

## SECTION 07501

### METAL ROOF AND WALL PANELS

#### PART 1 – GENERAL

##### 1.1 SUMMARY

- A. Section Includes: Factory-formed metal roof and wall panels, including fascia, soffit and other trim panels
- B. Related Sections
  - 1. Section 06100: Carpentry
  - 2. Section 07200: Insulation
  - 3. Section 07600: Flashing and Sheet Metal
  - 4. Section 07900: Joint Sealants
  - 5. Section 13121: Prefabricated Metal Building

##### 1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM A653 Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - 2. ASTM D2247 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
  - 3. ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
  - 4. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
  - 5. ASTM E1646 Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference
  - 6. ASTM E1680 Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems
- B. Underwriters Laboratories, Inc. (UL)
  - 1. UL 580 Tests for Uplift Resistance of Roof Assemblies
  - 2. UL 2218 Standard for Safety for Impact Resistance of Prepared Roof Covering Materials

##### 1.3 SYSTEM DESCRIPTION

- A. Design Requirements
  - 1. Refer to the Design Criteria given on the Drawings

2. All products designed, fabricated and installed according to the 2011 Pikes Peak Regional Building Code
- B. Provide metal roof and wall panels which have been manufactured, tested, fabricated and installed according to the following criteria
1. ASTM A653
  2. ASTM D2247
  3. ASTM E283
  4. ASTM E331
  5. ASTM E1646
  6. ASTM E1680
  7. UL 580
  8. UL 2218

#### 1.4 SUBMITTALS

- A. General: In accordance with Section 01340
- B. Product Data: Submit manufacturer's product data and installation instructions
- C. Shop Drawings
1. Provide drawings indicating panel layout, project specific construction details and related information
  2. Submit complete fabrication, assembly and installation drawings
  3. Submit detailed specifications and data describing materials, parts, devices and accessories
  4. Submit data for verification of compliance with specifications and to illustrate construction and assembly of products
    - a. Dimensions
    - b. Materials
    - c. Thickness or gages
    - d. Fasteners
    - e. Finishes
    - f. Sealants
  5. Door, window and equipment rough opening details and layouts fully dimensioned
- D. Samples
1. Color charts: Manufacturer's factory standard colors, finishes and textures
- E. Quality Assurance
1. Submit Manufacturer's certificate that products meet or exceed specified requirements.
- F. Closeout Submittals
1. Warranty documents specified herein

## 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: The installer shall have demonstrated experience on projects of similar size and complexity

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact
- B. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer
- C. Materials damaged during delivery, storage and handling or by the elements shall be restored to new condition or replaced

## 1.7 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under contract documents
  - 1. Warranty Period for Finish: 20 years beginning with date of substantial completion

## PART 2 – PRODUCTS

### 2.1 METAL ROOF PANELS

- A. Panel Types
  - 1. Structural standing seam roof panels
  - 2. Embossed tile facsimile roof panels
- B. Material: Full hard steel, galvanized, primed, coated
- C. Material Standard: ASTM A653 or ASTM A792
- D. Minimum thickness
  - 1. Structural standing roof seam panels: 24 gauge
  - 2. Embossed tile facsimile roof panels: 26 gauge
- E. Yield Strength: 50,000 psi
- F. Configuration
  - 1. Panels to be installed over solid substrate or open framing
    - a. Coordinate with pre-engineered metal building supplier for spacing requirements of purlins and other support members

- b. Refer to Drawings
- 2. Structural standing seam roof panels
  - a. Nominal panel width: 10 inches; total panel width may vary to accommodate manufacturer's standard, 2'-0" to 4'-0"
  - b. Nominal panel seam height: 1¾ inches
  - c. Smooth panel face without ribs or striations
  - d. Side seams
    - 1) Continuous interlocking, snap lock or mechanically crimped
    - 2) Include factory installed sealant
    - 3) Utilize concealed roof clips
      - a) Specifically designed for roof panel system
      - b) Allow for thermal movement of roof panel system
- 3. ETF panels
  - a. Simulate clay roofing tiles
  - b. Nominal panel width: 36 inches
  - c. Nominal tile corrugation dimensions: 7" wide x 12" long x 1½" high
  - d. Each panel to include alignment ridges, fasteners, dimples and factory-profiled end cuts for seam mating
- 4. Provide single panel coverage from peak to eave or ridge, hip to eave

