



# FL500 FRONT LINE STOREFRONT SYSTEM

## GUIDE SPECIFICATIONS

### SECTION 08410 ALUMINUM ENTRANCES AND STOREFRONTS

This suggested guide specification has been developed using the current edition of the Construction Specifications Institute (CSI) "Manual of Practice," including the recommendations for the CSI 3 Part Section Format and the CSI Page Format. Additionally, the development concept and organizational arrangement of the American Institute of Architects (AIA) MASTERSPEC Program have been recognized in the preparation of this guide specification. Neither CSI nor AIA endorse specific manufacturers and products. The preparation of the guide specification assumes the use of standard contract documents and forms, including the "Conditions of the Contract," published by the AIA.

#### PART 1 – GENERAL

##### 1.01 Summary

A. Section Includes: Coral Architectural Aluminum Storefront Systems, including perimeter trims, stools, accessories, shims and anchors, and perimeter sealing of storefront units.

1. Types of Coral Aluminum Hurricane-Resistant Framing Systems include:

- a. FL500 Framing System: 2-1/2" x 5"; Non-Thermal; Center Glazed for 9/16" laminated glass for Large Missile Impact-Resistant Glazing; Interior Structural Silicone Glazed; Screw Spline Fabrication.

EDITOR NOTE: BELOW RELATED SECTIONS ARE SPECIFIED ELSEWHERE, HOWEVER, CORAL ARCHITECTURAL PRODUCTS RECOMMENDS SINGLE SOURCE RESPONSIBILITY FOR ALL OF THESE SECTIONS AS INDICATED IN 2.07 SOURCE QUALITY CONTROL.

B. Related Sections:

1. Division 7 Section "Vapor Barriers" between glazed wall systems and adjacent construction
2. Division 7 Section "Fire Stopping"
3. Division 7 Section "Joint Sealants" for joint sealants installed as part of aluminum entrance and storefront systems
4. Division 8 Section "Aluminum Framed Mall Sliding Doors"
5. Division 8 Section "Aluminum Entrances and Storefronts"
6. Division 8 Section "Finish Hardware"
7. Division 8 Section "Glass and Glazing"
8. Division 8 Section "Glazed Aluminum Curtain Walls"
9. Division 8 Section "Aluminum Window Walls"

##### 1.02 References (Industry Standards)

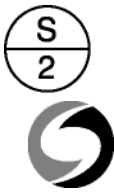
EDITOR NOTE: REFER TO INDEX FOR ANY AND ALL APPLICABLE STANDARDS.

##### 1.03 System Description

EDITOR NOTE: AIR AND WATER PERFORMANCE RESULTS ARE BASED UPON ASTM AND AAMA STANDARDS FOR STOREFRONT FRAMING SYSTEMS. HIGHER PERFORMANCE RESULTS HAVE BEEN CERTIFIED AND ARE AVAILABLE. CONSULT YOUR LOCAL CORAL ARCHITECTURAL REPRESENTATIVE CONCERNING SPECIFIC PROJECT PERFORMANCE REQUIREMENTS. THE SPECIFIER MUST SELECT GLASS AND MULLION COMBINATIONS FROM THE OPTIONS AND LIMITATIONS CHART PROVIDED IN 2.04 B. THE GLASS AND MULLIONS FUNCTION AS AN INTEGRAL UNIT. THESE COMBINATIONS ARE BASED ON ACTUAL PERFORMANCE TESTING AND CANNOT BE ALTERED WITHOUT SACRIFICING THE INTEGRITY OF THE SYSTEM.

A. Storefront System Performance Requirements:

EDITOR NOTE: PROVIDE WIND LOAD DESIGN PRESSURES IN PSF AND INCLUDE APPLICABLE BUILDING CODE AND YEAR EDITION.



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1. Wind loads: Provide framing system, include anchorage, capable of withstanding wind load design pressures of (\_\_\_\_) P.S.F. inward and (\_\_\_\_) P.S.F. outward. The design pressures are based on the (\_\_\_\_) Building Code; (\_\_\_\_) Edition.
2. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft<sup>2</sup> at static air pressure differential of 6.24 P.S.F.
3. Water Resistance: The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a minimum static air pressure differential of 12 P.S.F. as defined in AAMA 501.
4. Uniform Load: A static air design load of +70/-80 P.S.F. with steel reinforcing (60" Spacing x 120" Span) or +60/-60 P.S.F. without steel reinforcing (48" Spacing x 120" Span) shall be applied in the positive and negative direction in accordance with DCBCCO Protocol PA 202 and ASTM E 330. There shall be no deflection in excess of 1/180 of the span of any framing member. At a structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.4% of their clear spans shall occur.
5. Impact Resistance: Large Missile, tested in accordance with DCBCCO Protocols PA 201, PA 203, SBCCI SSTD-12 and ASTM E 1886.
6. Framing System shall provide direct structural attachment to substrate through perimeter framing sections eliminating blind seals or strap anchors.

### 1.04 Submittals

- A. General: Prepare, review, approve, and submit specified submittals in accordance with "Conditions of the Contract" and Division 1 Submittals Sections. Product data, shop drawings, samples, and similar submittals are defined in "Conditions of the Contract."
- B. Quality Assurance/Control Submittals:
  1. Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

### 1.05 Warranty

- A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
- B. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for entrance system as follows:
  1. Warranty Period: Two (2) years from Date of Substantial Completion of the project provided, however, that the Limited Warranty shall begin in no event later than six months from date of shipment by Coral. In addition, Hurricane Impact-Resistant entrance door corner construction shall be supported with a lifetime warranty for the life of the door under normal use.

### 1.06 Quality Assurance

- A. Qualifications:
  1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
  2. Manufacturer Qualifications: Manufacturer capable of providing field service representation during construction, approving acceptable installer and approving application method.
- B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

### 1.07 Delivery, Storage, and Handling

- A. Ordering: Comply with manufacturer's ordering instructions and scheduling requirements to avoid construction delays.
- B. Packing, Shipping, Handling, and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle framing material and components to avoid damage. Protect framing material against damage from elements, construction activities, and other hazards before, during and after framing installation.

## PART 2 – PRODUCTS

EDITOR NOTE: RETAIN BELOW ARTICLE FOR PROPRIETARY METHOD SPECIFICATION; ADD PRODUCT ATTRIBUTES, PERFORMANCE CHARACTERISTICS, MATERIAL STANDARDS, AND DESCRIPTIONS AS APPLICABLE. DO NOT USE THE PHRASE "OR EQUAL" / "OR APPROVED EQUAL," OR SIMILAR PHRASES. USE OF SUCH PHRASES CAUSES AMBIGUITY IN THE SPECIFICATIONS BECAUSE OF THE DIFFERENT INTERPRETATIONS AMONG THE DIVERGENT PARTIES OF THE CONSTRUCTION PROCESS AND READERS OF THE SPECIFICATIONS. SUCH PHRASES REQUIRE EXTENSIVE AND COMPLETE REQUIREMENTS (PROCEDURAL, LEGAL, REGULATORY, AND RESPONSIBILITY) FOR DETERMINING "OR EQUAL."



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### 2.01 Manufacturers (Acceptable Manufacturers/Products)

#### A. Acceptable Manufacturers:

1. Address: Coral Architectural Products  
3010 Rice Mine Road  
Tuscaloosa, AL 35406

#### Contact Numbers

- a. Telephone: 205-345-1013
- b. Fax: 800-443-6261
2. Proprietary Product(s)/System(s): Coral Architectural Products.
  - a. Coral Aluminum Hurricane Impact-Resistant Framing System
  - b. Series: Front Line FL500 Framing System
  - c. Framing Member Profile: 2-1/2" x 5" nominal dimension; Non-Thermal; Center Glazed; Interior Structural Silicone Glazed;  
Screw Spline Fabrication.
  - d. Finish/Color: (See 2.06 Finishes)

EDITOR NOTE: RETAIN BELOW FOR ALTERNATE MANUFACTURERS, PRODUCTS AS SPECIFIED IN THE CONTRACT DOCUMENTS. COORDINATE BELOW WITH BID DOCUMENTS (IF ANY), AND DIVISION 1 ALTERNATES SECTION. CONSULT WITH CORAL ARCHITECTURAL PRODUCTS FOR RECOMMENDATIONS ON ALTERNATE MANUFACTURERS AND PRODUCTS MEETING THE DESIGN CRITERIA AND PROJECT REQUIREMENTS. CORAL RECOMMENDS OTHER MANUFACTURERS REQUESTING APPROVAL TO BID THEIR PRODUCT AS AN EQUAL, MUST SUBMIT THEIR REQUEST IN WRITING (10) DAYS PRIOR TO CLOSE OF BIDDING.

#### B. Alternate (Manufacturers/Products): In lieu of providing below specified base bid/contract manufacturer, provide below specified alternate manufacturers. Refer to Division 1 Alternates Section.

1. Base Bid/Contract Manufacturer/Product: Coral Architectural Products
  - a. Coral Aluminum Hurricane Impact-Resistant Framing System
  - b. Series: Front Line Series FL500
  - c. Framing Member Profile: 2-1/2" x 5"; Non-Thermal; Center Glazed; Interior Structural Silicone Glazed;  
Screw Spline Fabrication.
2. Alternate # \_\_\_\_ Manufacturer/Product:
  - a. Product:
  - b. Series:
  - c. Product Attributes:
    - 1.) Framing Member Profile:
3. Alternate # \_\_\_\_ Manufacturer/Product:
  - a. Product:
  - b. Series:
  - c. Product Attributes:
    - 1.) Framing Member Profile:

#### C. Substitutions:

1. General: Refer to Division 1 Substitutions for procedures and submission requirements.
  - a. Pre-Contract (Bidding Period) Substitutions: Submit written requests ten (10) days prior to bid date.
  - b. Post-Contract (Construction Period) Substitutions: Submit written request in order to avoid storefront installation and construction delays.
2. Substitution Documentation
  - a. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
  - b. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for entrance system performance criteria.
  - c. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
  - d. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.
3. Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal change order signed by the Owner and Contractor.



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### 2.02 Materials

A. Aluminum (Framing and Components):

1. Material Standard: ASTM B 221, 6063-T6 alloy and temper.
2. Member Wall Thickness: Each framing member shall provide structural strength to meet the specified performance requirements.
3. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of storefront members are nominal and in compliance with AA Aluminum Standards and Data.

### 2.03 Accessories

A. Fasteners: Shall be corrosive resistant.

B. Gaskets: Exterior Glazing gaskets shall be extruded EPDM rubber. Interior Spacer shall be compatible with Silicone Sealant.

C. Perimeter Anchors: Anchors shall be identical to the types used for product certification testing for wood, concrete or steel substrates.

### 2.04 Related Materials

A. Sealants: Refer to Joint Treatment (Sealants) Section.

1. Structural silicone sealant to be Dow Corning 995.

B. Glass: Refer to Options and Limitations Chart below for "As Tested" qualified glass.

EDITOR NOTE: SELECT GLASS TYPE. (CONSULT WITH YOUR CORAL ARCHITECTURAL REPRESENTATIVE FOR ASSISTANCE).

### DADE COUNTY APPLICATIONS – OPTIONS AND LIMITATIONS CHART

DESIGN PRESSURE P.S.F.	INTERM. VERTICAL MULLION	WALL JAMB MULLION	MAXIMUM MULLION SPAN	MAXIMUM SPACING C TO C	MAX. GLASS SIZE		QUALIFIED GLASS TYPES
					D.L.O.	SQ FT.	
+60/-60	FL516/FL505 HEAVY MULL	FL501	120"	48"	45-1/2" X 96"	30.3	A-B-U
+65/-65	FL504/FL505	FL501	89"	48"	45-1/2" X 84"	26.5	A-B
+70/-80	FL504/FL505 W/SR504 STL	FL501	120"	60"	57-1/2" X 96"	38.3	U

GLASS TYPE	DESCRIPTION	MANUFACTURER
A	9/16" LAMINATED – 1/4" H.S. – 0.075 VS02 INTERLAYER – 1/4" H.S. N.O.A. 03-0514.15	SOLUTIA
B	9/16" LAMINATED – 1/4" H.S. – 0.090 PVB INTERLAYER–1/4" H.S N.O.A. 03-0105.02	SOLUTIA
U	9/16" LAMINATED – 1/4" H.S. – 0.120 UVEKOL INTERLAYER – 1/4" H.S N.O.A. 03-1117-.05	CORAL INDUSTRIES, INC.



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### 2.05 Fabrication

#### A. General:

1. Fabricate components per manufacturer's installation instructions and with 1/4" maximum shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
2. Accurately fit and secure joints and corners. Make joints flush, hairline and weatherproof.
3. Strap Anchors are not allowed for use with Hurricane Impact-Resistant Systems.
4. Arrange fasteners and attachments to conceal from view.
5. Structural perimeter fasteners shall be located per manufacturer's anchor charts bearing the seal of registered Professional Engineer.

EDITOR NOTE: SELECT BELOW FINISH AND COLOR FROM CORAL ARCHITECTURAL PRODUCTS' STANDARD COLORS. CUSTOM COLORS ARE AVAILABLE UPON REQUEST FROM CORAL. OTHER POWDER COATINGS CONFORMING TO AAMA 2603 ARE AVAILABLE. CONSULT WITH YOUR CORAL ARCHITECTURAL REPRESENTATIVE FOR OTHER SURFACE TREATMENTS AND FINISHES.

### 2.06 Finishes

#### A. Factory Finishing:

1. Color Anodizing Conforming to AA-M12C22A34, AAMA 608.1, Color Anodic Coating (Color: # 20 Dark Bronze) (Standard)
2. Clear Anodizing Coating Conforming to AA-M12C22A31, AAMA 607.1, Clear Anodic Coating (Clear # 10) (Standard)
3. DECAFLON™ (70%) Fluoropolymer, AAMA 2605, Thermosetting Fluorocarbon Powder Coating (Color: \_\_\_\_\_).
4. NEWLAR™ (100%) Fluoropolymer, AAMA 2605, Thermosetting Fluorocarbon Powder Coating Color: \_\_\_\_\_).
5. ARC2001™ AAMA 2604, Polyester Powder Coating. (Color: \_\_\_\_\_).
6. Other: Manufacturer \_\_\_\_\_ Type \_\_\_\_\_ (Color \_\_\_\_\_).

### 2.07 Source Quality Control

#### A. Source Quality: Provide aluminum framing specified herein from a single source.

1. Building Enclosure System: When aluminum framing is part of a building enclosure system, including entrances, entrance hardware, windows, curtain wall system and related products, provide building enclosure system products from a single source manufacturer.

#### B. Fabrication Tolerances: Fabricate aluminum framing in accordance with framing manufacturer's prescribed tolerances.

## PART 3 – EXECUTION

### 3.01 Examination

#### A. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with manufacturer's instructions. Verify openings are sized to receive storefront system and sill plate is level in accordance with manufacturer's acceptable tolerances.

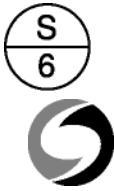
1. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

EDITOR NOTE: COORDINATE BELOW ARTICLE WITH MANUFACTURER'S RECOMMENDED INSTALLATION DETAILS AND INSTALLATION INSTRUCTIONS.

### 3.02 Installation

#### A. General: Install framing system in accordance with manufacturer's instructions and AAMA storefront and entrance guide specifications manual.

1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
2. Weather-tight Construction: Install sill members and other members in a bed of sealant or with joint filler or gaskets, to provide weather-tight construction. Coordinate installation with wall flashings and other components of construction.
3. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
4. Provide alignment attachments and shims to permanently fasten system to building structure.
5. Align assembly plumb and level, free of warp and twist. Maintain assembly dimensional tolerances aligning with adjacent work.



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### B. Related Products Installation Requirements:

1. Sealants (Perimeter): Refer to Division 7 Joint Treatment (Sealants).
2. Glass: Refer to Division 8 Glass and Glazing and Options and Limitations Chart for Front Line FL500 Hurricane Impact-Resistant System.
  - a. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

### 3.03 Field Quality Control

- A. Field Tests: Architect shall select storefront units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies must be corrected as part of the contract amount.
1. Testing: Testing shall be performed by a qualified independent testing agency. Refer to Division 1 Testing Section for payment of testing and testing requirements. Testing Standard per AAMA 503, including reference to ASTM E 783 for Air Infiltration Test and ASTM E 1105 Water Infiltration Test.
    - a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or  $0.09 \text{ cfm/ft}^2$ , which ever is greater.
    - b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 6.24 P.S.F.
- B. Manufacturer's Field Services: Upon Owner's request, provide manufacturer's field service consisting of product use recommendations and periodic site visit for inspection of product installation in accordance with manufacturer's instructions.

### 3.04 Protection and Cleaning

- A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum storefront system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.
- B. Cleaning: Repair or replace damaged installed products. Prior to owner's acceptance, clean installed products in accordance with manufacturer's instructions. Remove construction debris from project site and legally dispose of debris.

## DISCLAIMER STATEMENT

This guide specification is to be used by a qualified construction specifier. The guide specification is not intended to be verbatim as a project specification without appropriate modifications for the specific use intended. The guide specification must be used and coordinated with the procedures of each design firm, and the particular requirements of a specific construction project.

## END OF SECTION 08410

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