Steel Reinforcement:

Structural Shapes, Plates, and Bars: ASTM A36/A36M.

Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.

Hot-Rolled Sheet and Strip: ASTM A1011/A1011M.

* + - * 1. Steel Reinforcement Primer: Manufacturer's standard zinc-rich, corrosion-resistant primer complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM, and prepare surfaces according to applicable SSPC standard.
      1. ACCESSORIES
         1. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, nonbleeding fasteners and accessories compatible with adjacent materials for.

Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.

Reinforce members as required to receive fastener threads.

* + - * 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, or steel inserts complying with ASTM A123/A123M or ASTM A153/A153M requirements.
      1. FABRICATION
         1. Form or extrude metal shapes before finishing.
         2. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.
         3. Glaze all systems in the factory.

Retain first paragraph below for welding.

* + - * 1. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
        2. Fabricate components that, when assembled, have the following characteristics:

Profiles that are sharp, straight, and free of defects or deformations.

Accurately fitted joints with ends coped or mitered.

Physical and thermal isolation of glazing from framing members.

Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.

Provisions for field replacement of glazing from [**exterior**] [**interior**].

Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

* + - * 1. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.

Retain "Structural-Sealant-Glazed Framing Members" Paragraph below if Project includes structural glazing.

* + - * 1. Structural-Sealant-Glazed Framing Members: Include accommodations for using temporary support device to retain glazing in place while structural sealant cures.
        2. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

Retain "Mullions" Paragraph below if required for Project.

* + - * 1. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units. Structursl break by others.

Retain first paragraph below for welding.

* + - * 1. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
        2. Structural Wall **[And Glazed Assemblies]** Framing: Fabricate components for assembly using [**manufacturer's standard assembly method**].
        3. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.
      1. METAL FINISHES

In "High-Performance Organic Finish, Two-Coat PVDF" Paragraph below, retain AAMA 2604 with 50 percent resin content by weight in color coat or AAMA 2605 with 70 percent resin content by weight in color coat for high-performance organic coatings on extrusions and panels. If specific products are required, name coating manufacturers and products.

* + - * 1. High-Performance Organic Finish, Two-Coat PVDF: Fluoropolymer finish complying with [**AAMA 2604**] [**AAMA 2605**] 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[**for seacoast and severe environments**].

Color and Gloss: [**As indicated by manufacturer's designations**] [**Match Architect's sample**] [**As selected by Architect from manufacturer's full range**] <**Insert color and gloss**>.

* + - 1. SOURCE QUALITY CONTROL

Retain this article if Project includes two-sided structural glazing.

* + - * 1. Structural Sealant: Perform quality-control procedures complying with ASTM C1401 recommendations, including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine areas, 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.
          3. Tolerances: 0.50 inch gap plus or minus 1/8 inch on all sides of system.
       2. INSTALLATION
          1. Comply with manufacturer's written instructions.
          2. Install metal framed, glazed flood-proof systems plumb, level, and aligned with adjacent construction.
          3. Do not install damaged components.
          4. Rigidly secure nonmovement joints.
          5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
          6. Seal perimeter and other joints watertight unless otherwise indicated. Apply per manufacturer' recommendations.
          7. Metal Protection:

Where dissimilar metals are in contact, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.

Coordinate first paragraph below with manufacturers' written recommendations.

* + - * 1. Install joint filler behind sealant and backer rods as recommended by Fenex. Reference installation manual on how to seal. Seal to the sealant specifications.
      1. CLEANING AND PROTECTION
         1. Protect glass and frame (full system) from contaminating substances resulting from construction operations.
         2. Wash all frame and glass surfaces with in four days of Substantial Completion. Use manufacturer's recommended method. Use only mild detergent. Do not use acid wash or allow acid wash used on other construction to contact the frame and glazing.
         3. Remove temporary coverings, and protection of adjacent work areas.

END OF SECTION 084113