



City of Downey Fire Department

11111 Brookshire Avenue

Downey, California 90241

(562) 904-7345 [Phone] • (562) 869-3994 [Fax]

Installation of Private Fire Service Mains and Their Appurtenances

This information package shall be used in conjunction with NFPA 13, 13R, 24, and other applicable NFPA design standards as adopted by the City of Downey Fire Department, for Commercial Buildings and R-2 Occupancies. (Refer to the California Fire Code (CFC) for adopted editions of NFPA). This information package is not intended for use as a standalone document.

PERMIT APPLICATION

1. Submit a completed permit application and a minimum of three (3) sets of drawings with hydraulic calculations to the City of Downey Fire Administration/Prevention Office.
2. Submittals must be made in person. Submittals received via mail will be returned to the sender.
3. Permit application to include associated Building Permit Number (if applicable).
4. Plan review turnaround time for each submittal is a minimum of three (3) weeks.
5. Plan drawings shall include:
 - Contractor's name, address, phone number
 - California Contractor's license number and license type (or P. E. license number)
 - Minimum scale for overhead fire sprinkler plans is 1/8" = 1'-0". Plans and pipe lengths shall be fully dimensioned to coincide with the specified scale.
 - ***Incorporate The Following Verbatim Note onto the Drawings***
The color of the Double Detector Check Assembly (DCDA), post indicator valve (PIV) and fire department connection (FDC) shall be safety red. The fire department connection shall be provided with two (2) horizontal rows of 3-inch-wide highly reflective tape, spaced 3" apart, and placed on the upper portion of the fire department connection riser. On-site fire hydrants shall be painted safety red.

PLAN REVIEW

1. All fire sprinkler submittals requiring hydraulic calculations shall include a copy of the City of Downey Fire Flow Data Form.
2. Fire flow data shall include the elevation of the tested hydrant in relation to the base of the sprinkler riser. Fire Flow Data Forms shall be obtained from the City of Downey Fire Prevention Office 562-904-7345. Fire flow data shall not be older than 12 months from date of test to date of application.
3. The contractor will be notified by phone when the plans and permit are ready for pickup. All plan check and permit fees will be collected at time of submittal or when the plans are approved. Plans and plan check corrections must be picked up in person. Plan check corrections will not be returned to the contractor by mail or fax.

Civil drawings are not construed as underground fire line drawings and will not be accepted for review.

INSPECTIONS

1. For inspection scheduling or for general information please call 562-904-7345. Inspections will not be scheduled until a permit has been issued. Allow 2-3 working days' advanced notice when requesting inspections.
2. The permit card and approved set of plans must be kept at the project site until the permit is finalized. *Failure to maintain the permit card and approved plans on site will result in the cancellation of the inspection.*
3. System equipment and piping **SHALL NOT** be installed prior to issuance of a permit.

UNDERGROUND FIRE LINES AND ON-SITE FIRE SERVICE

The underground fire line shall be designed and installed in accordance with the City of Downey Requirements, NFPA 13, 24 and other applicable NFPA Standards as adopted by the City of Downey Fire Department.

UNDERGROUND FLUSH / ACCEPTANCE TESTING

1. All underground fire lines and hydrants shall be flushed using the velocities specified in NFPA 24 prior to any overhead pipe being connected.
2. Contractors shall have the appropriate tools and equipment on-site to complete a flush of all piping and hydrants. There shall be sufficient fire hose to direct the water to a safe location off the site.
3. In the case of multiple hydrants or risers, a minimum of two (2) appurtenances shall be connected and ready to flush. A minimum of two (2) replacement hoses, along with additional burlap sacks, shall be available on site. Incorporate the following flush arrangements as verbatim notes onto the drawings.
 - 4" pipe shall be flushed through a minimum of one (1) 4" hose or two (2) 2 1/2" hoses.
 - 6" pipe shall be flushed through a minimum of one (1) 4" hose or four (4) 2 1/2" hoses.
 - 8" pipe shall be flushed through a minimum of two (2) 4" hoses; one (1) 4" hose and two (2) 2 1/2" hoses; or six (6) 2 1/2" hoses.

NOTE: Fire hydrants shall be flushed using the hose arrangement required for 6" pipe. Wharf hydrants shall be flushed using the hose arrangement required for 4" pipe.

