



Clark County Department of Building & Fire Prevention

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Permit Type: 105.7.1
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TITLE: FIRE SPRINKLER SYSTEMS – NFPA 13

SCOPE: Clark County Department of Building & Fire Prevention requirements for the submittal and approval of plans for installation of fire sprinkler systems. Specifically, this guideline addresses the installation of new sprinkler systems in accordance with NFPA 13.

Sprinkler system submittals for remodel and/or tenant improvement projects, single-family sprinklers, and commercial residential occupancies up to two-stories in height, are not discussed in this guideline. Further, other systems that may be attached to a sprinkler system, such as fire pumps and/or standpipe systems, are also not discussed in this guideline. Please see the specific guidelines associated with those other scopes of work for additional information.

For new work in existing buildings, see the “New Work in Existing Buildings” guideline.

PURPOSE: To standardize plan/permit requirements required by the Fire Prevention in accordance with the Clark County Fire Code. Permits are valid through the duration of construction. Work must commence within 180 days, and remain active with no period of inactivity exceeding 180 days, or the permit becomes invalid.

DEFINITIONS:

Assessor’s Parcel Number (APN): A unique number assigned to each property by the Clark County Assessor’s office.

NFPA: The National Fire Protection Association, a recognized code standard organization.

NICET: The National Institute for Certification in Engineering Technologies, a recognized certification association.

PERMIT FEES:

Permit fees shall be assessed in accordance with the Permit Fee Schedule as adopted in the Clark County Fire Code. For applications that are expedited, additional fees shall apply.

SPECIFICATIONS AND SUBMITTAL REQUIREMENTS:

An application must be completed for each submittal. A minimum of three sets of plans shall be submitted with the permit application. Plans shall show compliance in accordance with Section 903 of the Clark County Fire Code. All submittals must be legible and readable or the plan shall be issued a correction letter for cause.

Plans shall address the following:

Working plans shall be drawn to an indicated scale, on sheets of uniform size, with a plan of each floor, and shall show those items from the following list that pertain to the design of the system:

- (1) Name of owner and occupant.
- (2) Location, including street address and APN number.
- (3) Name, address, phone number, and contractor's license number of installing contractor.
- (4) Signature and NICET number, or engineer's seal, of the designer
- (5) General notes as required by the AHJ (6) Point of compass
- (7) A graphic representation of the scale used on all plans
- (8) Full height cross section, including structural member information, is required for clarity. Information to include ceiling construction, both for interior and exterior roof and floor assemblies, and method of protection for nonmetallic piping.
- (9) Ceiling/roof heights and slopes not shown in the full height cross section. (10) Location of partitions, top view.
- (11) Location of fire walls, top view.
- (12) Occupancy class, label and name of all areas or rooms, top view.
- (13) Location and size of concealed spaces, closets, attics, and bathrooms, top view.
- (14) Identify any small enclosures or other areas in which no sprinklers are to be installed.
- (15) Size of city main in street and whether dead end or circulating; if dead end, direction and distance to nearest circulating main; and city main test results and system elevation relative to test hydrant (see A.23.1.8)
- (16) Other sources of water supply, with pressure and elevation.
- (17) Make, type, model, and nominal K-factor of sprinklers including sprinkler identification number.
- (18) Temperature rating and location of high-temperature sprinklers. (19) Total area protected by each system on each floor.
- (20) Number of sprinklers on each riser per floor.
- (21) Total number of sprinklers on each dry pipe system, preaction system, combined dry pipe-preaction system, or deluge system.
- (22) Approximate capacity in gallons of each dry pipe system. (23) Pipe type and schedule of wall thickness.
- (24) Nominal pipe size and cutting lengths of pipe (or center-to-center dimensions). Where typical branch lines prevail, it shall be necessary to size only one typical line.
- (25) Location and size of riser nipples.
- (26) Type of fittings and joints and location of all welds and bends. The contractor shall specify on drawing any sections to be shop welded and the type of fittings or formations to be used.

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- (27) Type and locations of hangers, sleeves, braces, and methods of securing sprinklers when applicable. Provide details for each, with individual components labeled. Each detail to be labeled and identified by label on floor plans.
 - (28) All control valves, check valves, drain pipes, and test connections. Provide details for riser(s) and inspector test connection, with individual components labeled. Clearly indicate which control valves require the installation of a tamper switch.
 - (29) Make, type, model, and size of alarm or dry pipe valve. (30) Make, type, model, and size of preaction or deluge valve.
 - (31) Kind and location of alarm bells, including interior horn/strobe and exterior horn/strobe over the FDC.
 - (32) Size and location of standpipe risers, hose outlets, hand hose, monitor nozzles, and related equipment.
 - (33) Private fire service main sizes, lengths, locations, weights, materials, point of connection meters, and valve pits; and the depth that the top of the pipe is laid below grade
 - (34) Piping provisions for flushing.
 - (35) Where the equipment is to be installed as an addition to an existing system, enough of the existing system indicated on the plans to make all conditions clear.
 - (36) For hydraulically designed systems, the information on the hydraulic data nameplate, including a detail of the hydraulic information sign and the general information sign.
 - (37) Hydraulic reference points shown on the plan that correspond with comparable reference points on the hydraulic calculation sheets.
 - (38) The minimum rate of water application (density or flow or discharge pressure), the design area of water application, in-rack sprinkler demand, and the water required for hose streams both inside and outside.
 - (39) The total quantity of water and the pressure required noted at a common reference point for each system.
 - (40) Relative elevations of sprinklers, junction points, and supply or reference points.
 - (41) If room design method is used, all unprotected wall openings throughout the floor protected.
 - (42) Calculation of loads for sizing and details of sway bracing.
 - (43) The setting for pressure-reducing valves.
 - (44) Information about backflow preventers (manufacturers, size, type).
 - (45) Information about antifreeze solution used (type and amount). A letter from the Las Vegas Valley Water District authorizing the use of antifreeze must be included with the submittal.
 - (46) Size and location of hydrants, showing size and number of outlets and if outlets are to be equipped with independent gate valves. Whether hose houses and equipment are to be provided, and by whom, shall be indicated. All water supply results, including identification of hydrants that were used in the flow tests, static and residual pressures, pitot flow pressure, and size of orifice flowed shall be provided on the plans.
 - (47) Utility plans and/or plumbing plans necessary to show connection from water supply to fire sprinkler system.
 - (48) Size, location, and piping arrangement of Fire Prevention connections. Fire Prevention connections must be shown on a specific detail. Any signage that is required for the Fire Prevention connection shall also be detailed.
 - (49) Ceiling/roof heights and slopes not shown in the full height cross section.
 - (50) Edition year of NFPA 13 to which the sprinkler system is designed.

