



Underground Fire Main Permits



Overview

A permit is required for the installation, repair or replacement of underground water supply lines that supply fire protection systems and/or hydrants on any commercial or residential jobsite. At least 3 separate inspections are required during the course of an underground fire main installation. More inspections may be required for larger jobs with staged construction. Installations will be reviewed and inspected against NFPA 24 version 2016 standards.

When a single “main” is supplying both a fire suppression system and a domestic service system, the “main” shall be considered a fire main and conform to all NFPA standards. Once the domestic service splits off from the main, that domestic system shall no longer be required to comply with NFPA standards.

Outside the Town & Country City Limits

Permits are required from District at 223 Henry Ave., Manchester MO 63011.

Inside the Town & Country City Limits

Permits are required from the District thru the City of Town & Country at their Municipal Center.

Inspection Requirements

1. A minimum of three WCEFPD inspections are required for underground piping serving sprinkler systems and/or private hydrants: 1) Pre-pour inspection; 2)



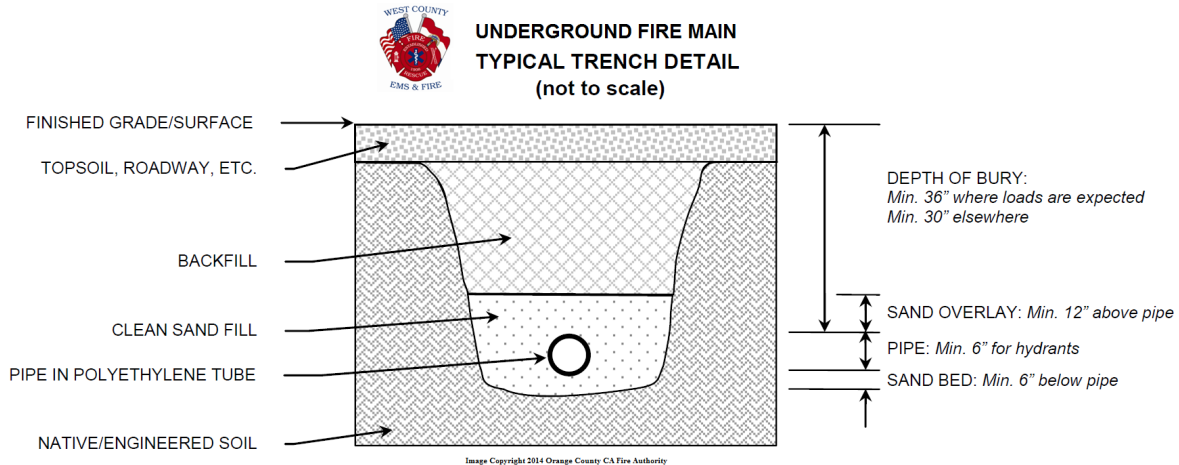
WEST COUNTY EMS & FIRE

Serving West St. Louis County since 1908

- Hydrostatic testing; 3) Flush inspection. Please schedule all inspections at least 48 hours in advance (excluding weekends and holidays).
2. **Pre-pour inspection:** Thrust block excavation shall be completed, but thrust blocks shall not be poured. All pipe shall be in place and exposed for visual inspection. Pipe shall be laid on a minimum six-inch bed of clean sand. Trenches shall be of a sufficient depth to allow the required cover above pipe. Ferrous pipe and fittings shall be encased in polyethylene tubing (not wrapped) and tightly taped to inhibit water infiltration. Ferrous joints (with the exception of stainless steel 316) shall be coated with asphaltic sealant or other corrosion retarding material
 3. **Hydro Testing:** Thrust blocks shall be in place. Pipe shall be center-loaded with clean sand to prevent uplift, but all joints shall remain exposed. The system shall be hydrostatically tested at 200 psi (or 50 psi over maximum static pressure, whichever is greater) for a duration of at least two hours prior to the arrival of the inspector.
 4. **Flush inspection:** All portions of the underground system shall be flushed to remove debris prior to connection to overhead piping. Flow shall be through a minimum of a four-inch hose or pipe, unless otherwise approved by the fire inspector prior to scheduling the flush. Hose or pipe shall be restrained to prevent injury and damage. The flush and hydro inspections may be scheduled concurrently
 5. Upon flush inspection or prior to final sprinkler or site inspection, all detector check assemblies, control valves, and fire department connections (FDC) shall be clearly labeled with the address(es) served by the device. Address signs shall be securely attached to the device and be of a durable, fade-resistant material which is visible and legible from the fire lane. FDC and four-inch hydrant outlets shall be unobstructed and oriented toward the fire lane. Valves shall be locked in the open position with breakaway locks. All PIV valves and private hydrants shall be painted OSHA safety red. The closest upstream indicating valve to the riser shall be painted OSHA safety red. Hydrant and FDC caps shall be in place.
 6. All newly installed or modified private hydrants shall be labeled with a capital "P" at least 6" in height and white in color, located on the street or access side of the hydrant so that it is visible to fire operations and inspections crews.



