SECTION 07 42 14

INSULATED METAL WALL PANELS

PART 1 – GENERAL

1.1 PURPOSE

A. This guideline is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. PSP is to apply the principles of this section such that the University of Texas at Arlington (UTA) may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be approved by UTA and may require justification through Life Cycle Cost (LCC) analysis and submitted to UTA for approval.

1.2 LESSONS LEARNED AND DESIGN CONSIDERATIONS

A. X

1.3 SECTION INCLUDES

A. Factory-assembled metal panel system for walls, with trim, related flashings and accessory components.

1.4 RELATED REQUIREMENTS

A. Section 05 12 00 – Structural Steel Framing: Structural steel building frame.
B. Section 05 40 00 – Cold-Formed Metal Framing: Stud wall framing system.

1.5 REFERENCE STANDARDS

A. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); current edition.
B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; current edition.
C. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; current edition.

1.6 PRE-INSTALLATION MEETING

A. Pre-installation Meeting: Convene four weeks before starting work of this section.

1.7 SUBMITTALS

A. See Division 01 for submittal procedures.
B. Product Data: Provide manufacturer documentation on tested structural, thermal, and fire resistance capabilities of assembled panel.
C. Shop Drawings: Indicate dimensions.
D. Samples: Submit two samples of panel, 24 x 24 inch in size illustrating finish color, sheen, and texture.
E. Manufacturer's Installation Instructions: Indicate special handling criteria.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with minimum ten years documented experience.
B. Installer Qualifications: Company specializing in performing the work of this Section with minimum three years' experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
B. Store pre-finished material off ground with weather protection to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
C. Prevent contact with materials that could cause discoloration or staining.

1.10 WARRANTY

A. See Division 01 for additional warranty requirements.
B. Correct defective Work within a five year period after Date of Substantial Completion, including:

1. Degradation of panel finish including color fading caused by exposure to weather.
2. Failure of water tightness, loss of integrity of seals.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: MBCI, FW-120-2.

2.2 PANEL SYSTEM

A. Metal Panel System: Factory-assembled metal panel system, with trim, related flashings and accessory components.
   1. Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
   2. Accommodate tolerances of building structural framing.

B. Performance Requirements:
   1. Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
   2. Structural Performance: Design and size to withstand all dead loads and wind loads caused by positive and negative wind pressure acting normal to plane of panel.
      a). Verify structural performance in accordance with ASTM E330/E330M, using test pressure 1.5 times design wind pressure, with 10 seconds duration of maximum load.
      b). Design Wind Loads: Calculated in accordance with local code.
      c). Maximum Allowable Deflection of Panel: 1/90 of span.
   3. Fire Test: UL Tunnel Test, Subject 723, ASTM E84.
      a). Flame Spread: 25 max.
   4. Movement: Accommodate the movement caused by the following without damage to system, components, or deterioration of seals:
      a). Normal movement between system components.
      b). Seasonal temperature cycling.
      c). Deflection of structural support framing.

2.3 PANELS & TRIM

A. Wall Panels: Exterior and interior metal sheet skin, factory-assembled, with foamed in place insulation; exterior and interior sheet interlocking at edges, fitted with continuous gaskets.
   1. Panel Width: 12 inch.
   2. Profile: FW-120-2, vertical.
   3. Panel Thickness: 1.5 inch.
   4. Exterior Sheet: Pre-finished G-90 galvanized steel, 22 gage, 0.0299 inch minimum base metal thickness; Smooth face sheet.
   5. Interior Sheet: G-90 Galvanized steel, pre-finished, 26 gage, 0.0217 inch minimum base metal thickness.
   6. Panel Edge Profile: Tongue and groove, for flush seam.
   7. Fabricate panels in longest practicable lengths.
   8. Exterior Finish: Polyvinylidene fluoride (PVDF) coating; color as selected from manufacturer's standard range.
   9. Interior Finish: Polyvinylidene fluoride (PVDF) coating; color as selected from manufacturer's standard range

B. Internal and External Corners: Same material, thickness, and finish as exterior sheets; factory-fabricated mitered to required angles in one continuous piece with minimum 18 inch returns.

C. Trim, Closure Pieces, Expansion Joints, Caps, Flashings, Fascias, and Infills: Same material, thickness and finish as exterior sheets; factory-fabricated to required profiles; fabricated in longest practicable lengths.
   1. Thickness: 22 gage, 0.0336 inch.
   2. Exposed Fasteners: Not permitted.
   3. Profiles: To suit system.

2.4 PANEL MATERIALS

A. Precoated Galvanized Steel Sheet: ASTM A653/A653M, Commercial Steel (CS) or Forming Steel (FS), with G90/Z275 coating; continuous-coil-coated with acrylic primer coat, silicone polyester top coat, and polyester washcoat for panel back.
   1. Color of Exposed Exterior Surfaces: As selected by Architect from manufacturer's custom range.

