

**INSTALLATION, MAINTENANCE, AND
TESTING REGULATIONS**

Fire Alarm Systems

Application Packet



Lake Villa Fire Prevention Bureau

910 East Grand Ave. Lake Villa, IL. 60046

Phone: (224)444-8222 Fax: (847)356-7530

General Information:

The District has established, through Ordinance, requirements for the Installation, Maintenance and Testing of Fire alarm systems in the Fire Protection District. These requirements have been established to assist the Alarm Installer, Maintenance, and Testing Company as to what is required when installing/working on Fire Alarm Systems in the District. Please note, that Fire Alarm Installer shall be registered with the State of Illinois pursuant to the Illinois Private Detective, Private Alarm and Private Security Act of 1983. Additionally, all fire alarm systems in the District shall be inspected and tested annually. 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.

The Lake Villa Fire Prevention Bureau performs all plan review and final inspections and acceptance/performance testing for all fire alarm installations. The Building Departments within the District will not issue any Occupancy Permits until the Fire Alarm System has been approved by the Lake Villa Fire Department.

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
- Current Publication of NFPA standards not already mentioned.

Plan Review Information

The Lake Villa Fire Protection District is the authority having jurisdiction for the plan review and acceptance testing of Fire Alarm Systems. This includes new systems and/or modifications/alterations to existing systems. All required fire alarm systems must be approved by the Fire Bureau before the building department will issue an occupancy permit.

Plans for each fire alarm system must be submitted to the Lake Villa Fire Prevention Bureau, 910 East Grand Ave, P.O. Box 269 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.

The plan submittal shall include:

1. A minimum of three (3) sets of plans for each fire alarm system. Maximum plan size 24"x36".
2. Fire Alarm Plan Review Submittal Sheet
3. Fire Alarm System Application Form

The plan review fee must accompany the submitted plans as outlined on the Application & Submittal Information Form.

Fire alarm systems must be designed, installed and function in accordance with locally adopted codes (and amendments) as identified in this document.

Plan submittal documents. Construction documents shall include, but not be limited to, all of the following:

1. A floor plan, (identify room use and show dimensions).
2. Locations of alarm-initiating and notification appliances.
3. Alarm control and trouble signaling equipment.
4. Annunciation.
5. Power connection.
6. Battery calculations.
7. Conductor type and sizes.
8. Voltage drop calculations.
9. Manufacturers, model numbers and listing information for equipment, devices and materials.
10. Details of ceiling height and construction.
11. The interface of fire safety control functions.

Equipment. Systems and their components shall be listed and approved for the purpose for which they are installed. All system devices shall be compatible.

Requirements

In accordance with Lake Villa Fire Protection District requirements, all permitted newly installed or modified automatic fire alarm systems shall conform to the current Code requirements, National Fire Protection Association (NFPA) applicable requirements, the International Building Code, International Fire Code, and the Illinois Accessibility Code.

Fire Alarm Control Panel (FACP): shall be U.L. or F.M. approved and shall be separate from any other non-fire protection system. Combination Burglar/Fire panels shall be prohibited. The control panel shall be addressable unless approved by the Fire Bureau. Location shall be approved by the Fire Bureau. The FACP shall not be located within a private garage or other room controlled by unauthorized persons. A FACP installed out-side shall be in a U.L. or F.M. approved, climate controlled, weatherproof box. The FACP shall only monitor fire protection systems. Any Control Panel requiring a code to silence or reset shall have the code permanently displayed on the Fire Alarm Control Panel door. The Fire Alarm Control Panel room shall be properly labeled (minimum of 4-inch lettering) with lettering of a contrasting color. A smoke detector is required to be installed at the FACP.

Fire Department Lock Box: The Fire Alarm Control Panel must be accessible to the Lake Villa Fire Department 24 hours a day, 365 days a year, via a KNOX BOX. KNOX BOX information/order forms can be obtained from the Lake Villa Fire Prevention Bureau. Location shall be approved by the fire bureau. The KNOX BOX should be installed no more than 6 feet above grade/floor.

Power Supply: The primary and secondary power supplies for the fire alarm system shall be provided in accordance with NFPA 72. Electric power to the FACP shall be approved and separated from unauthorized personnel.