Pipe and Trench Requirements



1. A 6-inch bed of clean fill sand shall be provided below the pipe and 12-inches above the pipe (total of 18 inches plus outer diameter of the pipe).
2. Pipe shall be buried at least 36" where subject to loading (e.g., driveways, parking lots) and at least 30" elsewhere.
3. All pipe shall be approved for use in fire service systems. Class 150 will be used at a minimum, and class 200 pipe shall be used where the water pressure exceeds 150 psi. The use of galvanized pipe is prohibited when a portion of the system is buried.
4. All bolts used for underground connections, including T bolts, shall be 316 stainless steel or ferrous bolts coated with asphaltic sealant. Asphaltic sealants (and other opaque sealants) shall not be used to coat stainless steel bolts (this is to ensure bolts can still be verified as 316 stainless steel during inspection). All ferrous fittings (with the exception of 316 stainless steel) shall be cleaned and thoroughly coated with asphalt or other corrosion retarding material after assembly and prior to the installation of polyethylene tube
5. Thrust blocks, or another approved method of thrust restraint, shall be provided wherever pipe changes direction.



Typical Thrust Block Applications

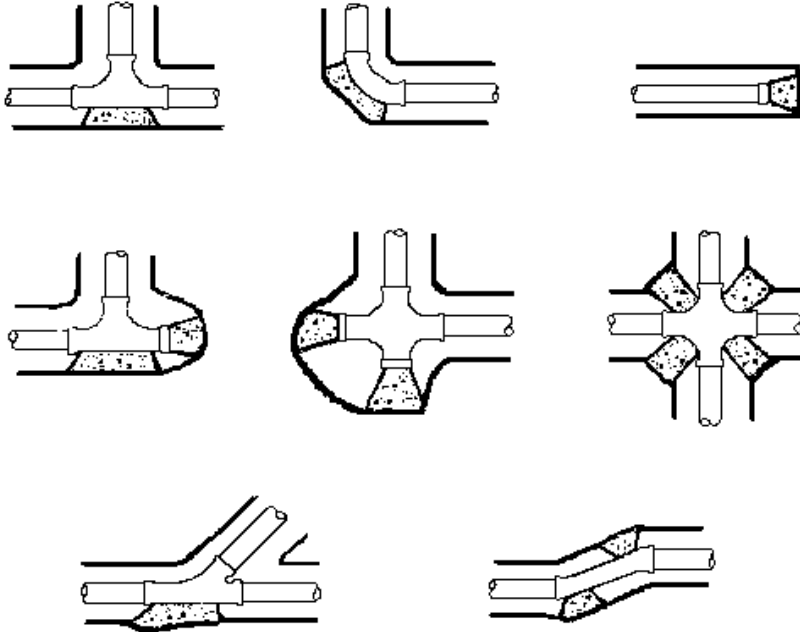


Image Copyright 2014 Orange County CA Fire Authority

6. A minimum two-inch clearance shall be provided where the pipe passes through slabs or walls. Underground system shall terminate at the riser flange and placed a maximum of 18 inches from an exterior wall and 6 inches above the slab.
7. Backfill shall be tamped in layers or puddle under and around pipes to prevent settlement or lateral movement and shall contain no ashes, cinders, refuse, construction debris, organic matter or corrosive materials. (NFPA 10.9.1)
8. Rocks shall not be placed in trenches. (NFPA 10.9.2)
9. Tracer wire shall be placed along any runs of buried non-metallic pipe.

Plan Submittal Requirements

1. All plans shall include a title block with information that conforms to the Missouri Board of APELSLA.
2. The plans shall be drawn by a licensed professional engineer, competent in the design and layout of NFPA piping systems. The engineer shall be registered with the State of Missouri and shall be a full-time employee and/or owner of the



WEST COUNTY EMS & FIRE

Serving West St. Louis County since 1908

firm identified in the title block. The engineer may NOT be a subcontracted, part-time or "1099" entity with respect to the firm listed in the title block.

3. The firm shall be registered with the Missouri Secretary of State and shall be in good standing. If the firm is an LLC, is incorporated or is a partnership where one or more of the partners is incorporated or an LLC, then the firm shall be licensed as an engineering firm with the Missouri Board of APELSLA.
4. The plans shall be signed and sealed by the professional engineer.
5. The plans shall include a "Code Block" identifying the ICC code and NFPA standards to which the plans are designed.
6. The plans shall include specific detail on each joint, thrust block and connection. Plans shall also show a detail on how the pipe runs thru any structural or foundation components of the building.
7. Pipe materials and fastener information shall be shown on the plans.