

SPECIFICATIONS FOR

Metal Design Systems *Featuring* **Metal Composite Panels**

Section 07430 Aluminum Composite Panels

(Based upon Metal Design Systems Series 60 with PE Core)

1.00 GENERAL REQUIREMENTS

1.01 SCOPE OF WORK

- A. Provide a water shedding flat lock panel system, as detailed on the drawings.
The Flat Lock panel system must consist of an 2 or 3MM ACM panel with attachment clips which attach directly to a nailable substrate.
- B. The panel system as detailed, shall consist of flat panels, attachments clips and related flashings,

1.02 QUALITY ASSURANCE

- A. General: The details show the preferred profiles and performance requirements. Provide a lapped and structurally sound, water shedding wall panel system with minimal water penetration.
- B. Substitutions: Any proposed system shall be compatible with adjacent materials and components such that the assembly as a whole will function satisfactorily, and shall include attachment clips to provide the designed architectural reveal. Modifications to structure or other components required by the proposed substitution shall be clearly delineated in the submittal and all resulting costs shall be included as part of the bid.
- C. Fabrication History: Fabricator shall assume undivided responsibility for all components of the panel work and shall provide engineered support as required to demonstrate the ability to perform said work.
- D. Performance Requirements: Work of the Section shall conform to all applicable codes and regulations.
 - 1. Design Criteria
 - a). Make allowances for free and noiseless vertical and horizontal thermal movement due to the contraction and expansion of component parts, for an ambient temperature range of from plus 20 degrees F to plus 180 degrees F. Buckling, opening of joints, undue stress on fasteners, failure of sealants or any other detrimental effects due to thermal movement of component parts will not be permitted. Fabrication, assembly and erection procedure shall take into account the ambient temperature range at the time of the respective operation.
 - 2. Wind Loads
 - a). Assemblies herein specified shall be designed for flexural, shear and torsional stresses for the following positive and negative wind pressures acting normal to the plane of the assemblies. Loading design shall be based on latest Uniform Building Code.
 - 3. Pressure and Load
 - a). Normal to the plane of the wall, deflection shall be limited to 1/60 of the panel span.
 - b). At connection points of framing members to anchors, anchor deflection in any direction shall not exceed 1/16". Where connection points are not clearly defined, maximum anchor deflection shall not exceed 1/16".
 - c). Stresses must take into account interaction and in no case shall allowable values exceed the yield stress.
 - d). At 1.5 times design pressure, components must not experience failure or gross permanent distortion.
- E. Flatness Criteria
 - 1. Maximum 1/8" in 15'-0" on panel in any direction for assembled units (non-accumulative).
- F. General Approval
 - 1. Composite panel manufacturer shall have an engineered report.

1.03 TESTS

- A. Bond Integrity Test: When in accordance with ASTM D 1781-76 for bond integrity, simulating resistance to de-lamination (No other best procedure is acceptable).
 - 1. Peel strength: 33.6 in lb/in (min).
- B. Fire Performance
 - 1. ASTM E84-79 - Maximum value flame spread 0, smoke developed 0.
 - 2. UBC 17-5 - No flame spread along interior face or penetration through the wall assembly.
 - 3. ASTM 162 - No surface flaming.
- C. Wind
 - 1. ASTM E-330 or D-5260

1.04 SUBMITTALS

- A. Submittal: Submit pertinent catalog details and calculations, as required.
- B. Samples: Submit 8" x 8" sample of panel system in specified finish, if available, fabricated into units representative of the actual calculations.
- C. Shop Drawings: Submit CAD generated shop drawings showing profiles of panel units, details of forming, joint supports, anchorages, trim, flashings, sealants and accessories. Show details of weatherproofing at edge terminations, show elevations, and layout of entire work.

1.05 PRODUCT HANDLING

- A. After acceptance of panels on a given elevation, protection shall be the responsibility of the General Contractor.