General Notes shall be added to the plans to provide clarity of design. The plans shall contain the following general note narratives:

- (1) Describe the scope of work that is covered by permit. Indicate where sprinklers are being provided and for what purpose. For permits where the scope of work is only over a portion of a facility, the area of work shall be marked by a boundary line that is labeled "Scope of Work", and the narrative shall address this situation.
- (2) Provide a general description of building use and associated occupancy classification per NFPA 13 for all building areas.
- (3) Indicate whether area is designed for storage. If the sprinkler system is being designed to accommodate storage, indicate the commodity storage height, storage configuration (rack, solid-pile, etc), aisle width between racks as applicable, commodity classification per NFPA 13, and whether commodity is encapsulated.
- (4) Indicate the manufacturer, schedule, and type of branch line piping.
 - i. **Exception:** Schedule 40 and Schedule 10 pipe does not require manufacturer name
- (5) Indicate the manufacturer, schedule, and type of main piping.
 - i. **Exception:** Schedule 40 and Schedule 10 pipe does not require manufacturer name
- (6) Indicate the manufacturer, schedule, and type of fittings and couplings. (7) Indicate the manufacturer, schedule, and type of underground piping.
- (8) Indicate the manufacturer, model number and type of water meter assembly
- (9) Indicate the type of freeze protection provided (i.e. building heated to 40 °F at all times, dry system, etc.).
- (10) Indicate the maximum anticipated system pressure for each riser/system, and indicate the minimum pressure required for the hydrostatic test of each riser/system (test pressure must be a minimum of 50 psi greater than the maximum anticipated system pressure).
- (11) Indicate the maximum sprinkler deflector distance below the roof deck.
- (12) Indicate the type of construction, whether combustible or non-combustible. (13) Indicate whether there are any combustible concealed spaces. Indicate how combustible concealed spaces are protected.
- (14) Indicate whether construction is classified as unobstructed or obstructed construction.
- (15) Indicate the ceiling flatness and material. Indicate whether the ceiling is horizontal and flat, or it has a slope, has soffits, or other variations in ceiling height. For all instances of soffits and other variations of ceiling height, refer to details for each instance shown on the plan. Indicate whether ceiling materials consist of thin combustible membranes, such as stretch plastic or fabric. Any installation under a thin combustible membrane shall be accompanied by an approved engineering analysis.
- (16) Indicate whether central station is required.
- (17) Indicate the location of the sprinkler head box, and indicate that the room where the box is located is conditioned to 100 degrees F or less.

PERMIT REVISIONS AND RESUBMITTALS

Revisions to approved plans are required to be submitted and approved. Revisions will be assessed additional plan review fees. A copy of the previously approved plan shall accompany the revised submittal to facilitate the review. Clearly indicate all changes to the revised plans by clouding the change with a delta number signify the date of plan change. When several changes have been made, a detailed list of changes is required.

Re-submittals to address a Letter of Correction will require a full submittal. These plans require a copy of the red lined plan from the previous submittal to facilitate the review. Clearly indicate all changes by clouding the change with the delta number to signify the date of plan change.

PLANS CHECK STATUS INSTRUCTIONS:

The status of the review can be checked by logging on to:
www.clarkcountynv.gov/building/fire-prevention

INSPECTIONS THAT MAY BE REQUIRED AND SCHEDULING INSTRUCTIONS:

If approved, an inspection will need to be scheduled. To schedule an inspection, go to:
www.clarkcountynv.gov/building/fire-prevention

A fire inspector will review your site in accordance with the approved plans and this guideline.

The Fire Prevention (FP) may witness and accept inspection, testing and maintenance of fire and life safety systems conducted by approved individuals as required by and within the scope and authority of the Clark County Fire Code.

This Guideline does not take the place of the Fire Code and does not take precedence over any Fire Code requirement or position taken by the Fire Chief. When a conflict exists between the requirements of this Guideline and the Fire Code or the opinion of the Fire Chief, the Fire Code or opinion of the Fire Chief prevails.

Technical Assistance, when required by the Fire Chief, will require a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.

Acceptance of Alternative Materials and Methods requires a Technical Opinion and Report prepared by a State of Nevada licensed: qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the Fire Chief and the owner. The Fire Chief is authorized to require design submittals to bear the Wet Stamp and Signature of a professional engineer.