2.09 Underground Pipe Detail Plan and Design Criteria Submittal for Installation of Underground Piping for Fire Sprinkler Service (2022)

Reference: 2022 NFPA 13, 2019 NFPA 24,and SFFD Administrative Bulletin 4.23.

Sprinkler plans shall provide underground pipe details showing new underground fire service or mains that include ALL of the following:

1. Size of underground pipe, including pipe material and fitting being used.
2. CPVC underground piping is prohibited by SFPUC. Whether combination or dedicated fire underground, it must be braised copper K (up to 2" in diameter) or ductile iron for piping greater than 2" in diameter.
3. If the pipe joints are not restraint joints and thrust blocks are required, provide thrust block size/bearing area based on what type of soil is present.
4. Depth of cover for the underground pipe and how much the clearance is between top of pipe and concrete sidewalk slab or roadway pavement. NFPA 24, Section 10.4.3, requires that the depth of cover for fire service main pipe be not less than 2 1/2 ft. or 1 ft. below the frost line for the locality. Where frost is not a factor, the 2 1/2 ft. depth of cover is required to protect the pipe from mechanical damage. The San Francisco Water Department supplies domestic water meters for all fire services of two-inch and smaller, including combination fire/domestic services. These meters require that the pipe be installed less than the 2 1/2 ft. required by NFPA 24. Due to the practical difficulty of compliance with this standard, all 2" and smaller fire services, including combination services, shall be allowed to be installed following the criteria listed below which will prevent mechanical damage:
    a. All installation of piping shall comply with San Francisco Plumbing Code section 609.1 which requires a minimum depth of cover of 12" below finished grade.
    b. A minimum 4" of concrete shall cover the area above the pipe. The four inch concrete installation shall extend a minimum of 12" horizontally on both sides of the pipe.
    c. A minimum of 3" of earth shall be maintained between the pipe and concrete. **Exception:** Pipe and joints that have been coated and wrapped do not have to comply with this requirement
5. Fire Hydrant installation detail if new hydrant is being installed, or relocated. The SFPUC *Customer Service Bureau, New Installations* shall be contacted at (415) 551-2900 prior to any work being performed on the fire hydrant system.
6. The lengths of underground pipe from the city main to the building and/or the main building riser.
7. Name of the street the city main is buried under and the size of the city water main.

When obtaining a permit for "*Underground Installation Only",* provide graph of Supply/Demand Curve(s) showing available margin(s) for highest demand.

NOTE: *FIRE SPRINKLER SERVICE - METER & SUPPLY SIZE APPROVAL Form* will be forwarded to the SFPUC upon final approval of plans.