#### G. Finish

- 1. Factory applied, baked on finish of Kynar® 500 or equal
- 2. Minimum coating thickness: 1.0 mils
- 3. Owner to select color from manufacturer's standard color palette

#### H. Trim and Accessories

- 1. Manufacturer's standard configuration
- 2. One-piece factory formed panels
- 3. Match roof slope
- 4. Panel closures and rib covers to match panel profile
- 5. Eave and soffit trim
  - a. Refer to Drawings for dimensions and configurations
  - b. Manufacturer's standard eave trim acceptable in lieu of framed soffit
  - c. Coordinate with pre-engineered building supplier for eave construction
- 6. Transition rib or tile covers at all changes in roof pitch
- 7. Provide ice and water shield membrane as recommended by manufacturer
- 8. Gutters and downspouts
  - a. Manufacturer's standard configurations
  - b. Size and location as indicated on Drawings
    - 1) Conform size to local code requirements
  - c. Downspouts to be full box configuration
  - d. Galvanized steel with factory paint finish
  - e. Galvanized steel gutter hangers as required
  - f. Gutters configured to avoid damage from snow and ice falling off roof
    - 1) Position gutters below roof plane as indicated on Drawings
    - 2) Provide ice breaks where gutter position is not below roof plane
  - g. Pre-formed closures and seals
- 9. Fasteners
  - a. Screw fasteners with integral waterproofing washer/gasket

- 1) Wood screw or self-drilling sheet metal depending on substrate material
  - b. UL 90 concealed panel clips and substrate screws, zinc plated
  - c. Pop rivets where recommended by manufacturer, stainless steel
  - d. All exposed fasteners to have finish matching roof panels
  - e. Exposed fasteners permitted for trim members only
10. Refer to Paragraph 2.3 for additional requirements

I. Design Basis

1. Structural standing seam roof panels: Fabral, Inc. Thin Seam roofing system
2. Embossed tile facsimile roof panels: Met-Tile, Inc. Met-Tile roofing system
3. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items
  - a. Compliance shall be determined by the Engineer based upon review of proposed equipment prior to bidding
  - b. It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by Engineer, complete product data and specifications verifying complete conformance with the specified items

## 2.2 METAL WALL PANELS

A. Smooth faced exterior wall panels to be same as roof panels

B. Textured Exterior Wall Panels

1. Material: ASTM A446, G90 galvanized
2. Minimum thickness: 20 gauge
3. Configuration
  - a. 16 inch maximum coverage width
  - b. Flush appearance with minor inset groove at seam
  - c. Textured finish
  - d. Concealed fasteners
4. Fasteners
  - a. Exposed fasteners permitted for trim members only
  - b. Through panel flange fasteners to have weather seal washers
  - c. No. 410 stainless steel conforming to Fed. Spec. QQ-5-763C
5. Endlaps: Not permitted
6. Panel finish
  - a. Polymer/aggregate finish
  - b. Owner's choice of colors from manufacturer's standard colors
    - 1) Refer to Drawings for multiple color or texture requirements in any given exterior wall extent, i.e., accent or rustication strips
7. Design basis
  - a. Varco Pruden "Texture Clad" wall system
  - b. Custom Panel Systems "Stucco Building Panel" system
  - c. Or equal
8. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items

- a. Compliance shall be determined by the Engineer based upon review of proposed equipment prior to bidding
- b. It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by Engineer and Owner, complete product data and specifications verifying complete conformance with the specified items

