SECTION 09 78 13 – METAL INTERIOR WALL AND CEILING PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes metal-faced composite ceiling and bulkhead faces **ACM-01, ACM-02**.

B. Related Sections:

1. Division 05, Section 05 40 00 “Cold-Formed Metal Framing”.
2. Division 09, Section 09 21 00 “Gypsum Board Assemblies”.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal-faced composite panel and accessory.

B. Shop Drawings: Show fabrication and installation layouts of metal-faced composite panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, closures, and accessories; and special details. Distinguish among factory-, shop-, and field-assembled work.

1. Accessories: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches:

   a. Flashing and trim.

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

1. Metal-Faced Composite Panels: Minimum 12 x 12 inches. Include four-way joint.
2. Trim and Closures: 12 inches long. Include fasteners and other exposed accessories.
3. Accessories: 12-inch- long Samples for each type of accessory.
4. Exposed Gaskets: 12 inches long.
5. Exposed Sealants: For each type and color of joint sealant required. Install joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of metal-faced composite panels adjacent to joint sealants.

D. Fabrication Engineering and Design Submittals: Submit comprehensive engineering analysis and Shop Drawings including analysis data signed and sealed by the qualified professional engineer, licensed in the state / jurisdiction of the project, responsible for their preparation indicating compliance with requirements specified. Submission shall include

1. Analysis for applicable loads on framing members including backup cold formed metal wall.
2. Analysis for applicable loads on anchors and support system for the project.
3. Structural calculations and details of anchoring system, including type, size, and spacing of fasteners.

E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

F. Maintenance Data: For each type of metal wall panels to include in maintenance manuals.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of metal-faced composite panel from single source from single manufacturer.

1.4 DELIVERY, STORAGE, AND HANDLING

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

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

C. Store metal-faced composite panels vertically, covered with suitable weathertight and ventilated covering. Do not store metal- faced composite panels in contact with other materials that might cause staining, denting, or other surface damage. Do not allow storage space to exceed 120 deg F.

D. Retain strippable protective covering on metal-faced composite panel for period of panel installation.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify locations of structural members and dimensions by field measurements before metal-faced composite panel fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Air Infiltration: Air leakage through assembly of not more than 0.06 cfm/sq. ft. of area when tested according to ASTM E 283 at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.

B. Water Penetration Under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:

1. Test-Pressure Difference: 10.0 lbf/sq. ft.

C. Structural Performance: Provide metal-faced composite panel assemblies capable of withstanding the effects of seismic loads, live and dead loads, structural movement, and deflections.

D. Deflection Limits: No greater than 1/240 of the span and no evidence of material failure, structural distress, or permanent deformation exceeding 0.2 percent of the clear span.

2.2 ALUMINUM COMPOSITE MATERIAL PANELS

A. Aluminum Composite Panels: Provide factory-formed and assembled panels fabricated from two metal facings bonded to a solid, extruded thermoplastic core; formed into profiles for installation method indicated. Include attachment assembly components, panel stiffeners, and accessories required for a complete system.

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

   a. ALPOLIC Materials; Mitsubishi Chemical Composites; ALPOLIC/fr.
   b. ALUCOBOND; 3A Composites USA, Inc; ALUCOBOND PLUS.
   c. Alfrex, LLC [Alfrex FR ACM
   d. Alucoil North America; larson FR

2. Core: Fire Retardant
3. Panel Thickness: 0.157 inch (4 mm).
4. Bond Strength: 22.5 in-lb/in. (100 N x mm/mm) when tested for bond integrity in accordance with ASTM D1781.
5. Fire Performance: Flame-spread index less than 25 and smoke-developed index less than 450, in accordance with ASTM E84 or UL 723.

B. Aluminum Sheet: Coil-coated sheet, ASTM B 209, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.

C. Extruded Aluminum Reveals and Fillers: ASTM B 209, alloy and temper as recommended by manufacturer for use and finish indicated. Finish shall match aluminum sheet

1. Formed from 0.040 inch minimum thickness ASTM B221.

D. Panel Sealants:

1. Joint Sealant: ASTM C 920; elastomeric polyurethane, polysulfide, or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal-faced composite panels and remain weathertight; and as recommended in writing by panel manufacturer.

2.3 MISCELLANEOUS MATERIALS

A. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end- welded studs, and other suitable fasteners. Exposed fasteners are not permitted.

2.4 ACCESSORIES

A. Panel Accessories: Provide components required for a complete metal- faced composite panel assembly including trim, corner units, clips, sealants, gaskets, fillers, and similar items. Match material and finish of metal-faced composite panels unless otherwise indicated.

2.5 FABRICATION

A. General: Fabricate and finish metal-faced composite panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

B. Fabricate side and end joints with tongue and groove, ship lap design, concealed fasteners, and gaskets for positive seal.

C. Metal-Faced Composite Panels: Factory form panels in a continuous process with no glues or adhesives between dissimilar materials. Trim and square edges of sheets with no displacement of face sheets or protrusion of core material.

1. Form panel lines, breaks, and angles to be sharp and true, with surfaces free from warp and buckle.
2. Fabricate panels with sharply cut edges, with no displacement of face sheets or protrusion of core material.
3. Fabricate panels with panel stiffeners, as required to comply with deflection limits, attached to back of panels with structural silicone sealant or bond tape.
4. Dimensional Tolerances:

    a. Panel Bow: 0.8 percent maximum of panel length or width.
    b. Squareness: 0.25 inch maximum.

D. Sheet Metal Accessories: Fabricate trim to comply with 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. Conceal fasteners and expansion provisions. Exposed fasteners are not allowed on faces of panels or accessories exposed to view.
3. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended by metal-faced composite panel manufacturer.

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

2.6 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

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

C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. 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.

D. Exposed Coil-Coated Finishes:

1. Two-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Colors:

a. **ACM-01**: Yellow to match Pantone PMS130
b. **ACM-02**: White to match existing panels

E. Concealed Finish:

1. Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

PART 3 - EXECUTION

3.1 EXAMINATION

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

1. Examine framing to verify that studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal-faced composite panel manufacturer.

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

C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.2 PREPARATION

A. Miscellaneous Framing: Install other miscellaneous panel support members and anchorage according to ASTM C 754 and metal-faced composite panel manufacturer's written instructions.

3.3 METAL-FACED COMPOSITE PANEL INSTALLATION

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

1. Commence metal-faced composite panel installation and install minimum of 150 sq. ft. in presence of factory-authorized representative.

2. Shim or otherwise plumb substrates receiving metal-faced composite panels.
3. Flash and seal metal-faced composite panels at perimeter of all openings.
4. Install trim as metal-faced composite panel work proceeds.

B. Fasteners: Use aluminum, stainless-steel fasteners or galvanized-steel fasteners for surfaces exposed to the interior.

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

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by panel manufacturer.

1. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

E. Attachment System Installation, General: Install attachment system required to support metal-faced composite panels.

3.4 ACCESSORY INSTALLATION

A. Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners.

1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.
2. Expansion Provisions: Provide for thermal expansion of exposed trim.

3.5 ERECTION TOLERANCES

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

B. Prepare test and inspection reports.

3.6 CLEANING

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

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

END OF SECTION