

**Wells Spring, Rector Branch and Frazier Park Access Areas
General Specification for
Courtesy Docks
Tennessee Wildlife Resources Agency**

1) Scope of Work

- i) The work covered by this section consists of furnishing all materials, hardware, piers, gangway, stiff leg/cable anchorage system, fasteners and other marina hardware necessary to provide the dock system as shown in the plans and specifications. The dock shall be delivered to the site prefabricated as possible with floats attached.

2) WORKMANSHIP AND QUALITY

Applicable Standards

- (a) American Institute of Steel Construction
 - (b) Aluminum Association- Aluminum Design Manual
 - (c) American Welding Society
 - (d) American Iron and Steel Institute-Light Gauge Cold- Frames Steel Design Manual
 - (e) ASCE Report No. 50 "Small Crafts Harbors", Third Edition (2012) or Current Edition
American Society of Testing Materials
 - (t) Galvanizing Conforms to ASTM A-123
 - (g) Steel Conforms to ASTM Designation: A-36
- 3) All finished steel members shall be free from twists, bends, distortions and open joints. All steel construction shall be free of sharp edges and burrs; ends of exposed steel members shall be rounded or beveled. Projecting material and burrs which would prevent bearing of the various members on each other shall be removed. All steel components shall be hot dipped galvanized after fabrication.
 - 4) Aluminum extrusions for dock, pier, and gangway structures shall be aluminum alloy 6061-T6 E-channels extruded in accordance with the requirements of applicable sections of Federal Specifications QQ-A-200. Miscellaneous aluminum may be 6063-TS or 5052-H32.
 - 5) All welding shall conform to the requirements of the American Welding Society. Welds shall be a solid and homogenous part of metal joined and shall be free of pits and scale and shall be full areas and length required to develop the required strength for the intended use.
 - 6) All drilling and cutting of steel done after galvanizing shall be painted with a high zinc dust content paint. All welds over galvanized material shall be thoroughly cleaned and coated with a minimum two coats of cold galvanizing compound.
 - 7) All connections between the modular sections shall occur below deck level. All bolts, nuts and washers shall be galvanized or stainless-steel type 304.

8) VERTICAL DESIGN LOADS

- A. Dead load shall be the entire weight of the floating pier and access ramp.
- B. Deck surface and structural frame loading shall be equal to a minimum of 30 lbs. per square foot applied to the full deck surface.

9) C. Access ramp shall be designed for 30lb per square foot applied to the full surface area.

- D. Floation deck **live load** shall be designed for 30lb per square foot to the full area of the deck.

10) HORIZONTAL DESIGN LOADS

- A. Uniform wind load of 20lb per square foot on all projected surfaces.
 - i) B. Prevent torsion, racking and twisting by providing sufficient built-in rotational resistance to prevent no more than 3 inches of rotation in normal freeboard per 30 linear feet of dock under any combination of normal loads.

11) FREEBOARD

- A. Floating docks shall provide freeboard under the loading conditions listed below, with no more than 1" loss of freeboard after one year of service.
 - a) Floation shall maintain a minimum freeboard of 16" and maximum of 20" under combined dock dead load and supported gangway and utility load.
 - b) Floation shall maintain freeboard of 8" under the dead load condition plus the live load specified in section 3 D, uniformly distributed across the entire decking.
 - i) B. When the floating dock must support a gangway, special condition must be given to ensure that adequate floatation is provided to the floating dock to support the tributary dead load of the gangway.

12) FLOAT POLYETHELENE SHELL

13) Poly shells shall be one-piece roto-molded units. Units filled with expanded in place polystyrene or closed cell polyurethane. Floation units to be shipped securely bolted to bottom of frame. Floation device shall carry a 10 limited warranty to the original purchaser.

14) Floation Integrity: Floation units shall be designed to maintain their desired buoyancy and freeboard even if structurally damaged. Connections of floatation units shall be designed to that the dock acts as a unit.

15) COURTESY DOCK

The floating courtesy dock shall be 10 feet wide by 20 feet long in length. The dock shall be decked with powder coated aluminum decking, vinyl decking (PVC), mill finished welded aluminum decking or composite. All ferrous materials, including reinforcement, shall be galvanized steel or T6-6061 marine grade aluminum. (Minimum). Vendor will be responsible for placement of the floatation material to ensure the installed dock with gangway in place floats level (+/- 2%) under static conditions and to provide a freeboard of 16 inches (+/-2"). The dock

core shall be expanded polystyrene bead board flotation or equal. Dock shall be equipped on three sides with commercially manufactured plastic lumber or equal for a bumper/rub rail. Dock shall be resistant to animals, petroleum products, ultraviolet deterioration, detergents, and minor bumps by boats. Vendor shall provide a galvanized steel transition plate from gangway to floating dock.

