

Private Water and Hydrant System
Plan Review Checklist
2014 OFC, 2013 NFPA 24 and 2013 NFPA 13

Date of Review: _____ Permit Number: _____
Business/Building Name: _____ Address of Project: _____
Designer Name: _____ Designer's Phone: _____
Contractor: _____ Contractor's Phone: _____
Occupancy Classification: _____

Reference numbers following checklist statements represent an NFPA code section unless otherwise specified.

Checklist Legend: √ or OK = acceptable N = need to provide NA = not applicable

1. _____ Three sets of drawings are provided with component specification sheets, listed components shall be used.

Design plans show the following, 4.1:

2. _____ The site plan shows pipe size and placement to the hydrants and the building from the point of connection at the city main or water source.
3. _____ Scale: a common scale is used and plan information shall be legible.
4. _____ An equipment symbol legend is provided.
5. _____ A current water flow test summary sheet and the results at 20 psi residual from nearest public water supply is provided. Hydraulic calculations showing the available flow results for new system hydrants are provided.
6. _____ Size, type, and the location of the system shut-off and isolation valves are shown.
7. _____ Listing data sheets are provided for all system components, e.g. pipe, valves, hydrants, etc.
8. _____ If used, a thrust blocks size matrix with details or calculations is provided. Pipe system, thrustblocks, and fitting locations are detailed, 10.8.2.
9. _____ Method(s) of a restrained joint system is specified. If used, rod size and number of rods is specified, 10.8.3 and Table 10.8.3.1.2.2. If used, the size of restraint straps for tees is specified, Table 10.8.3.2.3. If used, clamp and rod detail is specified (1 pair of rods for each clamp) and the clamp size is specified, 10.8.3.1, A10.8.2.

Valves:

10. _____ Connections to water supplies and supply pipes to sprinkler risers are controlled by listed indicating valves unless a non-indicating valve is approved by the AHJ, 6.1
11. _____ At least 1 indicating valve for each source of water supply is detailed, 6.2.1.
12. _____ For more than 1 source of water supply, a check valve is at each connection and is detailed, 6.2.3.
13. _____ Control valves required by 6.2.3 are provided on each side of the check valve, 6.2.5.
14. _____ Control valves for connections to pressure or gravity tanks are in compliance with sections 6.2.6 through 6.2.8.
15. _____ All control valves are readily accessible and free of obstructions, 6.2.10.
16. _____ Water supply connections to the building shall be with a post indicating valve (PIV), except FDCs, 6.3.1. Indicating valves are not required if authorized by the AHJ and are in compliance with section 6.1 and 6.4 Valves in Pits.
17. _____ PIV installation and cross sectional elevation details are provided.
18. _____ PIVs are at least 40 ft. from the building unless authorized by the AHJ and the top of the posts are 36 in. above grade, 6.3.1 and are protected from mechanical damage, 6.3.2 and IFC 312.
19. _____ Valves in pits, used in lieu of PIVs, are detailed to show conformance with section 6.4, e.g. large enough for equipment placement, maintenance, inspection, and testing, and constructed to protect equipment from damage and accumulation of water.
20. _____ Sectional valves are provided to isolate the system for repair and maintenance and where a supply main is near or under a building foundation, 6.6.
21. _____ Each valve shall have identification signs indicating its function and what it controls, signage requirement and locations are noted on the plans, 6.7.
22. _____ It is indicated how valves for water supply connection, sectional, and isolation are supervised, 6.7.2.
23. _____ Check valves are installed according to the listing data sheet, 6.8.

Hydrants:

24. _____ Hydrants are the type approved for the jurisdiction. 7.1.1.2.

25. _____ Hydrants shall have a minimum 6 in. connection to the main, 7.1.1.
26. _____ Hydrants are to be at least 40 ft. from a building, 7.2.3, unless less distance is approved by the AHJ, 7.2.4.
27. _____ Detailed is a minimum 3 foot clearance being provided around the hydrant, OFC 507.5.5.
28. _____ Hydrant spacing is in accordance with IFC Appendix B and C.
29. _____ A cross section hydrant installation detail is provided, 7.3.1.
30. _____ Hydrant, pipe connection, support, restraint methods and locations are detailed, 7.3.
31. _____ Center of hose outlet not less than 18 in. above grade, 7.3.3.
32. _____ The method of hydrant protection from mechanical damage by curbs, bollards, etc. is detailed, 7.3.5, IFC 312.

