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SECTION 05500

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## SECTION 05500

## MISCELLANEOUS METAL

## PART 1 GENERAL

## 1.1 SCOPE

MISCELLANEOUS METAL consists of all metal materials and fabricated items.

## 1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 6M (1995c) General Requirements for Rolled Structural Bars, Plates, Shapes, and Sheet Piling
- ASTM A 53 (1996) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- ASTM A 307 (1994) Carbon Steel Bolts and Studs, 60000 PSI Tensile Strength
- ASTM A 123 (1989a) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- ASTM A 153M (1995) Zinc Coating (Hot-Dip) on Iron and Steel Products.
- ASTM A 283M (1998) Low and Intermediate Tensile Strength Carbon Steel Plates
- ASTM A 490M (1993) High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric)
- ASTM A 588M (1994) High-Strength Low-Alloy Structural Steel
- ASTM A 924M (1999) General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

## AMERICAN WELDING SOCIETY (AWS)

- AWS D1.1 (1998) Structural Welding Code - Steel

## 1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals not having a "GA" designation are for information only. When used, a designation following the "GA" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Miscellaneous Metal Items; steel plate.

Detail drawings indicating material thickness, type, grade, and class; dimensions; and construction details. Drawings shall include catalog cuts, erection details, manufacturer's descriptive data and installation instructions, and templates.

#### SD-04 Samples

Miscellaneous Metal Items; steel plate.

Samples shall be full size, taken from manufacturer's stock, and shall be complete as required for installation in the structure. Samples may be installed in the work, provided each sample is clearly identified and its location recorded.

#### 1.4 GENERAL REQUIREMENTS

The Contractor shall verify all measurements and shall take all field measurements necessary before fabrication. Welding to or on structural steel shall be in accordance with AWS D1.1. All miscellaneous metal items shall be high-strength low-alloy structural steel after fabrication. Structural steel shall be in accordance with ASTM A 588M as applicable. Thickness of metal and details of assembly and supports shall provide strength and stiffness. Items specified to be galvanized, when practicable and not indicated otherwise, shall be hot-dip galvanized after fabrication. Galvanizing shall be in accordance with ASTM A 653M, as applicable. Exposed fastenings shall be compatible materials, shall generally match in color and finish, and shall harmonize with the material to which fastenings are applied. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified, shall be included. Poor matching of holes for fasteners shall be cause for rejection. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide strength and stiffness. Joints exposed to the weather shall be formed to exclude water.

#### 1.5 DISSIMILAR MATERIALS

Where dissimilar metals are in contact, or where aluminum is in contact with concrete, mortar, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, the surfaces shall be protected with a coat of bituminous paint or asphalt varnish.

#### 1.6 WORKMANSHIP

Miscellaneous metalwork shall be well formed to shape and size, with sharp lines and angles and true curves. Drilling and punching shall produce clean true lines and surfaces. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish, and unless otherwise approved, exposed riveting shall be flush. Where tight fits are required, joints shall be milled. Corner joints shall be coped or mitered, well formed, and in true alignment. Work shall be accurately set to established lines and

elevations and securely fastened in place. Installation shall be in accordance with manufacturer's installation instructions and approved drawings, cuts, and details.

## PART 2 PRODUCTS

### 2.1 FISH LADDER PLATE

Fish ladder plates shall be 13 mm thick, steel plate. High-strength low-alloy steel conforming with ASTM A 588M, this type of steel has the atmospheric corrosion resistance in most environments.

### 2.2 HEADED ANCHOR STUD

Headed anchor studs shall conform to ASTM A 490M Type 3 unless noted otherwise. The weld material on the headed studs shall conform to ASTM A 588M.

### 2.3 MISCELLANEOUS

Miscellaneous plates and shapes, such as grates, mountings and frames, shall conform to ASTM A 36 and shall be galvanized in accordance w/ASTM A153M. Welding of Miscellaneous metal shall conform to AWS D1.

## PART 3 EXECUTION

### 3.1 GENERAL REQUIREMENTS

All items shall be installed at the locations shown and according to the manufacturer's recommendations

### 3.2 INSTALLATION

Fish ladder plates and headed anchor studs shall be installed before the fish ladder concrete has been poured.

-- End of Section --