SECTION 05310

STEEL DECK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Acoustical roof deck.

B. Roof deck.

C. Composite floor deck.

D. Supplementary framing for openings up to and including 18 inches.

E. Bearing plates and angles.

F. Acoustical insulation in roof deck flutes, including spaces to facilitate field painting.

G. "Ankore" hanging devices.

1.02 RELATED REQUIREMENTS

A. Section 03300 - Cast-in-Place Concrete: Concrete topping over metal deck.

B. Section 05120 - Structural Steel: Support framing for openings larger than 18 inches.

1.03 REFERENCE STANDARDS

A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel.

B. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

C. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society.

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

E. FM P7825 - Approval Guide; Factory Mutual Research Corporation.

F. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc..

G. SDI (DM) - Publication No.31, Design Manual for Composite Decks, Form Decks, Roof Decks; Steel Deck Institute.

H. SSPC-Paint 15 - Steel Joist Shop Primer; The Society for Protective Coatings.

I. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); The Society for Protective Coatings.

J. SSPC-Paint 25 - Zinc Oxide, Alkyd, Linseed Oil Primer for Use Over Hand Cleaned Steel, Type I and Type II; Society for Protective Coatings.

K. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc..

L. ICC Evaluation Services ES Reports 2047 and 2078P.

1.04 SUBMITTALS

A. See Section 01350 - Submittals, for submittals procedures.

B. Shop Drawings: Indicate deck plan, support locations, projections, openings, reinforcement, cellular raceways and outlet box locations, pertinent details, and accessories.

C. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.

D. Certificates: Certify that products furnished meet or exceed specified requirements.

E. Submit manufacturer's installation instructions.

F. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Design deck layout, spans, fastening, and joints under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in California.

B. Installer Qualifications: Company specializing in performing the work of this Section with minimum 10 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Cut plastic wrap to encourage ventilation.

B. Store deck on dry wood sleepers; slope for positive drainage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Deck: As noted on drawings
   1. Substitutions: See Section 01640 - Substitutions and Product Options.

2.02 STEEL DECK

A. Acoustical Roof Deck: Epic Metals Corp.
   1. The ER3.5A-16 gage acoustical roof deck shall be cold-formed from steel coils conforming to ASTM A653, structural quality, with a minimum yield strength of 40 ksi.
   2. Before forming, the steel coils shall have received a hot-dip protective coating of zinc conforming to ASTM A924, Class G60, as defined in ASTM A653.
   3. The minimum uncoated thickness of the steel furnished shall not be less than 95% of the design thickness.
   4. ER3.5A-16 gage acoustical roof deck shall have continuous dovetail shaped ribs.
   5. ER3.5A-16 gage acoustical roof deck shall have full depth positive registering sidelaps that can be fastened by welds or screws.
   6. ER3.5A-16 gage acoustical roof deck shall be fabricated with perforations. The perforated areas shall be located in the bottom flat areas between the dovetail shaped ribs. A minimum NRC value of .95 shall be provided. This value shall be established by sound absorption tests without the use of fiberglass insulation above the panels.
   7. The top and bottom surfaces of the ER3.5A-16 gage acoustical roof deck shall be prime painted with Epic's standard white. Before painting, the galvanized steel shall be chemically cleaned and coated with an acid wash pre-treatment primer followed by a coat of the manufacturer's standard prime paint and then oven baked. Compatibility of field applied finish paint with factory applied prime paint shall be the responsibility of the painting contractor.

B. Roof Deck: Epic Metals Corp.
   1. The ER3.5-16 gage roof deck shall be cold-formed from steel coils conforming to ASTM A653, structural quality, with a minimum yield strength of 40 ksi.
   2. Before forming, the steel coils shall have received a hot-dip protective coating of zinc conforming to ASTM A924, Class G60, as defined in ASTM A653.
   3. The minimum uncoated thickness of the steel furnished shall not be less than 95% of the design thickness.
   4. ER3.5-16 gage roof deck shall have continuous dovetail shaped ribs.
   5. ER3.5-16 gage roof deck shall have full depth positive registering sidelaps that can be fastened by welds or screws.

6. The top and bottom surfaces of the ER3.5-16 gage roof deck shall be prime painted with Epic's standard white. Before painting, the galvanized steel shall be chemically cleaned and coated with an acid wash pre-treatment primer followed by a coat of the manufacturer's standard prime paint and then oven baked. Compatibility of field applied finish paint with factory applied prime paint shall be the responsibility of the painting contractor.

C. Roof Deck: Verco Manufacturing Company.
   1. Galvanized Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS) with galvanized coating as indicated on drawings.
   2. Structural Properties: As indicated on drawings.
   3. Minimum Metal Thickness, Excluding Finish: As indicated on drawings.
   4. Nominal Height: As indicated on drawings.
   5. Profile: Fluted, as indicated on drawings.
   6. Side Joints: As indicated on dr wings.
   7. End Joints: As indicated on drawings.

D. Composite Floor Deck: Verco Manufacturing Company.
   1. Galvanized Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS) with galvanized coating as indicated on drawings.
   2. Structural Properties: As indicated on drawings.
   3. Span Design: As indicated on the drawings.
   4. Minimum Metal Thickness, Excluding Finish: As indicated on drawings.
   5. Nominal Height: As indicated on drawings.
   6. Profile: Fluted, as indicated on drawings.
   7. Side Joints: As indicated on dr wings.
   8. End Joints: As indicated on drawings.

2.03 ACCESSORY MATERIALS

A. Bearing Plates and Angles: ASTM A 36/A 36M steel, unfinished.

B. Welding Materials: AWS D1.1.

C. Fasteners: Galvanized hardened steel, self tapping.

D. Weld Washers: Mild steel, uncoated.

E. Shop and Touch-Up Primer: SSPC-Paint 25, zinc oxide, complying with VOC limitations of authorities having jurisdiction.

F. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, complying with VOC limitations of authorities having jurisdiction.

G. Flute Closures: Closed cell foam rubber.

H. Acoustical Insulation: Acoustic elements shall be provided for installation above the perforations in the bottom flat area between the dovetail shaped ribs. To facilitate field painting of the perforated surfaces, the sound absorbing elements shall be supported above the surface by spacers. Sound absorbing elements and spacers shall be furnished under this specification section for installation by the roofing contractor.

I. Hanging Devices: Ankor hanging devices shall be installable and relocatable along the length of the interior ribs of the ER3.5A-16 gage acoustical roof deck. The manufacturer's product data shall be consulted for minimum spacing, load capacities, and proper installation procedure of the Ankor hanging devices.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.

3.02 INSTALLATION

A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions. Align and level.

B. On masonry surfaces provide minimum 4 inch bearing.

C. On steel supports provide minimum 2 inch bearing.

D. Fasten deck to steel support members at ends and intermediate supports as indicated on drawings.

E. Weld deck in accordance with AWS D1.3.

F. At deck openings provide reinforcing as indicated on drawings.

G. At floor edges, install concrete stops upturned to top surface of slab, to contain wet concrete. Provide stops of sufficient strength to remain stationary without distortion.

H. At openings between deck and walls, columns, and openings, provide sheet steel closures and angle flashings to close openings.

I. Close openings above walls and partitions perpendicular to deck flutes with single row of foam cell closures.

J. Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up primer.

END OF SECTION