

# **RHODE ISLAND FIRE ALARM CODE**

**NFPA 1, *Uniform Fire Code*™, 2003 edition**

**(as reserved and amended)**

**&**

**RISFSC Section 10**

## **Chapter 13**

### **Fire Protection Systems**

#### **Sections 13.7 and 13.8**

**This document consists of sections 13.7 and 13.8 of Chapter 13 of the Rhode Island Uniform Fire Code [NFPA 1, *Uniform Fire Code*™, 2003 edition, as reserved and amended], adopted by the RI Fire Safety Code Board of Appeal and Review on February 19, 2008 with an effective date of March 20, 2008.**

# TABLE OF CONTENTS

GENERAL REQUIREMENTS	
Exceptions for Existing Systems	3
RI Amendments	6
Administrative	8
TYPES OF SYSTEMS	
Local	9
Municipally Connected	10
High Rise	11
Multiplex Systems, Addressable, and Addressable-Analog Systems	14
Low Power Radio – Wireless	15
EQUIPMENT	
Manual Fire Alarm Boxes / Notification Appliances	22
Detectors	23
Sprinklers / Waterflow	25
CO Detectors	26
Annunciation	28
HVAC Shutdown	29
Remote Equipment / Drill Switch / Elevators	30
INSTALLATION & WIRING	
Wiring Methods	33
RI Color Code	34
Connection to Fire Department	37
System Acceptance	38
Maintenance of System	40
RISFSC SECTION 10	
I. NFPA 72	43
II. Deadline Extensions	44
III / IV. Exemptions	45
V. Separation	47
VI. Central Station – Pilot Program	49

## 13.7 Detection, Alarm and Communications Systems

### (Amd) 13.7.1.1

Where building fire alarm systems or automatic fire detectors are required by other sections of this *Code* or any other codes, they shall be provided in accordance with *NFPA 72*<sup>®</sup>, *National Fire Alarm Code*<sup>®</sup> (2002 edition) and Sections 13.7 and 13.8 of this Chapter. Any conflicts between the provisions of this Chapter, as amended and *NFPA 72* shall be resolved in favor of compliance with the most restrictive requirements as determined by the AHJ in accordance with uniform guidelines established by the fire alarm division of the State Fire Marshal's Office.

***(Note: In Formal Interpretation & Blanket Variance 08-01, the Fire Board addressed the issue of what constituted the fire alarm division of the State Fire Marshal's Office.***

***The Board advised, "In light of the fact that the vast majority of the complaints reviewed by the House Commission addressed fire alarm issues, it is the Board's hope that the State Fire Marshal's Office will establish a specific fire alarm division with a full time staff in the near future. Such a permanent division is necessary for the permanent coordination of all fire alarm regulation throughout the State. Until such a division is formerly established, the fire alarm division of the State Fire Marshal's Office would consist of those individuals in the State Fire Marshal's Office currently assigned to review fire alarm questions, conduct fire alarm education and oversee fire alarm installation."***

### (Add) 13.7.1.1.1

Exception: Existing fire alarm systems that were in compliance with the provisions of Chapter 8 of the Rhode Island Fire Prevention Code<sup>1</sup> [RIFPC], 1997 edition, as reserved and supplemented, subject to the alternative provisions set forth in § 13.7.1.1.1.1, shall be permitted to be continued in use. The "EXCEPTION" to Section 8-1.1 permitting existing installations to remain in use shall apply only if in accordance with this Chapter.

---

<sup>1</sup> As adopted by the Board of Appeal on 4/23/02 with an effective date of 7/1/02

