USE THIS SECTION WHEN SPECIFYING C.R. LAURENCE EWS SERIES 100 STANDARD WET SEAL FOR ALUMINUM-FACED, STAINLESS STEEL, COPPER, OR TITANIUM COMPOSITE MATERIAL WALL PANEL SYSTEM.

This Specification Section is a manufacturer specific product Specification using the proprietary method of specifying applicable to project specifications and master guide specifications. Optional text is indicated by [ ]; delete optional text in final copy of Specification Section. This Section includes interior and exterior wall panels formed using Alpolic aluminum-faced composite material (ACM) or other metal composite material (MCM) face metal is available in aluminum, stainless steel, copper, or titanium.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior cladding consisting of formed aluminum-faced composite material (ACM) or other metal composite material (MCM) sheet, secondary supports, and anchors to structure, attached to solid backup. MCM sheet face metal

B. Matching flashing and trim.

1.02 RELATED REQUIREMENTS

A. Section 05 4000 - Cold Framed Metal Framing: Panel support framing.

B. Section 07 2500 - Weather Barriers: Weather barrier behind rainscreen wall system.

C. Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashing components integrated with this wall system.

D. Section 07 9005 - Joint Sealers.

1.03 REFERENCE STANDARDS


B. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.


I. ASTM D 4145 - Standard Test Method for Coating Flexibility of Prepainted Sheet; 1983
SECTION 07 4243

METAL COMPOSITE MATERIAL WALL PANELS

(Reapproved 2002).


Specifier's note: Article below includes submittal of relevant data to be furnished by Contractor before, during and after construction. Coordinate this Article with Architect's and Contractor's duties and responsibilities in Conditions of the Contract and Division 1 Submittal Procedures Section.

1.04 SUBMITTALS

A. Wall System Manufacturer Qualifications.

B. Product Data: ACM [MCM] sheet and Wall Panel manufacturer's data sheets on each product to be used, including thickness, physical characteristics, and finish, and:
   1. Finish manufacturer's data sheet showing physical and performance characteristics.
   2. Storage and handling requirements and recommendations.
   3. Fabrication instructions and recommendations.
   4. Specimen warranty for finish, as specified herein.

C. Shop Drawings: Show layout and elevations, dimensions and thickness of panels, ACM [MCM] sheet finishes and textures, connections, details and location of joints, sealants and gaskets, method of anchorage, number of anchors, supports, reinforcement, trim, flashings, and accessories.
   1. Indicate panel numbering system.
   2. Differentiate between shop and field fabrication.
   3. Indicate substrates and adjacent work with which the wall system must be coordinated.

D. Samples: Submit _____ selection and verification samples of ACM [MCM] wall panel, ____ inch (____ mm) by ____ inch (____ mm) in size illustrating finish color, sheen, and texture.
   1. Selection samples: Manufacturer's color charts or chips illustrating full range of colors, finishes and textures available for ACM [MCM] with factory-applied finishes.
   2. Verification samples:
      a. Structural: 24 inch by 24 inch sample ACM [MCM] wall panel assembly, including intersection of 4 wall panels, in thickness specified, including Z-clips, stiffeners, substrate supports, and sealant for assembly approval.
      b. Include separate samples with factory applied finish on 6 inch by 6 inch ACM [MCM], of each color and finish selected for project.

E. Installer's Qualifications: Include a minimum of three (3) projects with similar types of exterior ACM [MCM] wall panels, with facility contact information.

F. Certificate: Certify that the work results of this section meet or exceed specified requirements.

G. Manufacturer's installation instructions.

H. Manufacturer's Field Reports: Provide within 48 hours of field review. State what was observed and what changes, if any, were requested or required.
I. Maintenance Data: Care of finishes and warranty requirements.

J. Executed Warranty: Submit warranty and ensure that forms have been completed in CRL’s name and registered with manufacturer.

Specifier’s note: Article below to include qualifications, prerequisites, standards, limitations, and criteria to establish the requirements for the level of quality for products and workmanship for the work of this section. Coordinate Article with Division 1 Quality Assurance Section.

1.05 QUALITY ASSURANCE

A. Field Measurements: Verify actual dimensions by field measurement before fabrication; show recorded measurements on shop drawings.