### C. Interior Wall and Ceiling Panels

- 1. Material: ASTM A653, G90 galvanized
- 2. Minimum thickness: 29 gauge
- 3. Configuration
  - a. Nominal panel coverage width: 36 inches
  - b. Trapezoidal rib profile
    - 1) Nominal rib height: 5/8 inches
    - 2) Nominal rib spacing: 9 inches
    - 3) Intermediate striations per manufacturer's standard products
  - c. Smooth finish
  - d. Exposed fasteners
  - e. Capable of being installed over open framing or solid substrate
- 4. Fasteners
  - a. Galvanized steel for dry, conditioned spaces
  - b. Stainless steel for humid spaces
  - c. Provide seal washers for all fasteners
- 5. End laps are not permitted
  - a. Refer to Drawings for panel length/height required
- 6. Panel finish
  - a. Factory applied polyester finish
  - b. Paint finish warranty of 15 years for dry, conditioned spaces
  - c. Owner's choice of manufacturer's standard color palette
    - 1) Submit standard color palette including white, ivory and light beige
- 7. Design basis
  - a. Metal Sales Manufacturing Corp., Pro-Panel II
  - b. Or equal
  - c. Equivalent products of other manufacturers may be accepted subject to compliance with design, function, materials and performance of the specified items
    - 1) Compliance shall be determined by the Engineer based upon review of proposed equipment prior to bidding
    - 2) It will be the manufacturer's or supplier's responsibility to coordinate and furnish, for review by Engineer, complete product data and specifications verifying complete conformance with the specified items

## 2.3 ACCESSORIES

- A. Provide all system accessory components required, including but not limited to the following
  - 1. Ridge, hip and peak caps
  - 2. Rakes and corners
  - 3. Base guard trim

4. Fascia trim
5. Eave trim
6. Gable trim
7. Sidewall and end wall trim
8. Drip cap
9. Flashing and counter flashing
10. Trim at all required door, window and equipment locations
11. One-piece fascia and soffit
12. Inside and outside closures
13. Lap sealant tape
14. Sill flashing at all required openings
15. Rain caps and flashing at all flue and vent penetrations
16. Other trim as required for building accessories as shown on the Drawings

## PART 3 – EXECUTION

### 3.1 MANUFACTURER'S INSTRUCTIONS

- A. Comply with the instructions and recommendations of the roof and wall panel manufacturer

### 3.2 EXAMINATION

- A. Site Verification of Conditions
  1. Verify that site conditions are acceptable for installation of roof and wall panels and accessories
  2. In order to ensure panels seal at side laps, ensure that structure is square and true before beginning panel installation
  3. Do not proceed with installation of roof and wall panels until unacceptable conditions are corrected

### 3.3 PREPARATION

- A. Coordination: Coordinate metal roofing and wall panel work with other work including drainage to provide a non-corrosive and leakproof installation
- B. Dissimilar Metals: Prevent galvanic action of dissimilar metals

### 3.4 INSTALLATION

- A. General: Install metal roofing and wall panels to profiles, patterns and drainage indicated and as required for leakproof installation
  1. Provide for structural and thermal movement of work
  2. Seal joints for leakproof installation
  3. Provide uniform, neat seams
  4. Conceal fasteners where possible in exposed work. Cover and seal fasteners and anchors for watertight and leakproof installation
  5. Provide sealant-type joints where necessary. Form joints to conceal sealant.

## B. Wall Panel Installation

1. Install panels plumb, true and square to correct alignment with framing, in accordance with shop drawings and manufacturer's printed installation instructions
2. Do not attach panels to improperly seasoned or damp lumber
3. Cut only one panel sheet at a time, exposed side down, away from other unused or installed panels
4. Clean panel area of all shavings before installation

## C. Roof Panel Installation

1. Face side laps away from prevailing wind
2. Lay first sheet along eave at downwind side of roof, farthest away from direction of prevailing winds
3. Install inside closures to prevent bird nesting or insect infestation at openings
4. Protect against wind uplift and provide finished appearance by applying rake trim or gable trim
5. Install ridge cap to prevent leakage. Seal off ridge and panel using closure strip
6. In order to prevent corrosion, immediately remove loose metal shavings and debris such as leaves or dirt left on the roof surface

## D. Screw Installation

1. When pre-drilling fastener holes, use a cover sheet to prevent hot shavings from adhering to panels
2. Use appropriate screw fasteners for substrate material
3. Torque fasteners according to manufacturer's instructions
4. Compress integral washer/gasket per manufacturer's instructions; do not under or over compress gasket
5. Install fasteners without distorting panel surfaces

## 3.5 CLEANING

### A. Upon completion of panel installation

1. Remove temporary coverings and protection of adjacent work areas.
2. Repair or replace damaged installed products
3. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance
4. Remove and legally dispose of construction debris from project site

## 3.6 PROTECTION

### A. Protect installed work from damage due to subsequent construction activity on the site

END OF SECTION