Piping:

33. _____ Piping is not smaller than 6 in. when supplying a hydrant, 5.2.1, 13.1.
34. _____ Piping not supplying a hydrant can be less than 6 in. if designed in accordance with section 5.2.2, 13.2.
35. _____ The pipe is listed for fire protection service or complies with Table 10.1.1, is designed to withstand a system working pressure of at least 150 psi, and a listing data sheet is provided, 10.1.1, 10.1.5.
36. _____ The type and class of pipe material is specified, 10.1.4.
37. _____ The method of joining pipe sections is specified and in compliance with section 10.3 and the fittings are pressure compatible with the pipe, 10.2.4.
38. _____ The top of the pipe is detailed to be at least 1 ft. below the area's frost line, 10.4.2.
39. _____ The depth of pipe for areas where frost is not a concern is detailed with the minimum depth being at 2.5 ft. or 3 ft. when the pipe is located under vehicle traffic areas, or 4 ft. when the pipe is located under railroad tracks, 10.4.
40. _____ Above ground pipe which is subject to freezing is protected by a means capable of maintaining at least a temperature of 40° F, 10.5.1, 12.2.
41. _____ Pipe laid in waterways or streams are designed in accordance with section 10.5.3.
42. _____ Pipe does not run under a structure but it is allowed to enter the building adjacent the building foundation, 10.6.1, 10.6.3.
43. _____ When conditions require pipe to run under a structure, the protection methods are detailed and may include, arching the foundation over the pipe, providing covered pipe trenches, and providing isolation valves, 10.6.2.
44. _____ The methods of restraining all tees, plugs, bends, reducers, valves, and hydrant branches are detailed and are designed in compliance with 10.8.2 and 10.8.3. Pipe with fused, threaded, grooved, or welded joints do not need restraining if they pass the hydrostatic test of 10.10.2.2 without shifting or leaking excessively, 10.8.1.2.
45. _____ All bolted joint assemblies shall be thoroughly coated for corrosion protection, the coating product and the application requirement is noted on the plan, 10.3.6.2, 10.8.3.5. An exception would be dependent on soil conditions and/or if the local water purveyor does not require it.
46. _____ Backfill material for tamping around the pipe is specified, 10.9.
47. _____ The flushing and hydrostatic test requirements are on the plans as specified in 10.10.2.
48. _____ The minimum flushing flow rate requirements are provided on the plan, Table 10.10.2.1.3.
49. _____ Aboveground piping is not located in hazardous areas unless the area is protected by an automatic sprinkler system. The location of the pipe is protected from damage or fire, 12.2.1.
50. _____ Aboveground pipe passing through areas subjecting it to freezing conditions is by insulated covering, frostproof casings or other reliable means that can maintain a minimum temperature of 40°F, 12.2.3.
51. _____ Aboveground piping is protected against corrosive conditions, 12.2.4.
52. _____ When aboveground piping is located in a seismic design area, it is seismically protected in accordance with NFPA 13 12.2.5.
53. _____ If water supply piping connects to reservoirs, rivers, or lakes, the connections are designed to avoid mud and sediment and they have approved double removable screens or strainers and the entire design is detailed, 5.8

Fire Department Connection (FDC) in Vaults:

54. _____ Local water flow alarm location is on the FDC riser.
55. _____ FDC for fire engine use is a minimum 4 in. pipe unless hydraulic calculation show a smaller pipe can be used, on the system side of the water supply check valve, supported and 18 in. to 48 in. above grad, NFPA 13:A.8.17.2, 8.17.2.3, and 8.18.2.4.
56. _____ FDC is on system side of water supply check valve, also refer to (1) – (4) for single systems, NF_PA 13:8.17.2.4.2.

Additional Comments:

Review Date: _____

Approved or Disapproved

FD Reviewer: _____

Review Date: _____

Approved or Disapproved

FD Reviewer: _____