

SECTION 07 41 00 PREFORMED METAL STANDING SEAM ROOFING**PART 1 - GENERAL****1.01 DESCRIPTION OF WORK**

- A. This section covers the pre-finished, pre-fabricated standing seam roof system. All accessories, fasteners, and sealants indicated on the drawings as part of this section.
- B. Drawings and general provisions of the Contract, including general and Supplementary Conditions and Division 01 Specifications, apply to this section.
- C. Related Work Specified Elsewhere
 - 1. Section 04 21 13 – Brick Masonry
 - 2. Section 07 05 00 – Underlayment
 - 3. Section 07 11 60 – Membrane Waterproofing
 - 4. Section 07 24 13 – Portland Based Exterior Insulating Finish System
 - 5. Section 07 54 10 – Feltback Adhered Thermoplastic Membrane Roofing
 - 6. Section 07 62 00 – Sheet Metal Flashing and Trim
 - 7. Section 07 62 50 – Aluminum Gutter and Downspouts
 - 8. Section 07 92 00 – Joint Sealants

1.02 SUMMARY

- A. Section Includes; factory formed Standing Seam metal roof panels

1.03 DEFINITIONS

- A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous framing, thermal, and accessories necessary for a complete weather tight roofing system.
- B. References:
 - 1. American Society for Testing and Materials (ASTM)
 - a. ASTM A 653: Steel Sheet, Zinc Coated by the Hot Dip Process
 - b. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process
 - c. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate
 - 2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
 - a. SMACNA Architectural Sheet Metal Manual, 1993 edition
 - 3. American Iron and Steel Institute (AISI)
 - a. AISI Cold Formed Steel Design Manual
 - 4. Aluminum Association

- a. Aluminum Design Manual
5. Code References
- a. ASCE, Minimum Loads for Buildings and Other Structures
 - b. IBC International Building Code
 - c. FBC Florida Building Code. Roof to be installed in accordance with Florida Product Approval

1.04 QUALITY ASSURANCE

- A. Fabral Metal Wall and Roof System, Lancaster, PA products establish a minimum of quality required.
- B. Manufacturer and erector shall demonstrate experience of a minimum of five (5) years in this type of project.
- C. Panels shall be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.05 SUBSTITUTIONS

- A. The material, products and equipment specified in this section establish a standard for required function, dimension, appearance and quality to be met by any proposed substitution.
- B. Equal products will be approved provided they meet the Design Uplift Pressures and are submitted a minimum of ten (10) days prior to bid, meet physical requirements of the system and show acceptable proof of installed performance.

1.06 SYSTEM DESCRIPTION

- A. Material to comply with:
 - 1. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process.

1.07 ROOF SYSTEM PERFORMANCE TESTING

- A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.
- B. Roof System shall be designed to meet Florida Building Code Wind Load requirements.

1.08 WARRANTIES

- A. Weather-tight warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing seam metal roof panel assemblies that fail to remain weather tight, including leaks, within specified warranty period. Material and labor.
 - 1. Warranty Period: 20 Years from date of Substantial Completion

- B. Finish warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace standing seam metal roof panels that show evidence of deterioration of factory-applied finish within specified warranty period.
 - 1. Exposed Panels Finish - deterioration includes the following:
 - a. Color fading more than 5 hunter units when tested according to ASTM D 2244
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
 - c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.
 - 2. Warranty Period: 20 Years from the date of substantial completion
- C. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain roof and flashings in watertight condition.

1.09 SUBMITTALS

- A. Furnish detailed drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and types of sealants, and any other details as may be required for a weather-tight installation.
- B. Provide finish samples of all colors specified.
- C. Shop drawings: Show fabrication and installation layouts of metal roof panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work
- D. Coordination Drawings: Roof plans, drawn to scale, on which the following are shown and coordinated with each other, based on input from installer of the items involved:
 - 1. Roof panels and attachments
 - 2. Steel deck, insulation and underlayment
 - 3. Roof-mounted items including items mounted on roof curbs. Provide drawings for installation of roof mounted curbs including crickets to provide drainage.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instruction and lead time requirements to avoid construction delays.
- B. Deliver components, sheets, metal roof panels and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

- C. Unload, store and erect metal roof panels in a manner to prevent bending, warping, twisting and surface damage.
- D. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Plastic sheeting and plastic tarps are not acceptable. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting or other surface damage.
- E. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.11 PROJECT CONDITIONS

- A. Weather Limitations: proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed.
- B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.12 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports and roof penetrations with actual equipment provided.
- B. Coordinate metal roof panels with rain drainage work, flashing, trim and construction of decks and other adjoining work to provide a leak-proof, secure and noncorrosive installation.

