SECTION 08950

TRANSLUCENT WALL ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Self supporting aluminum framed vertical glazing system.

B. Flat factory prefabricated structural insulated translucent sandwich panels.

C. Perimeter sealant.

D. Aluminum sill flashing.

1.02 RELATED REQUIREMENTS

A. Section 07900 - Joint Sealers: System perimeter sealant and back-up materials.

1.03 REFERENCE STANDARDS

A. AA DAF-45 - Designation System for Aluminum Finishes; The Aluminum Association, Inc..

B. AAMA CW-DG-1 - Aluminum Curtain Wall Design Guide Manual; American Architectural Manufacturers Association.

C. AAMA CW-10 - Care and Handling of Architectural Aluminum From Shop to Site; American Architectural Manufacturers Association.

D. AAMA 501.1 - Standard Test Method for Exterior Windows, Curtain Walls and Doors for Water Penetration Using Dynamic Pressure; American Architectural Manufacturers Association.

E. AAMA 501.2 - Field Check of Metal Storefronts, Curtain Walls, and Sloped Glazing Systems for Water Leakage; American Architectural Manufacturers Association (part of AAMA 501).

F. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association.

G. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; American Architectural Manufacturers Association.

H. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.

I. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.

J. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

K. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel.

L. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

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

N. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

O. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric].

P. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

Q. ASTM B 221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric].

R. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.

S. 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.

T. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

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

V. ASTM E 413 - Classification for Rating Sound Insulation.

W. ASTM E 547 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Differential.

X. ASTM E 1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.

Y. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings.

Z. SSPC-Paint 25 - Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Hand Cleaned Steel, Type I and Type II; Society for Protective Coatings.

AA. SSPC-Paint 25BCS - Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Blast Cleaned Steel; Society for Protective Coatings.

1.04 PERFORMANCE REQUIREMENTS

A. System Design: Design and size components to withstand dead loads and live loads caused by snow, hail, and positive and negative wind loads acting on plane of panel without damage or permanent set.
   1. Design Loads: Calculate in accordance with IBC 2006 and CBC 2007.
   2. Measure performance in accordance with ASTM E 330, using test load of 1.5 times the design wind pressure and 10 second duration of maximum load.

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

C. Deflection: Limit mullion deflection to L/60 with full recovery of glazing materials.

D. System Assembly: 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, tolerance of supporting components.

E. Light Transmission:
   1. North Elevation: 20% for 2-3/4 inch panel.
   2. West, East, and South Elevations: 12% for 2-3/4 inch panel.
   3. Interior Locations: 35% for 2-3/4 inch panel.

F. Thermal Resistance of Panel System (Excluding Vision Areas): R of 20.
   1. North Elevation: R of 3.45.
   2. West, East, and South Elevations: R of 4.55.

3. Interior Locations: R of 1.89.

G. Sound Attenuation Through Wall System (Exterior to Interior): STC of 31, minimum, calculated in accordance with ASTM E 413, tested in accordance with ASTM E 90.

H. Air Infiltration: Limit air infiltration through assembly to 0.01 cu ft/min/sq ft of sloped glazed area, measured at a reference differential pressure across assembly of 1.56 psf as measured in accordance with AAMA 501.

I. Condensation Resistance Factor: CRF of 90 when measured in accordance with AAMA 1503.1.

J. Water Leakage: None, when measured in accordance with ASTM E 331 at a test pressure difference of 20 lbf/sq ft - 5 gal/sq ft/hr - no entry.

K. Expansion / Contraction: System to provide for expansion and contraction within system components caused by a cycling temperature range of 120 degrees F over a 12 hour period without causing detrimental effect to system components.

L. System Internal Drainage: Drain water entering joints, condensation occurring in framing system, or migrating moisture occurring within system, to the exterior by a weep drainage network.

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.

1.05 SUBMITTALS

A. See Section 01350 - Submittals, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, panel configuration, internal drainage details and finishes of components.

