

SECTION 07410 - METAL ROOFING SYSTEM

City of San Diego, CWP Guidelines

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing a preformed metal roofing system and all appurtenant work necessary to a complete roofing enclosure.
- B. Types of metal panels required shall include [formed sheet steel panels, intended for standing-seam installation] [formed sheet steel panels, intended for batten-seam installation.]

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 05120 Structural Steel
 - 2. Section 05500 Miscellaneous Metalwork
 - 3. Section 07210 Building Insulation
 - 4. Section 07720 Roof Accessories

1.3. CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:
 - 1. Uniform Building Code

1.4 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:
 - 1. American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members
 - 2. American Institute of Steel Construction (AISC) Manual of Steel Construction
 - 3. ASTM A 446 Grade A, Steel Sheet, Zinc-Coated (galvanized by the hot dip process, structural (physical) quality
 - 4. ASTM A 525 General requirements for Steel Sheet, Zinc-Coated (galvanized) by the hop dip process
 - 5. ASTM A 330 (modified) Test for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference

1.5 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted in compliance with Section 01300:
1. Product Data: CONTRACTOR shall submit manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to materials and finishes for each component and for the total system of preformed panels.
 2. Samples: CONTRACTOR shall submit the following samples and accompanying descriptive data:
 1. Roof panel: full panel width, 12 inches long, including batten.
 2. Anchor clips: two required.
 3. Fasteners: two of each type to be used, with a statement regarding intended use.
 4. Closures: one metal closure with foam filler.
 5. Sealant: one sample of each sealant with a statement regarding intended use.
 - [6. Insulation: 12 inches square, full thickness.]
 7. Shop Drawings: CONTRACTOR shall submit small-scale layouts of roof panels and large-scale details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim flashings, closures, and special details. Distinction shall be made between factory and field assembly work.
 8. Engineering Data: ASTM E 330 Modified Test Reports, certified by a professional engineer, confirming that the proposed roofing system will meet the specified design uplift pressures.
 9. Written acceptance of installer from roofing manufacturer.

1.6 QUALIFICATIONS

- A. **Installer's Qualification:** The installer shall be recognized and accepted by the manufacturer as qualified to install the roofing system indicated.

PART 2 - PRODUCTS

2.1 GENERAL

- A. **Performance Test Standards:** CONTRACTOR shall provide preformed roof panel systems which have been pretested and certified by the manufacturer to provide the indicated resistance to air and water infiltration and structural deflection and failure when installed as indicated and when tested in accordance with test procedures described herein.

2.2 SHEET MATERIALS

- A. **Steel to be Coated:** Sheet steel shall be hot-dip zinc coated, ASTM A 446, Grade A, designation G90 for maximum coating performance.

2.3 METAL FINISHES

- A. **General:** Coatings shall be applied either before or after forming and fabrication of panels, as required by the coating process and as required for maximum coating performance capability. Coating shall be protected promptly after application and cure, by application of

strippable film or removable adhesive cover. Cover or film shall remain in place until after installation has been completed. Colors shall be provided to match colors selected by the CONSTRUCTION MANAGER from manufacturer's standard colors.

- B. **Fluoropolymer Coating:** Coating shall be full-strength 70 percent "Kynar 500" coating, baked-on for 15 minutes at 450 degrees F to a dry film thickness of 1.0 mil, 30 percent reflective gloss, ASTM D 523, over minimum 0.2 mil thick baked-on modified epoxy primer.
 - 1. **Durability:** Coating shall be provided which has been field tested under a normal range of weathering conditions for a minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish, and without chalking in excess of Photographic Reference Standard No. 8 as described in ASTM D 659, and without fading in excess of 5 NBS units.

[2.4 THERMAL INSULATION

- A. **Glass Fiber Board Insulation:** Insulation shall be rigid or semi-rigid, noncombustible boards of glass fiber and resinous binders, K-value of 0.26 at 75 degrees F, density of 3.0 pounds per cubic foot, in compliance with FS HH-I-558, Form A.
- B. **Glass Fiber Blanket Insulation:** Insulation shall be flexible, resilient, non-combustible blankets of glass fiber and resinous binders, K-value of 0.27 at 75 degrees F, density not less than 1.5 pounds per cubic foot, in compliance with FS HH-I-521, Type I.]

2.5 MISCELLANEOUS MATERIALS

- A. **Internal Panel Framing:** Framing shall be manufacturer's standard.
- B. **Fasteners:** Fasteners shall be manufacturer's standard noncorrosive types with exterior heads gasketed.
- C. **Accessories:** Except where indicated as WORK of another section, CONTRACTOR shall provide all components required for a complete roofing system, including trim, copings, fascias, ridge closures, clips, seam covers, battens, flashings, gutters, sealants, gaskets, fillers, closure strips and similar items. Match materials and finishes of preformed panels.
- D. **Bituminous Coating:** Coating shall be cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.

2.6 PANEL FABRICATION

- A. **General:** Panels and accessories shall be fabricated and finished at the factory to the greatest extent possible, in accordance with manufacturer's standard procedures and processes, and as required to fulfill the indicated performance requirements. CONTRACTOR shall comply with indicated profiles, dimensional requirements, and structural requirements.
 - 1. Panels shall be installed with concealed fasteners.
 - 2. Individual panels shall be removable for replacement of damaged material without disturbing adjacent panels.
 - 3. Panels shall be fabricated in full length, with no endlaps.

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NTS: PARAGRAPHS "B," "C," AND "D" DESCRIBE STRUCTURAL, INFILTRATION AND PENETRATION PERFORMANCE PARAMETERS. ADJUST AND EDIT TO SUIT JOB CONDITIONS.

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- B. The roofing panel system shall be designed to safely resist the positive and negative loads as specified below or as indicated on the drawings, in accordance with procedures defined in ASTM E 330:

Main Roof	[20] PSF (Positive)	[15] PSF (Negative)
Ridge, Eave, Gable	[20] PSF (Positive)	[15] PSF (Negative)

- C. The panels shall withstand a 250 pound concentrated load applied to a 4-square inch area at the center of the panel at mid span between supports with no panel deformation, rib buckling, or panel sidelap separation that will adversely affect the weather-tightness of the system.
- D. The roofing panel system shall be designed to conform to the following criteria for water penetration and air infiltration:
1. Water Penetration: No significant, uncontrolled leakage at 4 lbs per square foot pressure with spray test.
 2. Air Infiltration: 0.02 cubic feet per minute per square foot for gross roof areas, with 4 lbs per square foot differential pressure.

2.7 MANUFACTURERS

- A. Products of the type indicated shall be provided by the following manufacturers (or equal):
1. Steelite, Inc., "SRS Mechanically Seamed Standing Seam [Batten Seam] Roof System
 2. ASC Pacific, Inc, Standing Seam [Batten Seam] Roofing System

PART 3 - EXECUTION

3.1 INSTALLATION

- A. **General:** CONTRACTOR shall comply with panel fabricator's and material manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates.
1. Excess scrap shall be removed and working surfaces shall be kept free from debris on a daily basis.
 2. Filings caused by drilling or cutting shall be removed immediately from finished surfaces to prevent rust stainings.

- B. **Installation Tolerances:** Panel units shall be shimmed and aligned within an installed tolerance of 1/4-inch in 20 feet and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. **Joint Sealers:** Gaskets, joint fillers and sealants shall be installed where indicated and where required for weatherproof performance of the roofing system. Provide the types of gaskets and sealant or fillers indicated or, if not otherwise indicated, types recommended by the roofing manufacturer.

** END OF SECTION **