SECTION 08920

GLAZED ALUMINUM CURTAIN WALL SYSTEM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Structural design, engineering, fabrication, and installation of complete curtain wall system:
   1. Aluminum framing and integral reinforcing.
   2. Closures, trim, and flashings.
   3. Fasteners, anchors, and related reinforcement.

B. Installation of glass and glazing.

1.2 RELATED SECTIONS

A. Section 05120 - Structural Steel.

B. Section 05500 - Metal Fabrications.

C. Section 07620 - Sheet Metal Flashing and Trim.

D. Section 07900 - Joint Sealers.

E. Section 08630 - Metal-Framed Skylights.

F. Section 08800 - Glazing: Products installed as part of the work of this section.

G. Section 12492 - Horizontal Louver Blinds.

1.3 REFERENCES

A. AAMA 3.03 - Guide Specifications for Metal Curtain Wall, Erection Tolerances; American Architectural Manufacturers Association.

B. AAMA 501 - Methods of Test for Exterior Curtain Walls; American Architectural Manufacturers Association.

C. AAMA 603.8 - Voluntary Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum; American Architectural Manufacturers Association.

D. AAMA 605.2 - Specification for High Performance Organic Coatings on Architectural Extrusions and Panels; American Architectural Manufacturers Association.

E. AAMA 607.1 - Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum; American Architectural Manufacturers Association.

F. AAMA 608.1 - Voluntary Guide Specification and Inspection Methods for Electrolytically Deposited Color Anodic Finishes for Architectural Aluminum; American Architectural Manufacturers Association.

G. ASTM C 509 - Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material.

H. ASTM C 794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.

I. ASTM C 864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

J. ASTM C 1036 - Standard Specification for Flat Glass.

K. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass -- Kind HS, Kind FT Coated and Uncoated Glass.

L. ASTM D 1149 - Standard Test Method for Rubber Deterioration -- Surface Ozone Cracking in a Chamber.

M. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

N. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

O. ASTM E 773 - Standard Test Methods for Seal Durability of Sealed Insulating Glass Units.

P. ASTM E 774 - Standard Specification for Sealed Insulating Glass Units.

Q. GANA (GM) - FGMA Glazing Manual; Glass Association of North America.

R. IGCC - Classification of Insulating Glass Units; Insulating Glass Certification Council.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance:
   1. Design framing system including glazing material to support the following load requirements with maximum allowable deflection of any glazing support member not to exceed 1/175 of the unsupported span as tested in accordance with ASTM E 330:
      a. Positive wind load: _____psf.
      b. Negative wind load: _____psf.
   2. No glass breakage or permanent damage to panels, fasteners or anchors is permitted, and permanent deformation to wall framing members may not exceed 0.2 percent of clear span at a structural test load equal to 1.5 times the specified positive and negative design wind pressure.

B. Air and Water Resistance:
   1. Air Infiltration: Maximum 0.03 cfm per square foot through total glazed surface area when system is tested in accordance with ASTM E 283 at a static pressure of 6.24 psf.
   2. Water Infiltration: No uncontrolled water leakage when system is tested in accordance with ASTM E 331 at static water pressure of 15 psf.

C. Thermal Performance:
   1. CRF: Minimum 55 for 1 inch glazed, thermally improved system.
   2. U-Value: Maximum 0.58 for glazed, thermally improved system.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's printed information, installation instructions, and test reports demonstrating compliance with specified requirements.

1. Include list of recommended cleaning methods, priming recommendations, and results of adhesion tests for sealants proposed for use on project.

C. Shop Drawings: Include detailed plans, elevations, and details of framing members, glazing materials, sealants, fasteners, anchors, and thicknesses and types of formed flashing and closures and relationship with adjacent materials.

D. Selection Samples:
1. Full range of color samples for selection of aluminum finish.
2. Full range of color samples for sealant selection.

E. Verification Samples:
1. 2 samples of aluminum framing member, not less than 12 inches long, with specified finish.
2. 2 samples of specified glazing material, not less than 12 inches square.