B. Wall System Manufacturer Qualifications: Company specializing in manufacturing products specified in this section.
   1. Approved by MCM sheet manufacturer.

C. Installer Qualifications: Experienced in performing work of the type specified in this section.
   1. With minimum 3 years of documented experience in installation of MCM wall panel system similar to the work of this section.
   2. Approved by wall system manufacturer.

D. Design Engineer's Qualifications: When required by building authority having jurisdiction, Design structural supports and anchorages under direct supervision of a Structural Engineer experienced in design of this type of Work and licensed in [insert job specific state, or location].

E. Testing Agency Qualifications: Independent agency experienced in testing assemblies of the type required for this project and having the necessary facilities for full-size mock-up testing of the type specified.

Specifier’s note: Retain paragraph below if mock-up assemblies; erected either on-site, or off-site, are required. Mock-ups can be used to establish standards of quality for workmanship, review of construction sequence/operation, and coordination of work of related sections. Coordinate with Division 1 Quality Control Section; Mock-up requirements.

F. Mock-Up: Provide a mock-up for evaluation of fabrication workmanship.
   1. Locate on project site at an off-site location.
   2. Provide panels finished as specified.
   3. Mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
   1. Protect finishes by applying heavy duty removable plastic film during production.
   2. Package for protection against transportation damage.
   3. Provide markings to identify components consistently with drawings.
   4. Exercise care in unloading, storing and installing panels to prevent bending, warping,
twisting and surface damage.

B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.07 WARRANTY

A. Wall System Warranty:  Provide written warranty by manufacturer, agreeing to correct defects in manufacturing within a 5 [10] [20] year period after Date of Substantial Completion.

B. ACM [MCM] Sheet Manufacturer’s Finish Warranty:  Provide manufacturer’s written warranty stating that the finish will perform as follows for minimum of _____ years:
   1. Chalking: No more than that represented by a No.8 rating based on ASTM D 4214.
   2. Color Retention: No fading or color change in excess of 5 Hunter color difference units, calculated in accordance with ASTM D 2244.
   3. Gloss Retention: Minimum of 30 percent gloss retention, when tested in accordance with ASTM D 523.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Composite Material Sheet Manufacturers:
   1. ALPOLIC-Mitsubishi Chemical FP America, Inc; 401 Volvo Parkway, Chesapeake, VA 23320; Tel: (800) 422-7270; Fax: (757) 436-1896; Email: info@alpolic.com: www.alpolic-usa.com.
   2. Substitutions: See Section 01 6000 - Product Requirements.

B. Wall Panel System Manufacturers:
   1. C.R. Laurence Co., Inc., P.O. Box 58923, Los Angeles, CA 90058-0923; Tel: (800) 421-6144 or (323) 588-1281 Ext. 7770; Fax: (866) 921-0532 or (323) 584-5226; Email: archmetals@crlaurence.com.
   2. Substitutions: No substitutions are permitted.

