SECTION 05500

METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

A. Provide miscellaneous metal work shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

C. Codes: Materials and work shall conform to the governing Building Code. In case of conflict between these specifications, the standard specifications, and the Building Code, the more stringent shall govern.

1.02 SUBMITTALS

A. Comply with pertinent provisions of Section 01300.

B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades;
4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.
5. Sample of tube steel fence and gate sections.

1.03 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Perform shop and/or field welding required in connection with the work of this Section in strict accordance with pertinent recommendations of the American Welding Society.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 01600.

PART 2 - PRODUCTS

2.01 MATERIALS

A. In fabricating items which will be exposed to view, limit materials to those which are free from surface blemishes, pitting, rolled trade names, and roughness.

B. Comply with the following standards, as pertinent.
1. Steel plates, shapes, and bars: ASTM A36, hot dipped galvanized as noted on the Drawings;
2. Steel plates to be bent or cold-formed: ASTM A283, grade C, hot dipped galvanized;
3. Steel tubing (cold-formed, welded, or seamless): ASTM A500 grade B, hot dipped galvanized as noted on the Drawings;
4. Steel bars and bar-size shapes: ASTM A306, grade 65, or ASTM A36;
5. Cold-finished steel bars: ASTM A108;
6. Wire mesh reinforcing in slabs: ASTM A-185;
7. Cold-rolled carbon steel sheets: ASTM A336;
8. Galvanized carbon steel sheets: ASTM A526, with G90 zinc coating in accordance with ASTM 525;
9. Stainless steel sheets, fastners, and rods: AISI type 302 or 304, 24 gage, with number 4 finish. Fastners and rods machined from 316 stainless steel;
10. Gray iron castings: ASTM A48, class 10;
11. Malleable iron castings: ASTM A47;
12. Steel pipe: ASTM A53, grade B, schedule 40, black finish unless otherwise noted;
13. Concrete inserts:
    a. Threaded or wedge type galvanized ferrous castings of malleable iron comply with ASTM A27;
    b. Provide required bolts, shims, and washers, hot-dip galvanized in accordance with ASTM A153.
14. All ferrous metal fabrications shall be galvanized in accordance with applicable ASTM specifications.
    a. Touch up primer for galvanized surfaces at exterior locations: Ready mix zinc rich galvanizing compound, Devcon 2 by Devcon Corp.

2.02 FASTENERS

A. General:
1. For exterior use and where built into exterior walls, provide zinc-coated fasteners.
2. Provide fasteners of type, grade, and class required for the particular use.

B. Comply with following standards as pertinent.
1. Bolts and nuts: Provide hexagon-head regular type complying with ASTM A307, grade A;
2. Lag bolts: Provide square-head type complying with Fed Spec FF-B-561;
3. Machine screws: Provide cadmium plates steel type complying with Fed Spec FF-S-111;
4. Washers:
    a. Plain washers: Comply with Fed Spec FF-W-92, round carbon steel;
    b. Lock washers: Comply with Fed Spec FF-W-84, helical spring type carbon steel;

5. Toggle bolts: Provide type, class, and style needed but complying with Fed Spec FF-B-588;
6. Anchorage devices: Provide expansion shield complying with Fed Spec FF-S-325.

2.03 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

2.04 SHOP PAINT

A. Primer: Use "10-99 Tnemec Primer" or "Rustoleum Number 5769 Primer".

B. For repair of galvanizing, use a high zinc-dust content paint complying with MIL-P-21035.

2.05 FABRICATION

A. Except as otherwise shown on the Drawings or the approved Shop Drawings, use materials of size, thickness, and type required to produce reasonable strength and durability in the work of this Section.

B. Fabricate with accurate angles and surfaces which are true to the required lines and levels, grinding exposed welds smooth and flush, forming exposed connections with hairline joints, and using concealed fasteners wherever possible.

C. Prior to shop painting or priming, properly clean metal surfaces as required for the applied finish and for the proposed use of the item.

D. On surfaces inaccessible after assembly or erection, apply two coats of the specified primer. Change color of second coat to distinguish it from the first.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.02 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.03 INSTALLATION

A. General:
1. Set work accurately into position, plumb, level, true, and free from rack.
2. Anchor firmly into position.

3. Where field welding is required, comply with AWS recommended procedures of manual-shielded metal- arc welding for appearance and quality of weld and for methods to be used in correcting welding work.
4. Grind exposed welds smooth, and touch up shop prime coats.
5. Do not cut, weld, or abrade surfaces which have been hot-dip galvanized after fabrication and which are intended for bolted or screwed field connections.

B. Immediately after erection, clean the field welds, bolted connections, and abraded areas of shop priming. Paint the exposed areas with same material used for shop priming.

END OF SECTION - 05500