A Remote Annunciator: (unless otherwise approved) is required if the FACP is not visible from the exterior of the building. The annunciator panel shall be permanently marked to show zones.

Zones: Addressable devices shall be used unless approved by the Fire Department. If not addressable. The length of any zone shall not exceed 300 feet in any direction (automatic sprinkler system zones shall not exceed the area permitted by NFPA 13). A zoning indicator panel and the associated controls shall be provided in an approved location. The visual zone indication shall lock in until the system is reset and shall not be cancelled by the operation of an audible alarm-silencing switch. The capability to disable each zone shall be provided. A separate zone by floor and device type shall be provided for the following types of alarm notification devices where provided:

1. Smoke detectors.
2. Sprinkler water-flow.
3. Manual fire alarm boxes.
4. Other approved types of automatic fire detection devices or systems (HVAC, Hood & Duct Suppression, FM-200, etc.).

A **ZONE MAP** encompassing a Floor Plan, shall be provided near each FACP and annunciator panel.

ZONE MAP REQUIREMENTS:

- A fire alarm/sprinkler zone map shall be provided next to the fire alarm control panel.
- These map(s) shall show what areas of the building are covered by the system(s) installed.
- Maps shall be accurate, legible, and easily understood.
- They shall be laminated and permanently attached to the wall in the FACP/Riser room. When a building or system is modified, it is the responsibility of the contractor who made modifications to the system(s) to update these maps.
- A sign and/or map shall be mounted at the front main entrance indicating the location of the fire alarm control panel and fire sprinkler riser/control room location (if in a sprinklered building).

This sign shall be protected from damage/vandalism and shall be securely mounted and protected (e.g.- inside a certificate holder).

The maps shall include the following minimum items:

- | | |
|---|------------------------------------|
| 1. Building layout | 2. Stairwell identification |
| 3. Location of fire-rated walls and their ratings | 4. Knox Box location(s) |
| 5. Adjacent streets, with designators | 6. North arrow |
| 7. Legend of symbols | 8. Date drawing was created |
| 9. Location of all sprinkler zones | 10. FACP |
| 11. Standpipe outlets | 12. Sprinkler control valves |
| 13. Water-flow alarm devices | 14. Range hood suppression systems |
| 15. Clean agent systems | 16. Inspector's test valve(s) |
| 17. Auxiliary drain(s) | 18. Device ID's and/or area |

A **4-inch RED lens weatherproof strobe light** shall be installed on the exterior of the building above the closest entrance to the annunciator/FACP.

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.

A **4-inch White lens weatherproof strobe light** (alarm annunciation) shall be installed on the exterior of each tenant space and multi-family unit located in the building. Exception: Addressable Fire Alarm Systems.

HVAC Duct Detection (where required) shall be provided with remote L.E.D. and test switches for all detectors that are obstructed or located above the ceiling. The L.E.D. test switches shall be located on the wall or ceiling directly below (or as close as possible) to the unit it serves

Manual Fire Alarm Boxes (MP) shall be located not more than 5 feet from the entrance to each exit. The height of the MP shall be a minimum of 42 inches and a maximum of 54 inches measured vertically from the floor level to the activating handle or lever of the box. Additional MP shall be located so that travel distance to the nearest box does not exceed 200 feet. Manual fire alarm boxes shall be RED in color.

Manual Fire Alarm Boxes - Protective covers: The Fire Department is authorized to require the installation of listed manual fire alarm box protective covers to prevent malicious false alarms and provide protection from physical damage. The protective cover shall be transparent or red in color with a transparent face to permit visibility of the manual fire alarm box. Each cover shall include proper operating instructions. A protective cover that emits a local alarm signal shall not be installed unless approved.

Fire Safety Functions: Automatic fire detectors utilized for the purpose of performing fire safety functions shall, upon actuation, perform the intended function and activate the alarm notification appliances.

Alarm notification appliances: Alarm notification appliances shall be provided and shall be listed for their purpose. Alarm notification appliances shall be both audio and visual unless approved by the Fire Department.

