



# CHINO VALLEY INDEPENDENT FIRE DISTRICT FIRE PROTECTION STANDARD

## AUTOMATIC FIRE SPRINKLER SYSTEMS

STANDARD # 110 REVISED 5/26/2016 PAGES 4

### 1. ADMINISTRATIVE

- 1.1 **AUTHORITY:** The standard is adopted under authority of the 2010 California Fire Code, Chapter 9 as adopted by the Chino Valley Independent Fire District.
- 1.2 **SCOPE:** This standard provides specific requirements for the installation of automatic fire sprinkler systems. This standard applies to new installations and/or tenant improvements.
- 1.3 **PURPOSE:** The purpose of this standard is to establish a policy for standardization of the installation of said systems and to set forth inspection and policy requirements within our District.
- 1.4 **PLANS SUBMITTAL:** A minimum of three (3) complete sets of plans shall be submitted for approval by Chino Valley Independent Fire District. Plans shall clearly indicate the required information as outlined in Chapter 22 of NFPA 13. All plans shall include elevation gains depicting any changes in elevation and a full height cross section of the building. It shall also include in elevation from the point of the flow test to finished grade (hydrant calculation) and finished floor (system calculation). The type of construction along with the construction detail shall be provided. Plans shall be drawn to scale and shall include a minimum of two (2) sets of the following items:
  - 1.4.1 Hydraulic Calculations
  - 1.4.2 Material Specifications (Cut/Data Sheets)
  - 1.4.3 Current Fire Flow (See Section 3)
  - 1.4.4 Verification of Sprinkler Load Calculations from Building Engineer or Architect
  - 1.4.5 Owner's Information Certificate

Tenant Improvement Plan Submittals shall also include verification of the system's last 5 year certification.

### 2. GENERAL

- 2.1 All sprinkler systems shall be designed and installed to the requirements of the current adopted edition of NFPA 13, the California Building Code (CBC), California Fire Code (CFC), other applicable Chino Valley Fire District (CVFD) Standards, and NFPA Standards as they may apply to the hazard being protected.
- 2.2 No deviations from the requirements outlined in this standard will be made without prior approval from the Fire District. In the event a deviation is desired, said deviation shall be

submitted through an Alternative Means & Methods process. The deviation shall be designed so that the level of safety is not lowered.

- 2.3 All on-site water improvements shall conform to the current adopted edition of NFPA 13, NFPA 24 and applicable CVFD Standards.

### **3. HYDRAULIC CALCULATIONS**

- 3.1 All hydraulic calculations shall be designed not to exceed 90% of the available city water supply or shall have at least a 10% cushion, whichever is greater. Should the building be equipped with standpipe systems, the demand for said system shall be included in the hydraulic calculations.
- 3.2 The calculations shall include a current fire flow from the water purveyor. A current fire flow is defined to be less than 6 months old from the date of submittal for review. In the event the project is delayed for a period of more than 1 year or more, a new fire flow shall be submitted for review.

### **4. SYSTEM REQUIREMENTS**

- 4.1 All buildings 100,000 square feet or larger shall be provided with two (2) points of connection. Each point of connection shall be to the City water supply and have an FDC.
- 4.2 All sprinkler systems shall be supervised by a monitoring system, per the CFC. Said system shall be in accordance with NFPA 72 and CVFD Standard 133. This requirement does not negate the requirement for an electric or water motor bell.
- 4.3 The bell shall be installed in line with the sprinkler riser. The bell shall be provided with a sign that reads "When Bell Rings, Call 9-1-1".
- 4.4 Sprinkler risers shall not be located outside the building.
- 4.5 Sprinkler heads installed at the roof area shall be the intermediate temperature rating. In the event, the building is equipped with smoke and heat vents, the fusible link for the smoke and heat vent shall be at least 1 temperature classification (rating) above the required temperature rating of the roof area sprinkler head.
- 4.6 Sprinkler heads installed in concealed spaces shall be provided with a means to allow for inspection and maintenance to occur as outlined in NFPA 25. The minimum size of an access panel shall be three (3) feet by two (2) feet.
- 4.7 The installation of a control valve servicing sprinkler piping to in-rack sprinklers, spray booths, dust collection systems or other applicable appliances shall be monitored by the buildings fire sprinkler monitoring system and/or fire alarm.
- 4.8 Auxiliary drains shall not be concealed above ceilings and shall be plumbed to no higher than 5 feet above finished floor. Access panels, if needed or requested shall be approved prior to installation.

