



Building & Property Standards

Bulletin 018**Version 042011****Fire Protection System Technical Submission****Purpose:**

The purpose of this bulletin is to inform permit applicants of design document submittal requirements for fire protection systems.

Applicability:

The information presented herein is applicable to all projects, residential, commercial or mixed-use. This document may be updated periodically. Please check the department's web page to verify you have the current version of this document.

Background:

Illinois Public Act 096-0626 prohibits a building permit from being issued for a building that requires a fire protection system without the submission of a "technical submission" which has been prepared and sealed by a licensed design professional. The purpose of the technical submission is to establish the design intent of the fire protection system and is the basis from which the fire protection system layout documents (shop drawings) are to be prepared. The technical submission shall be submitted at the time of submittal of all other drawings for plan review.

Submittal Requirements:

At a minimum, the technical submission shall include the following information:

1. General:

- a. Name of building owner and occupant
- b. Location of project, including street address and suite number(s) as applicable
- c. Identification of the scope of work, including any proposed changes to an existing pipe schedule or calculated system
- d. Name, address, signature and seal of design professional on all submittal items
- e. Design Professional Firm Registration number on all submittal items

2. Building Information:

- a. Construction type
- b. Height, in feet above grade level
- c. Number of stories, including basement level(s)
- d. Floor area per story
- e. Indication of any building code trade-offs incorporated into the design based on the installation of a fire suppression system
- f. Classification of occupancies, by floor level or floor area
- g. Commodities to be protected, by floor level or floor area
- h. Indication and location of any special occupancy hazards



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3. Site Conditions:

- a. Verification of size, location and adequacy of the available/proposed water supply and whether the supply is a dead-end or circulating main; and, if dead-end, direction and distance to nearest circulating main and the system elevation relative to the test hydrant
- b. Analysis to identify any concerns with water quality that would affect the proposed systems, Microbiologically Influenced Corrosion or other conditions
- c. Scaled site plan of building indicating location and size of incoming fire main, location, size and type of fire department connections, location of public hydrant closest to the point of fire department connection, and location of fire pump serving the fire protection system if required

4. Design Criteria:

- a. Identification of all applicable codes and standards
- b. Indication of level of protection
- c. Indication of design approach and associated calculations
- d. Required safety factor for seasonal and/or local adjustments
- e. Static and residual pressures
- f. Determination of type of backflow prevention required
- g. Selection of system type, requirements, components and hardware, including type, orifice, temperature rating, special coatings, etc. for sprinkler heads and type of pipe allowed
- h. Design area of water application, ft²
- i. Minimum rate of water application, gpm/ft²
- j. Floor area per sprinkler, ft²
- k. Date, time and results of public water main flow test, name of party that performed the flow test and location of hydrant where the flow was measured
- l. Available flow rate
- m. Allowances for inside hose(s), outside hydrant, water curtain and exposure sprinklers
- n. Allowance for in-rack sprinklers
- o. Limitations on extended coverage or other listed special sprinklers
- p. Indication of testing or acceptance requirements of the Authority Having Jurisdiction
- q. Determination of required water supply
- r. Determination/verification of required fire pump size and energy source
- s. Determination if emergency power is required for fire pump
- t. Determination of need for a reduced voltage method of starting the fire pump
- u. Determination of need for water storage tank, if so, size, weight and location
- v. Determination of need for risers, if so, how many, what type, size and location
- w. Required minimum pressure at uppermost hose valve
- x. Total required flow for standpipes
- y. Required size and type of hose valves
- z. Is 1.5" hose required, if so, at what locations and lengths



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- a. To identify concerns regarding system's structural support

6. Scaled floor plan(s):

- a. North arrow for reference
- b. Clearly indicate all areas to be protected as part of the permitted work
- c. Location and size of incoming water supply, fire pump room layout and risers
- d. Type, quantity and location of fire department connections
- e. Occupancy classification for each area or room
- f. Building features such as concealed spaces, floor openings, areas subject to freezing, high or sloped ceiling areas, closets, attics, toilet rooms and areas which are not intended to be sprinklered along with reference to the applicable code section(s) that permit these areas to be unsprinklered
- g. Location of any fire-resistance rated construction assemblies and the associated fire-resistance rating
- h. Provide UL Design number and detail on the drawings for all firestopping systems used to protect sprinkler piping penetrations of fire-resistance rated assemblies
- i. For modifications to or additions to existing systems, the plans must show enough of the existing system to enable a complete review and to verify existing system layout and compatibility of all equipment
- j. Provide a sprinkler system riser schematic with control and check valves, backflow prevention devices, supply and system pressure gauges, water flow switches, tamper supervising switches, local water flow alarm location, and spare sprinkler head cabinet location

Subsequent to the approval of the technical submission, fire protection system layout documents (shop drawings) shall be prepared based on the approved technical submission. Refer to Bulletin 019 for information regarding submittal of fire protection system layout documents.