

32801-12257 TWRA Herb Parson Lake Pier Specifications

Part 1 – GENERAL

1.01 SCOPE OF WORK

Contractor shall furnish all materials necessary to satisfactorily fabricate, manufacture or otherwise furnish and deliver the components for all floating dock systems complete with gangways, ramps, walkways, bumpers, cleats, and other accessories as shown on the drawings (attachment 1) and detailed in the Specifications below. The delivery address is: 140 Herb Parsons Way Collierville, TN 38017. The State shall complete the actual installation of the pier.

1.02 REFERENCED STANDARDS

The following standards are referenced with all or only portions that are applicable to floating dock systems:

- A. American Society of Civil Engineer manual ASCE/SEI 7-05, “*Minimum Design loads for Buildings and Others Structures.*”
- B. American Institute of Steel Construction, Inc., (AISC), “*Steel Construction Manual*”, Thirteenth Edition.
- C. American Society for Testing Materials (ASTM)
 - 1. ASTM A6 / A6M – 04b, “*Standard Specifications for General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet Piling.*”
 - 2. ASTM A325-04, “*Standard Specifications for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.*”
 - 3. ASTM A449-04, “*Standard Specifications for Quenched and Tempered Steel Bolts and Studs.*”
 - 4. ASTM A53 / A53M--04b, “*Standard Specifications for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded and Seamless.*”
 - 5. ASTM A500---03a, “*Standard Specifications for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.*”
 - 6. ASTM A123 - “*Standard Specifications for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.*”
 - 7. ASTM A153 - “*Standard Specifications for Zinc Coatings (Hot-Dipped) on Iron and Steel Hardware.*”
 - 8. ASTM A563-04a “*Standard Specifications for Zinc Coatings (Hot-Dipped) on Iron and Steel Hardware.*”
- D. The Aluminum Association, Inc., Design Standards.
- E. American Wood Preservers Association standard for wood treatment and retention.
- F. American Institute of Timber Construction (AITC), “*Structural Glued Laminated Timber.*”
- G. ASCE Manuals and Reports on Engineering Practice No. 50 “*Planning and Design Guidelines For Small Craft Harbors*”, Prepared By Task Committee On Marinas 2000.

- H. American Iron and Steel Institute “*Specifications for the design of Cold Formed Steel Structural Members*”.
- I. American Plywood Association specification for design of plywood members.
- J. Steel Deck Institute “Steel Roof Deck Design Manual”.
- K. Association of Rotational Molders, “The Introductory Guide to Designing Rotationally Molded Plastic Parts”.

1.03. American Disability Act Requirements

- A. The pier shall be ADA compliant, and the following link provides a checklist of requirements:

<https://adachecklist.org/doc/rec/fishing/fishing.pdf>

ADA checklist for existing facilities- fishing piers and platforms. 2016.

A PDF document outlining ADA requirements for recreational facilities can be found in the following document and can be accessed at <https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards>

Americans with Disabilities Act (ADA) Standards

Adopted by the U.S. Department of Justice (2010) and the U.S. Department of Transportation (2006)

An exception to ADA fishing accessibility on the fishing pier requiring 25% of the handrail area to be handicap accessible shall not apply to the gangway area (two walkways to the fishing area) or to the south side of the fishing pier. The south side of the fishing pier is the area facing the shoreline. The gangways and the south portion of the fishing pier shall be designated as “No Fishing” areas for safety and access concerns.

1.04 EXPERIENCE

The Contractor shall have a minimum of five (5) years’ experience in the design and manufacture of similar marina structures and systems to that proposed in this project. Upon request, the manufacturer shall submit a list of previous marina structures and systems similar to that specified to be evaluated by the State. The State’s decision of qualifications will be final.

1.05 SUBMITTALS

- A. Contractor shall furnish material supplier certifications if and as requested.
- B. All plans shall be stamped with the seal of and signed by a licensed professional engineer experienced in floating dock design.
- C. Contractor shall submit shop drawings, literature, and other information necessary to adequately describe the fabrication of component parts of the structure. Information shall indicate size of members, type and location of shop, and field connections as a minimum.
- D. The following is a partial listing of drawings required for submittal:
 - 1. Typical sections of the main walk with space allowance for utilities.
 - 2. Section and elevation of gangways.
 - 3. Details of anchorage system.

