



# OPERATING POLICY 10

## FIRE ALARM SYSTEM RULES AND REGULATIONS



Kirkland Fire/Building Department • 123 Fifth Avenue, Kirkland, WA 98033 • (425) 587-3650

### I. SCOPE

The purpose of this guideline is to provide general and specific information regarding design, approval, installation, testing, and maintenance of fire alarm systems.

### II. GENERAL

An approved fire alarm system shall be installed in all buildings as required in the *International Fire Code* and the Kirkland Municipal Code Section 21.20.

The following documents shall be used as installation guidelines:

- *International Fire Code*, Section 907
- *International Mechanical Code*, Section 606
- NFPA 72, *National Fire Alarm Code*
- NFPA 70, *National Electrical Code*
- Kirkland Operating Policy 2, *Automatic Sprinkler and Standpipe Systems*
- American National Standards Institute (ANSI) A117.1 *Accessibility Standard*

The most recent edition of the *International Fire Code* as adopted by the City of Kirkland shall be used. The most recent edition of the NFPA standards shall also be used.

### III. INSTALLATION REQUIREMENTS

#### A. New Installations:

A permit shall be obtained from the Kirkland Fire Department prior to installation of any new system.

1. Detection:
  - a. In new buildings, detection shall be provided in accordance with 907.2 of the IFC.
  - b. In most cases, smoke detectors shall be used. However, heat detectors shall be used in those areas that are not suitable for smoke detection such as kitchens and bathrooms.
2. Manual pull stations:

In new buildings, manual pull stations shall be provided in accordance with 907.2 of the IFC.
3. Audible devices:
  - a. Audible devices shall produce a sound in accordance with NFPA 72.
  - b. Audible devices shall provide audibility in all areas of the building at decibel levels as currently required by NFPA 72
  - c. Sound levels for alarm signals shall not exceed 120 decibels.
4. Visible devices:
  - a. Visible devices shall be integrated into the alarm system as required by IFC 907. Visible devices shall be provided in all public areas and common areas, including:

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- Meeting rooms, conference rooms, classrooms, filing and photocopy rooms, employee break rooms, dressing, examination and treatment rooms, and similar spaces that are not used solely as employee work areas.
  - Visible alarms are not required in spaces not normally occupied, such as mechanical and electrical rooms, telephone closets, and janitor's closets
  - In employee-only work areas, the system shall be designed with 20 percent space capacity to account for the potential of adding visible devices in the future to accommodate hearing impaired employees
- b. All buildings with a fire alarm system shall be equipped with an exterior alarm strobe in a location approved by the Fire Department
- c. For purposes of this policy, IFC 903.4.2 has been amended by the City of Kirkland to require inclusion of visible as well as audible devices throughout all sprinklered buildings, with the exception of 1 and 2 family dwellings.
5. Automatic door holders:  
When door holders are installed in a building with a fire alarm system, the door holders shall be connected to the building fire alarm system and designed to close the door upon activation of the fire alarm system.
6. Sprinkler control valves:
- a. All valves controlling the water supply for fire sprinkler systems shall be electrically supervised  
Exception:
- Control valves in vaults
  - Control valves to commercial kitchen hoods, paint booths, and heads in elevator pits as long as those valves are sealed or locked in the open position
  - Control valves in NFPA 13D systems
- b. In addition, IFC 903.4.3 *Floor Control Valves* has been amended to require approved supervised indicating control valves at the point of connection to the riser on each floor  
Exception:
- When approved by the Fire Code Official in NFPA 13R systems
7. Duct detectors:
- a. Duct detectors shall be installed in accordance with the *International Mechanical Code 606*.
- b. In buildings with fire alarm systems, duct detectors shall be installed as required by the IMC for air distribution systems.
- c. Duct detectors shall be tied into the fire alarm system and upon activation of the detector shall provide a supervisory signal to the fire alarm panel.

### **B. Revisions to Existing Systems:**

A permit shall be obtained from the Kirkland Fire Department prior to revision of any existing system.

1. When a tenant remodel or an addition to a building is being performed, the fire alarm system need only be revised in that area in accordance with current requirements for new installations.

