



FIRE PREVENTION MANUAL

ADMINISTRATIVE REQUIREMENTS

401.011 FIRE SPRINKLER SYSTEM PLAN SPECIFICATIONS

EFFECTIVE: OCTOBER 2016

SCOPE

This policy clarifies the Fresno Fire Department (FFD or Department) requirements for the preparation and submission of fire sprinkler system plans within the City of Fresno and contract service areas. These requirements apply to both required and voluntary systems.

PURPOSE

This policy has been established to provide direction regarding the requirements for the preparation and submission of fire sprinkler plans.

BACKGROUND

As noted in the *California Fire Code (CFC)*, the fire code official has the authority to formulate policies they deem necessary based upon local conditions related to plan submittals for all systems.

REQUIREMENTS

Based upon the need for uniformity in application across the Department's diverse service delivery area, and after careful deliberation, the Department has determined the following:

1. Automatic fire sprinkler systems shall be drawn with care by a trained person meeting the requirements found within the applicable law, code, ordinance, or standard.
2. Plans shall be drawn on a minimum of 24 inch x 36 inch paper and shall be drawn to an indicated scale of not less than 1/8 inch = 1 foot. Buildings over 50,000 sq. ft. shall have an overview plan showing the entire building, including all fire protection features.
3. An area no less than 4 inch x 6 inch, located in the bottom right hand corner of each plan sheet, shall be left free of any text, mark, etc. to facilitate the marking of plans by Department staff.

4. Drawings shall be organized based upon the *United States Department of Energy, Fundamentals Handbook for Engineering Symbology, Prints, and Drawings (Vols. 1 & 2) (1993 edition)*. Available for download at: <http://edtech2.boisestate.edu/jasonclemens/512/files/DOE-v1.pdf>
5. Drawing line weights, matchlines (where used) and legibility (including printed pages) shall be in accordance with either the *United States Department of Energy, Fundamentals Handbook for Engineering Symbology, Prints, and Drawings (Vols. 1 & 2) (1993 edition)*, or the latest American Institute of Architects design guidelines.
6. All fire sprinkler symbols shall be in accordance with *NFPA 170 – Standard for Fire Safety and Emergency Symbols (2015 ed.)* where a symbol is provided. For each type of sprinkler to be installed a different symbol shall be used.
7. In addition to all of the information that is required in this document, plans shall also include all of the information noted in *National Fire Protection Association (NFPA) 13 – Automatic Sprinkler Systems (2016 ed.) Section 23.1.3 et. al.* As noted in the referenced standard, this information constitutes the minimum amount of information required to be submitted to the authority having jurisdiction.
8. Each of the following items shall be included on either a single page of an automatic fire sprinkler system plan or submittal booklet. These items will be verified at the counter and plans will be rejected when not present:
 - a. A detailed scope of work for the project including a description sufficient to clearly indicate the location, nature and extent of the work. A scope of work indicating “installation of a fire sprinkler system”, or similar non-descript scoping is inadequate and plans will be rejected without review.
 - b. Name of owner, occupant, or contracted construction firm.
 - c. Location of the project, including the City of Fresno officially assigned address and the City of Fresno building permit number.
 - d. Name of water purveyor.
 - e. Name of the installing contractor, address, phone number, type of license and license number, with wet stamp and signature on each plan sheet.
 - f. A site plan of the location on the drawing. A site plan shall show

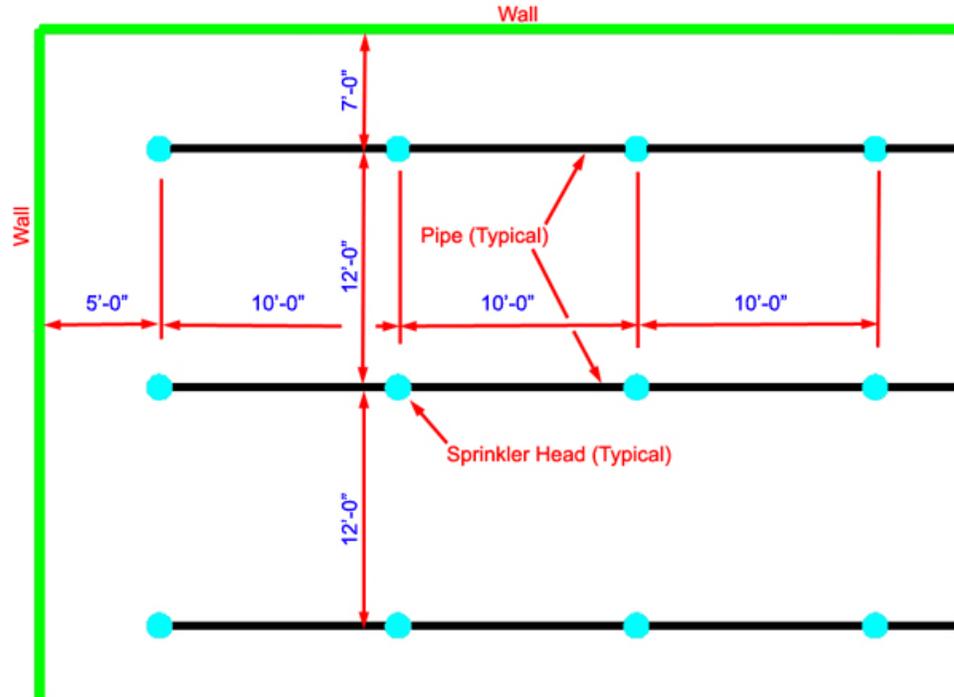
the layout of the building relative to public streets and private drives. A location pin from mapping software does not meet the requirements of a site plan.

