

SECTION 053114 – STEEL FLOOR CENTERING

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 SECTION INCLUDES

- A. Metal Centering for floor construction.

1.3 QUALITY ASSURANCE

- A. Erector/Installer's Qualifications: Experienced in the installation and/or erection of metal centering and accessories; approved for the installation of the centering by the manufacturer of the centering.
- B. Qualification of welding:
 - 1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."
- C. Product Compatibility: Products indicated as part of a specific assembly shall be certified by each manufacturer to be compatible with the other products proposed for use by the contractor in that assembly.
- D. Referenced Standards: The following publications of the issues listed below, but referred to hereinafter by basic designation only, form a part of this specification.

1.4 REFERENCES

- A. Steel Deck Institute (SDI).
- B. American Iron and Steel Institute (AISI): "Specifications for Design of Light Gauge Cold-Formed Steel Structural Members"
- C. American Society for Testing and Materials (ASTM).
 - a. A446-75 - Specification for Steel Sheet, Zinc-Coated (Galvanized by the Hot-Dip Process, Structural (Physical) Quality.
 - b. A525-75 - Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, General Requirements.
- D. American Welding Society (AWS): Code for Welding in Building Construction.

1.5 SUBMITTALS

A. Manufacturer's Data, Metal Floor Decking:

1. For information only, submit two copies of manufacturer's specifications and installation instructions for each product specified. Include manufacturer's certification as may be required to show compliance with these specifications. Indicate by transmittal form that a copy of each instruction has been distributed to the installer.

B. Shop Drawings: Show complete erection layouts, connection details, welds, and anchorages. Indicate framing and support locations, dimensions and marking of decking sections to correspond with installation sequence and procedure; show connections with adjoining construction and materials, types of welds and locations of all hole and/or openings in centering.

PART 2 - PRODUCTS

2.1 MATERIALS

A. The metal centering floor deck units and all flashings shall be formed from steel sheets conforming to ASTM A-446, Grade A for galvanized sheets.

B. The steel shall have received, before being formed, a metal protective coating of zinc conforming to ASTM A-525 T wiped coating, Designation G60, and to Federal Specifications QQ-S-775C, Type 1, Class E.

C. Galvanizing Repair Paint: High zinc-dust content paint for repair of damaged galvanized surfaces complying with ASTM A780-80.

D. Wing Washers as manufactured by the United Steel Deck or approved equal.

2.2 PERFORMANCE REQUIREMENTS

A. Properties of Sections: Compute the properties of metal floor deck sections on the basis of the effective design width as limited by the provisions of the AISI Specifications, Section 2.3.1 and 2.3.5. Provide not less than the deck section properties shown, including section modulus and moment of inertia per foot of width.

B. Design Criteria:

1. Allowable Deflection: Design and fabricate deck for maximum deflection of $1/360$ of the clear span under the total uniform super-imposed and live load.
2. Reports of test conducted as set forth by AISI Specifications may be submitted in lieu of calculations of strength, safe load carrying capacity, deflection or other properties.
3. Composite floor unit (combined steel and concrete sections) shall be capable of supporting concentrated loadings plus 50% impact factor. Where more than 1' width of composite section is required to carry this loading, the lateral distribution characteristics must be demonstrated by full scale simple span load tests, or by rational analysis associated with subject tests.

2.3 FABRICATION

A. Metal centering floor deck units:

1. Form centering units in lengths to span 3 or more support spacings, with nested side laps and end laps.
2. Centering shall be 9/16 inch x 28 gauge galvanized slabform type "UFS" as manufactured by United Steel Deck or approved equal.

B. Metal closure strips:

1. Fabricate metal closure strips for openings between floor centering and other construction, of sheet steel of the quality as the deck units. Form to the configuration required to provide tight fitting closures at open ends of cells or flutes and sides of the floor centering. Fabricate 16 gauge screed angles as shown on the drawings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine the areas and conditions under which metal centering is to be installed and provide written notification of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 INSTALLATION

- A. General: Install centering and accessories in accordance with manufacturer's recommendations and final shop drawings, and as specified herein. Place centering on supporting steel framework and adjust to final position with ends accurately aligned and 2" minimum bearing on supporting members before being permanently fastened. Place deck units flat and square and provide solid level bearing at steel supports and secured to adjacent framing without warp or excessive deflection. Coordinate and cooperate with structural steel erector in locating decking bundles to prevent overloading of structural members.

1. Do not use centering for storage or working platforms until permanently secured in position.

B. Fastening deck units:

1. Fasten deck units to steel supporting members by not less than 5/8" diameter fusion welds, spaced not more than 12" o.c. at supports. Comply with AWS requirements and procedures for manual shielded metal arc welding, the appearance and quality of welds, and the methods used in correcting welding work. Use welding washers. Weld side laps of adjacent deck units between supports, at intervals not exceeding 24" o.c.

- C. Cutting and fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown on the drawings.

- D. Reinforcement at openings: Provide additional metal reinforcement and closure pieces as required for strength, continuity of decking and support of other work shown. Reinforce decking

around openings 6" to 12" in size by means of flat galvanized steel sheet placed over opening on top of centering and fusion welded to surface of deck. Provide 18 gauge steel sheet of same quality as deck units at least 12" wider and longer than opening. Space welds at each corner at not more than 12" o.c. along each side.

- E. Closure strips: Provide metal closure strips at all open uncovered ends and edges of decking, and in the voids between decking and other construction. Weld into position to provide a complete decking installation. Weld screed angles to spandrel beams for complete perimeter forming.
- F. Touch-up painting: After decking installation, wire brush, clean and paint scarred areas, welds and rust spots on the top and bottom surfaces of decking units and supporting steel members. Touch-up galvanized surfaces with the same type of shop paint used on adjacent surfaces per ASTM A780-80. Touch-up painted surfaces with the same type of shop paint used on adjacent surfaces. In areas where shop-painted surfaces are to be exposed, apply touch-up paint to blend into the adjacent surfaces.

3.3 INSPECTION

- A. The Owner shall employ an inspection agency approved by the engineer to inspect the field welding of the metal to the supporting structure. The cost of all the tests and inspections are to be borne by the Owner.
- B. Acceptance of the shop and field inspection done by the testing agency pertaining to the structural steel, does not relieve the Contractor of his responsibility to insure that the project has the proper sizes, strength, fabrication and erection procedures and any other requirements of the Contract Documents.

3.4 CONTRACTOR'S RESPONSIBILITY

- A. Submit copies of all reports indicating conformance and exceptions to contract documents in a timely fashion to General Contractor for distribution to design consultants, owner, subcontractors and other interested parties.
- B. Final Report: The Inspection Agency shall prepare a written report that summarizes the work inspected during the course of the project, and certifies that the work meets the requirements of the contract documents, specifications, and all governing agencies.

END OF SECTION 053114