**(Add) 13.7.1.1.1.1**

- a) Existing supervised (municipally-connected), high-rise and multiplex (multiplex, addressable and addressable-analog) systems installed with MC cable dual rated as FPL and 2-hour rated by UL shall be deemed to be in compliance provided that the conductors are a minimum #16 gauge solid copper, type thhn/thwn or tfn and an equipment bonding conductor is provided.
- b) Existing local systems installed with type FPL cable, shielded with drain wire, minimum #16 gauge solid copper, type thhn/thwn or tfn and enclosed within walls and ceilings without a raceway, shall be deemed to be in compliance. Suspended drop-in type ceiling assemblies do not constitute a ceiling for the purposes of this subsection. Existing local systems installed with the end-of-line resistor (EOLR) located in the field shall be deemed to be in compliance.
- c) Existing multiplex (multiplex, addressable and addressable-analog) systems that are not capable of being programmed such that when an alarm is silenced or acknowledged, the municipal connection shall be restorable shall be deemed to be in compliance. Systems that are capable of such programming shall be changed to meet this requirement.
- d) Existing systems not meeting the feed and return separation requirements of § 13.8.10.6.2.2 shall be deemed to be in compliance.
- e) Existing systems with wiring that meets the requirements of § 13.8.10.6.2 but does not meet the color code requirements of § 13.8.10.6.3 shall be deemed to be in compliance provided that each conductor, at each junction point, is correctly identified by the use of colored heat-shrink tubing, colored tape or a method approved by the State Fire Marshal.
- f) Existing systems with automatic sprinkler systems having only a main flow alarm due to the piping configuration of the sprinkler system shall be deemed to be in compliance.
- g) Existing systems with automatic sprinkler system tamper switches and/or HVAC duct detectors that report as a trouble signal shall be deemed to be in compliance.
- h) Existing systems with junction points between devices shall be deemed to be in compliance provided that they are terminated on terminal strips.

- i) Existing manual fire alarm boxes which have the operable part mounted at not less than 3½ ft. (1.07 m.) and not more than 4½ ft. (1.37 m.) above floor level shall be deemed to be in compliance provided that they meet the other requirements of § 13.8.10.5.2.
- j) Existing fire alarm systems in residential occupancies not having a mini-horn in each sleeping room as required by § 13.8.10.5.3 shall be deemed to be in compliance provided that the sound levels required by **72:7.4.4.1** are met by other system audible notification appliances. A licensed professional engineer shall provide certification of sound levels to the AHJ upon request.
- k) Existing fire alarm systems installed with cast-type conduit connectors and/or couplings shall be deemed to be in compliance.
- l) If an existing fire alarm device, appliance or control unit needs to be replaced due to damage or failure, this replacement shall be deemed a repair and existing compliant devices, appliances, raceways and wiring may remain in use. If a total replacement of the control unit, devices and appliances is made, this replacement shall be deemed a new installation and all requirements for new installations, including separation of feed and return circuits shall apply. Any existing wiring, raceways, junction boxes and terminal cabinets may be reused in place provided that they are in compliance with all applicable sections of this Code for new installations.

**(Add) 13.7.1.1.2**

The provisions of § 13.8.10.9, Maintenance of the System, shall apply to all systems, new and existing.

**(Add) 13.7.1.1.3**

In existing buildings where an existing fire alarm system is upgraded or added to, installations that meet the exceptions of 1:13.7.1.1.1.1 (d) & (e) may remain. If a FACU has to be replaced, existing wiring, devices and appliances may be maintained if they meet the exceptions and are compatible.

**(Res) 13.7.1.4.9 through 13.7.4.7.6**

The Rules and Regulations Subcommittee of the Fire Safety Code Board of Appeal & Review hereby reserve sections 13.7.1.4.9 through 13.7.4.7.6 of the Rhode Island Uniform Fire Code pending future review.

**(Res) 13.8.1 through 13.8.6**

The Rules and Regulations Subcommittee of the Fire Safety Code Board of Appeal & Review hereby reserve sections 13.8.1 through 13.8.6 of the Rhode Island Uniform Fire Code pending future review.

**(Add) 13.8.7 Fire Alarm Systems – RI Amendments.**

**(Add) 13.8.7.1**

All buildings and facilities covered under the RI Uniform Fire Code, and all codes adopted pursuant thereto, shall be equipped with an approved fire alarm system installed, maintained and tested in accordance with this chapter and any updated fire alarm rules and regulations adopted by the Fire Safety Code Board of Appeal & Review

**(Add) 13.8.7.2**

Whenever or wherever any fire alarm system is required for compliance with the provisions of this Code, such fire alarm system shall thereafter be continuously maintained in accordance with all applicable provisions of this Code.

**(Add) 13.8.7.3**

No provisions of this chapter shall be construed so as to permit the reduction, alteration or removal of any existing fire alarm system or local smoke alarms installed under prior codes that decreases the level of life safety in any existing protected occupancy.

**(Add) 13.8.7.3.1**

EXCEPTION: Existing fire alarm systems with a municipal connection that was installed under a previous code, installed pursuant to a prior variance or installed voluntarily and is currently not required by this Code may have the municipal connection removed at the option of the building owner.