2.02 MATERIALS

A. Aluminum-faced Composite Material (ACM) [Metal Composite Material (MCM)] Sheet:  Two sheets of aluminum [stainless steel] [copper] [titanium with stainless steel backer sheet] sandwiching a solid core of extruded [fire resistive Alpolic/fr] thermoplastic material formed in a continuous process with no glues or adhesives between dissimilar materials; core material free of voids and spaces; no foamed insulation material content.
   1. Overall Sheet Thickness:  4 mm [3mm thickness available upon request].
   2. Face Sheet:  Aluminum alloy 3105 H14, 0.020 inches (0.50 mm), minimum [Titanium 0.3 mm and 0.3 mm stainless steel backer sheet].
   3. Panel size: As indicated on Drawings; 4 ft by x 15 ft maximum panel size.
   4. Bond strength: 1500 psi (10.3 MPa) minimum when tested in accordance with ASTM C297.
   5. Peel Strength: No adhesive failure of the bond between the core and the skin nor cohesive failure of the core itself below 22.4 inch-pound/inch (100 N-mm/mm) with no degradation in bond performance, when tested in accordance with ASTM D 1781, simulating resistance to panel delamination, after 8 hours of submersion in boiling water and after 21 days of immersion in water at 70 degrees F (21 degrees C).
   6. Fire performance: Flame spread: 0, maximum; smoke developed;10 maximum; when tested in accordance with ASTM E 84. [Fire resistive Alpolic/fr core has higher flash point and ignition temperature than standard core, and has been tested to UBC 26-9 Intermediate Scale Multi Story Apparatus Test - Passed (4 and 6 mm thickness), and UBC 26-3 Room Corner Test - Passed (4 mm thickness).]
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7. Surface flammability (Modified ASTM E108): Passed.
8. Factory Finish: One coat fluoropolymer resin coating, approved by the coating manufacturer for the length of warranty specified for the project, and applied by coil manufacturing facility that specializes in coil applied finishes. Meets or exceeds values expressed in AAMA 2605 for coil coatings.
   a. Basis of Design: _____ fluoropolymer resin coating as manufactured by _____.
   c. Long-Term Performance: Not less than that specified under WARRANTY in PART 1.
9. Color/Texture: As selected from manufacturer's standard color selections below. Custom colors available upon request.
   a. Aluminum Series:
      1) EWS100CBW Composite - Bone White
      2) EWS100CCM Composite - Champagne Metallic
      3) EWS100CMP Composite - Mica Platinum
      4) EWS100CSM Composite - Silver Metallic
      5) Custom colors available upon request
   b. Stone Series:
      1) EWS100CBG Composite - Black Granite
      2) EWS100CWM Composite - White Marble Exotic
   c. Metals Series:
      1) EWS100CCP Composite - Copper
      2) EWS100CBS Composite - Stainless Steel
      3) EWS100CT Composite - Titanium
10. ACM [MCM] sheet production tolerances:
    a. Width: plus or minus 0.04 inch in 3 feet (1mm in 1m).
    b. Length: plus or minus 0.04 inch in 3 feet (1mm in 1 m).
    c. Thickness (4 mm sheet): plus or minus 0.008 inch (0.2 mm).
    d. Bow: Maximum 0.5% length or width.
    e. Squareness: Maximum 0.2 inch (5.1mm).
    f. Edges of sheet shall be square and trimmed with no displacement of aluminum sheets or protrusion of core material.

B. Metal Framing Members: Include zee-clips, stiffeners, base and sill angles and channels, hat-shaped and rigid channels, and furring channels required for complete installation.
   1. Aluminum extrusions: ASTM B 221, 6063-T6 alloy, with mill finish. Z-clips, stiffeners and angles as recommended by manufacturer.
   2. Provide material strength, dimensions, configuration as required to meet the applied loads applied and in compliance with applicable building code.
   3. Stainless Steel Sheet Components: ASTM A 480/A 480M.

C. Anchors, Clips and Accessories:
   1. Stainless steel complying with ASTM A 480/A480M, ASTM A 276 or ASTM A 666.

D. Fasteners:
   1. Exposed fasteners: Stainless steel; permitted only where absolutely unavoidable and subject to prior approval of the Architect [Owner].
   2. Screws: Self-drilling or self-tapping Type 410 stainless steel or zinc-alloy steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of metal wall panels.
   3. Rivets: Aluminum blind rivets.
   4. Fasteners for Flashing and Trim: Blind fasteners of high-strength aluminum or stainless steel.
   5. Tape: 3M VHB conformable tape, 1/2 inch wide by 1/16 inch thick closed cell acrylic foam carrier, conformable tape, 200 degree F long term temperature resistance, 300 degree F
short term. Very good adhesion to painted surfaces and high solvent resistance.

E. Joint Sealer: Silicone silicone sealant: CRL 95C, as approved by MCM sheet manufacturer.
2.03 WALL PANEL SYSTEM

A. Wall Panel System: Metal panels, fasteners, and anchors designed to be supported by framing or other substrate provided by others; provide installed panel system capable of maintaining specified performance without defects, damage or failure.
   1. When required by building authority having jurisdiction, provide structural design by or under a licensed Structural Engineer licensed in [insert job specific state, or location].
   2. Provide panel jointing and weatherseal using a "wet," sealant sealed system.
   3. Anchor panels to supporting framing without exposed fasteners.

