SECTION 05311

NON-COMPOSITE STEEL FORM DECK

PART GENERAL

SECTION INCLUDES

Non-composite steel form 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.

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).

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, 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

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

Sheet Steel for Deck and Accessories: ASTM A 611 with a minimum yield strength of 33 ksi (230 Mpa).

Deck Type and Thickness: As shown on the drawings.

Deck shall be _____ with a minimum metal thickness of _____.

Select deck to provide the load capacities shown on the drawings and as determined using the Steel Deck Institute construction loading criteria.

Whenever possible, deck shall be multi-span and shall not require shoring during the concrete placement procedure.

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

Pour stops, column closures, end closures, cover plates, and girder fillers shall be the type required by the Steel Deck Institute.

Mechanical fasteners or welds are acceptable for accessory attachments.

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.

Do not place deck panels on concrete support structure until concrete has cured and is dry.

Locate deck bundles to prevent overloading of support members.

INSTALLATION, GENERAL

Install deck panels and accessories according to Steel Deck Institute specifications and recommendations, and in accordance with placement plans and requirements of this section.

Install temporary shoring, if required, before placing deck panels.

Place deck panels on structural supports and adjust to final position with ends aligned. Attach firmly to the supports immediately after placement in order to form a safe working platform.

Cut and neatly fit deck units and accessories around openings and 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.

INSTALLATION, FORM DECK

Anchor deck units to steel supporting members by arc spot puddle welds of the following diameter and spacing, or fillet welds of equal strength:

For deck units with metal thickness equal to or greater than 0.028 inches (22 gage, 0.7 mm) use 5/8 inch (15 mm) minimum visible diameter welds with the weld pattern shown on the design drawings.

For deck units with metal thickness less than 0.028 inches (22 gage, 0.7 mm) weld deck through manufacturer's standard welding washers with the weld pattern shown on the Drawings.

Mechanical fasteners, either powder actuated or pneumatically driven, or screws may be used in lieu of welding to fasten deck to supporting framing, provided they have been specifically approved by the Architect.

Fasten side laps and perimeter edges of units between supports at intervals not exceeding 36 inches (1 m) on center, using one of the following methods:

#10 self drilling screws;

Crimp or button punch;

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

Install deck ends over supports with a minimum end bearing of 1.5 inches (40 mm).

Fasten pour stops and girder fillers to supporting structure according to manufacturer's recommendations.

Fasten column closures, cell closures, and Z closures to deck to provide tight fitting closures at open ends of ribs and sides of decking. Fasten cell closures at changes of direction of deck units unless otherwise directed.

REPAIRS

Before concrete placement, inspect deck for tears, dents, or other damage that may prevent the deck from acting as a tight and substantial form. Determine the need for the repair or temporary shoring of deck.

END OF SECTION