**(Add) 13.8.7.4**

Equipment constructed and installed in conformity with this Code shall be listed for the purpose for which it is used. Fire alarm system components shall be installed in accordance with the manufacturers' installation instructions.

**(Add) 13.8.7.4.1**

For the purposes of this Code, equipment, devices or appliances listed for residential or household use only shall be limited to 1- and 2-family dwellings and 3-family apartment buildings. For all other occupancies the listing shall be for commercial or industrial use.

**(Add) 13.8.7.5**

All fire alarm devices and appliances that receive their power or supervision from the initiating device circuit, signaling line circuit or the notification appliance circuit of a fire alarm control unit shall be listed for use with the control unit.

**(Add) 13.8.8**

Whenever fire alarm system notification appliances in a protected building are activated, all occupants shall evacuate the building unless specifically authorized to remain in the building by the fire department official in charge of the scene. In the case of a fire alarm activation in a high-rise building, occupants shall evacuate the area(s) where the notification appliances are activated or as directed by the fire department official in charge of the scene. See also chapter 10.5.

EXCEPTION # 1: Health Care and Detention & Correctional Occupancies and those occupancies specifically authorized by the AHJ to protect in place rather than evacuate.

EXCEPTION #2: Where permitted by RILSC Chapters 11 through 42 and approved by the AHJ, a presignal system or positive alarm sequence shall be permitted.

**(Add) 13.8.8.1**

Whenever the "SILENCE" feature of a FACU is operated, all notification appliances, both audible and visual shall be deactivated. Per the ADA, it is important not to provide conflicting signals for the hearing impaired.

**(Add) 13.8.8.2**

In any building in which a fire alarm system is installed, the AHJ shall have the authority to require a key access box containing all keys to the building where fire alarm protection is provided, in accordance with § 10.12.1. Such key access box shall be compatible with the access system in use in the particular jurisdiction where the building is located and installed in a location approved by the AHJ. In addition, a key to the fire alarm control unit shall be provided and stored in the key access box.

**(Res) 13.8.9.1 through 13.8.9.12**

The Rules and Regulations Subcommittee of the Fire Safety Code Board of Appeal & Review hereby reserve sections 13.8.9.1 through 13.8.9.12 of the Rhode Island Uniform Fire Code pending future review.

**(Add) 13.8.10 Administrative Provisions**

**(Add) 13.8.10.1 Applicability**

**(Add) 13.8.10.1.1**

This chapter shall apply to all existing and new buildings and to all buildings where there is a change of use or occupancy to one that will require a fire alarm system.

**(Add) 13.8.10.1.2**

Existing buildings shall be in compliance with sections 13.7 and 13.8.

**(Add) 13.8.10.2 Authority Having Jurisdiction**

**(Add) 13.8.10.2.1**

The authority having jurisdiction [AHJ], for the purpose of §§ 13.7 – 13.8.10.9.5.3 only, shall be the state fire marshal or his or her designee and those chiefs of fire departments, superintendents of fire alarms, or directors of communication certified by the state fire marshal as prescribed by R.I.G.L. § 23-28.2-6. Enforcement of the provisions relating to classification of occupancy, determination of suitable separation, types of construction, residential local smoke alarms and carbon monoxide [CO] detectors shall remain the responsibility of the jurisdiction's fire prevention bureau.

**(Add) 13.8.10.3 Approval**

**(Add) 13.8.10.3.1**

Before installation or alteration of any fire alarm system required by this chapter commences and regardless of what any other authority may require, construction documents and drawings showing complete system design details, inclusive of, but not limited to, a description of system operations and a description of the components of the system and their location within the protected building shall be submitted in writing to the AHJ and shall fully comply with the requirements of this chapter.

