SECTION 07 42 13.23 - METAL COMPOSITE MATERIAL WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes metal composite material wall panels.

A. Related Sections:

1. Section 01 81 13 "Sustainable Design Requirements" for additional LEED requirements.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal composite material panel Installer, metal composite material panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal composite material panels, installers of exterior wall components, flashings and joint treatment materials.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal composite material panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect metal composite material panels.
6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for metal composite material panel assembly during and after installation.
8. Review procedures for repair of panels damaged after installation.
9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. LEED Documentation Submittals:

1. Comply with submittal requirements of Division 01 Section "LEED Sustainable Design Requirements" including, but not limited to:

    a. LEED Criteria Worksheet.
    b. Recycled Content Information.
    c. Regional Materials Information.
    d. LEED Materials and Resources Calculator.

C. Shop Drawings:

1. Include fabrication and installation layouts of metal composite material panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trim, flashings, closures, and accessories; and special details.
2. Accessories: Include details of the flashing, trim and anchorage, at a scale of not less than 1-1/2 inches per 12 inches.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Composite Material Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal composite material panel accessories.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each product, tests performed by a qualified testing agency.

C. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal composite material panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockup of typical metal composite material panel assembly as shown on Drawings, including corner, soffits, supports, attachments, and accessories.
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.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal composite material panels, and other manufactured items so as not to be damaged or deformed. Package metal composite material panels for protection during transportation and handling.

B. Unload, store, and erect metal composite material panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal composite material panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal composite material panels to ensure dryness, with positive slope for drainage of water. Do not store metal composite material panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal composite material panels during installation.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal composite material panels to be performed according to manufacturers' written instructions and warranty requirements.

1.9 COORDINATION

A. Coordinate metal composite material panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal composite material panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Two years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal composite material panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period:
a. CT-1 (Secondary Material): 20 years from date of Substantial Completion.
b. CT-3 (Primary Material): 30 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal composite material panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 330:

1. Wind Loads: As indicated on Drawings.
2. Other Design Loads: As indicated on Drawings.
3. Deflection Limits: Engineer panel assemblies to withstand test pressures with deflection no greater than 1/480 of the span and no evidence of material failure, structural distress, or permanent deformation exceeding 0.2 percent of the clear span.

a. Test Pressures: 150 percent of inward and outward wind-load design pressures.

B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, 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.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

C. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

D. Fire Propagation Characteristics: Metal composite material wall panel system passes NFPA 285 testing.

2.2 METAL COMPOSITE MATERIAL WALL PANELS

A. Metal Composite Material Wall Panel Systems: Provide factory-formed and -assembled, metal composite material wall panels fabricated from two metal facings that are bonded to a solid, extruded thermoplastic core; formed into profile for installation method indicated. Include attachment assembly components, panel stiffeners, and accessories required for weathertight system.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Citadel Architectural Products, Inc.; "Envelope 2000 Rainscreen (RS) System."

1) Color and Finish: Refer to "Exterior Finish Schedule" located on Drawings.

b. Arconic; "Reynobond FR."

1) Color and Finish: Refer to "Exterior Finish Schedule" located on Drawings.

B. Aluminum-Faced Composite Wall Panels: Formed with 0.020-inch- thick, aluminum sheet facings.

1. Panel Thickness: 0.157 inch.
2. Core: Fire retardant.

C. Attachment Assembly Components: Formed from extruded aluminum.

D. Attachment Assembly: Rainscreen principle system.

2.3 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C 645, cold-formed, metallic-coated steel sheet ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal composite material panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal composite material panels unless otherwise indicated.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal composite material panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal composite material panels.

D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal composite material panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

E. Panel Sealants: ASTM C 920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal composite material panels and remain weathertight; and as recommended in writing by metal composite material panel manufacturer.

2.4 FABRICATION

A. General: Fabricate and finish metal composite material panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.5 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Aluminum Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Exposed Anodized Finish:

    a. Clear Anodic Finish: AAMA 611, AA-M12C22A41, Class I, 0.018 mm or thicker.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal composite material panel supports, and other conditions affecting performance of the Work.

1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal composite material wall panel manufacturer.
2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal composite material wall panel manufacturer.

    a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and assemblies penetrating metal composite material panels to verify actual locations of penetrations relative to seam locations of metal composite material panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal composite material panel manufacturer's written recommendations.

