

SECTION 053000 – METAL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.2 SUMMARY

- A. Section includes the furnishing and installation of metal decking and accessories.

1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this section shall comply with the following:
 - 1. American Society for Testing and Materials (ASTM) Standard Specifications:
 - a. A653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Gavannealed) by the Hot-Dip Process, Structural (Physical) Quality.
 - b. A924 - Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

SPECIFIER: Substitute the following for painted deck instead of above. Painted deck, below, is normal. Some UL fire ratings require galvanizing.

- a. A1008 - Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low Alloy with Improved Formability.
 - b. A1011 - Steel, Sheet, Hot Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low Alloy with Improved Formability.
 - c. A780 - Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - d. D520 - Zinc Dust Pigment for Paint.
- 2. American Institute Steel Construction (AISC) publications:
 - a. Steel Construction Manual.
 - 3. American Iron and Steel Institute (AISI) publications:
 - a. Specification for the Design of Cold-Formed Steel Structural Members.
 - 4. Steel Deck Institute (SDI) publications:

- a. Design Manual for Composite Decks, Form Decks and Roof Decks.
- b. Diaphragm Design Manual.
- c. Roof Deck Specification.

5. UL Fire Resistance Directory.

1.4 SUBMITTALS

A. Shop Drawings: For metal decking to include:

1. Sizes and lengths.
2. Locations.
3. Details of erection.

1.5 DELIVERY, STORAGE AND HANDLING

A. Protect decking with coverings while in transit and while stored at site.

1. Allow adequate air movement beneath coverings.
2. Provide blocking under stored decking to:
 - a. Provide sloped drainage.
 - b. Keep decking off ground.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General:

1. Materials shall comply with one or more of the following:
 - a. ASTM A653, Grade SS.
 - b. ASTM A924, [G60.] [G90.]

SPECIFIER: Substitute or include the following for painted deck. Painted deck, below, is normal. Some UL fire ratings require galvanizing (above). Some FM standards require Grade E (80 ksi) decking..

- a. ASTM A1008, Cold-rolled, Grade C, 33 ksi yield. [Grade E, 80 ksi yield.]
- b. ASTM A1011, Hot-rolled, Grade 33, 33 ksi yield. [Grade 55, 55 ksi yield.]Xxx

2. Decking which is not galvanized shall be phosphatized and receive 1 coat of the Manufacturer's standard rust inhibitive thermosetting primer.

B. Roof Deck:

1. Type and Size: [1-1/2]-inch, [22] gage, wide rib with nesting type side lap.
2. Painted Deck:

- a. As indicated on the Drawings.
 - b. Classified under UL [] without galvanizing.
3. Galvanized Deck: Classified under UL [].
- C. Composite Floor Deck:
1. Noncellular steel floor form deck and accessories in accordance with appropriate ASTM Standards listed above.
 2. Minimum Yield Strength of Steel Sheet: [40,000] psi.
 3. Minimum Section Modulus: [0.35 cu.in.] for S+ and [0.36 cu.in.] for S-.
 4. [2-inch, 20] gage composite.
 5. For Framing Utilizing Shear Studs: Average deck rib width: 2 inches minimum.
 6. Floor deck shall be of a panel width and configuration to allow centerline of bottom flute to coincide with girder centerline so that shear studs can be welded through deck to girder. Alternately, cut deck and fabricate a closure plate of sufficient strength to support wet concrete.
 7. Floor deck shall be listed under UL [].
- D. Concrete Form Deck:
1. [1-1/2-inch, 22 gage,] for 4-inch slab with maximum span of 5'-0".

2.2 FABRICATION

- A. Fabricate to obtain continuity over as many spans as practicable.

PART 3 - EXECUTION

3.1 ERECTION

A. General

1. Erect decking and weld to supports in accordance with manufacturer's specifications, as herein specified and as indicated on the Drawings.
2. Install decking in conformance with UL design numbers as indicated on the Drawings.
3. Field cutting of openings through the deck shall be less than 16 square feet in area. Perform skew cutting in the field.
4. Touch up field welds on the top surface of deck and damaged areas with paint similar to specified deck finish.

SPECIFIER: Keep following only for galvanized areas.

5. Touch up damaged galvanized areas with a zinc rich paint meeting ASTM D520 and ASTM A780.

B. Roof Deck:

1. Anchoring: Anchor deck to all steel supporting members at a pattern as indicated on the Drawings.
2. Side Laps: Fasten at spacings indicated on the Drawings.
3. Side Termination of Roof Deck: At edges of roof and at openings in roof deck where a structural steel supporting member occurs, the bottom of a flute shall occur and bear on one of the following:
 - a. Supporting steel member.
 - b. A Channel Shaped [18] Gage Member:
 - 1) Connected to both the metal deck and the steel supporting member below with the same connection type and spacing as indicated on the Drawings for anchoring deck to structural members.
 - 2) The channel depth shall match the metal roof deck depth.
 - 3) The length of the horizontal legs of the channel shall be as required to obtain bearing.
4. Span Direction Changes of Roof Deck: Where roof deck changes direction of span, and there is no provision in the structure for an expansion joint, reinforce the discontinuity at the joint with an 9-inch wide, [20] gage, flat plate fastened to both sides of the joint with the same connection type and spacing as indicated on the Drawings for anchoring deck to structural members.

C. Composite Floor Deck:

1. Anchorage:
 - a. Anchor floor deck to supporting members with welded shear studs.
 - b. Where shear studs do not occur, fasten floor deck to steel support members with 5/8 inch diameter puddle welds at 12 inches on center.
2. Side Laps: Fasten side lap of panels with No. 12 self-tapping screw at 36 inches maximum on center.
3. Closures: Furnish end enclosures, side closures and column closures as required to seal the deck for concrete pour.

D. Concrete Form Deck: Anchor to supports and place reinforcement prior to placing concrete.

3.2 CLEANING

- A. Prior to acceptance of the work of this section, thoroughly clean deck and affected areas in accordance with Division 01 requirements.

END OF SECTION 053000