**(Add) 13.8.10.4 Types of Systems**

**(Add) 13.8.10.4.1 Local Systems**

**(Add) 13.8.10.4.1.1**

Local systems shall comply with NFPA 72 and §§ 13.8.10.5 (Equipment) and 13.8.10.6 (Installation and Wiring) of this Chapter. A local system, for the purpose of this chapter is defined as consisting of a power limited fire alarm control unit listed by the UNDERWRITERS LABORATORIES [hereinafter UL] or approved by FM GLOBAL [hereinafter FMG]. A minimum of twenty-four ( $\geq 24$ ) hours of battery standby power is required for a local system. Class "B" wiring using an end of line resistor installed on terminal strips in the fire alarm control unit for both initiating and notification appliance circuits may be used for all local systems. Class "A" wiring shall be required if the fire alarm control unit is so configured. All initiating devices and notification appliances shall be mounted on approved junction boxes. The activation of any manual fire alarm box or the automatic activation of any smoke detector, heat detector or suppression system switch shall activate all notification appliances, de-energize all door holders, and initiate HVAC shut-down, automatic fire/smoke door release and/or elevator recall, if applicable.

**(Add) 13.8.10.4.1.1.1**

A weatherproof horn/strobe shall be installed on the exterior of each building at a location approved by the AHJ.

**(Add) 13.8.10.4.1.2**

A municipal connection is not required for this type of system, however a municipally connected fire alarm system meeting the requirements of § 13.8.10.4.2 may be installed at the option of the building owner.

**(Add) 13.8.10.4.1.3**

Manual fire alarms boxes shall be marked "Local Alarm Not Connected to Fire Dept".

**(Add) 13.8.10.4.2 Municipally Connected Systems**

**(Add) 13.8.10.4.2.1**

Municipally connected systems shall comply with NFPA 72 and §§ 13.8.10.5 (Equipment), 13.8.10.6 (Installation and Wiring) and 13.8.10.7 (Connection to Fire Department) of this Chapter. A municipally connected system for the purpose of this chapter is defined as a system consisting of a power limited fire alarm control unit listed by UL or approved by FMG, where the manual activation of any manual fire alarm box or the automatic activation of any heat detector, smoke detector, sprinkler flow switch, other extinguishing system switch or standpipe flow switch shall activate all notification appliances within the building, de-energize door holders causing all fire/smoke doors that are allowed to be held open in the entire building to close, notify the local fire department, shut down any applicable heating, ventilating and air conditioning [HVAC] systems and initiate elevator recall. Operating power failure, low battery voltage, an open or grounded wire in any of the initiating device circuits [IDC], signaling line circuits [SLC], notification appliance circuits [NAC], the circuit to the municipal master box or transmitter, or the leased line to the remote station shall activate audible and visual trouble signals on the system control unit and annunciator, that cannot be reset until the circuits are restored to normal. All circuits and components of a fire alarm system shall be monitored for integrity as required by NFPA 72 - Fundamentals of Fire Alarm Systems. The audible trouble signal may be silenced with the trouble signal-silencing switch but the lamp shall not be extinguished until the circuits are normal. Restoring the circuits to normal after the silencing switch has been operated shall cause the lamp to extinguish and the audible signal to resound until the silencing switch is restored to normal. In the event of a commercial power outage, the entire system shall immediately transfer to a standby battery source of power and be capable of supplying the entire system for sixty ( $\geq 60$ ) hours. All initiating device circuits [IDC], signaling line circuits [SLC], and notification appliance circuits [NAC] shall be wired in a Class "A" fashion as defined in NFPA 72 - Protected Premises Fire Alarm Systems.

**(Res) 13.8.10.4.2.2**

Reserved

**(Add) 13.8.10.4.3 High Rise Systems**

**(Res) 13.8.10.4.3.1**

Reserved.

**(Add) 13.8.10.4.3.2**

High-Rise systems shall comply with NFPA 72 and §§ 13.8.10.5 (Equipment), 13.8.10.6 (Installation and Wiring) and 13.8.10.7 (Connection to Fire Department) of this Chapter. A high rise system for the purpose of this chapter is defined as a municipally connected fire alarm system consisting of a power limited fire alarm control unit listed by UL and/or approved by FMG, with voice communication and a two-way fire department communication system. All circuits for a high-rise fire alarm system shall be installed in a Class "A" fashion as described in NFPA 72. Fire Alarm/Voice Communication Systems shall be provided in all high rise buildings regardless of the occupancy and shall operate as follows:

**(Add) 13.8.10.4.3.3**

The operation of any manual fire alarm box or the automatic activation of any heat detector, smoke detector, sprinkler flow switch, standpipe flow switch or other extinguishing system switch shall:

**(Add) 13.8.10.4.3.3.1**

Automatically sound a distinctive audible signal and activate the visible notification appliances on the floor where the alarm originated, one floor above and one floor below the floor where the alarm originated; See 1:13.8.8.

