SPECIAL SPECIFICATION

SECTION 08911S

GLAZED ALUMINUM CURTAIN WALL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Aluminum tube framing system, vision glass and glass, integral fire stops and vapor retard at floor slabs and perimeter sealant.

1.02 ENVIRONMENTAL OBJECTIVES

A. As described in Section 01805 "Environmental Objectives", the owner has determined that this project must be rated by LEED™ Version 2.0 green building rating system, which was issued in March 2000 by the U.S. Green Building Council, 1015 18th Street, NW, Suite 805, Washington, DC 20036. Phone: 202/ 82-USGBC (828-7422) Fax: 202/ 828-5110.

B. While these goals and implementation strategies are incorporated within the Contract Documents, suggestions and input from the contractor for implementing these goals are encouraged. A team approach is encouraged.

C. Manufacturer/Fabricator to supply documentation of level of compliance or non-compliance with the following requirements before consideration as an "Acceptable Manufacturer".

1. The Design Team has determined that the following be mandatory requirements.

   a. The product(s) supplied is manufactured/fabricated within a radius of 500 miles from the project site and/or the manufactured/fabricated product(s) are extracted, harvested, or recovered within 500 miles of the project site.

   b. The product(s) supplied is to have a minimum weighted average of 20% post consumer recycled content material, OR, a minimum weighted average of 40% post-industrial recycled content material.

   c. Comply with the requirements of Section 01505S "Construction Waste Management"

   d. Paints and coatings (interior only) must meet or exceed the VOC and chemical component limits of Green Seal requirements.

D. Products that conform to the Environmental Objectives yet do not fully meet other requirements of this section may still be considered at the sole discretion fo the Owner and Architect.

1.03 RELATED SECTIONS

A. Section 03300S – Cast-In-Place Concrete: Supplementary support structure.

B. Section 05120 – Structural Steel: supplementary support structure.

C. Section 05400S- Cold Formed Metal Framing: Stud System.

D. Section 05500S - Metal Fabrications: Metal fabricated attachment devices framed openings.

E. Section 07260S – Vapor Retarders: Perimeter vapor seal between curtain wall system and adjacent construction.

F. Section 07270 – Firestop and SmokesStop Protection: Fire and air/vapor stop..

G. Section 07900 - Joint Sealants: System perimeter sealant and back-up materials.

H. Section 08410 – Metal – Framed Storefronts: Entrance doors, frames, and glazed lights.

I. Section 08470S - Revolving Entrance Doors.

J. Section 08710 - Door Hardware: Mortised hardware reinforcement requirements affecting curtain wall framing members.

K. Section 08800 – Glass and Glazing.

L. Section 09250 - Gypsum Drywall: Metal stud and gypsum board sheathing at interior of curtain wall system and secured to mullions.

M. Section 09900 - Painting: Field painting.

N. Section 12501 - Horizontal Blinds: Attachments to curtain wall framing members.

O. Section 12531 – Drapery Track: Drapery or curtain track supports and attachments to curtain wall framing members.

1.04 REFERENCES

A. AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

B. AAMA - Aluminum Curtain Wall Design Guide Manual.

C. AAMA - Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum From Shop to Site.

D. AAMA Series No. 11 - Design Windloads for Buildings and Boundary Layer Wind Tunnel Testing.

E. AAMA 501 - Metal Curtain Walls.

F. AAMA 603.8 - Pigmented Organic Coatings on Extruded Aluminum.

G. AAMA 605.2 - High Performance Organic Coatings on Architectural Extrusions and Panels.

H. AAMA 606.1 - Integral Color Anodic Finishes for Architectural Aluminum.

I. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.

J. AAMA 608.1 - Electrolytically Deposited Color Anodic Finishes for Architectural Aluminum.

K. AAMA T1R - A1 - Sound Control for Aluminum Curtain Walls and Windows.

L. AAMA FC-1 - Field Check of Metal Curtain Walls for Water Leakage.

M. ASTM A 36 - Structural Steel.

N. ASTM A 123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

O. ASTM A653/A 653M - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

P. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.