4. Details of flotation unit.
 5. Details of ADA Fishing Stations
 6. Details of roof section.
- E. Prior to final payment, submit three copies of an operations and maintenance manual and three copies of as-built drawings. The operations manual shall contain as a minimum the following information:
1. Dock manufacturer's representative's name, physical address, email address, and phone number.
 2. Complete description of system maintenance for the winter season and anchorage adjustment for various water fluctuations.
 3. Drawings, diagrams, and parts list.

1.06 QUALITY ASSURANCE

- A. Qualifications of Respondent's including but not limited to:
1. The floating dockage manufacturer shall have not less than five years continuous experience in the manufacture and fabrication of floating dock systems.
 2. The State shall complete the installation of the pier.

1.07 WARRANTY

- A. The Contractor shall execute and deliver to the State, before final payment, a written warranty stating that all materials (including dockage and all associated work) furnished by the Contractor are in accordance with the contract plans and specifications, authorized alterations and additions thereto; and that, shall any defect develop during the contract warranty period as hereinafter defined, due to improper materials, workmanship, or design, those defects shall be corrected by the Contractor without expense to the State.
- B. Warranties shall include:
1. Manufactured Products – Two-Year Limited Warranty
 2. Permacase Flotation - Limited Ten-Year Warranty
 3. Concrete Decking - Ten Year Material Limited Warranty

1.08 DESIGN LOAD CONDITIONS

- A. Vertical Loads
1. Dead loads shall consist of the entire weight of the floating structure, including utilities, gangways, dock boxes, superstructure and other accessories and appurtenances.
 2. Deck surface and structural frame live load shall be equal to 50 PSF applied to the full surface area of the deck.
 3. Substructure designed (*ASD*) to support full live load across a 30' span. *Calculated to be maximum wave, crest to crest, on most inland lakes.*

- B. Gangways and ramps shall be designed to support 50 PSF live load and full dead load including the weight of any suspended utilities. Handrails shall be designed for a 200-pound load applied in any direction and at any point along the length of the handrail.
- C. Flotation for open docks shall be designed to support the dead load plus 30 PSF live load applied to the deck area.

Part 2 – PRODUCTS

Fishing Pier – Two (2) 8-foot X 56-foot walkways attached to a 16-foot X 108-foot fishing area with a middle roof section (diagram attached). American Disability Act compliant.

2.01 STEEL FRAMES

Box truss steel frames shall all be welded trusses made from angles and rounds of sufficient size and strength to withstand design stresses. Steel components in structural frames shall be notched and fitted prior to welding. Overlapping in corners shall not be permitted. All notched connections shall be welded both on the inside and outside, and the outside welds shall be ground smooth prior to galvanizing. Aluminum welded sub-structure floating docks are also acceptable.

- A. Main structural side chords and ends fabricated from 2" x 2" x 3/16" angle. All other angle to be 1 1/2" x 1 1/2" x 3/16".
- B. All bolt holes shall be standard sized round holes to fit standard bolts. Holes may be reamed to remove excess galvanizing and shall be coated with spray galvanizing.
- C. All steel frames shall be hot-dipped galvanized after fabrication in accordance with ASTM 123. Field welding of galvanized metals shall not be allowed except on minor corrections above water level, which shall be treated with a cold galvanizing process.
- D. The steel frames shall be designed for field connection with Grade 5 (ASTM-A325) galvanized bolts. Bolt diameter shall be 1/2" (minimum). Connections shall be designed so that units may be disconnected and moved.

2.02 FLOTATION - Polyethylene Encased Floats

- A. Flotation units shall be of seamless one-piece polyethylene rotational molded structure.
- B. The polyethylene flotation containers shall be completely filled with modified polystyrene expanded in place (0.9 lb/cf density.) Water absorption shall not exceed five percent by volume.
- C. Flotation units shall be firmly secured to the bottom of the frame with a minimum of six bolts.
- D. Flotation units shall be of fire-resistant construction.