**(Add) 13.8.10.4.3.3.2**

Automatically notify the local fire department;

**(Add) 13.8.10.4.3.3.3**

Visually indicate the location of the origin of the alarm at the fire command center within the building;

**(Add) 13.8.10.4.3.3.4**

Interlock with the heating, ventilating and air conditioning [HVAC] control systems to provide for automatic fan shutdown as required in § 13.8.10.5.10;

**(Add) 13.8.10.4.3.3.5**

Interlock with all stairwell pressurization, smoke exhaust and smoke control systems to control HVAC operations as required in § 13.8.10.5.10. Stairwell pressurization, smoke exhaust and smoke control systems shall not be activated by the activation of manual fire alarm boxes;

**(Add) 13.8.10.4.3.3.6**

Interlock with elevators to provide Phase I elevator recall and Phase II firefighters service in accordance with § 13.8.10.5.14 and **72:6.15.3**; and,

**(Add) 13.8.10.4.3.3.7**

De-energize door holders causing all fire/smoke doors which are allowed to be held open in the entire building to close.

**(Add) 13.8.10.4.3.4**

All high-rise fire alarm and voice communication system equipment shall comply with all applicable UL and FMG Standards. All Fire Alarm/Voice Communication Systems shall also be provided with standby amplifiers equal to the amount of amplification required for the complete system operation. A fire command center shall be provided at the main level of access to the building at a location approved by the AHJ. This fire command center shall include, but is not limited to, fire alarm and fire detection system control unit; voice communication system control units; emergency firefighter's telephone systems; status indicators and controls for air handling systems; location and operational status indicators and controls for elevators; and other systems as may be required. Means shall be provided at the fire command center to selectively manually operate the audible notification appliances on any floor. A microphone and suitable switches shall be provided at the fire command center to selectively transmit voice communications to all public areas on every floor or fire area or groups of floors or fire areas. Voice communications shall override the alarm signal. Means shall be provided at the fire command center to operate any exit or stairway door unlocking system. Two-way telephonic communication system shall be provided between the fire command center, every stairway floor landing, and each elevator lobby on every floor. In addition, a two-way fire emergency telephone shall be provided in every elevator car. Firefighters' two-way telephone system shall be individually zoned and supervised by floors and shall be selectable individually by floor or up to five (5) telephones in a group at the command center. This system shall be wired in a separate metallic raceway system from the fire alarm system wiring and shall meet the survivability requirements for fire alarm voice/communication circuits as required by NFPA 72. An individual telephone instrument shall be permanently installed at each telephone location and mounted in a lockable, red enclosure. Individual telephone annunciation shall be by

telephone cradle switch. Speaker and telephone circuits shall also be supervised for short circuits.

**(Add) 13.8.10.4.3.4.1**

Manual fire alarm boxes shall be located at every stairwell door on every floor and as indicated in § 13.8.10.4.2.5. Combination rate of rise and fixed temperature heat detectors rated at one hundred thirty-five degrees (135°) to one hundred forty degrees (140°) F. shall be located in accordance with § 13.8.10.4.2.2. Automatic one hundred ninety degrees (190°) to two hundred degrees (200°) F. fixed temperature heat detectors shall be installed in accordance with § 13.8.10.4.2.3. Smoke detectors shall be installed as required in all common corridors, all elevator machine rooms, all elevator landings, and on the first floor, every third floor thereafter and at the top of every stairwell. Stairwell smoke detector activation shall not cause an evacuation signal to be sounded however automatic notification of the fire department shall occur. Where there is a constantly attended location within the building, an alarm signal shall be transmitted to this location whenever a stairwell smoke detector is activated. Speakers shall be provided so as to be effectively heard above all other sounds by all occupants in every occupied space on each floor or fire area. Audibility levels and voice intelligibility levels shall be as required by NFPA 72. All circuitry to all manual fire alarm boxes, automatic heat detectors, and smoke detectors, sprinkler or standpipe flow switches, all fire communication speakers, and firefighter's and emergency telephones shall be supervised. An open or ground in any of this circuitry or a failure of any essential part of the amplifier shall activate audible and visual trouble signals at the fire command center. Standby power shall be provided as prescribed in § 13.8.10.4.2.1.

