

**INSTALLATION, MAINTENANCE, AND  
TESTING REGULATIONS**

**Fire Suppression Systems**  
Application Packet



**Lake Villa Fire Prevention Bureau**  
910 East Grand Ave. Lake Villa, IL. 60046  
Phone: (224)444-8222 Fax: (847)356-7530

**TO BE REFERRED TO WHEN NOT REQUIRED TO BE SUBMITTED  
TO OUR 3<sup>RD</sup> PARTY-FIRE SAFETY CONSULTANTS.**

**General Information:**

The Lake Villa Fire Protection District is the authority having jurisdiction for the plan review and acceptance testing of Fire Protection Systems. This includes new systems and/or modifications/alterations to existing systems. Fire protection systems include, but are not limited to sprinkler systems, dry pipe systems, standpipe systems, anslu systems and FM 200 systems etc. All required fire protection system installations must be approved and accepted by the Lake Villa Fire Prevention Bureau before an occupancy permit will be issued. The results of these annual fire alarm testing reports shall be submitted to the Fire Prevention Bureau through our third-party provider, Brycer LLC, at [www.thecomplianceengine.com](http://www.thecomplianceengine.com).

Any questions regarding fire alarm systems should be directed to the attention of The Lake Villa Fire Protection District, Fire Prevention Bureau at 224/444-8222.

**Codes**

The following Codes have been adopted by the Lake Villa Fire Protection District.

- National Fire Alarm Code (NFPA 72) – 2010 Edition
- Automatic Sprinkler Systems (NFPA 13) – 2013 Edition
- 2012 International Building Code (With Village Amendments)
- 2012 International Fire Code (With Fire District Amendments)
- Life Safety Code (NFPA 101) – 2015 Edition

### **Plan Review Information (when conducted by Lake Villa Fire District)**

Plans for each fire protection system must be submitted to the Lake Villa Fire Prevention Bureau, 910 East Grand Ave, Lake Villa, IL. 60046, for review. Plans are generally reviewed and written comments provided within 10 business days. After the review is completed, the applicant will be furnished with at least one (1) set of stamped drawings, which are required to be on-site and available for the Fire Department inspector.

All submittals shall be 3 sets of plans to include 2 sets of cut sheets and 2 sets of calculations.

All submittals must come from the contractor installing the system.

The contractor must include their contact information on their transmittal letter, to include e-mail address.

The contractor must include the number of heads, number of standpipe systems, and fire pumps, being installed on their transmittal letter.

The contractor must include a copy of their Illinois Fire Sprinkler Contractor License.

All fire protection system layout documents of fire sprinkler systems shall be prepared by

- A professional engineer who is licensed under the Professional Engineering Practice Act of 1989,
- An architect who is licensed under the Illinois Architecture Practice Act of 1989, or
- A holder of a valid NICET level 3 or 4 certification in fire protection technology automatic sprinkler system layout who is either licensed under this Act or employed by an organization licensed under this Act. (Source: P.A. 94-367, eff. 1-1-06.) Per ILCS 225 ILCS 317/ Fire Sprinkler Contractor Licensing Act.

### **Fire Department Connections:**

- Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other object for a minimum of 3 feet (914 mm).
- The location of fire department connections shall be approved by the fire code official. The fire department connection shall be identified by the addition of an exterior electrically operated audible and visual alarm device.
- Approved audible devices shall be connected to every automatic sprinkler system. Such sprinkler water-flow devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. An electrically operated visual strobe device that provides a white-colored strobe light shall be installed in addition to an electrically operated audible water flow device on the exterior of the building above the location of the fire department connections. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system. The electrically operated audible alarm and visual blue strobe

device shall operate in conjunction with the fire alarm system activation. Per IFC 2015 Edition, Section 912.21, as amended

### **Sprinkler Working Plans (Shop Drawings):**

No hand drawn working plans will be accepted for review. Working plans shall not show any items that are not required for the sprinkler system.

Working plans shall use NFPA 170, 2012 Edition, Standard for Fire Safety and Emergency Symbols, and IFC 2015 Edition Section 9 Fire Protection

Working Plans will meet the requirements of NFPA 13 2013 Edition.

Working plans shall be submitted for approval to the authority having jurisdiction before any equipment is installed or remodeled.

Deviation from approved plans shall require permission of the authority having jurisdiction.