B. Foamed-in-Place Insulation: Polyisocyanurate type.
C. Gaskets: Manufacturer's standard type suitable for use with panel system, permanently resilient; ultraviolet and ozone resistant; color as selected.
D. Panel Sealants: Manufacturer's standard type suitable for use with installation of panel system; non-staining, skinning, non-shrinking, non-sagging, ultra-violet and ozone resistant; color as selected.

2.5 ACCESSORIES
A. Anchors: Stainless steel.
B. Fasteners: Manufacturer's standard type to suit application; hot-dip galvanized steel with soft neoprene washers. Fastener cap same color as exterior panel.
C. Shims: High density, polypropylene, tempered.

PART 3 – EXECUTION

3.1 INSTALLATION
A. Install panel system on walls in accordance with manufacturer's instructions.
B. Permanently fasten panel system to structural supports; aligned, level, and plumb, within specified tolerances.
C. Locate panel joints over supports.
D. Provide expansion and control joints where indicated.
E. Use concealed fasteners unless otherwise approved by Architect.
F. Use flat shims as required to align panels. Install sealant over shims at completion of shim installation.
G. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.2 TOLERANCES
A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.3 CLEANING
A. Remove site cuttings from finish surfaces.
B. Clean and wash prefinished surfaces with mild soap and water; rinse with clean water.
C. Upon completion of installation, thoroughly clean prefinished aluminum surfaces in accordance with AAMA 609 & 610.

PART 4 – APPENDIX

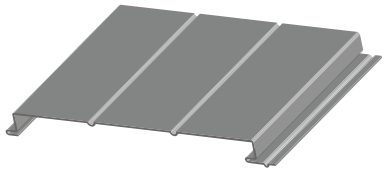
4.1 PRODUCT DATA / CUT SHEETS
A. MBCI, FW-120-2 Product data

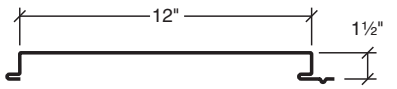
END OF SECTION

CONCEALED FASTENING SYSTEMS

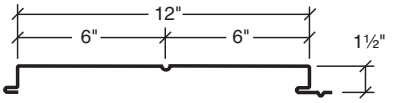
FW-120 PANEL

The FW-120 panel is a concealed fastener wall and liner panel that provides a flat appearance. FW-120 is commonly used for architectural, commercial and industrial markets. The heavy gauge offering provides for large spanning capabilities, particularly in composite wall applications.

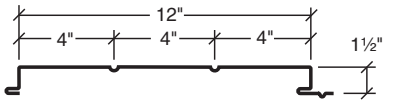




FW-120-0



FW-120-1 with Bead



FW-120-2 with Beads

Features and Benefits:

- FW-120 is available in a flat profile with no beads, one bead or two beads.
- The FW-120 Panel has been tested by a certified independent laboratory in accordance with ASTM test procedures for Air Infiltration and Water Penetration at the sidelap. Test results show no air leakage at 1.57PSF and no water penetration at 6.24PSF differential pressure.
- FW-120 carries Florida approval.

Product Specifications

- **Applications:** Wall and Fascia
- **Coverage Widths:** 12"
- **Panel Attachment:** Concealed Fastening System
- **Gauges:** 24 (standard); 22 and 20 (optional)
- **Finishes:** Smooth (standard); Embossed (optional)
- **Coatings:** Signature® 300

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CONCEALED FASTENING SYSTEM

FW-120 PANEL

CATEGORY	CHARACTERISTIC	TEST METHOD	PURPOSE	RESULT
ENVIRONMENTAL	Air leakage	ASTM E283	Determines the air leakage rates of exterior windows, curtain walls, and doors under specified air pressure differences across the specimen	0.000 cfm/ft² at 6.24 psf static pressure 0.113 cfm/ft² at 20.00 psf static pressure
	Water Penetration	ASTM E331	Determines the resistance of exterior windows, curtain walls, skylights, and doors to water penetration when water is applied under uniform static air pressure difference	No uncontrolled water penetration through the panel joints at a static pressure of 13.24 psf
STRUCTURAL	Negative Wind Loads	ASTM E 1592	Provides a standard procedure to evaluate or confirm structural performance under uniform static air pressure difference	See Load Chart Section
	Positive Wind Load	AISI S100	North American Specification for the Design of Cold-Formed Steel Structural Members	See Section Properties and Allowable Load Table Section
ROOF LISTINGS	Roof Performance - Florida Approval	ASTM E 1592	Florida product approval is the approval of products and systems, which comprise the building envelope and structural frame, for compliance with the structural requirements of the Florida Building Code.	See FL# 11917.3