SECTION 053100 - STEEL DECKING

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes:
   1. Roof deck.
   2. Composite floor deck.

1.2 SUBMITTALS
A. Product Data: For each type of deck, accessory, and product indicated.
B. Shop Drawings:
   1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.
C. Welding certificates.
D. Product certificates.
E. Evaluation reports.
F. Field quality-control reports.

1.3 QUALITY CONTROL
A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.
B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

1.4 DELIVERY, STORAGE, AND HANDLING
A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.
B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.
PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

C. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 ROOF DECK

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. ASC Profiles, Inc.; a Blue Scope Steel company.
   2. Canam United States; Canam Group Inc.
   3. CMC Joist & Deck.
   5. Cordeck.
   6. DACS, Inc.
   8. Marlyn Steel Decks, Inc.
   9. New Millennium Building Systems, LLC.
   11. Roof Deck, Inc.
   12. Valley Joist; Subsidiary of EBSCO Industries, Inc.
   14. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.
   15. <Insert manufacturer's name>.

B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:
1. Prime-Painted Steel Sheet:  ASTM A 1008/A 1008M, Structural Steel (SS), Grade 40 minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

2. Galvanized-Steel Sheet:  ASTM A 653/A 653M, Structural Steel (SS), Grade 40 zinc coating.

3. Galvanized and Shop-Primed Steel Sheet:  ASTM A 653/A 653M, Structural Steel (SS), Grade 40, G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.

4. Deck Profile: As indicated.
5. Profile Depth: As indicated
6. Design Uncoated-Steel Thickness: As indicated.

2.3 COMPOSITE FLOOR DECK
A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. ASC Profiles, Inc.; a Blue Scope Steel company.
   2. Canam United States; Canam Group Inc.
   3. CMC Joist & Deck.
   5. Cordeck.
   6. DACS, Inc.
   8. Marlyn Steel Decks, Inc.
   9. New Millennium Building Systems, LLC.
   11. Roof Deck, Inc.
   13. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

B. Composite Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite Steel Floor Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:
1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 40 minimum, with top surface phosphatized and unpainted and underside surface shop primed with manufacturers' standard gray baked-on, rust-inhibitive primer.
2. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33, G60 zinc coating.
3. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33, G60 zinc coating; with unpainted top surface and cleaned and pretreated bottom surface primed with manufacturer's standard gray baked-on, rust-inhibitive primer.
4. Profile Depth As indicated.
5. Design Uncoated-Steel Thickness: 0.0474 inch.

2.4 NONCOMPOSITE FORM DECK

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. ASC Profiles, Inc.; a Blue Scope Steel company.
   2. Canam United States; Canam Group Inc.
   3. CMC Joist & Deck.
   5. Cordeck.
   6. DACS, Inc.
   7. Marlyn Steel Decks, Inc.
   8. New Millennium Building Systems, LLC.
   10. Roof Deck, Inc.
   11. Valley Joist; Subsidiary of EBSCO Industries, Inc.
   13. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

B. Noncomposite Form Deck: Fabricate ribbed-steel-sheet noncomposite form-deck panels to comply with "SDI Specifications and Commentary for Noncomposite Steel Form Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:
   1. Uncoated Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 40 minimum.
   2. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 40 minimum, with underside surface shop primed with manufacturer's standard baked-on, rust-inhibitive primer Gray top surface.
   3. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 40 G60 zinc coating.
4. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.

5. Profile Depth: [9/16 inch] [15/16 inch] [1-5/16 inches] [1-1/2 inches].

6. Design Uncoated-Steel Thickness: [0.0149 inch] [0.0179 inch] [0.0239 inch] [0.0295 inch] [0.0358 inch] [0.0474 inch] [0.0598 inch].

2.5 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.

G. Galvanizing Repair Paint: [ASTM A 780] [SSPC-Paint 20 or MIL-P-21035B, with dry film containing a minimum of 94 percent zinc dust by weight].

H. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer’s written instructions, and requirements in this Section.

B. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

C. Place deck panels flat and square and fasten to supporting frame without warp or deflection.
D. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

E. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

F. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

G. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

H. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and mechanically fasten flanges to top of deck. Space mechanical fasteners not more than 12 inches apart with at least one fastener at each corner.
   1. Install reinforcing channels or zees in ribs to span between supports and mechanically fasten.

I. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Mechanically fasten to substrate to provide a complete deck installation.
   1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

J. Pour Stops and Girder Fillers: Weld steel-sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.

K. Floor-Deck Closures: Weld steel-sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.

3.2 QUALITY ASSURANCE

A. Testing Agency: SRP will engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Testing agency will report inspection results promptly and in writing to SRP and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.
3.3 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.

END OF SECTION