SECTION 074213 - FORMED METAL WALL PANELS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Flush-profile, concealed fastener metal wall panels, with related metal trim, and accessories for the Core and Shell Contract.

1.2 RELATED REQUIREMENTS

A. Division 01 Section "Sustainable Design Requirements" for related LEED general requirements.

B. Division 05 Section "Structural Steel Framing" for steel framing supporting metal panels.

C. Division 05 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal panels.

D. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal flashing items in addition to items specified in this Section.

1.3 REFERENCES

A. American Architectural Manufacturer's Association (AAMA): www.aamanet.org:

1. AAMA 621 - Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.

2. AAMA 809.2 Voluntary Specification Non-Drying Sealants.

B. American Society of Civil Engineers (ASCE): www.asce.org/codes-standards:


C. ASTM International (ASTM): www.astm.org:


D. International Accreditation Service (IAS):

1. IAS AC472 Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems, Part B.
1. **US Green Building Council (USGBC):** [www.usgbc.org](http://www.usgbc.org)


### 1.4 QUALITY ASSURANCE

**A. Manufacturer/Source:** Provide metal panel assemblies and accessories from a single manufacturer accredited under IAS AC472, Part B.

**B. Manufacturer Qualifications:** Approved manufacturer listed in this Section with minimum five years’ experience in manufacture of similar products in successful use in similar applications.

   1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

      a. Product data, including certified independent test data indicating compliance with requirements.
      b. Samples of each component.
      c. Sample shop drawings from similar project.
      d. Project References: Minimum of five installations not less than three years old, with Owner and Architect contact information.
      e. Sample warranty.
      f. Certificate of accreditation under IAS AC472 Part B.

   2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.

   3. Approved manufacturers must meet separate requirements of Submittals Article.

**C. Installer Qualifications:** Experienced Installer certified by metal panel manufacturer with minimum of five years’ experience with successfully completed projects of a similar nature and scope.

   1. Installer's Field Supervisor: Experienced mechanic certified by metal panel manufacturer supervising work on site whenever work is underway.

**D. Buy American Compliance:** Materials provided under work of this Section shall comply with the following requirements:


**E. Steel Construction Publications:** Comply with published recommendations in the following, unless more stringent requirements are indicated.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meeting: Prior to erection of framing, conduct pre-installation meeting at site attended by Owner, Architect, metal panel installer, metal panel manufacturer's technical representative, inspection agency and related trade contractors.

1. Coordinate building framing in relation to metal panel system.
2. Coordinate openings and penetrations of metal panel system.
3. Coordinate work of Division 07 Sections "Roof Specialties" and "Roof Accessories" and openings and penetrations and manufacturer's accessories with installation of metal panels.

1.6 ACTION SUBMITTALS

A. Product Data: Manufacturer’s data sheets for specified products. Include data indicating compliance with performance requirements.

B. LEED Submittals:

1. Credit MR 4 Recycled Content: Product data indicating the following:
   a. Material costs for each product having recycled content.
   b. Percentages by weight of post-consumer and pre-consumer recycled content for each item.
   c. Total weight of products provided.

2. Credit IEQ 4.1 Low-Emitting Materials - Adhesives and Sealants: Product data for sealants and sealant primers used inside the weatherproofing system, indicating VOC content.

3. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional materials, certificates indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating distance to Project, cost for each regional material, and fraction by weight that is considered regional.

C. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, and special details. Make distinctions between factory and field assembled work.

1. Indicate points of supporting structure that must coordinate with metal panel system installation.
2. Include structural data indicating compliance with performance requirements and requirements of local authorities having jurisdiction.

D. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color charts of manufacturer’s full range of colors.

E. Samples for Verification: Provide 12-inch- (305 mm-) long section of each metal panel profile. Provide color chip verifying color selection.
1.7 INFORMATIONAL SUBMITTALS
   A. Product Test Reports: Indicating compliance of products with requirements.
   B. Qualification Information: For Installer firm and Installer’s field supervisor.
   C. IAS Accreditation Certificate: Indicating that manufacturer is accredited under provisions of IAS AC472 Part B.
   D. Buy American Certification: Manufacturers’ letters of compliance acceptable to authorities having jurisdiction, indicating that products comply with requirements.
   E. Manufacturer’s warranty: Unexecuted sample copy of manufacturer's warranty.

1.8 CLOSEOUT SUBMITTALS
   A. Maintenance data.
   B. Manufacturer’s Warranty: Executed copy of manufacturer’s warranty.

1.9 DELIVERY, STORAGE, AND HANDLING
   A. Protect products of metal panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage. Protect panels and trim bundles during shipping.
      1. Deliver, unload, store, and erect metal panels and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.
      2. Store in accordance with Manufacturer’s written instruction. Provide wood collars for stacking and handling in the field.

