

# CSI 3-Part Specification Provided by Enviralum Industries, Inc.

Note: this draft 3-part specification has been prepared by Enviralum to assist in the specification of window a wall and glazed assemblies. This document should be reviewed and edited by a qualified design professional to suit project requirements. Enviralum is not liable in any way for the information provided or the use of this specification.

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## SECTION 084400 – WINDOW WALL and GLAZED ASSEMBLIES

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Aluminum storefronts

#### 1.2 RELATED SECTIONS

- A. Section 081116 - Aluminum Doors and Frames.
- B. Section 079200 - Joint Sealants.
- C. Section 088110 - Glass Glazing.

#### 1.3 MATERIAL REFERENCES

- A. AAMA 501.3 - Field Check of Water and Air leakage through Installed Exterior Windows, Curtain Walls, and Doors by Uniform Air Pressure Difference.
- B. AAMA Specifications for Aluminum Structures.
- C. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- D. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- E. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- F. ASTM E 547 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.

#### 1.4 SYSTEM PERFORMANCE DESCRIPTION, STOREFRONTS

- A. Performance Requirements: Provide aluminum storefront systems that comply with

## CSI 3-Part Specification Provided by Enviralum Industries, Inc.

performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with Florida Building Code Protocol TAS 201-94, TAS 202-94, and TAS 203.

1. Air Infiltration: Completed storefront systems shall have 0.25 cfm/sf (0.37 m<sup>3</sup>/h m<sup>2</sup>) maximum allowable infiltration when tested in accordance with ASTM E 283 at differential static pressure of 6.24 psf (299 Pa).
2. Water Infiltration: No uncontrolled water other than condensation on indoor face of any component when tested in accordance with ASTM E 547 and ASTM E 331 at test pressure differential of 13.5 psf (647 Pa). Water test shall be performed immediately after design pressure test.
3. Wind Loads: Completed storefront system shall withstand wind pressure loads normal to wall plane indicated:

### A. ENV-450 Window Wall Systems

- 1) Exterior Walls With Steel Reinforcing:
    - a) Positive Pressure: 100 psf (4792 Pa).
    - b) Negative Pressure: 131 psf (6276 Pa).
  - 2) Exterior Walls Without Steel Reinforcing:
    - a) Positive Pressure: 100 psf (4792 Pa).
    - b) Negative Pressure: 100 psf (4792 Pa).
4. Deflection: Permanent deflection shall not exceed maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AAMA Specifications for Aluminum Structures.

## 1.5 SUBMITTALS

- A. Submit under provisions of Section 013300.
- B. Product Data: Submit product data for each storefront system specified.
- C. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish color and textures.
- D. Samples: Submit verification samples for colors on actual aluminum substrates indicating full color range expected in installed system.
- E. Quality Assurance and Quality Control Submittals:
  1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics and physical properties.
  2. Installer Qualification Data: Submit installer qualification data.

## CSI 3-Part Specification Provided by Enviralum Industries, Inc.

### 1.6 QUALITY ASSURANCE

#### A. Manufacturer Qualifications:

1. Manufacturer capable of providing pre-glazed storefront and doors to ensure factory seal of glass to aluminum and aluminum to aluminum joints.
2. Manufacturer capable of providing field service representation during construction, approving acceptable installer, and approving application method.

#### B. Installer Qualifications:

1. Installer experienced in performing the work of this Section who specializes in the installation of work similar to that required for this project. If requested by Owner, submit reference list of completed projects.

### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store products above grade and protect from soaking water, surface contamination, corrosion, construction traffic, and other damaging causes.

### 1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual measurements of openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

### 1.9 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
  1. Issue warranty in the legal name of the Project Owner.
  2. Warranty Period: \_\_\_ years commencing on the Date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Enviralum Industries Inc., which is located at 5100 NW 72<sup>nd</sup> Avenue Bldg. C; Miami, FL 33166 ; Tel: 305-752-4411 ; Fax: 305-406-3877; Email: [info@enviralum.com](mailto:info@enviralum.com); Web: [www.enviralum.com](http://www.enviralum.com)

## CSI 3-Part Specification Provided by Enviralum Industries, Inc.

- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 012500.

