



Standpipes in Marinas and Boatyards

Despite the fact that there is plenty of water near a marina, too often boat fires spread quickly to other exposures because there is no way to effectively deploy and apply hose streams. To remedy this problem, the model fire codes require that Class I standpipe systems be provided for piers, bulkheads, and buildings where the hose lay distance from the fire apparatus exceeds 150 ft (45 m).

According to the National Fire Protection Association (NFPA) 303, Fire Protection Standard for Marinas and Boatyards, a pier is a structure extending over the water and supported on a fixed foundation (fixed pier), or on flotation (floating pier), that provides access to the water. A bulkhead is a vertical structural wall (usually of stone, timber, metal, concrete, or synthetic material) constructed along and generally parallel to the shoreline. Its purpose is to hold the earth out of the water, as well as to provide suitable water depth at the waterside face so boats will not hit the bottom.

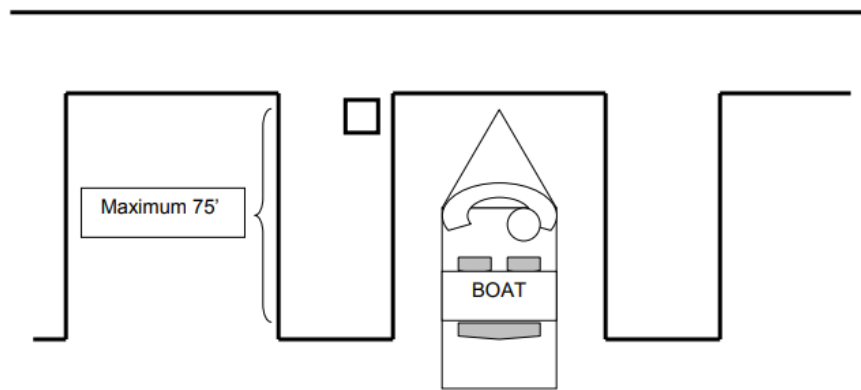
Where installed, standpipe systems should be designed in accordance with NFPA 14, Standard for the Installation of Standpipe and Hose Systems. Due to the generally outdoor nature of piers and bulkheads, hose racks, hoses, and standpipe cabinets are not required on piers and bulkheads.

Supply piping for standpipes on piers and bulkheads must be sized for the minimum flow rate for Class II systems (100 gpm at 65 psi outlet pressure, or 378 Lpm at 4.5 bar), however, manual dry standpipes are permitted. Manual dry standpipes have no connected water supply, and rely on the fire department to connect to a water supply to pump into the standpipe system.

In areas subject to changes in water levels, such as lakes, rivers, or tidal basins, flexible standpipe connections are permitted on floating piers where acceptable to the code official.

Design Guidance:

1. Standpipe systems shall be located so that hose provided can reach the end of each dock "finger" with 25 feet of hose remaining. Remaining hose allows access onto the vessel to extinguish on-board fires. (See Diagram)





2. 2.5" hose outlets shall not be located less than 3' or more than 4' above the dock.
3. An approved and listed fire department connection with a minimum of two 2.5" inlets shall be provided at the point of fire department access at the street.
4. Provide a sign for the FDC. The sign shall be a durable material, minimum 4" high by 8" wide, with minimum 1" high lettering on a clearly contrasting background. The sign shall state the address and type of system served.
5. Portable Fire Extinguishers: One fire extinguisher having a minimum rating of 3A:40BC shall be provided at every hose cabinet.
6. Method of attachment (hangars, bolts, etc.) shall be stainless steel.
7. Flexible connections shall be listed with a minimum rating of 250 psi.
8. Because of the corrosive environment and requirement for flexibility along the floating dock, CPVC piping is the material of choice. The maximum working pressure for 2 ½" Schedule 80 CPVC is 420 PSI.
9. Location and number of isolation valves shall be subject to AHJ approval (303:6.3.8).
10. System Design and Flow Rate: Hydraulic calculations shall be provided to illustrate the demand requirements.
11. The supply piping for standpipes on piers and bulkheads shall be sized for the minimum flow rate of 300 gpm (303:6.3.5).
12. The completed plans and calculations shall be signed and sealed by an Alabama licensed professional engineer.
13. Hydrants and water supplies for fire protection in marinas and boatyards shall be provided in accordance with NFPA 13, NFPA 14, and NFPA 24.

Acceptance Testing:

- All new systems shall be hydrostatically tested at not less than 200 psi for 2 hours. Piping shall show no sign of leakage. Flow test shall be required to demonstrate from the most remote standpipe station that the required flow and pressure is provided.
- The fire department shall witness an effective hose stream from a 2.5" connection reduced to a 1.5" connection. The most remote 1.5" hose connection shall flow at least 100 gpm with residual pressure at 65 psi.
- The Orange Beach Fire Department does not conduct this testing. All testing is completed by the fire protection contractor. The Orange Beach Fire Department personnel are there to witness the testing.

Inspections, Testing and Maintenance:

- Standpipe systems, fire pumps, and related equipment shall be inspected, tested and maintained in accordance with NFPA 25. Written records of inspections, testing and maintenance shall be kept on site and made available to the Orange Beach Fire Marshal.

For additional information, refer to NFPA 303 & the International Fire Code®.