Audible/Visible alarm notification appliances shall be provided in public and common areas (lobbies, elevator, hallways, laundry rooms, swimming pools, storage rooms, recreation areas, parking garages, building offices, conference rooms, patios, restrooms, telephones, etc).

Audible alarm notification appliances shall sound a distinctive sound that is not to be used for any purpose other than that of a fire alarm. The audible alarm notification appliance shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupied space within the building. The minimum sound pressure levels shall be 70 dBA in occupancies in Group R (at the pillow) and Group I-1; 90 dBA in mechanical equipment rooms; and 60 dBA in other occupancies. The maximum sound pressure level for audible alarm notification appliances shall be 120 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 105 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required. Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies.

International Building Code/2012 (IBC) Class	Use:	Example:	Fire area exceeds Gross sq. ft. :
Assembly	A-1	Motion Picture Theatre	Required
	A-2	Restaurant	Required
	A-3	Churches	Required
	A-4	Indoor Arenas	Required
	A-5	Stadiums	Required
Business	B	Professional Services	Required
Education	E	Schools	Required
Factory	F-1	Moderate Hazard	Required
	F-2	Low Hazard	Required
Hazard	H	Chemical Manufacturing	Required
Institutional	I-1	Board & Care/Assisted living more than 16 residents, Rehab facilities	Required
	I-2	Hospitals/Nursing Homes	Required
	I-3	Detention Facilities	Required
Mercantile	M	Department Store	Required
Residential	R-1	Boarding Houses/Hotels	Required
	R-2	Apartments/Dorms	Required
	R-3	Adult and Child Day Care	Required
	R-4	Residential Care/Assisted living 16 or Fewer residents	Required
Storage	S-1	Furniture, Lumber yard	Required
	S-2	Non-Combustible Storage	Required
Utility	U	Greenhouses, barns	Required

Where required in accordance with Amendments, an approved manual/automatic fire alarm system shall be provided as follows:

- Gross square footage is defined as the total area of the building including floor area, basements, mechanical penthouses and areas under attached canopies. These areas shall be included when calculating the building square footage.

Inspection Information

Fire alarm systems must be inspected at certain intervals according to the following schedule:

Fire Sprinkler Systems:

- Rough wire inspection (Not required in all instance)
- Final acceptance/performance test

Other Systems: Information is provided on the plan review comment sheet/form, included with your permit.

- 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.

Certificate of Completion: The Contractor shall provide to the Fire Department, prior to the Fire Department witnessing a performance test of the system, a Certificate of Completion (Per NFPA 72).

Annual Fire Alarm 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 .

FIRE ALARM REVIEW SUBMITTAL SHEET

ADDRESS: _____

Total square footage of building: _____ Total square footage of build-out: _____

IBC Building Use Group: _____ System meets NFPA 72: **Y / N**

UL listed fire control panel: **Y / N** Model: _____ Brand _____

Location of FACP: _____ FAAP: _____

Alarm Monitor Co. _____

Method of signal transmission: _____ Standby battery hours: 60 or 24

Other Automatic Fire Suppression Systems Connected to Fire Alarm: Fire Sprinklers:

- Wet Dry Pre-Action Anti-Freeze Loop Hood Suppression System (ANSUL)
- FM 200 System Other Types: _____

Number of Type of New Initiating Devices:

- Heat Detectors: Fixed Temperature _____ Rate of Rise _____
- Smoke Detectors _____ Duct Smoke _____ Pull Stations _____
- Water Flow _____ Tamper Switches _____ Low Temp _____
- Other _____

Number of Type of New Indicating Devices:

- Horn/Strobes # _____ Strobes Only # _____ Horns Only # _____
- Voice Communication System – Speaker strobes # _____
- Strobes: Red Lens Strobe # _____ White Lens Strobe # _____

Plan submittal documents shall include, but not limited to, all of the following:

- Floor plan, identify room use & show dimensions
- Annunciation
- Location of alarm-initiating & notification appliances
- Power Connection
- Alarm control & trouble signaling equipment
- Battery calculations
- Conductor type & sizes
- Voltage Drop Calculations
- Manufacturer's Listing Info
- Ceiling height and construction
- Interface of fire safety controls
- Conductor type and sizes