2.05 ANCHORAGE SYSTEMS

- A. Hinge

TWRA shall install the structure. However, the Contractor shall need to provide the appropriate hinge for anchoring two (2) walkways.

Anchorage shall be designed for the specific location and exposure. Water level fluctuation, water depth, and bottom conditions and contours shall determine the best application. Anchorage shall be designed to resist the specified loads at maximum design water level.

B. Stiffleg Anchorage System

Shall be a truss type hot dipped galvanized after fabrication. Designed per required loads.

2.06 GANGWAYS

A. Gangways – Two 56-foot gangways attached to the 108-foot fishing section.

1. Gangways shall be steel truss with handrails, hot-dipped galvanized after fabrication. Pivot connections to the dock shall be by pin or fifth wheel, with rollers provided on one end. Handrails shall be provided on both sides. Aluminum is also acceptable.
2. Gangways shall be designed for vertical live load of 50 PSF.
3. Wheels or rollers (where required) shall be heavy duty type.
4. Additional flotation shall be added to the floating piers or gangways where needed to support the combined pier and access gangway loads without producing undue distortion in the floating structure.
5. Gangways shall be ADA Compliant.

B. Handrails

1. Shall be galvanized steel or aluminum or approved equal.
2. Shall be designed for a 200-pound load applied in any direction and at any point along the rail.
3. Handrails shall be ADA Compliant.

2.07 ACCESSORIES

A. Fendering

2" x 6" Treated Lumber or rubber rub rail

Wood fendering shall be 2" x 6" (nominal) Southern Yellow Pine Grade No. 1, S4S, conforming in all respects to Southern Yellow Pine Inspection Bureau as applicable. All lumber and deck timbers shall be given preservative treatment and shall bear the quality mark of AWWPA. Preservation retention shall be 0.4#/CF KDA material minimum. Wood fendering shall be attached with 5/16" minimum diameter flat Head, Type F, self-tapping screws coated with .005 zinc-yellow dichromate and three coats of Magni 599.

B. Roof

1. As described in drawing (Attachment 1).
2. The roof shall cover the middle 42-feet of the 108-foot section of the pier.

3. Roof shall be made of aluminum, dark green in color, and use 24-gauge R-panel with a ten (10) psi snow load. The manufacturer shall submit metal roofing samples for approval by TWRA Engineering.

2.08 DECK MATERIAL

A. Concrete Panels (for Fishing Pier – dimensions shall be 108-feet long X 16-feet wide)

1. Decking shall be removable concrete panel design with a nominal thickness of 1.5". Finish shall be non-skid exposed rock aggregate. A woodgrain pattern is also acceptable.
2. Concrete shall be reinforced with #6 - 4" x 4" wire.
3. Compressive strength: 5,000 PSI at 28 days.
4. After installation decking variance shall not exceed 1/4".

B. Composite Material (for Gangways)

Deck materials shall be 2" x 6" or 2" x 8" (nominal) wood polymer composite produced from 100% recycled materials. Decking shall be attached with 5/16" x 2 1/4" flat head, Type F, self-tapping screws coated with .005 zinc-yellow dichromate and three coats of Magni 599. All deck boards shall have a maximum span of two (2) feet. Minimum support member shall be 1 1/2" x 1 1/2" x 3/16" angles. Maximum gap between deck planks shall be 5/16". All boards shall be attached with (2) two screws at each end and (2) two screws at every intermediate support. Aluminum is also acceptable.

Part 3 – DELIVERY

3.01 Delivery Details

- A. Pier shall be delivered within 210 days of Contract award.
- B. Delivery Location: Herb Parsons Lake, 140 Herb Parsons Way Collierville, TN 38017.
- C. Point of Contact:
 1. TWRA Lake Manager Damon Boyce at Damon.Boyce@tn.gov or cell 901-415-5999
 2. TWRA Engineering Chief Jay McClellan at Jay.C.McClellan@tn.gov or cell 615-351-6611