

#07410

Preformed metal wall systems

General

1.1. RELATED WORK

- 1.1.1. Section 03300 Cast-in place Concrete
- 1.1.2. Section 04200 Unit Masonry
- 1.1.3. Section 05100 Structural Metal framing
- 1.1.4. Section 05500 Metal Fabrications
- 1.1.5. Section 07212 Rigid Insulation
- 1.1.6. Section 07513 Membrane Roofing
- 1.1.7. Section 07600 Flashing and Sheet Metal

1.2. SYSTEMS DESCRIPTION

- 1.2.1. Preformed metal pan type modular wall cladding and soffit cladding.

1.3. PERFORMANCE REQUIREMENTS. (DESIGN CRITERIA)

- 1.3.1. Panel: Metal panel shall be designed so that all finishes, support and attachment systems conform to regional building codes. Adequate stiffening shall be provided to prevent wind induced vibrations and fatigue problems.
- 1.3.2. Deflection Movement: Maximum deflection not to exceed $L/90$. The panel shall exhibit no permanent deformation when subjected to these loads. Allowance shall be made in the panel design for movement within the system caused by deflection in the building structure.
- 1.3.2.
- 1.3.3. Thermal Movement: Allowance shall be made for expansion and contraction of all parts of the metal panel assembly caused by surface temperatures varying from minus 40 degrees Fahrenheit to 140 degrees Fahrenheit. Such variation in temperature shall not cause buckling, stresses on enclosed or adjoining materials and fasteners or in any way impair the performance or appearance of the system. Sub system design to incorporate a grid lock to eliminate rocking of Z-bars on drywall or other support sub-wall systems.
- 1.3.4. Weep Drainage: Clear internal paths of drainage in order to drain any trapped moisture to the exterior, discharging weep water in a manner avoiding staining of architectural finishes, collecting in puddles or formation of icicles.
- 1.3.5. Water Tightness: Exterior facia and wall panels shall be designed to the rain screen principles as published by the National Research Council. Vertical gull wing configuration behind panel joints to incorporate a water diversion gasket to redirect water to the exterior.
- 1.3.6. Fastening: Panel assembly shall be fastened to the building structure in a manner which transmits all loads to the main structure without exceeding the capacity of any fastener.

1.4. FIELD QUALITY CONTROL

1.4.1. Inspection: Intermediate inspections of air barriers and insulation shall be carried out by the manufacturers' representative prior to the enclosure and concealment of these products in the system.

1.5. REFERENCES

1.5.1. ASTM A446 "Sheet Steel, Zinc Coated (Galvanized) by Hot Dip Process Physical (Structural) Quality".

1.5.2. ASTM B209 Aluminum Sheet and plate.

1.6. SUBMITTALS (SHOP DRAWINGS)

1.6.1. Samples: Samples of metal wall panels shall be submitted in actual metal base thickness with specified substrate and in selected finish. Samples shall be 16" x 16" including all necessary items to show a vertical and horizontal joint between adjacent panels.

1.6.2. Drawings: Contractor's drawings shall clearly indicate by reflected ceiling plans, wall elevations and/or sectional details all material thicknesses, finishes, connections, inserts, joint conditions, method of anchorage, number of anchors, supports, fastenings, reinforcements, method of supporting and integrating mechanical and electrical fixtures, trim and accessories.

1.6.3. Design: Calculations shall be signed and sealed by a Professional Engineer who is licensed to practice in the State, attesting to the ability of the metal panel assembly to withstand the specified loads, including inward and outward loads and loads under fastenings to the structure.

1.6.4. Identification: Panels shall be identified on shop drawings as to building location to facilitate panel removal and replacement due to construction and/or occupant damage. Disassembly drawings shall show the location of points at which disassembly may be most easily started so that replacement of panels may be performed efficiently, with the same neat finish as originally installed.