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2. In those areas that are being remodeled, visible devices shall be added to meet current *International Fire Code* requirements.
3. When the only work being done is panel and/or transmitter change out, the rest of the system is not required to be upgraded.
4. In an existing building which does not contain a sprinkler system but does contain a required fire alarm system, detection is required in all areas, spaced according to the manufacturer's specifications.
5. A new fire alarm system is not required to be installed in an existing building that does not currently have a fire alarm system.
6. Non-required systems that are installed for insurance or other purposes still require a permit. Each system will be evaluated on a case-by-case basis for approval. Some of the criteria, which may be used to evaluate whether the system may be installed, are:
  - a. Does the system provide an improvement in the general safety of the occupants?
  - b. Does the system have the potential to create confusion or a false sense of security in the occupants (as in the case of a partial system)?
  - c. Is there a phase-in plan in place?
  - d. Will the new installation be compatible with or have the capability for future expansion?

### **C. Retroactive Requirements:**

Fire alarm systems shall be installed retroactively in all buildings as required by section 907.3 and Chapter 46 of the *International Fire Code*.

Of particular note, apartments and condominiums may be required to install an automatic or manual fire alarm system which notifies the occupants if:

- The building is more than 3 stories in height

OR

- The building contains more than 16 dwelling or sleeping units

Exceptions to this requirement are found in IFC 4603.6.

A permit shall be obtained from the Kirkland Fire Department prior installing any system in an existing building.

### **IV. ZONING REQUIREMENTS**

- A. When zone-type panels are used, sprinkler systems shall be on separate zones, including separate zones for each wet and dry system in the same building.
- B. Duct detectors shall be on separate zones.  
  
Exception: Duct detectors may all be on the same zone provided there is a remote LED at the location of each detector.
- C. Buildings shall have separate zones differentiating between general alarm and water flow. Buildings four stories or greater shall have separate water flow zones for each floor.
- D. All zones shall be labeled accurately with a clear and concise indication of the zone area.

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- E. Multiple buildings owned by the same entity and on one site may be monitored on one main panel, as long as each building is shown as a separate zone on the panel.
- F. Other subsidiary fire systems, such as FM 200 systems, shall be connected to the main fire alarm panel on a separate zone. Any alarm initiated by such a remote panel for such systems shall alarm the entire building.
- G. If a building contains a fire alarm system, any new or remodeled hood and duct suppression system is required to be tied into that fire alarm system.

### **V. FIRE ALARM CONTROL PANELS**

- A. Fire alarm panels shall be located at or near the main entrance or lobby of the building.  
Exception:
  - When it is not practical to locate the panel inside the main entrance, it may be located in an accessible remote area within the building, such as an electrical room or sprinkler room, providing a remote annunciator is located at the main entrance to the building.
- B. Multiple buildings may be monitored on one main fire alarm panel, as long as that main panel is in the first building along the path of fire department access to the other buildings.
- C. The panel and/or annunciator shall be easily accessible and not subject to freezing temperatures.
- D. NEMA boxes will not be approved for housing fire alarm panels on the outside of buildings unless a letter is submitted by the panel manufacturer approving the installation.
- E. All alarm signals shall be automatically "locked in" at the panel until the initiating device is returned to normal and the panel is MANUALLY reset.
- F. At a minimum, fire alarm panels shall be capable of showing both alarm and trouble signals. In some cases, existing fire alarm panels may need to be upgraded or replaced to meet this requirement.
- G. Combination fire and burglar alarm systems are not allowed in commercial or multifamily buildings.

### **VI. FIRE ALARM SYSTEM MONITORING - NEW AND EXISTING**

- A. All new fire alarm systems located within the City of Kirkland shall be connected to a U.L. listed central station monitoring company, as outlined in Kirkland Municipal Code 21.20.110.  
Note: One- and two-family dwelling units with sprinkler systems are not required to be monitored, providing an audible device that activates upon water flow is mounted on the exterior of the home.
- B. As of July 1, 1997 all existing required fire alarm systems shall be connected to a U.L. listed central station approved by the Kirkland Fire Department.
- C. At a minimum, existing fire alarm panels shall be capable of transmitting both alarm and trouble signals to the fire alarm monitoring company. In some cases, existing fire alarm panels may need to be upgraded or replaced to meet this requirement.
- D. A permit is required from the Fire Department for the connection of existing systems to central station monitoring.

