



CHANDLER FIRE, HEALTH & MEDICAL DEPARTMENT

GUIDE FOR UNDERGROUND FIRE LINES



Underground fire line installation information shall be provided on the appropriate drawings.

1. A detector check valve assembly for the underground fire line is installed because there is a capability for onsite private fire hydrants or other means of flowing water without sounding an alarm.
2. The plans are drawing to scale and include:
 - A. Size and location of city water main(s) supplying underground fire line(s).
 - B. Type, class, depth of burial, size, and location of all new underground fire line piping.
 - C. Location(s) and type of off-site and on-site fire hydrant(s).
 - D. Location(s) of fire sprinkler(s) and standpipe rise(s), to be supplied by underground fire lines(s).
3. Location and distance to all existing fire hydrants on City mains, within 300 feet of the site property lines.
4. Provide additional fire hydrants as needed for the site and building(s) to meet City standards.
5. The location of underground fire lines is NOT to be located within retention basins or public utility easements.
6. Underground fire line maximum lengths shall not exceed (unless approved by Fire Marshal):
 - A. Six inch diameter dead end lines shall not exceed 300 feet in length.
 - B. Eight inch diameter dead end lines shall not exceed 1200 feet in length.
 - C. Six inch-looped lines shall not exceed 1200 feet in length.
7. Fire line pipe material shall be DIP Class 350 for all vertical and above ground piping and appurtenances and within 10 feet of double check detector, vault, building, PIV, FDC or as directed by the Fire Marshal. Underground fire lines may be either PVC C-900 (150 psi) or PVC C-905 (235 psi) in other instances.
8. Metallic warning tape shall be installed in accordance with the manufacturer's installation instructions when non-metallic piping is used for underground fire lines.
9. Show appropriate fire line connection detail for backflow prevention assemblies, underground check valves, fire department connections, and post indicating valves.
10. Show all fire line control valves:
 - A. Are of the indicating type.
 - B. Are aboveground.
 - C. The top of valve housings is 36 inches above clearance around PIV finished grade.
 - D. Are to be color coded and signed in accordance with FD standards.
 - E. Maintain a minimum of three (3) Feet clearance around PIVs (No trees, bushes, fences, cactus or river rock).
11. Show all fire line backflow prevention assemblies with FDC, underground check valves, fire department connections (FDC), and fire line control valves.
12. Show looped underground fire lines are provided with sectional control valves installed at appropriate locations to permit isolation of portions of the system in the event of a break, or to facilitate repairs or extensions to the system.
13. Show that all stub out or future connections on underground fire lines shall terminate with post indicator valves only.
14. Plans shall show that backflow with fire department connections (FDC) assembly is installed as follows:
 - A. A minimum of one fire department connection is provided for single underground fire lines supplying a single riser (FD102).
 - B. A minimum of two-fire department connections, located remote for each other, are provided for looped underground fire lines supplying multiple risers. More than two FDC's may be required as determined by plan review (FD103).

15. Plans shall indicate that backflow with FDC assembly:
 - A. Are located on private property six to ten feet behind curb (of street) at a permanent entrance to the site (as determined by the Fire Marshal or designee).
 - B. Will not obstruct public or private sidewalks.
 - C. Are not located in a retention area or behind walls.
 - D. Are located within 150 feet of a fire hydrant connected to a public water main.
 - E. Are located within landscaped or planter areas.
 - F. Are signed in accordance with FD Detail 104.
 - G. Maintain a minimum of three (3) foot clearance around the FDC (No landscaping, bushes, trees, cactus, river rock, or fences).
 - H. Fire Hydrants shall be located on the same side of the drive to prevent access from being obstructed.
 - I. Are not located within 150 feet of a fire hydrant connected to a private water main.
16. Plans shall show separate Hydrant (H) and Fire Line (FL) lines on the plans (labeled as such). These lines shall be separate throughout the site unless otherwise approved by the Fire Marshal.
17. Tapping sleeves are **NOT** to be used on any portion of the underground fire line **downstream of the underground check valve or backflow prevention assembly** per NFPA 24.
18. Uni-flange devices are not to be installed on aboveground piping.
19. All system components are to be listed or approved for fire protection use by an approved testing agency.
20. A sectional control PIV shall be installed on a looped fire line to provide isolation of the fire line. Each branch fire line shall have a riser control PIV for individual riser (unless otherwise approved by the Fire Marshal or designee). The riser PIV shall be located as close to the outside of the building as practical where the riser is located. If the riser PIV is eliminated a note shall be placed on the Fire Protection Sprinkler and the Civil Plans that Fire Department Detail FD105 shall be used. The Civil Engineer is required to coordinate with the Fire Sprinkler Designer to ensure FD105 is placed on the Fire Sprinkler plans for review.
21. All stub out and temporary fire line terminations (phased projects) shall end with a PIV painted forest green.
22. Residential (multi-family) - all private shared domestic and residential fire line mains shall have a required pressure backflow installed per COC Detail C-315.