**(Add) 13.8.10.4.3.5**

EXCEPTION: A radio repeater system compatible with the local fire department's equipment may be installed instead of a two-way telephonic communication system with the written approval of the AHJ. Any equipment installed pursuant to this section shall have its operating and/or annunciation controls located at the fire command center. Standby power shall be provided for this system capable of maintaining complete operation for sixty (60) hours.

**(Add) 13.8.10.4.4                      Multiplex Systems, Addressable, and Addressable-Analog Systems**

**(Add) 13.8.10.4.4.1**

Active polling multiplex systems, addressable and addressable analog systems shall be permitted. Microprocessor, software or wiring failures shall indicate a trouble condition specific to the failure. Multiplexing of analog and digital signals shall be provided between the Central Processing Unit [CPU] and circuit interfaces. Transponders, Data Gathering Panels, Nodes, etc. shall communicate with the Central Processing Unit [CPU] via a Class "A", Style 7 Signaling Line Circuits [SLC] meeting the requirements for survivability as described in NFPA 72. The Signaling Line Circuit for all other devices shall be wired Class "A" [Style 6, NFPA 72]. All initiating device circuits [IDC] and notification appliance circuits shall be wired in a Class "A" fashion. Signaling Line Circuits shall be protected from wire to wire short circuit faults by the use of fault isolation modules. Fault isolation modules or bases shall be installed on all SLCs to prevent a wire-to-wire short circuit fault from disabling more than twenty-five (> 25) devices on the circuit. In no case shall the length of and area disabled by a wire to wire short circuit fault exceed 200 ft. (60.96 m.) in any one direction. When a common SLC serves more than one floor of a building, fault isolation modules shall be installed to prevent a wire to wire short circuit fault on one floor from disabling the SLC on any other floor. All wiring shall be as required by the manufacturer following the color code requirements of § 13.8.10.6, and, a minimum of #16 gauge wire. All remote data gathering panels, remote fire alarm control units and devices shall derive their power from the CPU or from self-contained power supplies; the power supply shall be subject to the same primary and secondary power requirements as the main fire alarm control unit. The CPU, remote interface panels, modules, and the system devices shall be UL listed or FMG approved and cross-listed for compatibility as a system by the fire alarm control unit manufacturer. Devices using self-contained addressable modules (i.e. smoke detectors, manual fire alarm boxes, etc.) shall be UL listed or FMG approved for the desired application and shall meet all requirements of this code for such devices. Removal of any such device shall cause a trouble signal specific to the affected device and shall not affect the operation of other devices on the circuit. Devices monitored or controlled by an addressable module separate from the device shall have the location of the addressable module plainly displayed at the CPU. All addressable or addressable-analog fire alarm control units shall be programmed such that when an alarm is silenced or acknowledged, the municipal connection shall be restorable.

**(Add) 13.8.10.4.5.1**

A Low-Power Radio (Wireless) System shall be defined as a system or part of a system that can transmit and receive signals without the aid of wire. It can consist of wireless control panels, receivers, repeaters, initiating devices, audible and/or visible notification appliances, monitor modules and control modules.

**(Add) 13.8.10.4.5.1.1**

Low-Power Radio (Wireless) Systems shall comply with all provisions of this Chapter. All systems shall be UL listed as a commercial or industrial fire alarm system – systems listed only for household or residential applications shall not be permitted.

Exception: Wireless components of the system shall not be required to comply with section 13.8.10.6; however, any hard-wired component(s) of the system including initiating device circuits, notification appliance circuits, signaling line circuits or auxiliary circuits shall fully comply with section 13.8.10.6.

Exceptions:

1. Wiring between wireless control panel(s) and remote annunciation may be #18 AWG solid unlimited footage if installed in conduit or type MC Cable.
2. Wiring between wireless control panel(s) and remote receiver(s) may be #18 AWG solid unlimited footage if installed in conduit or type MC Cable.
3. Wiring from a transmitter to a single device shall be limited to twenty feet (20') and may be #18 AWG solid if installed in conduit or type MC Cable.

**(Add) 13.8.10.4.5.1.2 Definitions:**

**(1) Low-Power Radio (Wireless) Control Panel:** A component in the system that transmits, receives, and/or processes wireless signals.

**(2) Low-Power Radio (Wireless) Receiver:** A stand-alone (field located) device, or an integral part of the fire alarm control panel that receives wireless signals.