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- E. Digital dialer, Scan-Alert are among the types of transmitters approved for use. Telephone based systems shall have two dedicated phone lines connected to the transmitter. Other types of transmitters, such as radio or cellular systems may be approved on a case-by-case basis.

### **VII. OTHER GENERAL REQUIREMENTS**

- A. An electrical permit is required for any new or revised installation. The electrical permit may be obtained either as a separate permit or as a part of the fire alarm permit.
- B. Both the electrical and fire alarm permit shall be posted at all fire alarm installations. Approval by the electrical inspector is required prior to the final functional test being conducted for the fire inspector.
- C. All equipment, devices, and wiring shall be listed by Underwriters Laboratories, Factory Mutual, or other nationally recognized-testing agency, and shall be approved for the purpose for which they are intended. No modification shall be made to any device that would void its listing.
- D. When the alarm panel is located inside a room, the door shall have a sign with one-inch letters, which reads "Fire Alarm" or "Fire Alarm Control."
- E. Automatic or manual alarm initiating devices shall be compatible with the fire control panel, UL and/or FM listed, and shall be approved for fire alarm use.
- F. AC Power Requirements:
1. The power supply shall meet all standards of the NFPA 70, National Electrical Code.
  2. A rechargeable battery back-up is required on any fire alarm installation. There shall be enough battery capacity to operate the alarm system in standby for twenty-four (24) hours and, after that time, sound all alerting devices for at least five minutes.
- G. Elevator recall for firefighters' service shall comply with State of Washington elevator requirements.

### **VIII. WIRING AND WIRING METHODS:**

All wiring shall be done in compliance with NFPA 70, the National Electrical Code, Article 760, pertaining to Fire Alarm Signaling Circuits, and any other applicable articles and standards referred to in Article 760.

### **IX. ACCEPTANCE TESTING**

- A. In new systems or when detection is being added to an existing system, the new detectors shall not be installed until after the construction clean up of all trades is complete and final. Detectors that have been installed prior to final clean up shall be cleaned or replaced. In spaces undergoing remodeling, existing detectors shall be suitably protected from construction dust.
- B. All newly installed equipment and/or devices will be tested according to the manufacturer's recommendations. Smoke detectors shall be tested using smoke, not magnets.
- Exception:  
Duct Detectors may be tested by other methods as recommended by the manufacturer.
- C. A representative of the Fire Department shall witness final inspection and testing of all new and revised installations. Final approval is contingent upon a successful test of all equipment and/or devices, as well as the following additional requirements.
1. The fire alarm company shall ensure that the final electrical inspection by a Kirkland Electrical Inspector has been conducted on the fire alarm prior to the Fire Department final fire alarm test.

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2. If applicable, other occupants of the building shall have been advised in advance that the test will occur.
3. The fire alarm company shall ensure that a copy of the permit and approved plans are on site for the final functional test.
4. The fire alarm company shall conduct a pre-test of all devices and upon request, a completed "confidence test" form shall be made available to the Fire Inspector. Any generic "confidence test form" may be used.
5. The fire alarm company shall provide adequate personnel and communication equipment to perform the final test in an efficient manner. Please note that it is not the responsibility of the Fire Department to provide manpower assistance for testing.

NOTE: Failure to provide any of the items listed above may result in the Fire Department canceling the final test. In these cases, the fire alarm company may be billed for a minimum of two hours of Fire Department personnel time, which must be paid prior to the test being rescheduled.

### **X. ANNUAL CERTIFICATION**

Annual certification of all systems is required. The tests shall be done in accordance with Operating Policy No. 11 *Certification and Maintenance of Fire Protection Systems*. A copy of the completed certification form shall be maintained on site and shall be made available to the Fire Department when requested.

*Policy Approved 5/20/2011 by  
Grace A. Steuart, Fire Marshal  
Kirkland Fire Department*