Q. ASTM B 221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.

R. ASTM E 283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

S. ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

T. ASTM E 331 - Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

U. ASTM E 413 - Classification for Determination of Sound Transmission Class.

V. SSPC - Steel Structures Painting Council.

1.05 SYSTEM DESCRIPTION

A. Glazed aluminum curtain wall system includes a tubular extruded aluminum sections with self supporting and supplementary support framing, shop fabricated, factory prefinished, vision glass, glass spandrill infill, glass; related flashings, anchorage and attachment devices

1.06 PERFORMANCE REQUIREMENTS

A. Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with applicable code.

B. Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable code.

C. Limit mullion deflection to flexure limit of glass 3/4 inch 1/360; wihichever is less, with full recovery of glazing materials.

D. System to accommodate, without damage to system, components or deterioration of seals; movement within system; movement between system and perimeter framing components; dynamic loading and release of loads; deflection of structural support framing, shortening of building concrete structural columns, and creep of concrete structural members, and a mid-span slab edge deflection.

E. Thermal Resistance of Vision Glass Areas: U –value and shading coefficient: see 0880: Glass and Glazing.

F. **Sou**nd Attenuation Through Wall system (Exterior to Interior): See 08800**S**: Glass and Glazing.

G. Limit air infiltration through assembly to 0.06 cubic feet per minute per square foot of wall area, measured at a reference differential pressure across assembly of 1.57 pounds per square foot as measured in accordance with AAMA 501 and/or ASTM E 283.

H. Vapor Seal with Interior Atmospheric Pressure of one inch sp, 72 degrees F, 40 Percent RH: No failure.

I. Blast Resistance: Provide reinforcing steel and anchors for blast resistance specified in Section 08800S – Glass and Glazing.

J. System to provide for expansion and contraction within system components caused by a cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental affect to system components.

K. Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

L. Maintain continuous air and vapor barrier throughout assembly, primarily in line with inside pane of glass and heel bead of glazing compound. Position thermal insulation on exterior surface of vapor retarder.

M. Not Permitted: Vibration harmonics, wind whistles, noises caused by thermal movement, thermal movement transmitted to other building elements, loosening, weakening, or fracturing of attachments or components of system.

1.07 SUBMITTALS

A. Environmental Objectives Documentation: signed by the manufacturers/ fabricatiors stating level of compliance for the requirements and objectives in Environmental Objectives in section.:

B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, anticipated deflection under load, affected related Work, weep drainage network, expansion and contraction joint location and details, and field welding required.

C. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, internal drainage details and water flow diagrams.

D. Product Data: Provide framing member structural and physical characteristics, dimensional limitations, special installation requirements.

E. Submit two samples 12 inches by 12 inches in size illustrating prefinished aluminum surface, specified glass units, insulated infill panels, glazing materials illustrating edge and corner.

F. Test Reports: Submit substantiating engineering data, test results of previous tests by independent laboratory which purport to meet performance criteria, and other supportive data.

G. Manufacturer's Installation Instructions: Indicate special installation procedures.

1.08 QUALITY ASSURANCE

A. Perform Work in accordance with AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

B. Maintain one copy of each document on site.

C. Manufacturer and Installer Qualifications: Company specializing in manufacturing aluminum curtain wall systems with minimum three years documented experience.

D. Installer for Total System: Company authorized by system manufacturer.

E. Design structural support framing components under direct supervision of a Professional Engineer experienced in design of this work and licensed in the State of New Mexico.

1.09 REGULATORY REQUIREMENTS

A. Conform to applicable code for minimum sound transmission requirements.

B. Provide certificate of compliance from authority having jurisdiction indicating approval.

1.10 MOCKUP

A. Provide 4 feet by 4 feet mockup including intermediate mullion, corner mullion, sill muntin and vision glass light. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, and perimeter sealant.

B. Mockup may not remain as part of the Work.

1.11 PRE-INSTALLATION CONFERENCE

A. Convene one week prior to commencing work of this Section.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Handle work of this Section in accordance with AAMA Curtain Wall Manual No. 10.

B. Protect prefinished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.13 ENVIRONMENTAL REQUIREMENTS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and after installation of sealants.

