

AUTOMATIC FIRE SPRINKLER SYSTEM SUBMITTALS

04/28/09

The city may require additional information as needed. For preparation information, see description sheet # 1, *Standards for Plans and Drawings*. If you have any questions concerning your application, please visit or call Permit Processing (425-452-4898) between 8 a.m. and 4 p.m., Monday through Friday (Wednesday, 10 to 4). Assistance for the hearing impaired: dial 711 (Telecommunications Relay Service).

This guideline covers fire sprinkler system design submittals for typical commercial facilities. A review permit is required for any installation involving 15 heads or more and all installations installing new valves. Underground fire main installation requires a separate permit (type FD).

At the time of permit application, submit the following for review: 2 sets of plans drawn to no less than a 1/8-inch scale, associated hydraulic calculations, seismic calculations, and equipment data sheets. A separate permit is required for each separate building.

When plans have been reviewed, the applicant will be notified that either a revision is required or the permit is ready for issuance. After issuance, the applicant will need to schedule an inspection by calling the Fire Inspection Request line at 425-452-6875 at least 24 hours in advance.

Please read the information below and sign when submitting your application:

Your application will be deemed complete only if this checklist is completed and submitted along with the submittal package. Submittals not accompanied by a checklist will not be accepted. Accuracy of the submittal package, including this checklist, is the responsibility of the applicant. Failure to submit an accurate submittal package will be considered an incomplete application by the plan reviewer. An incomplete submittal will result in a HOLD and a Resubmittal (new submittal package) will be required. Please note that this always results in a delay.

I have checked the applicable boxes and have included those requirements in my submittal.

Print Name

Signature

Revised and Resubmitted Plans:

Where plans are revised due to a field change from existing approved plans or resubmitted due to a plan review denial, such submittal must include all items set forth in this guideline. Further, all of the changes that occurred on the plans must be clouded on the plans to allow for distinction between the areas that were and were not changed.

Resubmittal of plans in response to plan review comments must be accompanied by a cover letter that addresses each comment. The cover letter is to be signed and dated by the designer and is to correct or clarify each comment.

WORKING PLANS (See NFPA 13, *Plans and Calculations*, for full requirements)

- The **General Notes** must include the following:
- Owner's name, address, telephone, fax, and e-mail.

- Project location, including street address.
 - General description of **building use** and associated **occupancy classification per IBC**. Storage occupancies must note the proposed storage height, storage configuration, and commodity in the general notes and on the hydraulic calculation placard detail.
 - A **sprinkler legend** that includes the model, I.D. number, response type (QR, Standard), coverage style (standard or extended), sprinkler orientation, temperature rating, orifice size, k-factor, and quantity of each sprinkler head to be installed.
 - Manufacturer, schedule, and type of **all piping and fittings used**.
 - Method of **freeze protection** (building heated, dry system, anti-freeze system, etc)
 - Type of construction** (combustible, non-combustible, obstructed).
 - NFPA or IBC standard and Edition indicated on the plans used for design
- Drawings must be sealed by a fire protection engineer or a designer holding required Washington State NICET-level certification.
- Provide a **site plan** depicting the underground supply to the building. The site plan must include:
- all fronting roads
 - fire access lanes
 - public water mains
 - building outline
 - riser location
 - hydrant locations
 - post indicator valve
 - FDC
 - backflow devices
- Compass** direction with North Arrow and clearly marked scale must be provided.
- Water supply** results must be provided and include static pressure, flow, residual pressure, and elevation and how water flow information was obtained. Test date shall be within the last 5 years.
- Piping plan** must show pipe layout, pipe dimensions, attachments, braces, hangers, sprinkler outlets, hydraulic nodes, etc. on a minimum 1/8-inch scale. All walls and doors need to be shown, and each room must be labeled according to use.
- Provide a **section view or full height cross-section** as necessary to reflect sprinkler and piping locations in relation to obstructions. *A minimum of one view is required*, although additional views may be necessary to determine compliance with NFPA 13. The section view must be drawn to a common, legible architectural scale.
- A **Riser Diagram** must be provided and indicate all components.
- Hydraulically Remote Area(s)** must be indicated on the plan by shading area or otherwise delineating the remote area boundary.
- Seismic braces** must be clearly depicted on drawings and attached to primary structural members.
- Hangers** must be clearly depicted on drawings and hanger assembly details provided.
- All control valves, check valves, drains, test connections, and FDCs must be shown. Elevation views are required for all wall-mounted equipment and must identify openings/glass within 10 feet.
- Total area protected by each system on each floor and capacity in gallons of each dry system.
- When a fire pump is used, the location, make, model, rating, and shop curves for each pump.
- Fire department hose connection location, size, type including PRV calculations must be provided.
- Backflow prevention device location, type, and size must be shown.
- PIV Details:** Note that connections from water supply to the building must be with a post indicating valve (PIV), NFPA24-2007, 6.3.1.
- Areas where cable trays or rings are utilized must be identified per BFDDS 7.06-6.

- Smoke Control—Sprinkler submittal requirements of number sheet 42a required for sprinkler submittals in areas with active Smoke Control.

DOCUMENTATION

- Manufacturer's cut sheets for all equipment.**
- Computer Generated Hydraulic Reports** in accordance with NFPA 13 requirements, including:
 - Summary Sheet**
 - o Date
 - o Location
 - o Name of owner and occupant
 - o Building address and Suite Number if applicable
 - o Description of hazard
 - o System design density and area
 - o Water supply information
 - o Base of Riser demand flow and pressure (including hose streams)
 - Graph Sheet.** A graphic representation of the complete hydraulic calculation.
 - Supply Analysis.** Information summarized from the graph sheet in accordance with NFPA 13.
 - o **Safety Factor:** A minimum pressure safety factor of 10 psi or 10%, whichever is greater, must be provided at the maximum system flow. The safety factor is the pressure available from the water supply minus the required pressure from the sprinkler system and hose demand.
 - Node Analysis.** Organized information regarding each node tag to the supply connection.
 - Detailed Worksheets. In accordance with NFPA 13 requirements.**
- High Rise Building Standpipe Demand:** The design of the standpipes must meet three design points: (1) Provide 750 gpm at a minimum residual pressure of 100 psi, (2) Provide 300 gpm at 175 psi at the outlet of the hydraulically most remote hose connection, and (3) Provide NFPA 13 sprinkler and hose demand.
- High Rise Building PRV Matrix:** Provide a Standpipe Pressure Matrix, including elevations, PRV model/settings, and PRV inlet and outlet pressures and flows for both sprinkler and hose PRVs.
- Seismic Bracing Calculations** must comply with the current edition of NFPA 13. Required information must be documented in accordance with NFPA 13 and must include:
 - Zone of Influence
 - Sprinkler System Load Calculations
 - Horizontal Seismic Force, default is $F_p = .70W_p$
 - Brace Information
 - Fastener Information
 - Brace Attachment
 - Brace Details** in section view are required to be shown on plans and include:
 - Brace** type, diameter, and length
 - Angle** of brace from **vertical**, 0° to 90°.
 - Fastener** type, diameter, length of embedment, and method of attachment