4. A hydrostatic test at 200 psi for two hours is required. This test shall be witnessed by the Fire Protection Engineer prior to covering the pipe. Center loading is permissible. Incorporate as a verbatim note onto the drawings.

FIRE DEPARTMENT CONNECTION (FDC) / BACKFLOW PREVENTION / PIV

1. The Fire Department Connection (FDC), double detector check assembly (DCDA), post indicator valve (PIV) shall be provided with an all-weather sign indicating the address(s) and system components served. (i.e. auto sprinkler, on-site hydrant, and wharf hydrant).
2. The FDC shall be provided with frangible metal caps or brass plugs. Plastic caps are not permitted. Incorporate a sign detail for each FDC and PIV onto the drawings. See attached sign examples: The Wharf hydrant sign shall state what it is served by.

3. Backflow prevention shall be installed on the address side of the building in accordance with the City of Downey Public Works Standard Provisions. The applicable Double Check Detector Assembly (DCDA) shall be incorporated onto the drawings. Each OS&Y valve shall have a sign indicating the address.
4. Indicate the proposed occupancy classification and sprinkler design density for the building.
5. Sectional control valves (PIV) shall be provided for looped underground fire lines and for fire lines served by more than one water service connection. Post indicator valves shall be used whenever sectional control valves are required.
6. The fire sprinkler monitoring system shall electrically monitor all sectional control valves.
7. The FDC shall be within 100' of a fire hydrant. The fire hydrant shall be on the same side of the street as the FDC.

UNDERGROUND FIRE LINES / RESTRAINT / HYDRANTS

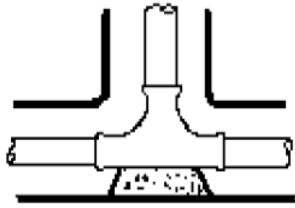
1. When required, on-site wharf hydrants shall consist of two (2) 2-1/2" hose valve outlets capable of supplying 500 gallons per minute with both outlets flowing. Hose valve outlets shall be listed for exterior use and provided with a 1-1/8" pentagonal operating nut. Hose valve outlets shall be provided with 2 1/2" NSH male threads with brass caps and chains. Submittals shall include complete manufacturer specifications for the proposed hose valve outlets. See attached installation detail.

NOTE: On-site City standard hydrants may be required when the building(s) is located in excess of 150' from an approved vehicular access roadway or fire hydrant, or the building(s) is not protected with automatic fire sprinklers.

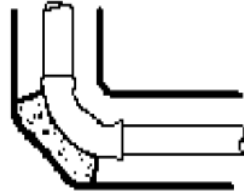
2. Indicate the size of the city main. Indicate the type and size of all underground pipe and fittings. Type shall include class of pipe, class of fittings and pressure rating.
3. Indicate the method of restraining the underground piping (i.e. thrust blocks, rods etc.).
4. Provide complete calculations for sizing of thrust blocks (height and width) and specify rod diameters and clamp sizes in accordance with NFPA 24 and NFPA 13. Thrust block calculations shall use a soil bearing strength of 1000 psf.
5. Indicate the location and type of all above and below grade valves. All fire sprinkler risers shall be provided with above grade, exterior, indicating control valves located at the DCDA. When multiple sprinkler risers, on-site hydrants, wharf hydrants, or a combination thereof are supplied from the same underground fire line, additional above grade, exterior, indicating control valves shall be installed to facilitate shutting down individual fire sprinkler risers without shutting off other risers, on-site hydrants or wharf hydrants.
6. Indicate the depth of pipe bury and the type of backfill materials used. Backfill shall consist of clean fill sand or pea gravel to a minimum of 6" below and to a minimum of 12" above the pipe, and shall contain no ashes, cinders, refuse, organic matter, or other corrosive materials.
7. Provide a detail of the pipe transition from the horizontal run of pipe to the vertical. (i.e. at base of riser or base of hydrant).
8. Listed plastic pipe (AWWA C900) shall not be subject to building foundation/footing loads. When using listed plastic pipe a transition to ductile iron shall be made a minimum of 5 ft. from the building. Show the method of protecting the pipe (i.e. sleeve, annular clearance) when ductile iron pipe runs under or through the building slab/footing.
9. Pipe installed under the buildings or building foundations shall not contain mechanical joints.

