

**MCKINNEY FIRE DEPARTMENT  
FIRE MARSHAL'S OFFICE**

# **FIRE SERVICE WATER LINES SUBMITTAL REQUIREMENTS & DETAILS**

These guidelines are to be followed when a business, facility or organization proposes to install or modify an underground water supply for a water based fire suppression system within the City of McKinney. This document shall assist in the preparation of a submittal for permit. These guidelines are not to be interpreted as containing all data required for proper design, installation, or approval.

## **PERFORMANCE AND INSTALLATION REQUIREMENTS**

1. All underground lines shall begin at the point of connection to the underground circulating public/private water main. A valve shall be provided at the point of connection such that the fire sprinkler underground service line can be isolated from public/private water distribution system.
2. All underground water lines shall be dedicated to fire protection. Domestic, irrigation or non-fire protection taps on the fire service underground water line are not permitted.
3. All underground lines shall terminate at the top of the spigot piece no more than 5 ft. inside the building.
4. All ductile iron, retaining rods, and other non-plastic components shall be externally coated for corrosion and poly-wrapped.
5. All underground piping shall be a minimum of Class 200 / DR14 200 PSI rated pipe or equivalent.
6. Installation street address must be provided for each separate underground line being permitted and installed. Subdivision or development street corner will not be accepted.
7. The designer and company of record the permit is issued shall be responsible for the installation and inspection.
8. Civil construction drawings approved by the City of McKinney Engineering Department shall not constitute approval of the underground line(s).
9. The Fire Department may approve alternate methods and material, as well as review minor scopes of work to determine required submittal and permitting.

To expedite the plan review and inspection processes, please refer to the information listed below.

## **STANDARD DETAILS**

10. Detail drawings shall be provided on all drawing submittals and shall match field installed condition.
11. With the exception of the Embedment Detail, all details provided are for guidance only. Actual site conditions and NFPA 24 will determine the actual necessary details to be provided to indicate the construction of the underground pipe.
12. All standard details can be provided in PDF or JPG file format for incorporation into your submittal drawings.

## **BACKFLOW PREVENTION**

Backflow prevention devices shall be in accordance with the below when installed on the fire service underground water line in an underground vault.

13. All fire sprinkler systems are required to be provided with an approved method of backflow prevention.
14. The City of McKinney Building or Engineering Department shall determine the final location of the backflow assembly. As a general rule, if the fire service lead-in is less than 100 ft. in total pipe length, the assembly may be located within the riser room. If the fire service lead-in is more than 100 ft. in total length, the assembly must be located in a below grade vault adjacent to the tap top the circulating main, preferable in an

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- easement. Contact the Engineering Department for requirements pertaining to backflow protection.
15. A reduced pressure zone (RPZ) backflow prevention device is required on antifreeze systems.
  16. Assemblies shall be listed for fire protection use and in the orientation installed.
  17. Assemblies must be capable of being electronically or mechanically monitored.
  18. Assemblies must be provided with a *metered* bypass.
  19. In accordance with NFPA 13, Section 8.16.4.6.1, a method to perform a forward flow test at the system demand shall be provided downstream of the backflow prevention assembly. The following are examples of acceptable methods.
    - a. Install 2-½ in. standpipe outlets system side of the back-flow device. If the building is provided with standpipe outlets, these would be considered an acceptable method.
    - b. Provide a test header, similar to those on a fire pump. If the building is provided with a fire pump, the fire pump test header is considered an acceptable method.
    - c. A single 2-½ in. outlet is considered to flow 250 GPM.
  20. All installations shall be inspected and tested. Testing documentation shall be provided upon request to the Building Inspections Department.
  21. The City of McKinney Water Quality Department shall be notified of all new installations. You may contact them at 972-547-7360.

### FREESTANDING FDC SIGNAGE REQUIREMENTS

22. A fire protection signage shall be provided as outlined in IFC Section 511 for all freestanding Fire Department Connections (FDC). Reference the signage guidelines for additional information regarding sign materials, size and locations.
23. Remote freestanding FDC's shall comply with the requirements noted in the FDC General Guidelines.

To expedite the plan review and inspection processes, please refer to the information listed below.

### PERMITTING REQUIREMENTS

24. A "Wet" RME signature and stamp, as required by Article 5-43.2, Section 34.717, is required on all plan drawings.
25. Provide a minimum of three (3) sets of plans.
26. Project name.
27. Project address.
28. Provide a written description of the work to be performed.
29. Fax submittals will not be accepted.
30. A scaled copy of the approved Site Plan that indicates the location of all fire hydrants and fire lanes servicing the building or site. The size and type of building shall be clearly indicated on the plan.
31. Size and location of all water supplies and/or water lines servicing the building or site.
32. Plans shall be clear and legible and all sheets shall be in a common and appropriate scale.
33. Flow test data, provided by the McKinney Fire Department, shown on the plans.
34. Size and type of all installed piping identified on the plans.
35. Occupancy classification.
36. Construction type.
37. Location of all valves.
38. Location and size of all thrust blocks.
39. Thrust block details.
40. Detail of the spigot piece and/or and in-building riser turn.
41. Embedment detail. See Figure 1.
42. Embedment material shall be No. 4 crushed stone.
43. Depth of bury. Minimum is 48 inches/4 feet, from top of pipe to grade.
44. Pit/vault/valve arrangement (if provided with a pit/vault).

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45. Type of fittings/joints, methods of connection and rod size.
46. Location and the Remote Fire Department Connection (FDC).
47. Location and type of backflow prevention.
48. Provide information on the transition stability of different types of piping (eg. transition from PVC to ductile iron, retainer glands).
49. Provide notes to indicate the following;
  - a. Design standards.
50. The title block shall contain the following;
  - b. Location of the installation.
  - c. Name and complete address of the business.
  - d. Name and complete address of the installing company.
  - e. Licensing information.
  - f. Date.
  - g. Drawn by.
  - h. Authority Having Jurisdiction.
  - i. Scale.
51. See NFPA 24, 2016 Edition for additional information.
52. A full equipment listing.
53. Manufacturer documentation for all parts and materials used in the project.
54. Drawings shall be submitted for review and approval, PRIOR to installation.
55. Drawings shall be generated by the installing company specific to the installation. Drawings shall show plan view and other pertinent information.
56. The submittal package must include and identify all above requirements.
57. Installation of a fire service underground water lines shall not be performed until a Permit has been issued. Any work performed prior to the issuance of this permit may result in a citation being issued for violation of Section 113.3 of the 2015 International Fire Code.

### GENERAL SUBMITTAL REQUIREMENTS

58. Each submittal shall have a completed McKinney Fire Department Plan Review Permit Application.
59. Plans approved by the Fire Marshal's Office give authorization for installation. Final approvals are subject to field verification. Any approval issued by the Fire Marshal's Office does not release the contractor or property owner from the responsibility of full compliance with all applicable codes and ordinances.
60. All fire department inspection forms and permits shall be kept on the job site until final inspection.
61. All installations shall comply with the approved plans. Any deviation from the approved plans requires a re-submittal to the Fire Marshal's Office.

All fire service underground water lines for the purposes of this guideline and any other guidelines or requirements of the Fire Department shall conform to the 2015 International Fire Code, as adopted and amended by City of McKinney.

This guide does not replace, nor supersede any codes and/or ordinances adopted by the City of McKinney, or determinations and positions of the Fire Chief or Fire Marshal.