- g. The *California Building Code (CBC)* and NFPA construction type (i.e. obstructed, unobstructed, etc.) and *CBC* occupancy group of the proposed building.

9. Standard notes required to be on plans:

- a. Apply the applicable storage note:
 - I. Storage limited to 12 feet with minimum 18 inches from pendant sprinkler deflector to top of the storage.
 - II. Storage limited to 12 feet with minimum 36 inches from sprinkler deflector to top of the storage.
 - III. No high piled storage permitted.
- b. It is the contractor's responsibility to make work available for inspection.
- c. A copy of the approved plan set shall be on site during any fire department inspection.
- d. A copy of the permanent and durable general information sign to be displayed per *NFPA 13, Section 25.6* or a note as follows: "A permanent and durable general information sign per *NFPA 13, Section 25.6* shall be installed in addition to the hydraulic design information sign".
- e. All *CBC* or *CFC* substitutions shall be noted. It is the designer/contractors responsibility to provide adequate and necessary documentation when using these kinds of exceptions per *CFC, Section 105*.
- f. Mechanical tees shall have coupon hung within six inches of tee.
- g. All applicable code references shall be provided (i.e., *NFPA 13, 2016 Edition w/California Amendments, etc.*)
- h. Piping plan showing underground lead in with hydraulic nodes.
- i. Full height cross-sections which show sprinkler system piping, sprinkler head locations, and all full height walls.

- j. Each room or fire area shall have at least four dimension lines indicating the fire sprinkler head spacing from two different walls as noted in figure A below:



(Figure A.)

Pipe section dimensions shall not be used in lieu of required dimension lines and pipe sizes, hangers, etc. shall be shown.

- k. Riser detail showing supply pressure gauge, check valve, system pressure gauge, main control valve, pressure relief valve, main drain including size, water flow switch, and fire department connection(s) including size. All system pipe sizes and calculation nodes shall be shown.
- l. Pipe stand detail as applicable. Pipe stands shall be in accordance with *NFPA 13, Section 9.2.6* and *Section 9.3.8*. Pipe stands will not be approved without the requisite documentation from a registered professional engineer where required.
- m. The following table(s) shall be shown on the plans:
- I. Sprinkler head spacing and coverage area per sprinkler.
 - II. Location of design area(s).
 - III. Discharge density over design area(s).

- IV. Occupancy classification, commodity classification, and maximum storage height and configuration. When using NFPA section 12.1.2.4, the designer shall provide a section figure in accordance 12.1.2.4 showing the applicable protection points. These points shall also be shown on the plan view of the applicable drawing.
 - V. Hose stream allowance in addition to sprinkler demand.
 - VI. Where riser nipples are used, each typical length shall be identified and calculated where necessary per *NFPA 13, Section 9.3.5.9.6.1*.
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- n. Sprinkler head legend which indicates the manufacturer, style, model, orifice size and “K” factor of each sprinkler used. “Generic”, “Equivalent” or “Equal” etc. is not permitted.
 - o. The type and size of each pipe. Where included, existing piping shall be shown as a dashed line.
 - p. Each hanger and seismic sway bracing detail. This detail shall include the proposed fastener. Use of standard details shall show the manufacturer of the fastener, hanger, etc. and the manufacturer's information sheet shall be included with the submittal. Plans showing details which specify a specific manufacturer that do not include the manufacturer's information sheet or have a different manufacturer's information sheets submitted will be rejected.
 - q. Use of each room.
 - r. Fire sprinkler system bell. The bell shall be facing the main public entrance or the street that the building is addressed to (See: *Fire Sprinkler System Bells Policy No. 405.029*).
 - s. Fire department connection. The fire department connection shall be located, sized and installed in accordance with *Fire Sprinkler Connection Requirements Policy No. 405.025*.
 - t. A piped inspector's test valve (ITV). ITVs shall be piped from the most remote branch line down to grade (See: *Inspector's Test Valves & Air Vents Policy No. 405.013*). Test and drains are not a substitute for ITVs.
 - u. An air vent in accordance with *NFPA 13, Section 8.16.6*. An inspector's test valve may be used for this purpose subject to the requirements of *Inspector's Test Valves & Air Vents Policy No. 405.013*.

- v. Spare head kit location. Spare head kits shall be installed on the building's interior in an approved location.
- w. Dedicated function fire alarm control unit (DFFACU) for fire sprinkler monitoring locations. DFFACU shall be installed on the building's interior.
- x. The City of Fresno Fire Department does not permit handwritten notes, correction fluid or tape, or adhesive stickers on plan submittal documents.
- y. Resubmittals. Revisions or changes shall be called out with a cloud or delta. Each re-submittal shall have a new numbered delta, and previous clouds or deltas shall be removed. Submittals, addendums, revisions, etc. without proper clouding, an associated delta, or other substantial clarifying notes regarding the scope of work will be rejected without review. Changes made on plans between versions, etc. that are not identified with a cloud or delta are not approved. Addendum plans shall be in accordance with *Fire Related Construction Addenda Policy No. 401.016*.

CROSS REFERENCES

California Fire Code

California Building Code

United States Department of Energy, Fundamentals Handbook for Engineering Symbology, Prints, and Drawings (Vols. 1 & 2) (1993 edition)

NFPA 13 – Automatic Sprinkler Systems (2016 ed. With California Amendments)

NFPA 170 – Standard for Fire Safety and Emergency Symbols (2015 ed.)

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Section 405.025, Fire Department Connection Requirements

Section 405.029, Fire Sprinkler System Bells

Section 405.013, Inspector's Test Valves & Air Vents

Section 401.016, Fire Related Construction Addenda