1. FENDER BOARD

Banding board around full perimeter shall be a minimum of 2"X8" lumber dimension. Wood fendering shall be Southern Yellow Pine No. 2 Structural (1200# extreme fiber bending) Stress Grade with a minimum CA-C (Copper Azole) content equal to 0.10 pounds per cubic foot or equal. All wood shall comply with American Softwood Lumber Standard PS20-70. Each piece of lumber shall be identified by the grade and treatment mark of recognized organization or independent agency certified by the American Lumber Standards Committee, Washington, DC to grade the species. All Lumber specified for treatment shall be treated to the requirements of American Wood Preserves Bureau AWPB LP-22.

9. ANCHORAGE SYSTEM

A connector plate or angle with piano-type hinge shall be fabricated to connect the gangway to the concrete anchor block. Vendor will fabricate and supply the gangway connector plate prior to anchor block construction by TWRA forces.

10. GANGWAY

Gangway shall be ADA compliant and shall be 30 feet long and 5 feet wide between handrails with TREX slip resistant decking or equal. It shall have the same design loads as the dock. Each deck board shall be attached according to the manufacturer's installation specifications. The gangway shall have a minimum height of 42-inch guardrails, height of handrails shall be 36 inches above the deck (1 1/2 inch clearance between handrail and guardrail, See Section 505.5 of the 2010 ADA standards), handrails gripping surfaces shall be circular cross section and shall have a 1 1/2 inch outside diameter (see section 505.5 of the 2010 ADA standards). Guard rails shall be looped to the mid rail and shall extend one (1) foot past each end of the gangway and shall be capable of supporting a 200-pound force in any direction. The guard rail shall have a bottom curb and openings that comply with Section 1013.3 of the 2006 IBC. The guard rail shall also have a curb barrier that complies with Section 405.9.2 of the 2010 ADA standards. The end of the gangway shall be centered within four (4) feet of the landward end of the dock. The gangway shall be designed to accommodate water fluctuations of 4.5 feet upward and 4.5 feet downward. Successful bidder will provide shop drawings of gangway and dock to Jay McClellan for approval before fabrication.

11. ACCESSORIES

The dock shall be held in position by a minimum of two (2) 3/4 inch (minimum) thick diameter galvanized steel cables attached to the courtesy dock and to two

concrete dead head supports. Six (6) 8 inch long galvanized or aluminum mooring cleats shall be securely attached to the top edges of the dock, three on each side. A connector plate or angle with piano-type hinge shall be fabricated to connect the gangway to the concrete anchor block. TWRA forces will attach connector plate or angle to anchor block during construction of anchor block. Contractor shall be responsible for providing connection of gangway to anchor block.

12.SUBMITTALS

The vendor shall submit to this office for approval before any material is manufactured for this project, 2 sets of plans for construction plans material list within 30 days of being awarded the contract. The plans shall be detailed so as to provide adequate information for the assembly of this dock system. The plan shall have details for the following items:

- Main Dock
- Modular connections, including dock to ramp
- Underwater bracing
- Superstructure
- Cleat location and connection details
- Decking material and connection details

All drawings shall be sufficient scale for clarity, accurately drawn and dimensioned. Drawing shall indicate size and gauges of structural members, finish, thickness, and other relevant information.

Engineering Calculations showing compliance with the design criteria specified herein. All calculations must be stamped with the seal of a qualified licensed, professional engineer. Computations shall include as a minimum the following:

Compliance with combined live and dead load requirements considering both bending and deflection.

Compliance with freeboard requirements under normal load conditions.

13.DELIVERY

Installation shall be required within one-hundred twenty (120) days of award. Installation shall be on Monday through Thursday. Vendor must call Jay McClellan at (615) 781-6546 or (615) 351-6611 at least three business days before delivery.

14. WARRANTY

Vendor shall provide a one (1) year warranty covering workmanship and materials. Warranty work if necessary, shall include all materials, labor, equipment and transportation expenses for any needed repair work. Warranty work shall be done at the installation site.