

SECTION 07411

STAINLESS STEEL ROOF PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Manufactured stainless steel roof panels for on-roof machine-seaming, including provision of portable machine tools.
- B. Manufactured stainless steel roof panels for on-roof machine-seaming, including provision of roll-forming equipment and portable machine tools.
- C. Provide all labor, materials, tools, equipment, and services for complete roof panel system.

1.2 RELATED SECTIONS

- A. Section 05120 - Structural Steel: Roof framing.
- B. Section 05310 - Steel Deck.
- C. Section 06100 - Rough Carpentry: Roof framing and sheathing.
- D. Section 06150 - Wood Decking.
- E. Section 07210 - Building Insulation.
- F. Section 07613 - Sheet Stainless Steel Roofing: Custom stainless steel roofing.
- G. Section 07620 - Sheet Metal Flashing and Trim.
- H. Section 07900 - Joint Sealers.

1.3 REFERENCES

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers.
- B. ASTM A 240/A 240M - Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Steel Plate, Sheet, and Strip for Pressure Vessels.
- C. ASTM A 308 - Standard Specification for Sheet, Terne (Lead-Tin Alloy) Coated by the Hot-Dip Process.

- D. ASTM E 907 - Standard Test Method for Field Testing Uplift Resistance of Roofing Systems Employing Steel Deck, Rigid Insulation and Bituminous Built-Up Roofing.
- E. SSIUS - Designer Handbook Series; Specialty Steel Industry of the United States (SSIUS).
 - 1. Stainless Steel for Roofing, Flashings, Copings.
 - 2. Design Guidelines for the Selection and Use of Stainless Steel.
 - 3. Specifications for Stainless Steel.
 - 4. Stainless Steel Fabrication.
 - 5. Stainless Steel Fasteners—A Systematic Approach to Their Selection.
 - 6. Finishes for Stainless Steel.
 - 7. Stainless Steel Architectural Facts.
- F. SMACNA - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors National Association, Inc.; fifth edition, 1993.

1.4 PERFORMANCE REQUIREMENTS

- A. Design roof assembly to conform to the requirements of ASCE 7, Minimum Design Loads for Buildings and Other Structures.
- B. Structural Performance: Design to support the following loads.
 - 1. Uniform live load of _____ psf.
 - 2. Snow load of _____ psf.
 - 3. Equipment loads as indicated on the drawings.
- C. Air Infiltration: _____ cfm per linear foot of seam, maximum, when tested in accordance with _____.
- D. Water Penetration: No leakage at _____ psf static pressure difference, when tested in accordance with _____.
- E. Wind Uplift: Provide roof assemblies meeting requirements of ASTM E 907 for UL Class 90 wind uplift resistance.
- F. Wind-Uplift Resistance: _____, when tested in accordance with _____.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.

- B. Product Data: Submit manufacturer's product specifications for materials and finishes, standard details, installation instructions, test data, and general recommendations, for each component and for complete roof panel installation.
- C. Shop Drawings: Showing methods of erection, elevations and plans of roof panels, sections and details, anticipated loads, flashings and other accessories, interfaces with related work of other trades, and proposed identification of component parts and their finishes.
- D. Samples: Submit samples of stainless steel roof panel, 12 inches by 12 inches minimum, including clips and battens, if applicable.
- E. Certifications: Submit certification that roof panel assembly meets specified loading requirements and has been tested to provide specified resistance to wind uplift and air and water infiltration

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum of 5 years of experience manufacturing stainless steel roof panel systems similar to roof panel system required for this project.
- B. Installer Qualifications: Minimum of 5 years of experience in installing stainless steel roof panel systems similar to roof panel system required for this project.
- C. Field Measurements: Where possible, take field measurements of structural framing and substrate to receive the stainless steel roof panels, prior to fabrication of roof panels.
- D. Mock-Up: Before proceeding with installation, prepare a project mock-up that incorporates materials and methods of fabrication and installation identical with project requirements.
 - 1. Retain accepted mock-up as quality standard for acceptance of completed stainless steel roof panel installation.