B. Panels: One inch (2.5 mm) deep pans formed of metal composite material sheet by routing back edges of sheet, removing corners, and folding edges.
   1. Panels are "V" cut using CNC routing machine. Holes for Z-clips are pre-drilled.
   2. Holes for Z-clips are pre-drilled during fabrication. Drill machine is programmed using Mastercam X software.
   3. Panels are bent using press brakes.
   4. Curve forming is by plate roller.
   5. Z-clips are attached to panels using 3/16 inch dia. rivets; 2 rivets per clip. Z-clips are 4 inches in length offset from each other, or full length, overlapping each other with one side 1/8 inch longer than the other. Attach full length Z-clips to panel with rivets at 8 inch on center.
   6. Stiffeners are attached to panels over 36 inches in length.
   7. Reinforce corners with riveted aluminum angles.
   8. Provide concealed attachment to supporting structure by adhering attachment members to back of panel; attachment members may also function as stiffeners.
   9. Maintain maximum panel bow of 0.8 percent of panel dimension in width and length; provide stiffeners of sufficient size and strength to maintain panel flatness without showing local stresses or read-through on panel face.
   10. Reinforce panels with aluminum stiffeners. Attach stiffeners to back face of panels with 3M VHB tape conformable foam tape.
   11. Attach aluminum zee clips to back face of panels at each edge with 3/16 inch aluminum blind rivets.
   12. Fabricate panels under controlled shop conditions.
   13. Incorporate actual field measurements into fabrication Drawings.
   14. Where final dimensions cannot be established by field measurement before commencement of manufacturing, make allowance for field adjustments without requiring field fabrication of panels. Field routing, bending forming of ACM [MCM] panels is not acceptable.
   15. Fabricate as indicated on drawings and as recommended by ACM [MCM] sheet manufacturer.
      a. Make panel lines, breaks, curves and angles sharp and true.
      b. Keep plane surfaces free from warp or buckle.
      c. Keep panel surfaces free of scratches or marks caused during fabrication.
      d. Panels are packaged, and shipped with zee clips and stiffeners attached to panels.
   16. Provide joint details providing a watertight and structurally sound wall panel system that allows no uncontrolled water penetration on inside face of panel system.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and interfaces with other work are acceptable for MCM panel installation.
B. Verify substrate on-site to determine that conditions are acceptable for product installation in accordance with manufacturers written instructions.

C. Verify subgirts have been installed perpendicular to panel length, securely fastened to substrates and shimmed and leveled to uniform plane. Space at intervals indicated.

D. Notify in writing of conditions detrimental to proper and timely completion of work. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.02 PREPARATION
A. Protect adjacent work areas and finish surfaces from damage during installation.

3.03 INSTALLATION
A. Do not install products that are defective, including warped, bowed, dented, and broken members, and members with damaged finishes.

B. Comply with instructions and recommendations of MCM sheet manufacturer and wall system manufacturer, as well as with approved shop drawings.

C. Install wall system securely allowing for necessary thermal and structural movement; comply with wall system manufacturer's instructions for installation of concealed fasteners.

D. Do not rout, bend, or otherwise form panels in field unless required by wall system manufacturer and approved by the; comply with MCM sheet manufacturer's instructions and recommendations for field forming.

E. Separate dissimilar metals; use gasket fasteners, isolation shims, or isolation tape where needed to eliminate possibility of electrolytic action between metals.

F. Where joints are designed for field applied sealant, seal joints completely with specified sealant.

G. Install square, plumb, straight, and true, accurately fitted, with tight joints and intersections maintaining the following installation tolerances:
   1. Variation From Plane or Location: 1/2 inch in 30 feet (10 mm in 10 m) of length and up to 3/4 inch in 300 feet (20 mm in 100 m), maximum.
   2. Deviation of horizontal and vertical alignment of installed MCM panels: 0.25 inch in 20 feet (6.4 mm in 6.1 m), noncumulative.
   3. Offset From True Alignment Between Two Adjacent Members Abutting End To End, In Line: 0.03 inch (0.75 mm), maximum.

H. Replace damaged products.

3.04 FIELD QUALITY CONTROL
A. Wall System Manufacturer's Field Services: Provide field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with instructions.

3.05 CLEANING
A. Repair panels with minor damage such that repairs are not visible from a distance of 10 feet (3 m).

B. Remove and replace panels that cannot be repaired.

C. Remove protective film after installation of joint sealers, after cleaning of adjacent materials, and immediately prior to completion of work.

D. Remove temporary coverings and protection of adjacent work areas.
E. Clean installed products in accordance with manufacturer’s instructions.

END OF SECTION