



These guidelines are to be followed when an underground water supply serving an automatic fire sprinkler system within the City of Wichita Falls is to be installed or modified. These guidelines are not to be interpreted as containing all data required for proper design, installation, or approval.

All fire sprinkler underground supply lines will conform to the 2015 International Fire Code, as adopted and amended by the City of Wichita Falls, NFPA 13, and NFPA 24. These guidelines are not intended to replace, nor supersede any codes and/or ordinances adopted by the City of Wichita Falls, or determinations and positions of the Wichita Falls Fire Marshal's Division.

### General Requirements

- 1) All underground lines will begin at the point of connection to the underground circulating public/private water main. A valve will be provided at the point of connection such that the fire sprinkler underground service line can be isolated from the public/private water distribution system.
- 2) Underground piping will have a 10-foot minimum separation from all other utilities and placed in a separate trench. Underground piping within 5-feet of the building may be combined with other utilities for entrance into the building. Separation from wastewater collection systems must comply with TCEQ chapter 217.
- 3) All underground lines will terminate at the top of the spigot no more than 5-feet inside the building and 1-foot above finished floor.
- 4) All ductile iron, retaining rods, and other non-corrosive resistant components will be externally coated for corrosion or poly wrapped.
- 5) All underground piping will be a minimum of Class 200 DR14 or greater.
- 6) Water supply will be provided in conformance with the requirements of the respective standards; however, every fire protection system will be designed with a minimum 5 psi safety factor at 20 psi residual on City mains.
- 7) The water supply test for the hydraulic design of fire protection systems will be performed by the Wichita Falls Public Works Department. The results of the flow test will be within one year of the sprinkler plan submittal. The exact location of the static/residual hydrant and the flow hydrant will be indicated on the design drawings. All fire protection plan submittals will be accompanied by a water flow test report.
- 8) All underground lines must have a buried "CAUTION FIRE LINE" tape placed 12" above the top of the underground line if it is in Public Right-of-Way.

### Fire Department Connection (FDC)

- 1) FDC will be a separate and independent service main from the underground water line
- 2) FDC's for automatic sprinkler systems and/or standpipe systems for new buildings will be equipped with a 2 ½" Siamese connection. (See Details). (Storz may be considered with direct approval)
- 3) Check valves will be accessible for 5-year inspection. If located underground, it will be installed within a meter can/valve box.
- 4) FDC will be facing and visible from the fire lane.
- 5) FDC installed in a "yard" should have 12" x 12" x 4" concrete pad placed at the base to provide additional stability.
- 6) The FDC will be clear and unobstructed with a minimum of a 5-feet clear all-weather path from fire lane access.
- 7) The FDC will be installed 18-48 inches above grade.



## UNDERGROUND FIRE LINE

- 8) Fire hose threads will be national standard hose thread.
- 9) Underground piping will be designed and constructed as required for an underground fire main using NFPA 13-Standard for the Installation of Sprinkler Systems & NFPA 24-Standard for the Installation of Private Fire Service Mains and Their Appurtenances, as the installation standards.
- 10) The FDC will discharge into the system on the discharge side of the pump if a pump is present.
- 11) Where the FDC is subject to vehicular damage, the connection will be protected. Protection components will not be closer than 36-inches to the connection and will not interfere with the operation of the connection.
- 12) The pipe size and arrangement of the FDC should conform to the latest edition of NFPA 13-Standard for the Installation of Sprinkler Systems adopted by the City of Wichita Falls.

### Inspection Requirements

- 1) Visual: **All underground piping, joints, and thrust blocks must be uncovered and exposed, with labeling of the pipe legible from grade.** All ductile iron, retaining rods, and other non-plastic components will be externally coated for corrosion and poly wrapped.
- 2) Hydrostatic Test: Visual inspection must be approved prior to hydrostatic test. The test will be at 200 psi or at 50-psi pressure in excess of the maximum static pressure when the maximum static pressure exceeds 150 psi, for a minimum of two hours. Testing to be from the gate valve to the top of the spigot, no pressure drop or gain allowed.
- 3) Flush: Upon completion of the underground hydrostatic test, the underground piping will be flushed, witnessed by the Fire Department. All piping used to flush must be properly secured or restrained. The flushing must be completed prior to stacking the riser to the overhead piping.
- 4) Fire Sprinkler Underground Final: Final sign-off of completion of all inspections and the receipt of all State required paperwork.