F. Certification for Structural Sealant: Submit written documentation from sealant manufacturer that selected sealant has been tested for adhesion and compatibility on representative samples of metal, glass, and other glazing components, and that sealant joint design and application procedures shown on shop drawings are suitable for this project.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm with a minimum of 5 years of experience in design, extrusion, fabrication, and finishing of aluminum curtain walls similar in complexity to those required for this project.

B. Installer Qualifications: Commercial contract glazier with not less than 5 years of successful experience installing similar glazing systems and approved by manufacturer of aluminum curtain wall system.

C. Materials: Provide primary materials of each type by a single manufacturer and secondary materials acceptable to that manufacturer.

D. Pre-Installation Conference: Conduct meeting immediately prior to commencing field operations, to establish coordination requirements and quality control procedures.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in labeled protective packages. Store and handle in strict compliance with manufacturers' instructions and recommendations. Protect from damage due to weather and construction operations.

B. Sequence deliveries to avoid delays, but minimize storage on project site.

1.8 PROJECT CONDITIONS

A. Field Measurements: When practical, take accurate field measurements before preparation of shop drawings and fabrication. Do not delay progress of the work; allow for construction tolerances.

1.9 WARRANTY

A. Curtain Wall System Warranty: Provide installer warranty to repair or replace defective work, including without limitation, components that exhibit uncontrolled leakage of water, abnormal aging or deterioration, or other performance failures.
   1. Warranty period: 1 year from completion of work of this section.

B. Finish Warranty: Provide manufacturer warranty agreeing to repair or replace work with defective finish.
   1. Warranty period for film integrity: One year from date of application.
   2. Warranty period for color integrity: One year from date of application.

1.10 MAINTENANCE MATERIALS

A. Extra Materials: When 50 or more glazing units of same type and size are required, provide 1 percent extra materials for Owner's inventory, boxed separately, properly labeled, and delivered for storage to area designated by Owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Design is based on curtain wall system by Vistawall Architectural Products, PO Box 629, 803 Airport Road, Terrell, Texas; Telephone (214) 551-6100; FAX (214) 551-6264.
   1. Products of other manufacturers may be submitted for consideration, provided that submittals include written statement certifying equivalence or list of exceptions to, or variances from, specified requirements.
   2. Substitutions will not be acceptable.

2.2 MATERIALS

A. Framing System:
   1. Framing members: 6063-T6 extruded aluminum for structural members; 6063-T5 for non-structural components; temper and alloy as recommended by manufacturer.
   2. Formed flashing and closures: Minimum 0.040 inch thick aluminum, anodized finish.
   3. Formed flashing and closures: Minimum 0.062 inch thick aluminum, painted finish.
   4. Formed flashing and closures: AISI Type 302/304 stainless steel with satin finish at locations indicated.

B. Vertical Glazing: As specified in Section 08800.

C. Insulated Panels:
   1. Type: Flat, mill edge aluminum faced panels with thermoplastic compound core.
   2. Face sheets: Prefinished 0.020 inch thick aluminum, alloy 3105-H25.
   3. Face sheets: Prefinished 0.028 inch thick aluminum, alloy 3105-H25.
   4. Core: Polyethylene.
   5. Core: Fire resistant core.
   6. Thickness: 0.157 inch (4 mm).
   7. Thickness: 0.197 inch (5 mm).
   8. Thickness: 0.236 inch (6 mm).

D. Glazing Gaskets:
   1. Exterior: Continuous EPDM gasket at each glass and spandrel panel.
   2. Interior: Continuous, closed-cell PVC foam-sealant tape, sealed at corners.

E. Anchors and Fasteners:
    1. Anchor locations not exposed to weather: Standard steel, non-plated lag, sleeve and stud bolt anchors.
    2. Anchor locations exposed to weather: Zinc chromate or cadmium plated steel anchors.
    3. Connections exposed to weather: 300 series stainless steel for bolted connections and fasteners.
        a. Also use at locations where bolted connections penetrate secondary gutter of sill member.
    4. Reinforce butt, mitered, and expansion joint framing member splices with internal aluminum splice plates where possible; mechanically fasten with stainless steel truss head fasteners or fasten using welds in accordance with curtain wall manufacturer's standard connection details.

