

**SECTION 08 4 1 13**  
**ALUMINUM FRAMED ENTRANCES AND STOREFRONTS**

**SECTION 08 41 13**

**1.01 REFERENCE STANDARDS**

- A. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.
- B. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2025.
- C. AAMA 501.6 - Recommended Dynamic Test Method for Determining the Seismic Drift Causing Glass Fallout from Window Wall, Curtain Wall and Storefront Systems; 2018.
- D. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.
- E. AAMA 701/702 - Performance Specification for Pile Weatherstrips (AAMA 701) and Polymer Weatherseals (AAMA 702); 2023.
- F. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.
- G. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- H. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.
- I. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.
- J. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2024b.
- K. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.
- L. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- M. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications; 2018, with Editorial Revision (2024).
- N. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.
- O. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.
- P. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).
- Q. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2023).
- R. ASTM E699 - Standard Specification for Agencies Involved in Testing, Quality Assurance, and Evaluating of Manufactured Building Components; 2016.
- S. ASTM E1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation; 2022.
- T. ASTM F1642/F1642M - Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings; 2017.
- U. BHMA A156.21 - Thresholds; 2025.
- V. ICC 500 - ICC/NSSA Standard for the Design and Construction of Storm Shelters; 2020.
- W. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.
- X. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

## **PART 1 - GENERAL**

### **1.01 RELATED SECTIONS**

- A. The Contractor is referred to the Contract Documents which include the "Bid Document," the "Contract Drawings"; the "Specifications"; "General Conditions", "Special Conditions", "Special Notice to Contractors Summary Form" latest edition; the "Form of Proposal", "Amendments to general Conditions", and all amendments and addenda, all of which govern the Work of this Contract.

### **1.02 SUMMARY**

- A. Work included: The Work of this Section shall include but not be limited to the following:
  - 1. Aluminum framed storefront systems
  - 2. Aluminum framed entrance door systems

### **1.03 PREINSTALLATION MEETINGS**

- A. Product Conference: Conduct conference at Project site

### **1.04 SUBMITTALS**

- A. Product Data : For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components profiles, and finishes.
- B. Shop Drawings : For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
  - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
  - 2. Include full-size isometric details of each type of vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
    - a. Joinery, including concealed welds.
    - b. Anchorage
    - c. Expansion provisions
    - d. Glazing
    - e. Flashing and drainage
  - 3. Show connections to and continuity with adjacent thermal, weather, air and vapor barriers.
  - 4. Include point to point wiring diagrams showing the following:
    - a. Power requirements for each electrically operated door hardware
    - b. Location and types of switches, signal device, conduit sizes, and number and size of wires.
- C. Samples for initial Selection : For units with factory applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch lengths of full-size components and showing details of the following:
  - 1. Joinery, including concealed welds.
  - 2. Anchorage
  - 3. Expansion provisions
  - 4. Glazing
  - 5. Flashing and Drainage
- F. Entrance Door Hardware Schedule: Prepared by or under supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- G. Delegated Design Submittal: For aluminum-framed entrances and storefronts including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

- H. Mocking Testing Submittals
  - 1. Testing Program : Developed specifically for Project
  - 2. Test Reports : Prepared by a qualified preconstruction testing agency for each mockup test.
  - 3. Record Drawings: As-built drawings of preconstruction laboratory mockups showing changes made during preconstruction laboratory mockup testing.
- I. Qualification Data:
  - 1. For Installer and Field testing agency
    - a. For professional engineer's experience with providing delegated design engineering services of the kind indicated, including documentation that engineer is licensed in the state in which the Project is located.
- J. Energy Performance Certificates: For aluminum-framed entrances and storefronts, accessories, and components, from manufacturer.
  - 1. Basis for Certification: NFRC-certified energy performance values for each aluminum-framed entrance and storefront.
- K. Product Test Reports: For aluminum framed entrances and storefronts to include in maintenance manuals.
- L. Maintenance Data: For aluminum framed entrances and storefronts to include in maintenance manuals.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer and that employs a qualified glazing contractor for this Project who is certified under the North American Contractor Certification Program (NACC) for Architectural Glass & Metal (AG&M) contractors and that employs glazing technicians certified under the Architectural Glass and Metal Technician (AGMT) certification program.
- B. Laboratory Mockup Testing Agency Qualifications: Qualified in accordance with ASTM E699 for testing indicated and accredited by the International Accreditation Service or the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement as complying with ISO/EC 17025.
- C. Product Options: Information on Drawings and Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
  - 1. Do not change intended aesthetic effects, as judged solely by NYCHA. If changes are proposed, submit comprehensive explanatory data to Architect for review

#### **1.06 PRE CONSTRUCTION TESTING**

- A. The following testing requirements are waived for products and assemblies that have been tested successfully, within the last 5 years by a notionally accredited testing agency and show the proposed products and systems meet or exceed the specified requirements.
- B. Pre-construction Laboratory Mockup Testing: Test preconstruction laboratory mockups in accordance with requirements in "Performance Requirements" Article. Perform the following tests in the following order:
  - 1. Structural, 50 percent: ASTM E330/E330M at 50 percent of positive test load.
  - 2. Air Leakage: ASTM E283.
  - 3. Water Penetration under Static Pressure: ASTM E331.
  - 4. Water Penetration under Dynamic Pressure: AAMA 501.1.
  - 5. Thermal Cycling: AAMA 501.5. Repeat the following:
    - a. Air Leakage: ASTM E283.
    - b. Water Penetration under Static Pressure: ASTM E331.
  - 6. Structural, 100 Percent: ASTM E330/E330M at 100 percent of positive and negative test loads. Repeat the following:

- a. Air Leakage: ASTM E283.
- b. Water Penetration under Static Pressure: ASTM E331.
- c. Water Penetration under Dynamic Pressure: AAMA 501.1.
- 7. Structural, 150 percent: ASTM E330/E330M at 150 percent of positive and negative test loads

## **1.07 WARRANTY**

- A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures, including, but not limited to, excessive deflection.
    - b. Noise or vibration created by wind and thermal and structural movements.
    - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - d. Water penetration through fixed glazing and framing areas.
    - e. Failure of operating components.
  - 2. Warranty Period: 10 years from date of Substantial Completion
- B. Special Finish Warranty, Anodized Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of anodized finishes within specified warranty period.
  - 1. Warranty Period: 10 years from date of Substantial Completion.

## **PART 2 – PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Source Limitations: Obtain all components of aluminum-framed entrance and storefront system, including framing and panels, trim and accessories, from single manufacturer.

### **2.02 PERFORMANCE REQUIREMENTS**

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design aluminum-framed entrances and storefronts.
- B. 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.
  - 1. 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.
  - 2. Failure also includes the following:
    - a. Thermal stresses transferring to building structure.
    - b. Glass breakage.
    - c. Noise or vibration created by wind and thermal and structural movements.
    - d. Loosening or weakening of fasteners, attachments, and other components.
    - e. Failure of operating units.
- C. Structural Loads:
  - 1. Wind Loads: In accordance with the NYC Building Code and as indicated on Drawings, whichever is greater.
- D. Deflection of Framing Members Supporting Glass: At design wind load, as follows:
  - 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans of up to 13 feet 6 inches.
  - 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge

- clearance between framing members and glazing or other fixed components to less than 1/8 inch.
3. Cantilever Deflection: Limited to  $2L/175$  at unsupported cantilevers.
- E. Structural: Test in accordance with ASTM E330/E330M as follows:
1. When tested at positive and negative wind-load design pressures, storefront assemblies, including entrance doors, do not evidence deflection exceeding specified limits.
  2. When tested at 150 percent of positive and negative wind-load design pressures, storefront assemblies, including entrance doors and anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
  3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Water Penetration under Static Pressure: Test in accordance with ASTM E331 as follows:
1. No evidence of water penetration through fixed glazing and framing areas, including entrance doors, when tested in accordance with a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 15 lbf/sq. ft..
- G. Water Penetration under Dynamic Pressure: Test in accordance with AAMA 501.1 as follows:
1. No evidence of water penetration through fixed glazing and framing areas when tested at dynamic pressure equal to 20 percent of positive wind-load design pressure, but not less than 15 lbf/sq. ft.
  2. Maximum Water Leakage: In accordance with AAMA 501.1. Water leakage does not include water controlled by flashing and gutters, or water that is drained to exterior.
- H. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
1. Seismic Drift Causing Glass Fallout: Complying with criteria for passing based on building occupancy type when tested in accordance with AAMA 501.6 at design displacement and 1.5 times the design displacement.
- I. Energy Performance: Certified and labeled by manufacturer for energy performance as follows:
1. Thermal Transmittance (U-factor):
    - a. Fixed Glazing and Framing Areas: U-factor for the system of not more than 0.24 Btu/sq. ft. X h x deg F .45 Btu/sq. ft. x h X deg F as determined in accordance with NFRC 100.
    - b. Entrance Doors: U-factor of not more than 0.68 Btu/sq. ft. xh x deg F as determined in accordance with NFRC 100.
  2. Solar Heat-Gain Coefficient (SHGC):
    - a. Fixed Glazing and Framing Areas: SHGC for the system of not more than 0.26 as determined in accordance with NFRC 200.
    - b. Entrance Doors: SHGC of not more than 0.27 as determined in accordance with NFRC 200.
  3. Air Leakage:
    - a. Fixed Glazing and Framing Areas: Air leakage for the system of not more than 0.06 cfim/sq. ft. Insert value at a static-air-pressure differential of 6.24 lbf/sq. ft. when tested in accordance with ASTM E283.
  4. Condensation Resistance Factor (CRF):
    - a. Fixed Glazing and Framing Areas: CRF for the system of not less than 76 as determined in accordance with AAMA 1503.
    - b. Entrance Doors: CRF of not less than 57 as determined in accordance with AAMA 1503.
- J. Noise Reduction: Test in accordance with ASTM E90, with ratings determined by ASTM E1332, as follows.
1. Outdoor-Indoor Transmission Class: Minimum 31
- K. Storm Shelter Performance for Curtain Wall Framing:

1. Shall be tested to meet ICC 500: ICC NSSA Standard for the design and construction of storm shelters.
  2. Missile Criteria for tornado shelters.
  3. Design Wind Speed:
    - a. 200 MPH (EF4)
  4. Missile Speed:
    - a. 90 MPH (EF4)
- L. Blast Resistance:
1. Hazard Rating: Minimal Hazard in accordance with ASTM F2912, tested in accordance with ASTM F1642/F1642M.
- M. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.
1. Temperature Change: 120 degrees Fahrenheit, ambient; 180 degrees Fahrenheit, material surfaces.
  2. Thermal Cycling: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested in accordance with AAMA 501.5.
    - a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 degrees Fahrenheit.
    - b. Low Exterior Ambient-Air Temperature: 0 degrees Fahrenheit.
    - c. Interior Ambient-Air Temperature: 75 degrees Fahrenheit

### **2.03 STOREFRONT SYSTEMS**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
1. Kawneer North America, an Arconic company.
  2. Oldcastle BuildingEnvelope (OBE); CRH Americas.
  3. YKK AP America Inc.
- B. Base of Design Product:
1. Kawneer Company Inc., 160OUT System™1 Curtain Wall
- C. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Exterior Framing Construction: Thermally broken.
  2. Interior Vestibule Framing Construction: Nonthermal.
  3. Glazing System: Retained mechanically with gaskets on four sides.
  4. Glazing Plane: Front.
  5. Finish: Superior-performance organic finish.
  6. Fabrication Method: Field-fabricated stick system.
  7. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
  8. Steel Reinforcement: Steel as required by manufacturer and meeting performance requirements.
- D. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- E. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- F. Insulated Spandrel Panels:
1. Laminated, metal-faced flat panels with no deviations in plane exceeding 0.8 percent of panel dimension in width or length.
    - a. Overall Panel Thickness: As indicated.
    - b. Exterior Skin: Aluminum.
    - c. Thickness: 0.125 inches

- 1) Finish: Match framing system.
- 2) Texture: Smooth.
- d. Interior Skin: Aluminum.
  - 1) Thickness: 0.125 inches
  - 2) Finish: Match framing system.
  - 3) Texture: Smooth.
- e. Thermal Insulation Core: Manufacturer's standard rigid, closed-cell, polyisocyanurate board.
- f. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1) Flame-Spread Index: 25 or less.
  - 2) Smoke-Developed Index: 450 or less.

#### **2.04 MAIN ENTRANCE AND VESTIBULE ENTRANCE DOOR SYSTEMS**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - 1. Kawneer North America, an Arconic company.
  - 2. Oldcastle BuildingEnvelope (OBE); CRH Americas.
  - 3. YKK AP America Inc.
- B. Basis of Design Product:
  - 1. Kawneer Company Inc., 50OR Insulpour Thermal Entrance.
- C. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing or automatic operation.
  - 1. Door Construction: 1-3/4-inch overall thickness, with minimum 0.125-inch-thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
  - 2. Door Design: Wide stile; 5-inch nominal width.
  - 3. Glazing Stops and Gaskets: Square, snap-on and tamperproof fastened, extruded-aluminum stops and preformed gaskets.
  - 4. Provide nonremovable glazing stops on outside of door.
  - 5. Finish: Match adjacent storefront framing finish.

#### **2.05 ENTRANCE DOOR HARDWARE**

- A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."
- B. Weather Stripping: Manufacturer's standard replaceable components.
  - 1. Compression Type: Made of ASTM D2000 molded neoprene or ASTM D2287 molded PVC.
  - 2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
- C. Thresholds: BHMA A156.21 raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch.
- D. Finger Guards: Manufacturer's standard collapsible neoprene or PVC gasket anchored
  - 1. to frame hinge-jamb at center-pivoted doors.

