CITY OF MERCED

SITE ADDRESS _____

PRIVATE FIRE MAIN SUBMITTAL CHECKLIST

For use when applying for *ON-SITE* private fire mains, private hydrants, or automatic fire sprinkler system underground supply piping. For off-site installations contact the City of Merced Engineering Department for encroachment permit requirements. This checklist outlines general requirements; information contained herein applies to typical instances and may not address all circumstances.

APPLICATION FOR A PERMIT AUTHORIZES THE CITY OF MERCED AND THEIR REPRESENTATIVES TO MAKE "RED LINE" COMMENTS ON THE PLANS WHICH HAVE BEEN APPROVED BY THE DESIGNER IN ORDER TO EXPEDITE THE PLAN REVIEW PROCESS.

REFERENCES:

- All code editions shall be those in effect at the time of submittal. See City of Merced municipal code for current adopted versions of the codes.
- California Fire Code (CFC); including Chapter 3, Chapter 9 (901.5), Appendices B and C.
- NFPA 24; as referenced in the California Building Code and California Fire Code.
- City of Merced Municipal Code (MMC); including Design and Construction Standards.
- Modification to any of the above minimum requirements shall be received, in writing, from the City of Merced Fire Prevention Bureau and included with the submittal.

USE THE FOLLOWING CHECKLIST FOR PLAN SUBMITTAL GUIDELINES

PLAN DESIGN (*NFPA 24, 4.1.3*):

	YES	NO	N/A	
1.	□	□	□	Name of owner.
2.	□	□	□	Site location, including street address. CBC 105.3 (2)
3.	□	□	□	North orientation/ Point of compass.
4.	□	□	□	Geographic representation of the scale used on all plans and sheets.
5.	□	□	□	Name and address of contractor.
6.	□	□	□	Size and location of all water supplies.
7.	□	□	□	Size and location of standpipe risers, hose outlets, hand hoses, monitor nozzles, and related equipment.

PRIVATE FIRE SERVICE MAINS (*NFPA 24, 4.1.3(8)*):

	YES	NO	N/A	
8.	□	□	□	Size.
9.	□	□	□	Length.
10.	□	□	□	Location.
11.	□	□	□	Weight.

PRIVATE FIRE SERVICE MAINS (*NFPA 24, 4.1.3(8))* (continued):

	YES	NO	N/A	
12.	□	□	□	Material.
13.	□	□	□	Point of connection and size of city main.
14.	□	□	□	Sizes, types, and locations of valves, valve indicators, regulators, meters, and valve pits.
15.	□	□	□	Depth at which the top of the pipe is laid below grade.
16.	□	□	□	Method of restraint.

HYDRANTS (*NFPA 24, 4.1.3(9)*):

	YES	NO	N/A	
17.	□	□	□	Size and location, including size and number of outlets and whether outlets are to be equipped with independent gate valves.
18.	□	□	□	Thread size and coupling adapter specifications if different from NFPA 1963.
19.	□	□	□	Whether hose houses and equipment are to be provided, and by whom.
20.	□	□	□	Static and residual hydrants used in flow.
21.	□	□	□	Method of restraint.
22.	□	□	□	Size, location, and piping arrangement of the fire department connections. NFPA 24, 4.1.3 (10)

ADDITIONAL PLAN DESIGN ELEMENTS:

	YES	NO	N/A	
23.	□	□	□	Manufacturer's installation instructions for any specially listed equipment, including descriptions, applications, and limitations for any devices, piping, or fittings. NFPA 24, 4.1.4
24.	□	□	□	Piping is designed as to not be covered by future buildings. NFPA 25, A4.1
25.	□	□	□	Piping designed and sized to minimize expense for future site expansion. NFPA 25, A4.1
26.	□	□	□	Planned future expansions are clearly shown on the site plan.
27.	□	□	□	Deferred and phased submittals & items "by others" are listed on the title sheet with permit numbers where applicable.
28.	□	□	□	Provide symbol legend and abbreviations list.
29.	□	□	□	All plan information is legible, & on suitable material or electronically submitted in .pdf form. CFC 105.4.2
30.	□	□	□	Current fire flow & hydraulic calculations are provided per NFPA 24, 5.1.2 and MMC 17.32.090(E) & CFC 903.3.5.3 & 903.3.5.4.
31.	□	□	□	Size, type, & location of system shut-off and isolation valves are shown.
32.	□	□	□	Listings are provided for components required by NFPA 24 to be listed.
33.	□	□	□	Thrust block schedule, details, & calculations are provided. NFPA 24, 10.6.1
34.	□	□	□	Restraint, strapping, and anchorage is specified. (NFPA 24, 10.6)

VALVES:

	YES	NO	N/A	
35.	□	□	□	Connections between water sources and sprinkler risers shall be controlled by valves meeting the requirements of NFPA 24, 6.1.
36.	□	□	□	Valves controlling connections to water supplies and supply pipes are listed indicating valves with details provided. NFPA 24, 6.1.1
37.	□	□	□	For more than one source of water supply, a check valve is at each connection and is detailed. NFPA 24, 6.2.2
38.	□	□	□	Control valves are provided on each side of the check valve. NFPA 24, 6.2.2.1 & 6.2.2.2
39.	□	□	□	Control valves for connections to pressure or gravity tanks re in compliance with NFPA 24, 6.2.4 through 6.2.6.
40.	□	□	□	All control valves are readily accessible and free of obstructions. NFPA 24, 6.2.8
41.	□	□	□	Water supply connections to the building shall be with a post indicating valve (PIV), except FDCs. PIVs are not required if authorized by the City of Merced Fire Department and comply with NFPA 24 Sections 6.1 & 6.2.9.
42.	□	□	□	PIV installation and cross-sectional elevation details are provided.
43.	□	□	□	PIVs are not less than 40 feet from the building unless authorized by the City of Merced Fire Department or NFPA 24, 6.2.9, the top of the posts are 32 to 40 inches above final grade (NFPA 24, 6.3.1), and are protected from mechanical damage (NFPA 24, 6.3.2).
44.	□	□	□	Valves in pits, used in lieu of PIVs are detailed to show conformance with NFPA 24, 6.4 (adequate size and accessible for inspection, operation, testing, maintenance, equipment placement and removal, and constructed to protect equipment from damage and accumulation of water).
45.	□	□	□	Sectional valves are provided to isolate the system for repair and maintenance and where a supply main is near or under a building foundation. NFPA 24, 6.6
46.	□	□	□	Signage requirements and locations are noted on the plans indicating the valve function and the part of the system the valve controls . NFPA 24, 6.7.1
47.	□	□	□	Valves shall be supervised in accordance with NFPA 24, 6.7.2. Work done "by others" or under separate/alarm permits shall be listed on the title sheet, with permit numbers when known.
48.	□	□	□	Check valves are installed in vertical or horizontal position in accordance with their listing. NFPA 24, 6.8

HYDRANTS:

	YES	NO	N/A	
49.	□	□	□	Hydrant types are approved by the jurisdiction. NFPA 24, 7.1.1.3
50.	□	□	□	Hydrant connection to the main is 6-inch min. NFPA 24, 7.1.1.1
51.	□	□	□	Hydrants are to be not less than 40 feet from a building, unless authorized by the City of Merced Fire Department. NFPA 24, 7.2.
52.	□	□	□	Hydrant placing is in accordance with CFC Appendix C.

HYDRANTS (continued):

	YES	NO	N/A	
53.	□	□	□	Cross section hydrant installation detail is provided. NFPA 24, 7.3
54.	□	□	□	Hydrant, pipe connection, support, restraint methods, and locations are detailed. NFPA 24, 7.3
55.	□	□	□	The center of a hose outlet is not less than 18 inches or more than 36 inches above grade. NFPA 24, 7.3.3
56.	□	□	□	The method of hydrant protection from mechanical damage by curbs, bollards, etc., is detailed. (NFPA 24, 7.3.5 & CFC Ch 10)

PIPING:

	YES	NO	N/A	
57.	□	□	□	Piping supplying a hydrant is 6 inches min. NFPA 24, 5.2.2 & 13.1
58.	□	□	□	Supply piping for a water-based fire protection system can have a diameter less than 6 inches when designed in accordance with NFPA 24, 5.2.2 & 13.2.
59.	□	□	□	Pipe complies with NFPA 24, 10.1 & is designed to withstand a system working pressure of at least 150 PSI per NFPA 24, 10.1.2.
60.	□	□	□	Pipe and fitting listings and data sheets are provided.
61.	□	□	□	Pipe fittings comply with NFPA 24, 10.2 and methods of joining pipe sections is specified and in compliance with NFPA 24, 10.3.
62.	□	□	□	Pipe burial depth is detailed with a minimum depth of 30 inches; 36 inches under vehicle traffic areas; 48 inches when the pipe is located under railroad tracks. NFPA 24, 10.4
63.	□	□	□	Above-ground pipe which is subject to freezing is protected per NFPA 24, 12.2.3.
64.	□	□	□	Pipe laid in waterways or streams are designed in accordance with NFPA 24, 10.4.2.1.5.
65.	□	□	□	Pipe does not run under a structure for more than 10 feet to the riser location. NFPA 24, 10.4.3
66.	□	□	□	For pipe that runs under a structure, protection is provided and detailed per NFPA 24, 10.4.3.
67.	□	□	□	The methods of restraining all tees, plugs, bends, reducers, valves, and hydrant branches are detailed and are designed in compliance with NFPA 24, 10.6.2. Pipe with threaded, grooved, welded, heat fused, or chemical or solvent cemented joints do not require additional restraint if they pass the hydrostatic test per NFPA 24, 10.10.2.2 without shifting or leaking excessively. NFPA 24, 10.6.3
68.	□	□	□	All bolted joint assemblies shall be coated for corrosion protection, the coating product and the application requirement is noted on the plan. NFPA 24, 10.6.2.5
69.	□	□	□	Backfill material for tamping around the pipe is specified. NFPA 24, 10.9
70.	□	□	□	The flushing and hydrostatic test requirements are on the plans as specified in NFPA 24, 10.10.2
71.	□	□	□	The minimum flushing flow rate requirements are provided on the plan per NFPA 24, Table 10.10.2.1.3.