1.7. DELIVERY, STORAGE AND HANDLING

1.7.1. Cover pre-finished components to protect surface finishes from damage and deterioration.

1.7.2. Store Components off ground to prevent twisting, bending and defacement. Slope to shed moisture.

1.8. MOCK UP

1.8.1. Provide a mock up wall approximately 10' x 10' illustrating metal cladding, coping and corner detail.

2.1 CLADDING TYPE

2.1.1 Form modular panels from 14 Gauge (0.060") aluminum sheet

2.1.2 Fabrication: All work to be fabricated with straight lines, square corners or smooth bends, free from twists or warps, kinks, dents and other imperfections which may affect appearance or serviceability.

- 2.1.3 Panel flatness tolerance in all directions across the surface to be a maximum of 0.8%.
- 2.1.4 System shall have a flush appearance from the exterior with no surface fixings or other irregularities and with no reveal other than the module joint width.
- 2.1.5 Panels shall be aligned with no lap or reveal other than joint width to permit expansion and contraction.
- 2.1.6 Thickness of metal and details of assembly and support shall provide sufficient strength and stiffness to resist distortion of finished surface. Exposed edges and ends of metal shall be dressed smooth, free from sharp edges. Connections and joints exposed to the weather shall be constructed to exclude water.
- 2.1.7 Panels to be constructed with flanges on all sides. Panel corners to have uniform radiused corners to 1.5 times the material thickness. Panel corners to be factory notched and neatly butted. Provision shall be made for individual panel drainage at panel base.
- 2.1.8 Sub Girt System: Panel load transfer grids shall be formed from 16 Gauge full galvanized sheet steel conforming to ASTM A525 Grade A Zinc coating to G90 designation.
- 2.1.9 Transfer grid to be adjustable Z-bar or combination clip and Z-bar thermally broken to minimize frost transfer.
- 2.1.10 Structural members and panels shall be fastened together with interlocking back clips as indicated.
- 2.1.11 Fastening: Fasteners to be concealed at all locations and a sufficient quantity of fasteners of the proper size for fastening of the work shall be provided.
- 2.1.12 Openings: Openings shall be provided and coordinated with the work of other installers. Holes to accommodate work of other sections to be provided in the panel prior to finishing. The perimeter of holes greater than 12" x 12" shall be reinforced to details shown on drawing or to manufacturers' standard.

2.2 FINISHES Aluminum Panels: To be finished from standard selection of proven colors. PPG Finish (Choose One)

- 2.2.1 Duranar.
- 2.2.2 Duranar Plus
- 2.2.3 Duranar XL Plus
- 2.2.4 Duranar XLE

2.3 P.V.C. strippable film shall be applied by coil processor to protect coating from damage caused during fabrication, shipping and/or installation.

3 EXECUTION

3.1 PREPARATION

- 3.1.1 Develop all dimensions from the architectural drawings and coordinate with the contractor and other trades to obtain final panel layout.

3.2 INSTALLATION

- 3.2.1 Support system shall be attached to the structural as required to transmit load designs.
- 3.2.2 Adjustable angles, clips, tees and associated bolts, anchors and other fixings shall be used to compensate for fabrication and erection tolerances of primary structure.

3.2.3 Framing and other components shall be straight to match plane of panel as required to meet the installed panel tolerances with straight, sharply formed edges. Radial formed components shall be bent to a true circular curve.

3.2.4 After their correct position has been determined and allowances for expansion, building movement, uniform joint width and alignment of all parts has been determined, the components shall be permanently fastened.

3.2.5 Installed panels shall not deviate from overall plane or alignment by more than 1:1000. Joints shall be not less than their dimensioned width nor more than five percent greater than their dimensioned width at any location along their full length and shall not be wavy, out of line or of different width from panel to panel.

3.2.6 Install flashing to divert all moisture to the exterior.

3.2.7 Install exterior metal cladding to structural supports by hidden mechanical fasteners.

3.3 CLEANUP

3.3.1 Remove all excess materials, debris and equipment at completion.

3.3.2 Clean all panels free of all grime and dirt at time of installation.