



# CITY OF MERCED

**MERCED**

PERMIT # \_\_\_\_\_ DATE: \_\_\_\_\_ APN: \_\_\_\_\_

SITE ADDRESS \_\_\_\_\_

## **PRIVATE FIRE MAIN APPLICATION & 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.

SCOPE OF WORK \_\_\_\_\_

APPLICANT NAME \_\_\_\_\_ PHONE \_\_\_\_\_

EMAIL ADDRESS \_\_\_\_\_

VALUATION \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

OWNER  CONTACTOR  AGENT

\* THIS SIGNATURE 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.

### **APPLICATION:**

1. DESIGNER NAME \_\_\_\_\_

DESIGNER EMAIL & PHONE \_\_\_\_\_

2. CONTRACTOR NAME \_\_\_\_\_

CONTRACTOR LICENSE # \_\_\_\_\_ CLASS \_\_\_\_\_

3. CITY BUSINESS LICENSE NUMBER \_\_\_\_\_

4. OWNER NAME & PHONE \_\_\_\_\_

OWNER EMAIL ADDRESS \_\_\_\_\_

### **REFERENCES:**

- All code editions shall be those in effect at the time of submittal.
- 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.

**City of Merced Inspection Services Division**

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**USE THE FOLLOWING CHECKLIST FOR PLAN SUBMITTAL GUIDELINES  
PLAN DESIGN (NFPA 24, 4.1.3):**

	YES	NO	N/A	
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Name of owner.
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site location, including street address. CBC 105.3 (2)
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	North orientation/ Point of compass.
8.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Geographic representation of the scale used on all plans and sheets.
9.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Name and address of contractor.
10.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Size and location of all water supplies.
11.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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	
12.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Size.
13.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Length.
14.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location.
15.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Weight.
16.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Material.
17.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Point of connection and size of city main.
18.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sizes, types, and locations of valves, valve indicators, regulators, meters, and valve pits.
19.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Depth at which the top of the pipe is laid below grade.
20.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Method of restraint.

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

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

**ADDITIONAL PLAN DESIGN ELEMENTS:**

	YES	NO	N/A	
27.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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

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**ADDITIONAL PLAN DESIGN ELEMENTS (continued):**

	YES	NO	N/A	
28.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Piping is designed as to not be covered by future buildings. NFPA 25, A4.1
29.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Piping designed and sized to minimize expense for future site expansion. NFPA 25, A4.1
30.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Planned future expansions are clearly shown on the site plan.
31.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Deferred and phased submittals & items “by others” are listed on the title sheet with permit numbers where applicable.
32.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide symbol legend and abbreviations list.
33.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All plan information is legible, & on suitable material or electronically submitted in .pdf form. CFC 105.4.2
34.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.
35.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Size, type, & location of system shut-off and isolation valves are shown.
36.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Listings are provided for components required by NFPA 24 to be listed.
37.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Thrust block schedule, details, & calculations are provided. NFPA 24, 10.6.1
38.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Restraint, strapping, and anchorage is specified. (NFPA 24, 10.6)

**VALVES:**

	YES	NO	N/A	
39.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Connections between water sources and sprinkler risers shall be controlled by valves meeting the requirements of NFPA 24, 6.1.
40.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Valves controlling connections to water supplies and supply pipes are listed indicating valves with details provided. NFPA 24, 6.1.1
41.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	For more than one source of water supply, a check valve is at each connection and is detailed. NFPA 24, 6.2.2
42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control valves are provided on each side of the check valve. NFPA 24, 6.2.2.1 & 6.2.2.2
43.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control valves for connections to pressure or gravity tanks are in compliance with NFPA 24, 6.2.4 through 6.2.6.
44.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All control valves are readily accessible and free of obstructions. NFPA 24, 6.2.8
45.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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 are in compliance with NFPA 24 Sections 6.1 & 6.2.9.
46.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PIV installation and cross sectional elevation details are provided.
47.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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).

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**VALVES (continued):**

	YES	NO	N/A	
48.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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).
49.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
50.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
51.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.
52.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check valves are installed in vertical or horizontal position in accordance with the their listing. NFPA 24, 6.8

**HYDRANTS:**

	YES	NO	N/A	
53.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydrants types are approved by the jurisdiction. NFPA 24, 7.1.1.3
54.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydrant connection to the main is 6 inch min. NFPA 24, 7.1.1.1
55.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.
56.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydrant placing is in accordance with CFC Appendix C.
57.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cross section hydrant installation detail is provided. NFPA 24, 7.3
58.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hydrant, pipe connection, support, restraint methods, and locations are detailed. NFPA 24, 7.3
59.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The center of a hose outlet is not less than 18 inches or more than 36 inches above grade. NFPA 24, 7.3.3
60.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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	
61.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Piping supplying a hydrant is 6 inches min. NFPA 24, 5.2.2 & 13.1
62.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.
63.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.
64.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pipe and fitting listings and data sheets are provided.
65.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pipe fittings comply with NFPA 24, 10.2 and methods of joining pipe sections is specified and in compliance with NFPA 24, 10.3.

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**PIPING (continued):**

	YES	NO	N/A	
66.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
67.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Above-ground pipe which is subject to freezing is protected per NFPA 24, 12.2.3.
68.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pipe laid in waterways or streams are designed in accordance with NFPA 24, 10.4.2.1.5.
69.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pipe does not run under a structure for more than 10 feet to the riser location. NFPA 24, 10.4.3
70.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	For pipe that runs under a structure, protection is provided and detailed per NFPA 24, 10.4.3.
71.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
72.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
73.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Backfill material for tamping around the pipe is specified. NFPA 24, 10.9
74.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The flushing and hydrostatic test requirements are on the plans as specified in NFPA 24, 10.10.2
75.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	The minimum flushing flow rate requirements are provided on the plan per NFPA 24, Table 10.10.2.1.3.
76.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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
77.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Protection for above-ground water filled pipe passing through areas subjected to freezing conditions is detailed and conforms with NFPA 24, 12.2.3.
78.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Above-ground piping is protected against corrosive conditions. NFPA 24, 12.2.4
79.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Above-ground piping is braced for seismic design category D <sub>0</sub> (City of Merced) in accordance with NFPA 13 and NFPA 24, 12.2.5
80.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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.

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