1.10 WARRANTY
   A. Special Manufacturer’s Warranty: On manufacturer’s standard form, in which manufacturer agrees to replace metal panel assemblies that fail in materials and workmanship within one year from date of Substantial Completion.
   B. Special Panel Finish Warranty: On Manufacturer’s standard form, in which Manufacturer agrees to replace metal panels that evidence deterioration of factory-applied finish within the warranty period, as follows:
      Refer to 2.6 FINISHES

PART 2 - PRODUCTS

2.1 MANUFACTURER
   A. Basis of Design Manufacturer: MBCI Metal Roof and Wall Systems, Division of NCI Group, Inc.; Houston TX. Tel: (877)713-6224; Email: info@mbci.com; Web: www.mbcicom.
1. Provide basis of design product, or comparable product approved by Architect and Engineer prior to bid.

2.2 PERFORMANCE REQUIREMENTS

A. General: Provide metal panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.

B. Recycled Content: For Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

C. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of loads and stresses within limits and under conditions indicated, as determined by ASTM E 1592:

1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings as required by local codes.
   a. Wind Negative Pressure: Certify capacity of metal panels by actual testing of proposed assembly.

2. Deflection Limits: Withstand inward and outward wind-load design pressures in accordance with applicable building code with maximum deflection of 1/120 of the span with no evidence of failure.

3. Seismic Performance: Comply with ASCE 7 Sections 9, "Earthquake Loads."

D. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction. Allow for deflection and design for thermal stresses caused by temperature differences from one side of the panel to the other.

2.3 FORMED METAL WALL PANELS

A. Flush-Profile, Concealed Fastener Metal Wall Panels: Structural metal panels consisting of formed metal sheet with vertical panel edges and flat pan with flush joints between panels, field assembled with nested lapped edges, and attached to supports using concealed fasteners.


2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, structural quality, Grade 50, Coating Class AZ50 (Grade 340, Coating Class AZM150), prepainted by the coil-coating process per ASTM A755/A755M.
   a. Nominal Thickness: 22 gage coated thickness, with smooth surface.

3. Panel Width: 12 inches (305 mm).

4. Panel Thickness: 1-1/2 inch (38 mm).

2.4 MISCELLANEOUS MATERIALS

A. General: Provide complete metal panel assemblies incorporating trim and miscellaneous flashings. Provide required fasteners, closure strips, and sealants as indicated in manufacturer's written instructions.
B. Flashing and Trim: Match material, thickness, and finish of metal panels.

C. Panel Fasteners: Self-tapping screws and other acceptable fasteners recommended by metal panel manufacturer. Where exposed fasteners cannot be avoided, supply corrosion-resistant fasteners with heads matching color of metal panels by means of factory-applied coating, with weathertight resilient washers.

D. Panel Sealants:
   1. VOC Content of Interior Sealants: Sealants used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
      a. Architectural Sealants: 250 g/L.
   5. Foam Tape: Manufacturer's standard self-adhering type.

2.5 FABRICATION

A. General: Provide factory fabricated and finished metal panels, trim, and accessories meeting performance requirements, indicated profiles, and structural requirements.

B. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings.

2.6 FINISHES

A. Exterior Finish:
   1. Color: Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

      Manufacturer: PPG Industries Inc., Duranar (70% PVDF), AAMA 2605, Fluoropolymer Coating, Sunstorm Pewter UC110227F

      ALTERNATE: Kawneer Permafluor™ (70% PVDF), AAMA 2605: UC109848 Dove Gray.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine metal panel system substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal panels.

   1. Inspect framing that will support metal panels to determine if support components are installed as indicated on approved shop drawings and are within tolerances acceptable to
metal panel manufacturer and installer. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal panels.

B. Correct out-of-tolerance work and other deficient conditions prior to proceeding with metal panel installation.

3.2 METAL PANEL INSTALLATION

A. Concealed-Fastener Formed Metal Panels: Install metal panel system in accordance with manufacturer's written instructions, approved shop drawings, project drawings, and referenced publications. Install metal panels in orientation, sizes, and locations indicated. Anchor panels and other components securely in place. Provide for thermal and structural movement.

B. Fasten metal panels to supports with fasteners at each location indicated on approved shop drawings, at spacing and with fasteners recommended by manufacturer. Fasten panel to support structure through leading flange. Snap-fit back flange of subsequent panel into secured flange of previous panel. Where indicated, fasten panels together through flush-fitted panel sides.

1. Cut panels in field where required using manufacturer's recommended methods.
2. Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by metal panel manufacturer.

C. Attach panel flashing trim pieces to supports using recommended fasteners and joint sealers.

D. Joint Sealers: Install liquid sealants where indicated and where required for weatherproof performance of metal panel assemblies.

1. Seal panel base assembly, openings, panel head joints, and perimeter joints using joint sealers indicated in manufacturer's instructions.
2. Seal perimeter joints between openings and adjacent panels using elastomeric joint sealer.
3. Prepare joints and apply sealants per requirements of Division 07 Section "Joint Sealants."

3.3 ACCESSORY INSTALLATION

A. General: Install metal panel accessories with positive anchorage to building and weather tight mounting; provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.
2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.
3. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.
3.4  CLEANING AND PROTECTION

A. Clean finished surfaces as recommended by metal panel manufacturer.

B. Replace damaged panels and accessories to the satisfaction of the Architect.

END OF SECTION