### 2.2 STOREFRONT SYSTEM

- A. General: Provide all materials, labor and equipment for the complete installation of the aluminum entrance system as shown on the drawings and specified herein.
- B. Storefront System: ENV-450 Impact Resistant Storefront System.
  - 1. Framing System: Extruded aluminum, front set fin-type open back head, jamb and sill member, fin snap on adjoining units, plain snap for shim and installation screws attached by screw spline joinery. Interior glazed with interior mounted, extruded aluminum snap-in glass stop.
  - 2. Components: Manufacturer's standard extruded aluminum mullions, entrance doors, framing and indicated shapes, perimeter anchor fillers and steel reinforcing.
  - 3. Glass for Large Missile Impact: Provided in Section 08800.
    - a. 9/16 inch (14 mm) heat strengthened laminated glass with 0.090 inch (2.3 mm) PVB interlayer. Level-D
    - b. 9/16 inch (14 mm) heat strengthened laminated glass with 0.090 inch (2.3 mm) SGP interlayer. Level-D
    - c. 1 5/16 inch (33 mm) heat strengthened insulated/laminated glass with 0.090 inch (2.3 mm) PVB interlayer & ½" spacer. Level-D
    - d. 1 5/16 inch (33 mm) heat strengthened insulated/laminated glass with 0.090 inch (2.3 mm) SGP interlayer & ½" spacer. Level-D
    - e. 1 1/16 inch (17 mm) heat strengthened laminated glass with 0.180 inch (4.6 mm) SGP interlayer. Level-E
    - f. 1 7/16 inch (37 mm) heat strengthened insulated/laminated glass with 0.180 inch (4.6 mm) SGP interlayer & ½" spacer. Level-E

### 2.3 MATERIALS

- A. Extrusions: 6063-T6 Aluminum Alloy, aluminum sheet.

### 2.4 ACCESSORIES

- A. Manufacturers Standard Accessories:
  - 1. Fasteners: Stainless steel tech screws.
  - 2. Glazing: Exterior structural silicone adhesive. Interior gasket secured with extruded glass stop.

## CSI 3-Part Specification Provided by Enviralum Industries, Inc.

3. Glazing Adhesive: Dow 991, Dow 995 or SIKA Sikasill SG-20 Structural Silicone Adhesives.
4. Thermal Break (ONLY AVAILABLE in the ENV-450) with a ¼" (64mm) separation consisting of a two-part chemically curing high density polyurethane, which is mechanically and adhesively joined to aluminum storefront sections.
  - a) Thermal Break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.

### 2.5 FABRICATION

- A. Shop Assembly: Fabricate and assemble units with joints only at intersection of aluminum members with uniform hairline joints; rigidly secure, and seal in accordance with manufacturer's written recommendations.
  1. Hardware shall be installed in accordance with the manufacture's written instructions.

### 2.6 FINISHES

- A. Painted Finish: (Standard Std.) Powder coat
- B. Painted Finish: (Optional) Thermally applied two-coat Kynar resin finish.
  1. Bone White: 70% Kynar.
  2. Arcadia Silver: 70% Kynar.
  3. Statuary Bronze: 70% Kynar.
  4. Custom Color: PPG color chip #\_\_\_\_\_.
- C. Anodized Finish: Prepare aluminum surfaces for specified finish; apply shop finish in accordance with the following:
  1. Clear Anodized (Class I): (Std.) Minimum 30 minute anodizing process.
  2. Bronze Anodized (Class II): (Std.) Minimum 15 minute anodizing process.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 PREPARATION

- A. Protect adjacent work areas and finish surfaces from damage during product installation.

## CSI 3-Part Specification Provided by Enviralum Industries, Inc.

- B. Aluminum Surfaces: Protect aluminum surfaces from contact with lime, mortar, cement, acids, and other harmful contaminants.

### 3.3 INSTALLATION

- A. General: Install system in accordance with approved shop drawings and within specified tolerances.
  - 1. Verify that framework is straight and plumb.
  - 2. Verify shim spacing around perimeter of frame.
  - 3. Verify metal joints are sealed in accordance with manufacturer's instructions.
  - 4. Seal metal to metal storefront system joints using sealant recommended by manufacturer.
  - 5. Verify that frame jamb is straight and plumb.
  - 6. Verify diagonal and flatness tolerances are not exceeded.
- B. Installation Tolerances: For gasket compression.
  - 1. Diagonal variation not to exceed 1/16 inch (1.6 mm).
  - 2. Flatness variation not to exceed 1/16 inch (1.6 mm).

### 3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Upon Owner's or Architect's request, provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
- B. Field Test: Conduct field tests to determine water tightness of storefront and entrance system. Conduct test in accordance with AAMA 501.3 at locations selected by Architect.

### 3.5 ADJUSTING AND CLEANING

- A. Adjusting: Adjust swing doors for operation in accordance with manufacturer's instructions.
- B. Cleaning: Clean in accordance with manufacturer's instructions.
- C. Protect installed product finished surfaces from damage during construction.

END OF SECTION