- 4.9 Buildings which are built as “SPEC” warehouse shall have the sprinkler system designed in accordance with CFC Chapter 23 and NFPA 13 for Class IV commodity, double row racks, 21’ high storage and 4’ aisle width, without in-rack sprinklers, with a minimum operating area of 3,000 sq. ft.
- 4.10 The use of flexible sprinkler hose requires a letter of acknowledgment from the property owner and/or lessee of said property. Said letter shall acknowledge the use of flexible sprinkler pipe and that they understand the pipe cannot be relocated without prior approval from the Fire District. (See Section 7 of this Standard for further requirements pertaining to flexible hose installations)

## **5. FIRE DEPARTMENT CONNECTION (FDC)**

- 5.1 The FDC shall be located within fifty feet (50’) of a public fire hydrant and a minimum of twenty feet (20’) from the building and a maximum of five feet (5’) from the curb line.
- 5.2 The FDC shall be provided with a minimum of (2) 2 1/2” connections, using female NST (National Standard Hose Thread) swivel inlets.
- 5.3 The FDC shall be painted red in color. It shall also be equipped with a sign that legibly identifies what building(s) the FDC serves. The sign shall have a minimum of two inch (2”) reflective white numbers/letters with a red background (1/4” stroke); Adhesive vinyl letters are not acceptable. The signs shall be weather resistant and constructed of steel or aluminum and attached to the appliances with a “U”- bolt or a similar restraining method. Chains are not acceptable.
- 5.4 The FDC shall be located on the address side of the building and be unobstructed from view by any objects. An asphalt or concrete path shall be provided to the FDC. The path shall be a minimum of two feet (2’) wide.
- 5.5 Each point of connection to the public water system shall have an FDC. One (1) FDC may serve all buildings on a project unless property lines exist between buildings. In such case, each building shall have its own FDC.

## **6. INSPECTION REQUIREMENTS**

- 6.1 All sprinkler systems shall be tested and inspected in accordance with the proper NFPA standards. All tests shall be witnessed by a Fire District Inspector, as required. The following inspections are required, as applicable, for sprinkler systems:
  - 6.1.1 Material and Weld Inspection, if applicable
  - 6.1.2 Hydrostatic Test, as outlined in the NFPA 13
  - 6.1.3 Underground System Flush
  - 6.1.4 Sprinkler Final
- 6.2 Failure to comply with the Inspection Requirements will result in the inspection not being completed and a reinspection fee being charged. All inspections shall be scheduled a minimum of 48 hours in advance. Please call CVFD Fire Prevention at (909) 902-5280 for an appointment.
- 6.3 Approved plans and permit shall remain on site for the inspection.

- 6.4 All underground piping shall be tested and flushed in accordance with the proper NFPA standards, prior to connection to any overhead sprinkler piping.
- 6.5 The following documents shall be provided to the Fire Inspector at the time of each appropriate inspection.
  - 6.5.1 Material and Weld Certificate
  - 6.5.2 Underground Material and Test Certificate
  - 6.5.3 Aboveground Material and Test Certificate
- 6.6 Any existing system undergoing alterations must have a current 5 year certification. Certificate shall be current prior to final acceptance of any system modification.

## **7. SPECIAL CONCERNS**

- 7.1 Special hazard areas, high-rise buildings and other areas of fire protection not covered in this standard may require special consideration. The contractor is encouraged to contact the Fire Department regarding areas not covered in this standard.
- 7.2 Flexible Hose Installations shall comply with the following:
  - 7.2.1 Denote on the plans the specific heads that are being attached with flexible hose fittings and specify the length of the pipe.
  - 7.2.2 Fire sprinkler location as indicated on fire sprinkler shop drawing shall be adhered to regardless of ceiling grid shifting. This condition may not allow for sprinklers to be located at the centerline of the tile grid pattern.
  - 7.2.3 Hydraulic calculations shall include published friction loss for the specific flexible hose fitting utilized with pressure loss per foot.
  - 7.2.4 If a hydraulic test is required, it shall include the flexible hose product to be installed in its permanent position at the time of the hydraulic test.
  - 7.2.5 Equipment and access shall be provided for the inspection of the flexible hose. This shall include, but be limited to the inspection equipment to verify the installation of the bends and radius of bends for the sprinkler pipe.
  - 7.2.6 Should it be observed, that during the course of construction alternations and/or relocations of the flexible fitting have occurred, the inspector of record can require additional inspections, including a new hydrostatic test, at the contractor's expense to be performed to assure continued compliance of installation.