2.00 **PRODUCTS**

2.01 SPECIFIED MANUFACTURER

- A. General
 - 1. Metal Design Systems Inc. Series 60 Flat Lock wall panel assembly
4150 C Street SW Cedar Rapids, Iowa 52404
319-362-7454 or sales@crmdsi.com
- B. Description
 - 1. The system shall consist of ACM panels, and a system of custom stainless steel clips of size and shape indicated on drawing as specified herein.
- C. Aluminum Composite Material (ACM)
 - 1. Composite: Two sheets of metal sandwiching a core of extruded thermoplastic, formed in a continuous process with no glues or adhesives between dissimilar materials. Total composite thickness is 2mm or 3mm.
 - 2. Face Sheets: 8 oz. copper, .020" aluminum or .4mm zinc.
 - 3. Core:
 - a). Thermoplastics
- D. Panel System
 - 1. Stainless Steel clips which integrate to the continuous sub-system as detailed on drawings, so as to provide the following essential features:
 - a). Flat Lock folding of the ACM on two edges.
 - b). Maximum overall system thickness can vary as required by design. Minimum thickness is 3/8" when utilizing the 2mm material.
 - c). The ACM panel shall be held in place by a fastener to the clip into the wall.

- d). Clips shall be stainless steel.
- 2. Laps at Panel
 - a). Joints shall be 2" nominal lap.
 - b). Joints will be flat lock .
- E. Flashings
 - 1.Fabricate flashing from sheet matching the finish of the flat lock panels. Provide lap strip under flashing at abutted conditions; with lapped surfaces sealed with a full-bed of non-hardening sealant.

2.02 FABRICATION

- A. Fabricate panel units to dimensions indicated on the drawings based on an assumed design temperature of 70 degrees F. Allow for ambient temperature range of time of fabrication and erection.
- B. Fabricate panels in sizes shown using metal composite material so that the panel thickness at the joinery is as required by design. Completed panel shall be properly fabricated and designed so that no restraints can be placed on the panel, which might result in compressive skin stresses. The installation detailing shall be such that the installed panels shall remain flat due to temperature changes. Oil canning of panel surface is not acceptable.
- C. Shop fabricate units ready for erection. If not shop assembled, pre-fabricate components at the shop as required for proper and expeditious field assembly.
- D. Design, fabricate, assemble, and erect wall panel units.
- E. Where drawings indicate, factory curve panels to required radius. Special considerations for design required Contact Metal Design Systems Engineering.

3.00 EXECUTION

3.01 DELIVERY AND STORAGE

- A. Delivery: Deliver fabricated units and component parts identified per erection drawings.
- B. Protection of Surfaces: Protect surfaces from damage during shipping and erection. Inspect work for damage upon delivery - no damaged work permitted on job site.
- C. Storage: Coordinate with General Contractor for storage space.
- D. Panel Penetrations: All panel penetrations shall be field cut by the trade involved or coordinated with the panel installers at time of installation.

3.02 INSPECTION

- A. Examine supporting structure and conditions under which the work is to be erected, and notify the Contractor in writing of conditions detrimental to proper and timely completion of the work. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.03 INSTALLATION - ERECTION

- A. General
 - 1. Do not install component parts, which are observed to be defective, including warped, bowed, dented, abraded and/or broken members.
 - 2. Do not cut, trim weld, or braze component parts during erection, in a manner which would damage finish, decrease strength, or result in a visual imperfection or a failure in performance of wall panels. Return component parts which require alteration to shop for re-fabrication, if possible, or for replacement by new parts.
 - 3. Metal Separation: Apply a coat of bituminous paint, concealed, on one or both surfaces wherever dissimilar metals would otherwise be in contact. Use gasketed fasteners where needed to eliminate the possibility of corrosive or electrolytic action between metals.

4. Anchor component parts of the metal wall securely in place, allowing for necessary thermal & structural movement.

3.04 CLEANING AND PROTECTION

- A. After installation of panels on a given elevation, any additional protection shall be the responsibility of the General Contractor.
- B. Deposit all trash from panel shipping crates in General Contractor's furnished debris dumpsters.
- C. Make sure perimeter sealants have been installed next to adjacent perimeter materials.
- D. Remove protective film at time of panel installation

3.05 PANEL REPLACEMENT (Optional)

- A. Owner shall be provided with _____ additional fabricated flat lock panels of typical size.

ADDITIONAL NOTES FOR SPECIFICATION WRITER

1. Other possible additions to this specification may include:
 - A. Structural stud or tube system for support of wall system.
2. Parapet flashing may be excluded from this section and included in sheet metal section.

END OF SECTION