

SECTION 05500

METAL FABRICATIONS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Shop Fabricated Metal Items, Including Galvanized and Aluminum.

1.2 RELATED SECTIONS

- A. Section 03001 – Concrete: Placement of metal fabrications in concrete.
- B. Section 03300 – Cast-In-Place Concrete.
- C. Section 15100 – Gates.

1.3 REFERENCES

- A. ASTM A36 - Structural Steel.
- B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.
- C. ASTM A123 - Zinc (Hot-Galvanized) Coatings on Products Fabricated From Rolled, Pressed and Forged Steel Shapes, Plates, Bars, and Strip.
- D. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- E. ASTM A283 - Carbon Steel Plates, Shapes, and Bars.
- F. ASTM A325 - High Strength Bolts for Structural Steel Joints.
- G. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.
- H. ASTM A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.
- I. ASTM 6061-TC Aluminum Shapes.
- J. AWS A2.0 - Standard Welding Symbols.
- K. AWS D1.1 - Structural Welding Code.
- L. AWS D1.2 - Aluminum.
- M. SSPC - Steel Structures Painting Council.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300 – Submittals.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

- C. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

#### 1.5 QUALIFICATIONS

- A. Prepare shop drawings under direct supervision of a licensed professional engineer in the State of Michigan, experienced in structural design.

#### 1.6 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

#### 1.7 UNIT PRICE – MEASUREMENT AND PAYMENT

- A. All work items of this Section which include wall sleeves, pump support beams, mounting plates, trash racks, grating embed angles, floor grating, hand rails, staff gauges, grating hardware, aluminum tread plate stop log covers, cap channels, and any other miscellaneous fabricated items are paid for under other pay items of the project.

### 2. PART 2 PRODUCTS

#### 2.1 MATERIALS

- A. Steel Sections: ASTM A36.
- B. Aluminum Sections: ASTM 6061-T6.
- C. Steel Tubing: ASTM A500, Grade B.
- D. Plates: ASTM A283.
- E. Pipe: ASTM A53, Grade B, Schedule 80.
- F. Bolts, Nuts, and Washers: ASTM A325, galvanized to ASTM A153 for galvanized components. 316 stainless steel.
- G. Welding Materials: AWS D1.1; type required for materials being welded.
- H. Shop and Touch-Up Paint: SSPC 15, Multi-Purpose Epoxy.
- I. Touch-Up Primer for Galvanized Surfaces: Zinc rich type.
- J. All steel shall be new unless otherwise noted.

#### 2.2 FABRICATION

- A. Fit and shop assemble in largest practical sections, for delivery to Site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Continuously seal joined members by continuous welds.
- D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.3 FINISHES

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Galvanize in accordance with ASTM A123, structural steel members. Provide minimum 2.0 oz/sq ft galvanized coating.

3. PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive Work.
- B. Beginning of installation means erector accepts existing conditions.

3.2 PREPARATION

- A. Clean and strip painted steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

3.3 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated on shop drawings.
- D. Perform field welding in accordance with AWS D1.1. and D1.2.
- E. Obtain Engineer approval prior to site cutting or making adjustments not scheduled.
- F. After erection, paint welds, abrasions, and surfaces not shop painted or galvanized, except surfaces to be in contact with concrete.

END OF SECTION