SECTION 08.44.13
GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Aluminum-framed curtain wall, with vision glazing and glass infill panels.
B. Associated louvers and operable sash.

1.02 RELATED REQUIREMENTS
A. Section 03.30.00 - Cast-in-Place Concrete: Weld plates embedded in concrete for attachment of anchors.
B. Section 05.12.00 - Structural Steel Framing: Steel attachment members.
C. Section 07.25.00 - WEATHER BARRIERS: Sealing framing to weather barrier installed on adjacent construction.
D. Section 07.84.00 - Firestopping: Firestop at system junction with structure.
E. Section 07.92.00 - Joint Sealants: Sealing joints between frames and adjacent construction.
F. Section 08.43.13 - Aluminum-Framed Storefronts: Entrance framing and doors.
G. Section 08.80.00 - Glazing.
H. Section 09.21.16 - Gypsum Board Assemblies: Metal stud and gypsum board wall at interior of curtain wall.

1.03 REFERENCE STANDARDS
A. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association; 2015.
B. AAMA 501.2 - Field Check of Metal Storefronts, Curtain Walls, and Sloped Glazing Systems for Water Leakage; 2009 (part of AAMA 501).
F. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers; 2011.

1.04 ADMINISTRATIVE REQUIREMENTS
   A. Coordinate with installation of other components that comprise the exterior enclosure.
   B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS
   A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
   B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, glazing, and infill.
   C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.
   D. Shop Drawings: Provide details of proposed structural sealant glazing (SSG) and weather sealant joints indicating dimensions, materials, bite, thicknesses, profile, and support framing.
   E. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.
   F. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure.
   G. Structural Sealant Glazing (SSG): Submit product data and calculations showing compliance with performance requirements.
   H. Test Reports: Submit results of full-size mock-up testing. Reports of tests previously performed on the same design are acceptable.
   I. Field Quality Control Submittals: Report of field testing for water leakage.
   J. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE
   A. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at Tennessee.
   B. Full-Size Mock-up Testing: Have a specimen representative of project conditions tested by an independent testing agency for compliance with specified thermal, structural, air infiltration, water penetration, and sound attenuation criteria.
   C. Verify that each component is appropriate for use in structural sealant glazing (SSG) application in regards to at least the following properties; size, shape, dimensions, material, self-life, storage conditions, and color.
   D. Manufacturer and Installer Qualifications: Company specializing in manufacturing aluminum glazing systems with minimum three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING
   A. Handle products of this section in accordance with AAMA CW-10.
   B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.
1.08 FIELD CONDITIONS
   A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.09 WARRANTY
   A. Correct defective Work within a five year period after Date of Substantial Completion.
   B. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.
   C. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Glazed Aluminum Curtain Walls:
      4. Substitutions: See Section 01.60.00 - Product Requirements.

2.02 CURTAIN WALL
   A. Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
      1. Outside glazed, with pressure plate and mullion cover, where indicated on drawings.
      2. Fabrication Method: Field fabricated stick system.
      5. Finish: Class I natural anodized.
         a. Factory finish surfaces that will be exposed in completed assemblies.
         b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
      6. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
      8. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
      9. Air and Vapor Seal: Maintain continuous air barrier and vapor retarder throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel and heel bead of glazing compound.
     10. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
   B. Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.
      1. Design Wind Loads: Comply with the requirements of ASCE 7.
      2. Seismic Loads: Design and size components to withstand seismic loads and sway displacement in accordance with the requirements of ASCE 7.
3. Movement: Accommodate the following movement without damage to components or deterioration of seals:
   a. Expansion and contraction caused by 180 degrees F surface temperature.
   b. Expansion and contraction caused by cycling temperature range of 170 degrees F over a 12 hour period.
   c. Movement of curtain wall relative to perimeter framing.
   d. Deflection of structural support framing, under permanent and dynamic loads.

C. Water Penetration Resistance: No uncontrolled water on indoor face when tested as follows:
   1. Test Pressure Differential: 10 psf.

D. Air Leakage: Maximum of 0.06 cu ft/min sq ft of wall area, when tested in accordance with ASTM E283 at 6.27 psf pressure differential across assembly.

E. Thermal Performance Requirements:
   1. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.

2.03 COMPONENTS
   A. Aluminum Framing Members: Tubular aluminum sections, thermally broken with interior section insulated from exterior, drainage holes and internal weep drainage system.
   B. Glazing: As specified in Section 08.80.00.
   C. Operable Sash: Aluminum project-in hopper; finished to match curtain wall; turn handle latch.

2.04 MATERIALS
   C. Firestopping: As specified in Section 07.84.00.
   D. Weatherseal Sealant: Silicone, with adhesion in compliance with ASTM C794; compatible with glazing accessories.
   E. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.
   F. Glazing Accessories: As specified in Section 08.80.00.

2.05 FINISHES
   A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify dimensions, tolerances, and method of attachment with other related work.
   B. Verify that curtain wall openings and adjoining air and vapor seal materials are ready to receive work of this section.
   C. Verify that anchorage devices have been properly installed and located.

3.02 INSTALLATION
   A. Install curtain wall system in accordance with manufacturer's instructions.
   B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
C. Provide alignment attachments and shims to permanently fasten system to building structure.
D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
E. Provide thermal isolation where components penetrate or disrupt building insulation.
F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.
G. Install firestopping at each floor slab edge.
H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
I. Install operating sash.
J. Pressure Plate Framing: Install glazing and infill panels in accordance with Section 08.80.00, using exterior dry glazing method.
K. Structural Sealant Glazing (SSG) Adhesive: Install structural sealant glazing adhesive and weatherseal sealant in accordance with manufacturer's instructions.
L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

### 3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 0.5 inches per 100 ft, whichever is less.
B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.
C. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

### 3.04 FIELD QUALITY CONTROL

A. Provide the services of the manufacturer's field representative to observe installation and make report.
B. Test installed curtain wall for water leakage in accordance with AAMA 501.2.
C. Replace curtain wall components that have failed field testing and retest until performance is satisfactory.

### 3.05 ADJUSTING

A. Adjust operating sash for smooth operation.

### 3.06 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.
B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

### 3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION