

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: concealed-fastener, recessed flat seam metal wall system including the following components:

1. Aluminum panels with integrated panel returns and retention clips
2. Sub-structure for a complete installation on wall, including: vertical joint backing, mounting sub-girt, anchorages, shims, expansion-contraction accommodating details
3. Parapet coping, soffits, border and filler items indicated as integral components of the panel system or as designed

B. Related Sections:

1. Div 01 Specification Sections, drawings and general provisions of the Contract
2. Div 05 Section "Cold-Formed Metal Framing" for support framing, including girt, studs, and bracing
3. Div 07 Section Sheet Metal Flashing and Trims for other sheet metal work that is not part of the metal wall panel assembly
4. Div 07 Section Sealants
5. Div 08 Section Steel doors and Frames and Stainless Steel Doors

1.3 DEFINITION

A. Assembly: Recessed flat seam panels, attachment system components, miscellaneous metal framing.

1.4 PERFORMANCE REQUIREMENTS

A. General Performance: Aluminum Interlocking Panel assembly shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Structural Performance: Provide Aluminum Interlocking Panel System capable of withstanding the effects of the following loads and stresses within limits and under conditions indicated, based on testing according to specified norm:

1. Deflection Limits: Façade Panels shall withstand wind loads with horizontal deflections no greater than $L/180$ of the span
2. Under 1.5 times design pressure, permanent deflection of framing members shall not exceed $L/180$ of span length and components shall not experience failure or gross permanent distortion
3. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss: 200 deg F range on the material surfaces

1.5 SUBMITTALS

A. Product Data: for each type of product indicated. Include construction details, material description, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

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- B. Shop Drawings: digitally define project layout and all building elevations to receive facade panels indicating all panel layouts, panels' interfaces at differing planes, and slopes. Show details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories, and special details. All panels are to be factory fabricated ready for field assembly.
- C. Samples for Verification:
 - 1. For each type of exposed finish prepare two samples of color or finish selected, size 4" x 4"
 - 2. For the Panel System Assembly: two samples of each type of assembly, minimum size 12" x 12"
 - 3. For Trim and Closures: one 12" long representative sample, including fasteners and other exposed accessories
 - 4. A four way mock-up of the system, if required
- D. Two copies of the manufacturer's literature for panels and system
- E. Alternative materials must be approved by the architect prior to the bid date
- F. Product Test Reports: based on evaluation of comprehensive tests performed by a qualified testing agency, for panels and system
- G. Maintenance Data: for Aluminum Interlocking Panel Assembly to include maintenance manuals
- J. WARRANTY: Manufacturer's Special Warranty on Aluminum panels: Manufacturer's standard form agreeing to repair or replace units that fail in material or workmanship within the specified warranty period.

Warranty Period: 5 years from ship date.

1.6 QUALITY ASSURANCE

- A. Aluminum Interlocking Panel Manufacturer shall have a minimum of 15 years experience in the manufacturing of this type of products
- B. Aluminum Perforated Panel Manufacturer to be solely responsible for panels' manufacturing in an ISO 9001 factory, and system fabrication
- C. Testing Agency Qualifications: qualified according to ASTM E 329 for testing indicated
- C. Source Limitations: obtain each type of panel from single source from single manufacturer
- D. Mockups: present system mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation:
 - 1. Present typical mockup for standard arrangement of panels; build representative mockup for specific conditions, if required by architect
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing
- E. Pre-installation Conference: conduct conference at Project site.
- F. Field measurements should be taken prior to the completion of shop fabrication. Coordinate fabrication schedule with construction progress to avoid delay of work. Field fabrication is to be reduced at minimum.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver panels, components, and manufactured items so as not to be damaged or deformed. Protect finish and edges according to panel manufacturer's recommendations.
- B. Store panels according to panel manufacturer's recommendations: stack panels horizontally on platforms or pallets, covered with suitable weather-tight and ventilated covering. Storing area has to ensure dryness with positive slope for drainage of water. Do not store panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Unload, store, and erect Façade System in a manner to prevent bending, warping, twisting, and surface damage.

1.8 REFERENCES

- A. Aluminum Association
 - 1. AA-M12C22A41 ~ Anodized, clear coating
 - 2. AA-M12C22A44 ~ Anodized, color coating
- B. American Architectural Manufacturers Association
 - 1. AAMA 609 & 610-02 ~ Cleaning and Maintenance Guide for Architecturally Finished Aluminum
 - 2. AFPA-91 ~ Anodic Finishes/Painted Aluminum
- C. American Society for Testing and Materials
 - 1. ASTM D1654 ~ Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environment
 - 2. ASTM D714 ~ Standard Test Method for Evaluating Degree of Blistering of Paints
 - 3. ASTM D2244-9b ~ Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
 - 4. ASTM D4214-07 ~ Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films

PART 2 – PRODUCTS

2.1 PANEL SYSTEM

- A. Panels
 - 1. QuadroClad™ Aluminum Interlocking Panel
 - a. Integrated attachment clips provided with gaskets
 - b. An all aluminum construction, 5000 series alloys, according to ASTM B209-07 and ASTM R0067
 - c. Thickness Minimum: .047 in, unless otherwise specified
 - d. Dimensions: height up to 30 in and length up to 192 in
 - e. Tolerances: Length: ± 0.196 in (5mm)/48", \pm Width: 0.125 in (3mm)/30"
 - f. Diagonal difference: ≤ 0.196 in (5mm)/48"
 - 2. Surface finishes:
 - a. Front-side Panel: Luxacote™, PVDF (Kynar), or Polyester
 - b. Back-side Panel: Mill Finish
 - c. Thickness: $\geq 25\mu\text{m}$, Gloss: 25 ± 7 units (60°)
 - d. Corrosion resistance: rating of 10 (max) for scribed and un-scribed panels, per ASTM D1654 (corrosive environment and ASTM D714 (degree of blistering)
 - e. UV resistance: 5 years Florida exposure with no checking, flaking, blistering, and chalking, color change ≤ 5 units, gloss retained $\geq 50\%$, per ASTM D4214
 - f. Any color meeting HDF standards
 - 3. Panel fire performance:
 - a. Class A, non-combustible composite per GB 8624-97
 - b. Class 0 (highest) surface fire performance, per BR1991
 - c. Flame spread Class 1 per BS 476 part 7
- B. Rainscreen System
 - 1. Plans, elevations, details, characteristics, and other requirements indicated are based upon standards by one manufacturer. It is intended that other manufacturers, receiving prior approval, may be acceptable, provided their details and characteristics comply with all

- requirements and performance standards. Replacements based on partial conformance are not accepted
2. Fabrication and finishing of Rainscreen System, panels, sub-structure, and accessories, done at factory, in a ISO 9001 accredited company, according to manufacturer's standard procedures and processes, as necessary to fulfill performance requirements demonstrated by laboratory testing
 3. Installation shall be such that the panels remain flat regardless of temperature change and at all times remain air and water tight
 4. The system is designed as to allow for expansion contraction in all directions in a temperature range of -22°F to 158°F
 5. System has no visible fasteners, and no other fastening to compromise a neat and flat appearance
 6. Joints are recessed, uniform and, of a dark color, and designed to contribute to the optimal drainage and back-ventilation of the Rainscreen – *depending on perforation patterns drainage maybe considered negligible*
 7. System performance:
 - a. Due to the flexibility in design, according to local conditions, the system can classify as a non-progressive system with recessed clean joints, designed for water drainage and back-ventilation

C. Miscellaneous Materials

1. Self-tapping screws, bolts, nuts, self-locking rivets and bolts, studs, and other suitable fasteners designed to withstand design loads. Recommended fasteners: 300 series stainless steel, as per ELCO Construction Products; structural calculations to be performed by a qualified engineer
2. Factory-formed metal soffit panels designed to be installed by lapping and inter-connecting side edges of adjacent panels, usually to match profile and material of wall panels
3. Sheet Metal Accessories: fabricated flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated

PART 3 – EXECUTION

3.1 GENERAL EXECUTION CONDITIONS

A. Inspection

1. Surfaces to receive panels shall be even, smooth, sound, clean, dry, and free from defects due to detrimental work. Do not proceed with erection until unsatisfactory conditions have been corrected
2. Surfaces to receive panels shall be structurally sound as determined by a registered Architect/engineer

B. Installation

1. Fasten the substructure on wall, plumb and level. The system is designed to allow for adjustment in order to maintain all panels in the same plan
2. panels shall be erected in accordance with an approved set of shop drawings
3. Anchor panels securely per engineering recommendations and in accordance with approved shop drawings
4. Conform to manufacturer's instructions for installation of concealed fasteners
5. Do not install component parts that are observed to be defective, including warped, bowed, dented, bruised, and broken panels

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6. Do not cut, trim, weld, or braze panels or components during erection; return component part which require alteration or replacement to manufacturer
7. Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action as recommended by system's manufacturer

C. Quality Control

1. Provide a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports
2. Provide a manufacturer-authorized field service representative to inspect and test completed system installation, including accessories.
3. Any additional tests and inspections required, will be performed at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements

D. Cleaning and Protection

1. Remove temporary protective coverings and strippable films, if any, as metal wall panels are installed within 30 days, unless otherwise indicated in manufacturer's written installation instructions
2. On completion of metal wall panel installation, clean finished surfaces as recommended by manufacturer. Maintain in a clean condition during construction
3. After panels installation, clear weep holes and drainage channels of obstructions and dirt
4. Replace metal wall panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures

END OF SECTION 07 415