NOTES FOR THRUST BLOCK RESTRAINTS

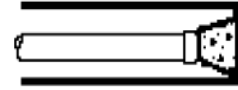
CONDITION I



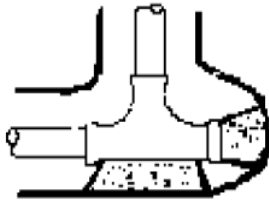
CONDITION II



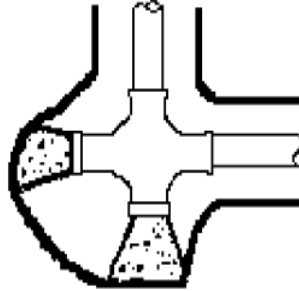
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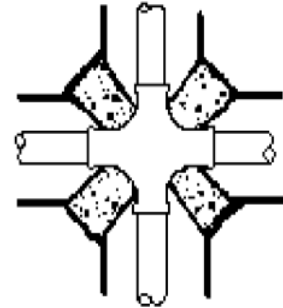
CONDITION IV



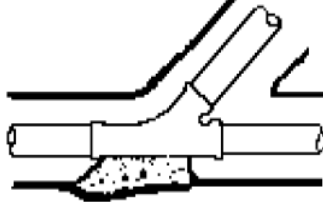
CONDITION V



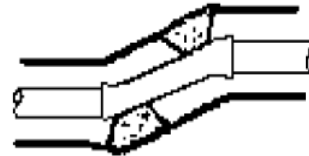
CONDITION VI



CONDITION VII



CONDITION VIII

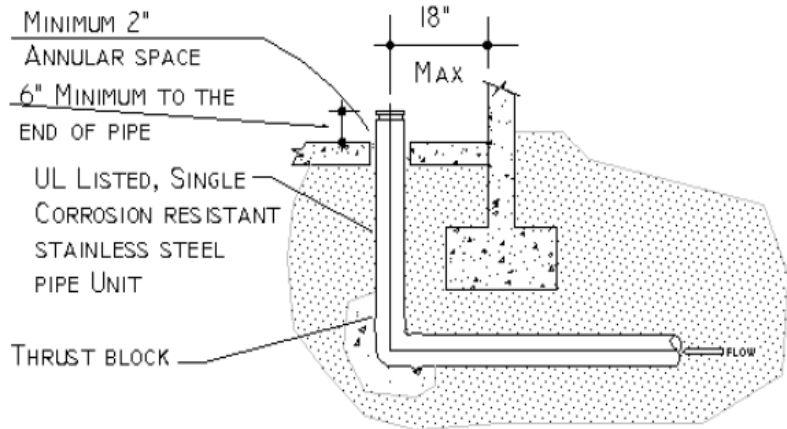


THRUST BLOCK BEARING AREA IN SQUARE FEET

Pipe Size	CONDITION							
	I	II	III	IV	V	VI	VII	VIII
<6"	2.0	2.9	2.0	2@ 2.0	2@ 2.0	4@ 1.6	2.0	2@ 1.6
6"	4.3	4.0	4.3	2@ 4.3	2@ 4.3	4@ 3.3	4.3	2@ 3.3
8"	7.4	10.6	7.4	2@ 7.4	2@ 7.4	4@ 5.7	7.4	2@ 5.7
10"	12.1	17.1	12.1	2@ 12.1	2@ 12.1	4@ 9.3	12.1	2@ 9.3
12"	17.2	24.1	17.2	2@ 17.2	2@ 17.2	4@ 13.2	17.2	2@ 13.2

NOTES

1. Thrust block areas based on 225 PSI and 2,000 PSF soil pressure with 2 ½ feet of cover minimum.
2. Thrust block bearing faces shall be placed against undisturbed soil, approved compacted backfill, or Class 100-E-100 slurry.
3. Thrust blocks shall be Class 560-C-3250 concrete, unless specified otherwise.
4. To facilitate future removal of thrust blocks and line extension use cardboard separators between blocks, if needed.



UNDER FOUNDATION RISER DETAIL (N.T.S.)