PART 2 - PRODUCTS

2.01 PANEL DESIGN

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with mechanically seamed joint type indicated and mechanically attaching panels to steel deck using concealed clips in side laps. Include clips, cleats, pressure plates and accessories required for a weather-tight installation.
- B. Roof panels shall be Fabral Stand'n Seam 16" coverage, mechanically seamed, 22 gauge, Pre-Painted Galvalume AZ 50
- C. Panels to be produced with Factory supplied hot melt mastic in the seams.
- D. Panels to be produced Smooth – two intermediate ribs - Factory Standard.
- E. Panels to be designed for attachment with concealed fastener clips, spaced as required by the manufacturer to provide for both positive and negative design loads as provided in construction documents, while allowing for the expansion and contraction of the entire roof system resulting from variations in temperature.

- F. Forming: Use continuous end rolling method. No end laps on panels. No portable roll-forming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent of the Engineer to provide Factory-Manufactured panel systems only for this project.

2.02 ACCEPTABLE MANUFACTURERS

- A. This project is detailed around the roofing product of Fabral Metal Wall and Roof Systems, Lancaster, PA Product Stand'N Seam.
- B. Approved equal manufacturers subject to prior approval of submittals before bid.

2.03 MATERIALS AND FINISHES

- A. Preformed roofing panels shall be fabricated of 22 gauge Pre-Painted Galvalume AZ-50.
- B. Color shall be selected by the owner from manufacturer's standard colors to closely match existing "Champagne" color panels and gutters. If match is not available provide "special" color.
- C. Finish shall be Kynar 500 or Hylar 5000 Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesions, flexibility and longevity as specified by Kynar 500 or Hylar 5000 finish supplier.
- D. Strippable film to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film shall be removed before installation.
- E. Trim: Trim shall be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim shall be formed only by the manufacturer or if factory fabrication would compromise watertightness during construction or would un-reasonably delay installation fabrication to be by their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions shall be factory welded material to match the sheeting.
- F. Closures: Use metal profiled closures at the top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.
- G. Fasteners: Fasteners shall be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous panels and flashings to substrates.
- H. Bearing Plates: Manufacturer provided bearing plates will be required.
- I. Plumbing vent stack flashing shall be Decktite installed in accordance with manufacturer's printed installation instructions.
- J. Roofing Underlayment

1. On all surfaces to be covered with roofing material, furnish and install a 40 mil "Peel & Stick membrane", required as outlined by metal panel manufacturer. Membrane to be a minimum of 40 mil thickness, smooth, non-granular, by one of the following manufacturers:
 - a. Polystick MTS by Polyglass
 - b. W.R Grace "Ice & water Shield"
2. Underlayment shall be laid in horizontal layers with joints lapped toward the eaves a minimum of 6", and well secured along laps and at ends as necessary to properly hold the membrane in place. All underlayment shall be preserved unbroken and whole.
3. Self-adhering underlayment shall lap all hips and ridges at least 12" to form double thickness and shall be lapped 6" over the metal of any valley and shall be installed as required by the Standing Seam Panel Manufacturer to attain the desired 20 Year Weathertightness Warranty.

K. Sealants

1. Exterior grade silicone sealant recommended by roofing manufacturer or
2. One part non-sag, gun grade exterior type polyurethane recommended by the roofing manufacturer.

2.04 FABRICATION

- A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.
- B. Fabricate components of the system in factory, ready for field assembly.
- C. Fabricate components and assemble units to comply with fire performance requirements specified.
- D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine alignment of structural framing and related supports, primary and secondary roof framing, solid roof sheathing, prior to installation.
- B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Remove existing metal roof panels, flashing and trim. Properly dispose of all removed materials and debris.
- B. Remove any loose existing self-adhering membrane. Properly dispose of all removed membrane and debris.
- C. Install new self-adhering membrane in accordance with Section 07 05 00, Underlayment.

3.03 INSTALLATION

- A. Panels shall be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.
- B. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.
- C. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.
- D. Clean all drill shavings from the roof surface each day prior to rain or leaving the site. Any panel or trim showing rust specs after installation will be replaced by the contractor at no additional cost to the owner.

3.04 DAMAGED MATERIAL

- A. Upon determination of responsibility, repair or replace damaged metal panels and trim to the satisfaction of the Engineer and Owner.

END OF SECTION 07 41 00