#### **2.06 GLAZING**

- A. Glazing: Comply with Section 088000 "Glazing."
- B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient EPDM elastomeric glazing gaskets, setting blocks, and shims or spacers. Comply with Section 088000 "Glazing."
- C. Glazing Sealants: As recommended by manufacturer.

- D. 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.
  - 1. Color: Match structural sealant.

## 2.07 MATERIALS

- A. Sheet and Plate: ASTM B209.
- B. Extruded Bars, Rods, Profiles, and Tubes: ASTM B221.
- C. Structural Profiles: ASTM B308/B308M.
- D. Steel Reinforcement: Galvanized.
  - 1. Structural Shapes, Plates, and Bars: ASTM A36/A36M.
  - 2. Cold-Rolled Sheet and Strip: ASTM A1008/A1008M.
  - 3. Hot-Rolled Sheet and Strip: ASTM A1011/A1011M.
- E. 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 in accordance with recommendations in SSPC-SP COM, and prepare surfaces in accordance with applicable SSPC standard.

## 2.08 ACCESSORIES

- A. Fasteners and Accessories: 300 Series stainless steel fasteners and accessories compatible with adjacent materials.
  - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
  - 2. Reinforce members as required to receive fastener threads.
  - 3. Use exposed fasteners with countersunk Phillips screw heads, fabricated from 300 series stainless steel.
- B. Anchors: Three-way adjustable anchors with minimum adjustment of inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
  - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A123/A123M or ASTM A153/A153M requirements.
- C. Concealed Flashing: Dead-soft, 0.018-inch-thick stainless steel, complying with ASTM A240/A240M, of type recommended by manufacturer.
- D. Bituminous Paint: Cold-applied asphalt-mastic paint containing no asbestos, formulated for 30-mil thickness per coat.
- E. Rigid PVC filler.

## 2.09 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. 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.
- C. Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Physical and thermal isolation of glazing from framing members.
  - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
  - 5. Provisions for field replacement of glazing from exterior.
  - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

- D. Storefront Framing: Fabricate components for assembly using shear-block system.
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
  - 1. At interior and exterior doors, provide compression weather stripping at fixed stops.
- F. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
  - 1. At exterior doors, provide weather sweeps applied to door bottoms.
- G. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- H. After fabrication, clearly mark components to identify their locations in Project in accordance with Shop Drawings.

## **2.10 ALUMINUM FINISHES**

- A. Clear Anodic Finish: AAMA 611, AA-M12C22441, Class I, 0 inch or thicker.

## **PART 3 – EXECUTION**

### **3.01 EXAMINATION**

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 EXAMINATION**

- A. Comply with manufacturer's written instructions.
- B. Do not install damaged components.
- C. Fit joints to produce hairline joints free of burrs and distortion.
- D. Rigidly secure nonmovement joints.
- E. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
- F. Seal perimeter and other joints watertight unless otherwise indicated.
- G. Metal Protection:
  - 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
  - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- H. Set continuous sill members and flashing in full sealant bed, as specified in Section 079200 "Joint Sealants," to produce weathertight installation.
- I. Install joint filler behind sealant as recommended by sealant manufacturer.
- J. Install components plumb and true in alignment with established lines and grades.

### **3.03 INSTALLATION OF GLAZING**

- A. Install glazing as specified in Section 088000 "Glazing."

### **3.04 INSTALLATION OF WEATHER SEALANT**

- A. Install weatherseal sealant to completely fill cavity, in accordance with Sealant manufacturer's written instructions, to produce weatherproof joints.

### **3.05 INSTALLATION OF ALUMINUM-FRAMED ENTRANCE DOORS**

- A. Install entrance doors to produce smooth operation and tight fit at contact points.
  - 1. Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
  - 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door

hardware in accordance with entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

### **3.06 ERECTION TOLERANCES**

- A. Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
  - 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
  - 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
  - 3. Alignment:
    - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
    - b. Where surfaces are separated by reveal or protruding element from 1/2 to inch wide, limit offset from true alignment to 1/8 inch.
    - c. Where surfaces are separated by reveal or protruding element of inch wide or more, limit offset from true alignment to 1/4 inch.
  - 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

### **3.07 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Field Quality-Control Testing: Perform the following test on aluminum-framed entrances and storefronts.
  - 1. Water-Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested in accordance with AAMA 501.2 and shall not evidence water penetration.
  - 2. Perform a minimum of two tests in areas as directed by NYCHA.
- C. Aluminum-framed entrances and storefronts will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

**END OF SECTION 08 4 1 13**