### Submittal Requirements

- 1) A copy of State of Texas Fire Sprinkler RME-Underground license is required for the installing contractor.
- 2) If System is designed by a RME-G: A copy of State of Texas Fire Sprinklers General- RME license is required for the designing contractor.
- 3) If System is designed by a PE: A State of Texas Engineers stamp is required on all pages.
- 4) A copy of State of Texas Fire Sprinkler SCR license is required for the installing company.
- 5) The following items shall be provided on the construction plans:
  - a) Both RME-U and RME-G or PE digital signatures.
  - b) Project name and address.
  - c) A scaled Site Plan that indicate the location of all fire hydrants, private fire lines, and fire lanes servicing the building or site.
  - d) Location of all underground utilities servicing the building or site.
  - e) Flow test data.
  - f) Size and type of all piping.
  - g) Standard Details. See attached pages for standard detail sets.
  - h) Location and size of all thrust blocks.
  - i) Thrust block details. (See Detail)
  - j) Detail of the spigot piece and/or and in-building riser turn. (See Detail)



## UNDERGROUND FIRE LINE

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- k) Embedment detail. (See Detail) Embedment material shall be No. 4 crushed stone or sand.
- l) Depth of bury. Minimum is 42 inches.
- m) Type of fittings/joints, methods of connection and rod size.
- n) Remote Fire Department Connection (FDC), details if applicable.

6) Please upload the following documents when submitting your permit online:

1. Construction Plans
2. State License(s)
3. Equipment/Product Data Cutsheets

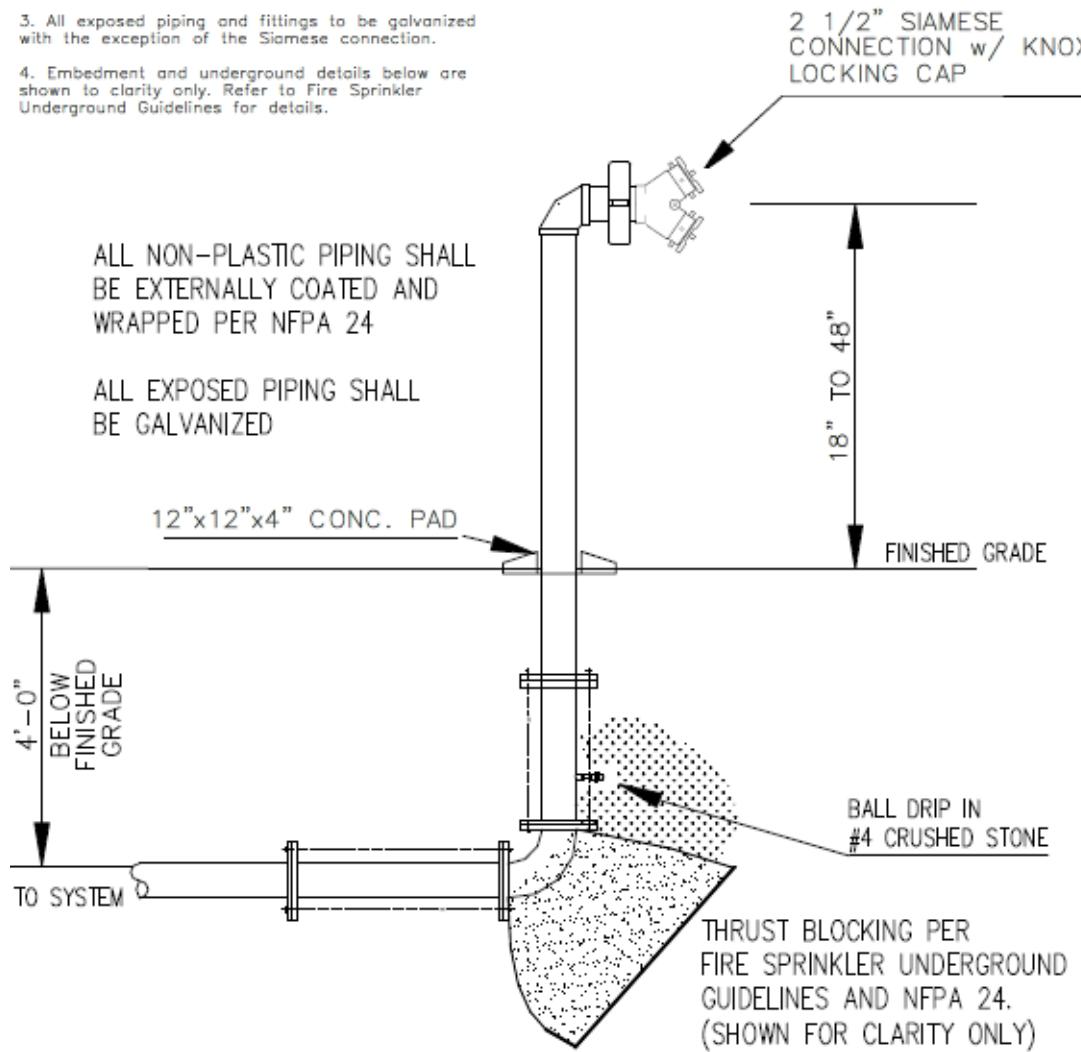


## UNDERGROUND FIRE LINE

### Details

#### GENERAL NOTES

1. Minimum pipe size leading to the FDC shall be determined by hydraulic calculations, but shall be a minimum of 4" for all systems. A 6" minimum pipe is required for all systems with a total demand exceeding 750 GPM.
2. Knox locking caps are required on all connections.
3. All exposed piping and fittings to be galvanized with the exception of the Siamese connection.
4. Embedment and underground details below are shown to clarity only. Refer to Fire Sprinkler Underground Guidelines for details.



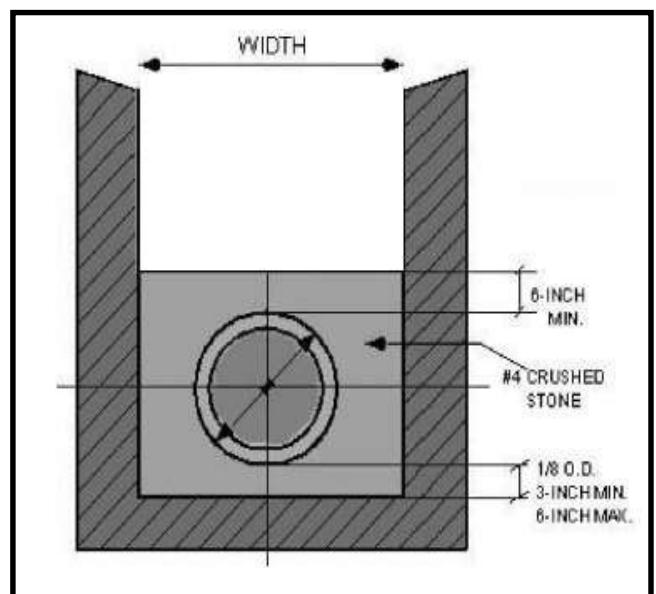


## UNDERGROUND FIRE LINE

### Thrust Block Detail

TYPE OF FITTING	CROSS W/FLUE		TEE W/FLUE	TEE OR DEAD END
	75%	75%	100%	75%
TYPE OF FITTING	90° BEND		45° THRU 11 1/4° BEND	SECTION
			H=12.8	
TYPE OF FITTING	90° BEND	45° THRU 11 1/4° BEND	SECTION	TEE OR DEAD END
4"	3	2	2	2
6"	4	3	3	3
8"	6	4	4	3
10"	12	8	5	3
12"	18	9	5	12
14"	22	12	6	18
16"	28	16	8	21
18"	34	20	10	26

### Embedment Detail



### Spigot Detail