PIPING (continued):

	YES	NO	N/A	
72.	□	□	□	Above-ground piping is protected from damage or fire and is not located in hazardous areas unless the area is protected by an automatic sprinkler system. NFPA 24, 12.2
73.	□	□	□	Protection for above-ground water filled pipe passing through areas subjected to freezing conditions is detailed and conforms with NFPA 24, 12.2.3.
74.	□	□	□	Above-ground piping is protected against corrosive conditions. NFPA 24, 12.2.4
75.	□	□	□	Above-ground piping is braced for seismic design category D_0 (City of Merced) in accordance with NFPA 13 and NFPA 24, 12.2.5
76.	□	□	□	If water supply piping is from penstocks, rivers, lakes, or reservoirs, it shall be designed in accordance with NFPA 24, 5.8, to avoid accumulations of mud or sediment with appropriate screens and strainers.

BACKFLOW PREVENTION:

	YES	NO	N/A	
77.	□	□	□	Backflow Prevention Device is approved by the City of Merced.

City of Merced Inspection Services Division
678 W. 18th Street, Merced, CA 95340
● Phone (209) 385-4773 ● Fax (209) 725-8775 ● Email inspectionservicesweb@cityofmerced.org ●
https://www.cityofmerced.org/departments/development-services/building-division

City of Merced Approved Backflow Assembly Devices

(Lead Free Only Allowed)

Ames

1. Type DC DA only
- Model 300 Colt
- Size 2 ½", 3", 4", 6", 8", 10", 12"
2. Type DC/Bypass
- Model 2000B
- Size 3/4"

Febco

1. Type RP
- Model LF825Y
- Size ¾", 1", 1 ¼", 1 ½", 2", 2 ½", 3", 4", 6", 8", 10", 12"
2. Type RP
- Model 825YA
- Size ¾", 1", 1 ¼", 1 ½", 2"
3. Type RP
- Model 860LF
- Size ¾", 1", 1 ¼", 1 ½", 2", 2 ½", 3", 4", 6", 8", 10", 12"
4. Type DC/DCDA
- Model 850LF
- Size ¾", 1", 1 ¼", 1 ½", 2", 2 ½", 3", 4", 6", 8", 10", 12"
5. Type DCDA
- Model 870V LF
- Size 2 ½", 3", 4", 6", 8", 10"
6. Type RP
- Model 880V LF
- Size 2 ½", 3", 4", 6", 8", 10"
7. Type DC
- Model 805LF
- Size ¾" Bypass Only

Watts

1. Type DC
- Model 007 MIPCQT
- Size ¾”
2. Type DC
- Model 007SSM1
- Size ¾”
3. Type DCDA
- Model 709
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”
4. Type RP
- Model 009M2LF
- Size ¾”, 1”, 1 ¼”, 1 ½”, 2”
5. Type DCDA
- Model 757, 757N, DCDA only
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”, 12”

Wilkins Zurn

1. Type DC
- Model 350XL
- Size ¾”, 1”
2. Type DCDA
- Model 350DCDA/ 350DA/ASTDA
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”, 12”
3. Type DCDA
- Model 450DA
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”
4. Type DCDA
- Model 350ASTAR/
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”
5. Type RP
- Model 375XL
- Size ¾”, 1”, 1 ¼”, 1 ½”, 2”
6. Type RP
- Model 475/475V/475ST (Stainless Steel)
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”
7. Type RP
- Model 375A
- Size 2 ½”, 3”, 4”, 6”, 8”, 10”
8. Type RP
- Model 975XL2
- Size ¾”, 1”, 1 ¼”, 1 ½”, 2”

Wilkins Zurn (continued)

9. Type RP
- Model 375AST
- Size 2 ½", 3", 4", 6", 8", 10"

10. Type DC
- Model 950XLD (LF)
- Size ¾" Bypass Only

11. Type RP
    Model 975 XL3
    Size ¾" , 1", 1 ¼", 1 ½", 2"