1.14 FIELD MEASUREMENTS

A. Verify that field measurements are as indicated on shop drawings.

1.15 COORDINATION

A. Coordinate the Work with installation of firestopping, air and vapor barrier, components or materials.

1.16 WARRANTY

A. Provide five-year warranty under provisions of Section 01700.

B. Include coverage for complete system for failure to meet specified requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Armalite Corporation.

B. Kawneer Company, Inc.

C. PPG Architectural Metals.

D. Vistawall Architectural Products.

2.02 MATERIALS

A. Extruded Aluminum: ASTM B 221; 6063 alloy, T5 temper, min. 30% post-consumer aluminum billet

B. Sheet Aluminum: ASTM B209; 5005 alloy, temper to match extrusions, min. 30% post-consumer aluminum billet.

C. Fasteners and Anchorage Devices: Stainless steel; anchors capable of providing adjustment prior to being permanently fastened in place; finish of fasteners to match substrate.

D. Primer and Touch-Up Primer for Galvanized Surfaces: FS TT-P-645.

E. Shims: Lead or Galvanized Steel.

2.03 COMPONENTS

A. Mullion Profile: 2½ inch by 8 inch nominal dimension for vertical members; 2½ inch by 8 inch nominal dimension for horizontal members; thermally broken with

interior tubular section insulated from exterior pressure plate; matching stops and pressure plate of sufficient size and strength to provide bite on glass and infill panels; drainage holes; deflector plates and internal flashings to accommodate internal weep drainage system; internal mullion baffles to eliminate "stack effect" air movement within internal spaces.

B. Reinforced Mullion: Size as required by manufacturer, profile of extruded aluminum cladding with inernal reinforcement of shaped steel structural section.

C. Infill Panel: See section 08800 – Glass and Glazing.

D. Flashing: 1/8” inch thick galvanized steel, finish to match curtain wall mullion sections where exposed, secured with concealed fastening method.

E. Firestopping: Specified in Section 07270.

F. Vapor Retarder: Specified in Section 07260S.

2.04 GLASS AND GLAZING MATERIALS

A. Glass in Exterior Lights: Clear, sealed insulated/laminated units of float glass as specified in Section 08800.

2.05 SEALANT MATERIALS

A. Sealant and Backing Materials (not used for Glazing): As specified in Section 07900 of Types described below.

B. Perimeter Sealant: Silicone.

C. Sealant Used Within System (Not Used for Glazing): Silicone.

2.06 FABRICATION

A. Fabricate curtain wall components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.

B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.

C. Prepare components to receive anchor devices. Fabricate anchors.

D. Arrange fasteners and attachments to ensure concealment from view.

2.07 FINISHES

A. Concealed Steel Items: Galvanized in accordance with ASTM A 123 to 2.0 ounces per square foot, Primed with iron oxide paint.

B. Apply one coat of bituminous paint to concealed surfaces in contact with cementitious or dissimilar materials.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

C. Beginning of installation means acceptance of existing conditions.

3.02 PREPARATION

A. Coordinate dimensions, tolerances, and method of attachment with other work.

B. Provide electrolytic coatings or other method of isolation where steel and aluminum will contact.

3.03 INSTALLATION

A. Install curtain wall system in accordance with AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.

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.

G. Install fire stop insulation at each floor slab edge.

H. Coordinate attachment and seal of perimeter vapor retarder materials.

I. Pack cellulose insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

J. Install glass in accordance with Section 08800, to glazing method required to achieve performance criteria..

K. Install perimeter sealant to method required to achieve performance criteria.

3.04 TOLERANCES

A. Maximum Variation from Plumb: 0.06-inch every 3 feet non-cumulative or 0.5-inch per 100 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32-inch.

3.05 FIELD QUALITY CONTROL

A. Inspection will monitor quality of installation and glazing.

B. Test to AAMA FC-1.

3.06 MANUFACTURER'S FIELD SERVICES

A. Curtain wall product manufacturers to provide field surveillance of the installation of their products under provisions of Section 01405.

B. Monitor and report installation procedures and unacceptable conditions.

3.07 CLEANING

A. Remove protective material from prefinished 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. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

3.08 PROTECTION OF FINISHED WORK

A. Protect finished Work from damage.

END OF SECTION