2. If accepted, mock-up may be incorporated as a part of the work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver stainless steel roof panels to the project site properly packaged to provide protection against transportation damage and adverse weather. Inspect roof panel materials upon arrival at site. Notify manufacturer of any damaged or stained material.
- B. Store stainless steel material and accessories above ground on well skidded platforms. Elevate one end of each skid to allow for moisture run-off. Store under waterproof covering. Provide proper ventilation to prevent condensation build-up between each roof panel system elements.
- C. Exercise extreme care in unloading, storing and erecting stainless steel roof panels to prevent bending, warping, twisting, and surface damage.

1.8 WARRANTY

- A. Material Warranty: Provide material warranty issued by manufacturer to cover stainless steel roof panels base metal against rupture, structural failure, or perforation due to exposure to normal atmospheric corrosion.
- B. Weathertightness Warranty: Provide warranty issued by contractor and roof panel installer to cover roof panel system against leaks arising out of or caused by ordinary wear and tear under normal weather and atmospheric conditions.
- C. Finish Warranty: Provide manufacturer's material warranty to cover roof panel finish defects.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Stainless Steel Sheet: Provide material manufactured by a producing mill member of the Specialty Steel Industry of the United States. ASD.
- B. Roof Panels: Provide stainless steel roof panels, flashings and accessories from one of the following manufacturers:

1. _____.
 2. _____.
 3. _____.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- D. Substitutions: Not permitted.

2.2 MATERIALS

- A. Stainless Steel Sheet: ASTM A 240/A 240M, Type 304, fully annealed, dead soft temper, finish and thickness as indicated and in accordance with roof panel manufacturer's standards.
- B. Stainless Steel Sheet: Terne-coated stainless steel sheet, complying with ASTM A 308, Type 304, fully annealed, dead soft temper.
1. Coating: Coat both sides of stainless steel sheet with terne alloy (80-20 lead/tin) in accordance with manufacturer's standards for nominal coating weight.
 2. Thickness as indicated and in accordance with manufacturer's standard.

2.3 MANUFACTURED UNITS

- A. Roof Panels: Roll-formed continuous stainless steel roof panels, designed for on-roof machine seaming.
1. Panel Type: Standing-seam.
 2. Panel Type: Batten-seam.
 3. Panel Type: Profile indicated on drawings.
 4. Panel Lengths: Up to manufacturer's maximum standard lengths.
 5. Panel Lengths: _____ feet, minimum.
 6. Metal Thickness: 0.019 inch.
 7. Metal Thickness: _____ inch.
 8. Finish: No.2D (dull) mill rolled sheet finish.
 9. Finish: No.1 (dull mill rolled strip finish).
 10. Finish: _____.
 11. Finish: As selected by Architect from roof panel manufacturer's standards.
- B. Batten Caps: Same material and finish as roof panel sheets; panel manufacturer's standard design.
- C. Trim, Flashing and Accessories: Same material and finish as roof panel sheets, and as detailed on drawings.

- D. Include all clips, anchors, and other accessories necessary for a sound, secure and complete installation.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that substrates and adjacent work are ready to receive work of this section. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install roof panels in accordance with manufacturer's instructions and shop drawings, including the use of "starter" strips.
- B. Install panels plumb, level, and straight, with seams and ribs/battens parallel, conforming to the design as indicated.
- C. Install roof panels for a weathertight condition, allowing for expansion and contraction of metal.
- D. Install underlayment as recommended by panel manufacturer.
- E. Prevent contamination of stainless steel by such elements as iron filings, carbon steel fasteners, hydrochloric acid base fluxes, and chloride masonry cleaners.

3.3 ADJUSTING AND CLEANING

- A. Legally dispose of excess materials and remove debris from site.
- B. Clean work in accordance with recommendations of roof panel manufacturer.
- C. Touch up minor scratches and abrasions as recommended by roof panel manufacturer.
- D. Protect work against damage. Replace work that becomes damaged prior to final acceptance.

END OF SECTION