

SECTION 05313

STEEL ROOF DECK

PART GENERAL

SECTION INCLUDES

Steel roof deck.

Closures and fillers.

Fastening of deck.

RELATED SECTIONS

Section 03300 - Cast-In-Place Concrete.

Section 05120 - Structural Steel.

Section 07220 - Roof and Deck Insulation.

Section 07500 - Membrane Roofing.

REFERENCES

ASTM A 611 - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Structural Quality.

ASTM A 653/A 653M - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-iron Alloy coated (Galvannealed) by the Hot-Dip Process.

ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

AWS D1.3 - Structural Welding Code - Sheet Steel; American Welding Society.

Fire Resistance Directory; Underwriters Laboratories Inc. (UL).

SDI 29 - Steel Deck Institute Design Manual for Composite Decks, Form Decks, Roof Decks, and Cellular Metal Floor Deck with Electrical Distribution; Steel Deck Institute, Inc. (SDI).

SDI DDM02 - Diaphragm Design Manual; Steel Deck Institute, Inc. (SDI).

SDI Manual of Construction with Steel Deck; Steel Deck Institute, Inc.

Specification for the Design of Cold-Formed Steel Structural Members; American Iron and Steel Institute (AISI).

SUBMITTALS

Submit under provisions of Section 01300.

Product Data:

Submit for each type of decking specified, including dimensions of individual components, profiles, and finishes.

Mechanical fasteners: Test reports from a qualified independent testing agency evidencing compliance with requirements based on comprehensive testing.

Shop Drawings: Show location of deck units, anchorage details, sump pans, cut openings and accessories, and other information required for a thorough review.

Product Certificates: Signed by the manufacturer of the steel deck, certifying the supplied products comply with specified requirements.

Welder Certificates.

QUALITY ASSURANCE

Manufacturer Qualifications: Member of the Steel Deck Institute.

Codes and Standards: Comply with applicable provisions of the following specifications:

American Iron and Steel Institute (AISI).

American Welding Society (ANSI/AWS D1.3 Structural Welding Code/Sheet Steel).

Steel Deck Institute (SDI).

Each welder shall have satisfactorily passed A.W.S. Qualification tests for welding processes involved, and if applicable, shall have undergone recertification.

DELIVERY, STORAGE, AND HANDLING

Protect steel deck from corrosion, deformation, and other damage during delivery, storage and handling.

If ground storage is needed, store deck bundles off the ground, with one end elevated to provide drainage. Protect bundles against condensation with a ventilated waterproof covering. Stack bundles so there is no danger of tipping, sliding, rolling, shifting or material damage. Check bundles periodically for tightness, and retighten as necessary so wind cannot loosen sheets.

Place deck bundles on the building frame near a main supporting beam at a column or wall. Do not place bundles on unbolted frames or on unattached or unbridged joists. Ensure that the structural frame is properly braced to receive the bundles.

PART PRODUCTS

MANUFACTURER

Provide products fabricated by United Steel Deck, Inc.; 14 Harmich Rd. South Plainfield, NJ 07080. Telephone: 908-277-1617 or 800-631-1215; Fax: 908-277-1619.

MATERIALS

Steel Roof Deck: Provide the following type; with depth, design thickness, and design configuration in accordance with the requirements of the SDI.

Intermediate rib (Type F).

Wide rib (Type B).

Deep rib (Type N).

Long span (Types J and H).

Depth: _____.

Design thickness: _____ gage.

Depth and gage: As indicated on the drawings.

Sheet Steel for Galvanized Roof Deck and Accessories: ASTM A 653 Structural Quality, Grade 33 (230 MPa) or higher. Galvanizing: ASTM A 924 with a minimum coating class of G30 as defined in A 653.

Sheet steel for prime-painted roof deck and accessories

shall conform to ASTM A 611 with a minimum yield strength of 33 ksi (230 MPa). Steel deck shall have a coat of manufacturer's standard shop primer paint.

Where fire resistance rated assemblies are required, provide UL-listed units. Identify steel deck bundles with labels bearing the UL mark.

UL Design Number: _____.

UL Design Number: As indicated on the drawings.

ACCESSORIES

Furnish ridge and valley plates, flat plates at change of deck direction, and sump pans, as shown on plans to provide a finished surface for the application of roof insulation and roof covering.

PART EXECUTION

EXAMINATION

Examine support framing and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work of this section.

PREPARATION

Place deck in accordance with approved placement plans.

Locate deck bundles to prevent overloading of support members.

INSTALLATION, GENERAL

Do not use deck units as a working platform or storage area until units are permanently attached in position.

Do not impose construction loads that exceed load carrying capacity of deck.

Install deck panels and accessories according to Steel Deck Institute specifications and recommendations, SDI Manual of Construction with Steel Deck, and in accordance with the placement plans and requirements of this Section.

Place deck panels on structural supports and adjust to final position with ends lapped or butted over structural supports with a minimum end lapped or butted over structural supports with a minimum end bearing of 1.5 inches (40 mm). Attach the deck panels firmly to the supports immediately after placement in order to form a safe working platform.

Cut and neatly fit deck and accessories at skew conditions, around openings, and at other work projecting through or adjacent to the decking.

Do not cut unscheduled openings through the deck without the approval of the Architect; reinforce openings as directed.

ATTACHMENT

Anchor deck units to steel supporting members by arc spot puddle welds or approved mechanical fasteners.

Arc spot puddle welds shall be 5/8 inch (15 mm) minimum visible diameter with the attachment pattern shown on placement drawings.

Mechanical fasteners, either powder actuated, pneumatically driven, or self drilling screws may be used in lieu of welding, provided product data has been submitted and approved.

Side Lap Attachment: Fasten side laps of deck units with spans greater than 5 feet (1.5 m) at mid span or 36 inch (1 m) intervals, whichever distance is smaller, or as shown on design drawings using one of the following methods:

#10 self drilling screws.

Crimp or button punching.

Arc spot puddle welds 5/8 inch (15 mm) minimum visible diameter or 1 inch (25 mm) long arc seam or fillet weld.

Perimeter Edge Attachment: Fasten perimeter edges of deck units at minimum 36 inch (1 m) intervals or as shown on design drawings using one of the following methods:

Arc spot puddle welds 5/8 inch (15 mm) minimum visible diameter or 1 inch (25 mm) long arc seam or fillet weld.

Mechanical fasteners, either powder actuated, pneumatically driven or self drilling screws may be used in lieu of welding, provided product data has

been submitted and approved.

Anchor accessories to supporting members by arc spot welds or self drilling screws at 12 inch (300 mm) maximum intervals or as shown on design drawings.

REPAIRS

Before placement of roof insulation and roof covering:

Inspect the deck for tears, dents, or other damage that may prevent the deck from action as a structural roof base.

Repair tears, dents, or other damage.

Obtain the approval of the Architect.

END OF SECTION