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:

- Name of owner and occupant
- Location, including street address
- Point of compass
- Full height cross section, or schematic diagram, including structural member information if required for clarity and including ceiling construction and method of protection for nonmetallic piping
- Location of partitions
- Location of fire walls
- Occupancy class of each area or room
- Location and size of concealed spaces, closets, attics, and bathrooms
- Any small enclosures in which no sprinklers are to be installed
- Other sources of water supply, with pressure or elevation
- Make, type, model, and nominal K-factor of sprinklers including sprinkler identification number. The sprinkler identification number (SIN) must be included on the plans under the sprinkler legend.
- Temperature rating and location of high-temperature sprinklers
- (Total area protected by each system on each floor
- Number of sprinklers on each riser per floor
- (Total number of sprinklers on each dry pipe system, preaction system, combined dry pipe-preaction system, or deluge system
- (Approximate capacity in gallons of each dry pipe system
- (18) Pipe type and schedule of wall thickness
- (19) 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

- Location and size of riser nipples
- 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
- Type and locations of hangers, sleeves, braces, and methods of securing sprinklers when applicable
- All control valves, check valves, drain pipes, and test connections
- Make, type, model, and size of alarm or dry pipe valve
- Make, type, model, and size of preaction or deluge valve
- Kind and location of alarm bells
- Size and location of standpipe risers, hose outlets, hand hose, monitor nozzles, and related equipment
- Piping provisions for flushing
- 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. Describe the scope of work being performed.
- For hydraulically designed systems, the information on the hydraulic data nameplate
- A graphic representation of the scale used on all plans
- Name and address of contractor
- Hydraulic reference points shown on the plan that corresponds with comparable reference points on the hydraulic calculation sheets
- The minimum rate of water application (density), the design area of water application, in-rack sprinkler demand, and the water required for hose streams both inside and outside
- The total quantity of water and the pressure required noted at a common reference point for each system
- Relative elevations of sprinklers, junction points, and supply or reference points
- If room design method is used, all unprotected wall openings throughout the floor protected
- Calculation of loads for sizing and details of sway bracing
- The setting for pressure-reducing valves
- Information about backflow preventers (manufacturer, size, type)
- Information about antifreeze solution used (type and amount)
- 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. Static and residual hydrants that were used in flow tests shall be shown
- Size, location, and piping arrangement of fire department connections
- Inspector test valve at most remote location of the installed system when required.
- Ceiling/roof heights and slopes shown in the full height cross section.

- Edition year of NFPA 13 that the sprinkler system is designed to. 14.1.4 The working plan submittal shall include the manufacturer's installation instructions for any specially listed equipment, including descriptions, applications, and limitations for any sprinklers, devices, piping, or fittings.

## **Requirements**

### **Warehouse and Storage Buildings**

Unknown specification use and occupancy for new warehouse building (use Groups S or F) with a ceiling roof height of 25 feet or greater to be protected with ESFR (Early Suppression Fast Response) fire sprinkler system or hydraulically calculated system for Class IV commodities with rack storage calculated to the greatest storage height. All sprinkler systems shall be electronically supervised by a fire alarm system.

### **Bulk Storage of Tires:**

Buildings and structures where the area for the storage of tires exceeds 5,000 square feet shall be equipped throughout with an automatic sprinkler system.

### **Sprinkler riser and/or fire pump room access door**

Provide an outside access door to the sprinkler riser room and/or fire pump room. The door shall be labeled with minimum 4-inch letters.

All doors which lead to fire pumps and sprinkler riser rooms shall be labeled with minimum 4-inch lettering "**SPRINKLER ROOM**".

### **Strobe Light**

A strobe light shall be installed on the exterior of all occupancies protected by a fire sprinkler system. The strobe light shall be located directly over the fire department connection and next to the 10-inch exterior bell or in a location approved by the Code Official.

## **Inspection Information**

### **Fire Sprinkler Systems:**

- Witness underground pipe flush test.
- Rough inspection of piping if required.
- Hydrostatic test (includes the Fire Department Connection)
- Air Test (where required) in addition to Hydro Test.
- Flow test/Trip test
- Final acceptance/performance test

**Ansul Systems:**

- Trip/Dump test (Includes verification of fire panel zoning)
- Final acceptance/performance test

**Other**

- Inspections may be scheduled by calling 224/444-8222 - 48 hours in advance. All appropriate installers must be present for system inspecting and testing. If an inspection/test fails, the Fire Department will attempt to accommodate the fire protection system installer's request by scheduling a re-test the next business day. Any re-inspection/re-test will result in a \$110.00 fee.
- All Fire Alarm and Supervisory devices shall be installed and connected at the time of final acceptance testing.

**Annual Testing**

All fire alarm systems, fire suppression systems, cooking suppression systems, and any other fire safety system required to be tested, serviced, or inspected according to NFPA 25 shall be tested and cleaned at least annually, 6 months minimum for cooking suppression systems, and the results shall be sent to us through our third party administrator, Brycer LLC, at [www.thecomplianceengine.com](http://www.thecomplianceengine.com).