

## **TECHNICAL SPECIFICATIONS AND GENERAL DOCK DETAILS**

### **PART 1 - GENERAL**

#### **1.1 Description**

- A. Work covered by this Section consists of furnishing and delivering floating dock components for steel truss dock sections necessary for the replacement of four floating docks at the Watts Bay Marina. Three of the docks will be Seventy Feet (70') each in total length and six feet (6') in width. The fourth dock will be Forty Feet (40') in total length and six feet (6') in width. Dock sections are to be provided in ten-foot lengths, for a total of twenty-five (25) Six Foot (6') wide by Ten Foot (10') long sections.

#### **1.2 Work Included**

- A. All floating dock materials including steel truss frame, dock connection hardware, floats, decking, anchor guides, rub rails, cleats, and all other appurtenances as shown on the Drawing unless otherwise noted. Pipe anchors and rub rail mounting boards to be provided by others. Assembly and installation of dock also provided by others.

#### **1.3 Submittals**

- A. Design calculations shall be signed and sealed by a Pennsylvania Registered Professional Engineer that has a minimum of five years of experience in the design of floating docks. The design shall provide a minimum freeboard of 20-inches as measured from the water surface to the finished decking surface.
- B. The Contractor must submit certification for any steel products which will be used in the project pursuant with the provisions of the Steel Products Procurement Act (ACT of 1978, March 3, P.L. 6, No. 3 1-7) (73 P.S. 1881-87) which, in part, requires that if any steel products are to be used or supplied in the performance of a contract, only steel products, as defined by the ACT, that are made in the United States may be used.
- C. Certified Mill Reports for all materials
- D. Structural Steel Truss Frames - Shop drawings:
  - 1. Individual dock plans shall indicate the location of all joints, framing, cleat layout, anchorage system and other dock amenities.
  - 2. Typical sections of mail walk.
  - 3. Details of anchorage system.
  - 4. Rub rails and or moldings.

- E. Bills of lading for all materials
- F. Flotation – Product information, certification
- G. Decking – Product Information
- H. Cleats – Product information
- I. Vinyl Bumper – Product information
- J. Tread Plate and Hinge – Product information
- K. Float Warranty - The Contractor shall provide a minimum ten-year performance guarantee from the date of acceptance of work, for the floatation for the subject dock system. This warranty shall exclude deterioration or wear due to normal aging and weathering of the floats. Warranty shall cover repair of any defects or damages which may develop within minimum of ten (10) years from the date of acceptance of material provided under this Contract provided the Department operates the facility in accordance with acceptable procedures. Any defective or damaged portion shall be replaced or repaired to its original condition or better at no expense to the Department.
- L. Bulkhead Connection: docks will be attached to existing bulkheads as detailed on drawing. Single pin connection hardware to be provided as part of contract and welded to a hardware plate by Department. Hardware shall consist of appropriately sized connections, as described in Section 2.3 and depicted on drawings.
- M. Anchorage System – Spud type anchorage system shall be installed. Spud anchor pipe to be provided by others. Spud holder shall be galvanized interior mounted style, with minimum 3 inch inside diameter. Spud holder shall be capable of receiving a 2” diameter galvanized schedule 80 pipe. Spacing of spuds shall be as shown on the drawings or as recommended by the manufacturer and/or supplier of the docks.

## **PART 2 - PRODUCTS**

### **2.1 All Steel Products**

- A. Steel Truss Frames shall be 12” high and constructed from 1.5” X 1.5” X 3/16” steel angle with ½” round bar separator. Truss Frame sections shall be 6’ wide X 10’ long and shall be bolted together with 1/2” X 1.5” bolts.
- B. All corner braces, any pile guides, plating, channels, angles, all ASTM A449 bolts, nuts and washers and any other steel product to be hot-dipped galvanized min 2 oz./ft<sup>2</sup> coating in accordance with ASTM A123 after fabrication.

- C. All dock hardware shall be 0.25" hot-dipped galvanized min 2 oz./ft<sup>2</sup> coating in accordance with ASTM A123 after fabrication.
- D. All welding shall be galvanized after fabrication according to ASTM A123.

## **2.2 Lumber**

- A. rub rail mounting boards are to be supplied by others.

## **2.3 Connections**

- A. Connections between docks shall alternate between single pin connection and rigid bolted connection every 10 feet to allow for removal of dock in sections during winter.
- B. Connections shall be made by male connector with ¾" tabs and female connector with double ½" tabs. All inside corner hardware will have welded gussets.
- C. Connections shall not protrude above the level of the deck and shall provide a relatively smooth top surface.

## **2.4 Fasteners**

- A. All ½" carriage bolts and fasteners will be hot dipped and galvanized in accordance with ASTM-53. All decking shall be attached using deck manufacturer recommended fasteners.

## **2.5 Flotation**

- A. Flotation units shall be of seamless one-piece polyethylene rotationally molded structure and shall have a solid mounting flange around the entire perimeter of float.
- B. Each unit shall be attached directly to structural frame using a minimum 3/8" bolt and fender washer. A minimum of four mounting fasteners are to be used; two per each opposite end.
- C. Flotation units shall be attached in such a manner as to allow easy removal or replacement of damaged floats.

## **2.6 Accessories**

- A. Rub Rail – Single lip vinyl fender on top of rub rail with separate flat fender directly below on side of rub rail as depicted in C-101.
- B. Cleats – Dock cleats shall be 10" galvanized and attached to the framework with a minimum of 2 bolts. Bolts shall be galvanized. 50 total cleats are to be provided.

## **2.7 Decking**

- A. Deck boards shall be fully synthetic HDPE, wood-free composition, such as WearDeck by Owens Corning Lumber or equivalent. Light grey in color.
- B. Deck boards shall be 5/4 inch thick by 6 in. wide, capable support of 120 lbs/SqFt and able to span 16 in. on center.
- C. For design purposes: Deck boards shall be laid perpendicular to long axis of dock. Each board shall span the width of the dock without splices. A spacing of 1/4" shall be provided between the deck boards.

## **PART 3 - EXECUTION**

### **3.1 Procedure**

- A. The contractor shall furnish dock components as shown on the drawing. Dock components shall be delivered to the park.