3.3 METAL COMPOSITE MATERIAL PANEL INSTALLATION

A. General: Install metal composite material panels according to manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to supports unless otherwise indicated. Anchor metal composite material panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal composite material panels.
2. Flash and seal metal composite material panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal composite material panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal composite material panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Align bottoms of metal composite material panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Aluminum Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal composite material panel manufacturer.

D. Attachment Assembly, General: Install attachment assembly required to support metal composite material wall panels and to provide a complete weathertight wall system, including subgirts, perimeter extrusions, tracks, drainage channels, panel clips, and anchor channels.

1. Include attachment to supports, panel-to-panel joinery, panel-to-dissimilar-material joinery, and panel-system joint seals.

E. Rainscreen-Principle Installation: Install using manufacturer's standard assembly with vertical channel that provides support and secondary drainage assembly, draining at base of wall. Notch vertical channel to receive support pins. Install vertical channels supported by channel brackets or adjuster angles and at locations, spacings, and with fasteners recommended by manufacturer. Attach metal composite material wall panels by inserting horizontal support pins into notches in vertical channels and into flanges of panels. Leave horizontal and vertical joints with open reveal.

1. Install wall panels to allow individual panels to be installed and removed without disturbing adjacent panels.
2. Do not apply sealants to joints unless otherwise indicated.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal composite material panel assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal composite material panel manufacturer; or, if not indicated, provide types recommended in writing by metal composite material panel manufacturer.

a. Coping: Mechanically secure metal composite panel copings and seal horizontal and vertical joints between adjacent metal panel material with sealant backing and sealant. Install sealant backing and sealant according to requirements specified in Section 07 92 00 "Joint Sealants."

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.4 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal composite material wall panel units within installed tolerance of 1/4 inch in 20 feet, non-accumulative, on level, plumb, and location lines as indicated, and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.5 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal composite material panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal composite material panel installation, clean finished surfaces as recommended by metal composite material panel manufacturer. Maintain in a clean condition during construction.

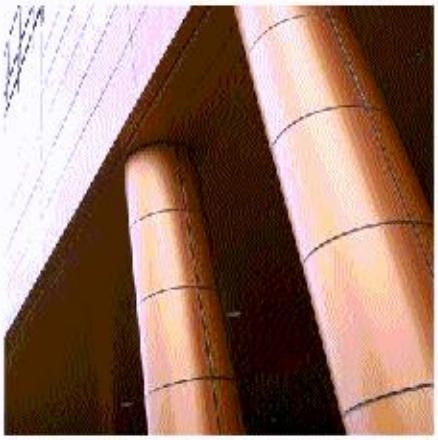
B. After metal composite material panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

C. Replace metal composite material panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 42 13.23

EMBRACE **THE GRID...**

The grid structure of a cladding system creates an inherent design opportunity to express a number of visual statements. From the subtilty of a mono ithic approach to the attention-grabbing look of Mondrian-inspired elements. this simple combination of lines and color offers endless possibilities. **So embrace the grid, and then highlight it with color!**



STOCK PVDF FINISHES

- no min quantity, no set-up charge
- 2 week standard lead time

30 YEAR WARRANTY

Guaranteed performance just got better. As an industry benchmark, Kynar 500® coatings have long been known for quality and durability. Now, these coatings have become even better with the introduction of 'cool' technology providing enhanced performance for longer... guaranteed.

SERIES F: Standard Kynar 500® (.024")

CT-3

Color	SRI
ARCTIC WHITE	✻ 89
RESERVE WHITE	✻ 87
SHASTA WHITE	✻ 85
SILVER GREY	✻ 59
SLATE GREY	✻ 37
CHARCOAL GREY	✻ 30
BONE WHITE	✻ 80
SANDSTONE	✻ 66
PUEBLO BEIGE	✻ 64
SIERRA TAN	✻ 37
MEDIUM BRONZE	✻ 31
STATUARY BRONZE	✻ 30
EBONY	0

✻ DURANAR® ULTRA-COOL® Coatings

- greater solar reflectivity
- increased energy efficiency
- exceptional color stability
- superior chalk and fade resistance

SERIES G: Premium Kynar 500® (.024")

Color	SRI
SKY BLUE	✻ 32
REGAL BLUE	✻ 33
TERRA COTTA	✻ 37
REGAL RED	✻ 45
COLONIAL RED	✻ 30
BRANDYWINE	29
PATINA GREEN	✻ 42
HEMLOCK GREEN	✻ 29
SHERWOOD GREEN	✻ 26
HARTFORD GREEN	4
MANSARD BROWN	✻ 27
EXTRA DARK BRONZE	

✻ Indicates ULTRA-COOL colors. 32 - Indicates the Solar Reflectivity Index (SRI). Higher [illegible] greater reflectivity and less heat gain.