F. Sealants:
    1. Comply with recommendations of sealant manufacturer for specific sealant selections.
    2. Provide only sealants that have been tested per ASTM C 794 to exhibit adequate adhesion to samples of glass and metal equivalent to those required for project.
    3. Exposed metal to metal joints: Silicone sealant selected from manufacturer's standard colors.

2.3 FABRICATION

A. Fabricate framing system to be straight, plumb, level, and square. Provide components to sizes, shapes, and profiles indicated on approved shop drawings.

B. Fabricate to accommodate thermal movement in horizontal members by non-visible means. Assemble components with uniform, tight joints.

2.4 FINISHES

A. Provide finish as follows for exterior exposed aluminum surfaces:
    1. Clear Anodic Coating, Class II: AAM12C22A31 clear anodized coating complying with AAMA 607.1, 0.4-0.7 mil thickness minimum.
    2. Clear Anodic Coating, Class I: AAM12C22A41 clear anodized coating complying with AAMA 607.1, 0.7 mil thickness minimum.

3. Color Anodic Coating, Class II: AAM12C22A34 coating electrolytically deposited and complying with AAMA 608.1, 0.4 mil thickness minimum.
   a. Color: Medium bronze.
   b. Color: Dark bronze.
   c. Color: Black.
4. Color Anodic Coating, Class I: AAM12C22A44 coating electrolytically deposited and complying with AAMA 608.1, 0.7 mil thickness minimum.
   a. Color: Medium bronze.
   b. Color: Dark bronze.
   c. Color: Black.
5. Polyester/Acrylic Coating: AAMA 603.8.
   a. Color: As selected from manufacturer's standard colors.
   b. Color: Custom color to match Architect's sample.
   c. Color: Color No. _____, manufactured by _____.
6. Fluoropolymer Coating: 70% Kynar 500/Hylar 5000 resin base fluoropolymer finish complying with AAMA 605.2.
   a. Provide 2 coats.
   b. Provide 3 coats.
   c. Provide 4 coats.
   d. Color: As selected from manufacturer's standard colors.
   e. Color: Custom color to match Architect's sample.
   f. Color: Color No. _____, manufactured by _____.

B. Provide finish as follows for interior exposed aluminum surfaces:
   1. Match exterior finish.
   2. Match exterior finish, except provide following color: _____.
   3. [Cut desired selection from above and paste to this location.]

PART 3 EXECUTION

3.1 PREPARATION

A. Take field dimensions and examine condition of substrates, supports, and other conditions under which work of this section is to be performed to verify that the work may properly commence. Do not proceed with

installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install glazed curtain wall in strict accordance with manufacturer's instructions and recommendations. Match profiles, sizes, and spacings indicated on approved shop drawings.

B. Ensure that drainage system operates properly in accordance with AAMA 501 procedures.

C. Do not proceed with structural silicone work when metal temperature is below 32 degrees F.

D. Coordinate installation with adjacent work to ensure completion of weatherproof assembly. Anchor work securely to supporting structure, but allow for differential and thermal movement in compliance with AAMA 3.03.

E. Isolate between aluminum and dissimilar metals with a protective coating or plastic strip to prevent electrolytic corrosion.

F. Install curtain wall system so as to maintain a virtually flat face cap, with no visible bowing.

G. Install entire system so that fasteners are not visible.

3.3 ADJUSTING AND CLEANING

A. During installation, remove labels, part number markings, sealant smears, handprints, and construction dirt from all components.

B. Touch up damaged coatings and finishes and repair minor damage to eliminate all evidence of repair. Remove and replace components that cannot be satisfactorily repaired.

C. Clean all exposed surfaces, including metal and glass, using non-abrasive materials and methods recommended by manufacturer of component being cleaned. Remove and replace components that cannot be cleaned successfully.

3.4 PROTECTION

A. Reclean as necessary to prevent damage. Protect completed work from damage and deterioration and inspect immediately before final acceptance of project.

END OF SECTION