C. Design Data: Provide framing member structural and physical characteristics, dimensional limitations.

D. 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.

E. Samples: Submit two sandwich panels, 14 x 28 inch in size, illustrating prefinished aluminum surface, specified panel with skins, glazing materials illustrating edge and corner and factory finished, 5 inches long, aluminum sections.

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, including ICC Legacy - ES Report, UL-Listings, and Weathering Tests.

G. Installation Data: Special installation requirements.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than 10 years of documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience and approved by manufacturer.

1.07 REGULATORY REQUIREMENTS

A. Conform to applicable code.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Handle work of this section in accordance with AAMA CW-10.

1.09 FIELD CONDITIONS

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.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Kalwall; www.kalwall.com.
   1. Local Distributor: Integrated Marketing Concepts, Inc. www.imc-ca.com. Contact: Michelle Duclett (909) 392-5500.

B. Substitutions: No equivalent (identical) exists in the opinion of the Architect. Refer to Section 01640 - Substitutions and Product Options. In addition to Section 01640 requirements, provide the following for comparison of proposed product:
   1. ICC Legacy - ES Report.
   2. UL-Listings.
   3. Weathering Tests.

2.02 MATERIALS

A. Extruded Aluminum: ASTM B 221 (ASTM B 221M).

B. Sheet Aluminum: ASTM B 209 (ASTM B 209M).

C. Fasteners: Stainless steel.

2.03 COMPONENTS

A. Translucent Wall and Roof System: Structurally reinforced translucent panels, with self supporting framing, shop fabricated, factory prefinished, battens, cap strips, related flashings, anchorage and attachment devices.

B. Panels: Bonded to both sides of structural extruded aluminum grid of Reverse Shoji Grid 20" x 8"' pattern; exposed surfaces of exterior sheet chemically and permanently treated to protect against surface erosion and extreme weather conditions; exposed surface of interior sheets fire retardant to a flame rating of 50 and smoke rating of 250:
   1. Panel Thickness: 2-3/4 inches as indicated on drawings.
   2. Facing Sheets: translucent; smooth, with exterior face sheets .070 inch thick and interior face sheets .045 inch thick.
   3. Color: Exterior face sheets to be Crystal and Interior face sheets to be White.

C. Battens, Cover Strips, Cover Plates, and Integral Flashings: Extruded aluminum, to suit location and application; sized to rigidly retain panels in place.

D. Flashings:.040 inch thick aluminum, KCRF finish, secured with concealed fastening method.

2.04 SEALANT MATERIALS

A. Sealant and Backing Materials: As specified in Section 07900 of Types described below.

B. Perimeter Sealant: Type DOW 795.

2.05 FABRICATION

A. Fabricate system 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 weathertight.

C. Prepare components to receive anchor devices. Fabricate anchors per manufacturer's standard details.

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

E. Reinforce framing members for external imposed loads.

2.06 FINISHES

A. Finish Coatings: Conform to AAMA 2604.

B. Exterior Exposed Aluminum Surfaces:
   1. Fluoropolymer coating, Aluminum #79 color.

PART 3 EXECUTION

3.01 EXAMINATION

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

B. Verify wall openings and adjoining air barrier and vapor retarder materials are ready to receive work of this section.

3.02 INSTALLATION

A. Install translucent panel system in accordance with manufacturer 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 and align with adjacent work.

E. Install sill flashings.

F. Install perimeter sealant, backing materials, and installation criteria in accordance with Section 07900.

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 Panel System Members and Adjacent construction: Maximum of 3/4 inch.

3.04 FIELD QUALITY CONTROL

A. Provide the services of the manufacturer's field representative to observe installation and make report.

B. Independent inspection and testing will be provided under provisions of Section 01410.

C. Inspection will monitor quality of installation and glazing.

3.05 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.

3.06 PROTECTION

A. Protect finished work from damage.

END OF SECTION