

24. Fire Hydrants.

a. General Requirements.

- 1) Information to be shown on the drawings.
 - a) Elbow elevation (E.E.). Provide the elevation of the fire hydrant base elbow. The lead pipe from the outlet of the fire hydrant tee to the fire hydrant base should be laid level.
 - b) Length of the fire hydrant barrel. Provide the length of the barrel from the elbow elevation to the bury line (finished grade or existing ground). Base the length of the barrel on increments of 6-inch. Submit the tabulation sheet, showing the computations supporting the design of the fire hydrant barrel lengths.
 - (1) The minimum length of the barrel shall be four and one half (4-1/2) feet, based on maintaining four (4) feet of cover over the pipeline.
 - (2) Adjust the fire hydrant tee to obtain the correct elbow elevation at the fire hydrant.
 - (3) The maximum length of the barrel shall be eight (8) feet. If additional length is required, provide a call out on the drawings, indicating the barrel length of eight (8) feet and the length of extension needed. Fire hydrant barrel extensions are available in increments of 6-inches, starting at 6-inches long.
 - c) Provide a call out indicating the nearest existing fire hydrant(s) on the drawings.

b. Fire Hydrant Settings (Horizontal).

- 1) Within a roadway with curbs, place fire hydrants two (2) feet behind the face of the curb, see Standard Detail W/8.0.
- 2) Within an open-section roadway without curbs, place fire hydrant twelve (12) feet beyond the limit of stabilized shoulder or pavement or as shown on the drawing, see Standard Detail W/8.1.
- 3) In other areas, submit locations for fire hydrants.
- 4) When spacing the fire hydrants along a roadway, see the following requirements:
 - a) Locate the fire hydrant to maximize access for fire department equipment and personnel.
 - b) At street intersections, locate the fire hydrant at the curvature or truncation of the roadway property line fillet, whenever possible.
 - c) Locate the fire hydrant at the intersection of the property line and the roadway right of way or property line.
 - d) When the mainline pipeline is 16-inch to 30-inch diameter and within a roadway, the fire hydrant can be designed as a blowoff connection, see Part One, Section 23 (Blowoff Connections).



- 5) Fire hydrant facing note. In accordance with the Specifications, the placement of the fire hydrant stream outlet is normally set facing toward the street line when the mainline water pipeline is located in the street. If the mainline water pipeline is located out of the roadway, either behind the curblin e or at edge of roadway, provide a note on the drawings. "Set the stream outlet of the fire hydrant facing the curb or edge of roadway".

c. Fire Hydrant Leads.

- 1) Provide a minimum 6-inch diameter fire hydrant lead pipe between the tee and the fire hydrant elbow, unless the fire hydrant base connection is different.
- 2) Determine the mainline pipeline size (to which the hydrant is connected) for fire flow conditions. The minimum mainline diameter allowable is 8-inches.
- 3) Design the length of the fire hydrant lead pipe between the fire hydrant tee and the fire hydrant as short as possible. Restrain all joints on the fire hydrant lead, see Standard Details B/2.1 and B/2.2.
- 4) All piping for the fire hydrant lead shall be DIP minimum Class 54.
- 5) No bends, offsets, etc., shall be located between the fire hydrant tee and the fire hydrant elbow, if practical.
- 6) In the vertical plane, the fire hydrant lead must be laid level. Profiles for fire hydrant leads will be required for the following cases:
 - a) When the fire hydrant lead crosses other buried utilities, except when the mainline water pipe profile shows that the crossing utilities will provide the fire hydrant lead with sufficient clearances.
 - b) When the grade/ground line is not the same as the mainline pipe. (Changes in grade due to ditches, distances from mainline pipeline, etc.).
 - c) When bends are required for the fire hydrant lead.
- 7) Do not design blocking for fire hydrant tees. Restrain all pipe between the tee and the fire hydrant, see Part Three, Section 27 (Thrust Restraint Design for Buried Piping).
- 8) When PVC is used for the mainline piping, connect the tracer wire to the fire hydrant base elbow; see Standard Details W/8.0 and W/8.1.

d. Fire Hydrant Spacing.

- 1) Single family residential areas. Provide five hundred (500) feet maximum spacing between fire hydrants, as measured along an improved roadway, and a maximum fire hydrant coverage of four hundred (400) feet from the nearest fire hydrant to any dwelling as measured along an improved roadway (as a fire engine would drive).
- 2) Townhouses and garden apartments. Provide two hundred fifty (250) to three hundred (300) feet maximum spacing between fire hydrants, as measured along an improved roadway, and a maximum fire hydrant coverage of three hundred (300) feet from the nearest fire hydrant to any dwelling as measured along an improved roadway (as a fire engine would drive).



- 3) All other areas. (commercial, industrial, high-rise, elevator type apartments, etc.). Provide two hundred fifty (250) to three hundred (300) feet maximum spacing between fire hydrants, as measured along an improved roadway. Conform to any additional requirements of the Fire Marshall for fire hydrant spacing.