> - Indicates a directional, or specific material. When specifying material for a project, panels with these finishes must be installed in the same direction (180° not acceptable).

STOCK PVDF FINISHES *(continued)*

30 YEAR WARRANTY

The beauty of color, the shine of metal. Mixing mica or metallic flakes within the paint coating allows the base color to offer additional pop, bringing depth to the building elevation. This look is further enhanced by the way in which these flakes reflect the light from different viewpoints.

SERIES H: Standard Kynar 500® Mica/Metallic (.024")

- SILVER METALLIC > 72
- PLATINUM > 57
- NORTH SEA MIST > 47
- PEWTER > 26
- GUN METAL > 28
- LIQUID COPPER > 42
- ATLANTIC SUNRISE > 55
- CHAMPAGNE METALLIC > 59
- CHAMPAGNE BRONZE > 39
- DESERT SAND > 48

STOCK ANODIZED FINISHES

- no min quantity, no set-up charge
- 2 week standard lead time

20 YEAR WARRANTY

Actual anodized aluminum. These finishes are chemically and electrically produced (not just an anodic-look paint), and offer an excellent complement to storefont and glazing system extrusions.

SERIES I: Standard Anodized (.024")

- CLEAR SATIN ANODIZED > CT-1

SERIES J: Premium Anodized (.024")

- CHAMPAGNE ANODIZED >
- MEDIUM BRONZE ANODIZED >
- DARK BRONZE ANODIZED >
- BLACK ANODIZED >

- Anodized finishes are Exterior Standard No. 1
- Class I or Class II anodizing is available as a premium custom finish. However, the warranty remains the same and fabrication difficulties will result (increased crazing, cracking) due to the film thickness.

Need a custom color to match your standards? 1) submit your color sample to our sales staff, 2) approve the resulting color match, and then 3) the order will be ready to ship in 4 to 6 weeks for quantities less than 7,500 sq ft. or 8 to 10 weeks for quantities greater than 7,500 sq ft.

CATEGORY	TYPE	COMPOSITION	FEATURES & BENEFITS	DESCRIPTION	AVAILABILITY BY PRODUCT: Panel 15"	SinoCore®	ProCore™	Panel 20"	Envelope 2000® RV / DRV	Envelope 2000® RR / RS	GlazeGuard®
SERIES A,D	1-Coat[1] Textured/Smooth Polyester	D - color coat B - pretreatment A - aluminum skin	• **economical choice for coatings** • durable, hard surface • available in a wide range of colors	Thermosetting paint system applied with similar techniques to PVDF (based on volume).	•	•	•				•
SERIES B	1-Coat Textured Acrylic Urethane	D - color coat C - primer B - pretreatment A - aluminum skin	• **used for premium/custom colors** • similar in performance to polyester • good gloss retention and weatherability	Two-component cross-linked system applied with electrostatic or conventional spray equipment.		•	•	•	•	•	•
SERIES F,G	2-Coat Smooth PVDF	D - color coat C - primer B - pretreatment A - aluminum skin	• **industry benchmark for quality** • unsurpassed color retention, chemical resistance and film erosion resistance	Heat-set coating using 70% Kynar 500® or Hylar 5000® resins.		•	•	•	•	•	•
SERIES H	2-Coat Smooth PVDF	D - color coat C - primer B - pretreatment A - aluminum skin	• **metallic look with mica flake** • performance same as standard 2-coat smooth PVDF	Heat-set coating using 70% Kynar 500® or Hylar 5000® resins with mica flakes.		•	•	•	•	•	•
SERIES I,J	Integral Anodized	• nickel hydrate seal • colorant[2] • aluminum oxide • barrier • aluminum skin	• **not an anodic look or paint,** but a true integral anodized aluminum to match storefront and window extrusions	Transparent or colored oxidized finish integral to the base aluminum induced with electricity and chemicals.		•	•	•	•	•	•

1 - Primer is present on Pearl White and Dallas Gray.
2 - Clear Satin Anodized does not use a colorant.
3 - Series C and Series F have been discontinued.

Citadel Architectural Products, Inc.
3131-A North Franklin Road
Indianapolis, Indiana 46226
phone (317) 894-9400 • (800) 446-8878
fax (317) 894-6333 • (800) 247-2635
www.citadelap.com • info@citadelap.com

ISO 9001

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