**(3) Low-Power Radio (Wireless) Repeater:** A component used to relay signals between receivers, wireless control panels, or wireless initiating devices, or all the above. The wireless repeater can be capable of providing supervised outputs for both control and restoring functions.

**(4) Low-Power Radio (Wireless) Transmitter – Initiating Device:** Any device that communicates with associated control/receiving equipment via low power radio signals.

**(5) Pin Point Sensor Identification:** All wireless initiating devices and repeaters must be individually addressed to the receiver/control unit. No zoning or grouping of wireless initiating devices or repeaters shall be allowed without written approval of the AHJ.

**(6) Class “A” Signaling:** Defined as creating and providing dual communication paths from repeater to repeater, repeater to control panel, receiver to control panel, or any combination of repeaters, receivers or control panels whereby the outage of a single repeater and/or receiver at any given time shall not compromise the signaling integrity of the installation.

**(Add) 13.8.10.4.5.2 Performance Requirements:**

1. **Low-Power Radio (Wireless) Control Panel:** The Control Panel shall be an UL Listed 864 (UOJZ) Control Units/System and must comply with the provisions of NFPA 72 § 6.16.

a. The low power radio transmission from the Control Panel shall be in compliance with the applicable section of FCC Part 15. If there is interference to the system causing multiple false alarms or numerous trouble indications that cannot be resolved to the satisfaction of the AHJ, the wireless system shall be removed and a hard-wired system installed in compliance with the Code. The contractor shall notify the owner of this requirement in writing prior to the installation of the wireless system.

b. The Control Panel shall have the capability of sending command signals to wireless repeaters and/or repeaters or wireless control modules for the activation of required functions within the building(s) unless accomplished by hard-wired methods.

c. The Control Panel shall have the capability of sending command signals to wireless repeaters and/or receivers or wireless control modules for the restoring of the control functions performed by the repeaters or modules unless accomplished by hard-wired methods.

d. The Control Panel shall have the capability of connection as part of its UL Listing, to a municipal connection in accordance with § 13.8.10.7 for municipally connected systems.

e. The Control Panel shall have the capability of acknowledging an alarm and restoring the municipal connection while maintaining all other functions, if a municipally connected system.

f. The Control panel shall have its means of acknowledgement, silence, activation, reset, or any other functions which require manual intervention to be performed by either key switches or other controls secured behind a key-locked cover to prevent unauthorized operation.

g. The Control Panel shall have the ability to maintain and recall alarm history of the system.

h. The Control Panel shall display and identify all alarm signals from the wireless initiating devices inclusive of alarm, type and exact location.

i. The maximum allowable response delay from activation of an initiating device to activation of required alarm functions shall be ten (10) seconds.

j. The Control Panel shall display any trouble signal associated with a wireless repeater and/or receiver or initiating device inclusive of tamper, low battery, end of line violation, AC power loss to a repeater and/or receiver, interference, and test timer reporting.

- k. For local systems, the Control Panel and all devices and appliances shall provide twenty-four (24) hours of battery backup in normal standby mode, followed by five (5) minutes of alarm operation.
- l. For municipally connected systems, the Control Panel and all devices and appliances shall provide sixty (60) hours of battery backup in normal standby mode, followed by five (5) minutes of alarm operation.
- m. The battery charger shall be listed to charge the batteries in accordance with NFPA 72.
- n. A smoke detector shall be installed in the vicinity of all wireless control panels in accordance with § 13.8.10.5.13.

2. **Low-Power Radio (Wireless) Repeater:** The Repeater(s) shall be UL Listed 864 (UOXX), Control Unit Accessories/Systems and must comply with the provisions of NFPA 72 § 6.16.

- a. The low power radio transmission from the repeater shall be in compliance with the applicable section of FCC Part 15.
- b. The repeater shall be listed for use with the listed control panel.
- c. When repeaters are used, the system must provide for a Class “A” signaling as defined in § 13.8.10.4.5.1.2(5). An alternative communications path shall exist between the wireless control panel and peripheral devices used to establish initiation, indication, control, and annunciation.
- d. When the means of transmission to a wireless control panel is accomplished by means other than air, such as through wiring, the requirements of § 13.8.10.6 shall apply. A redundant path must be established requiring the installation of a second repeater in order to establish a redundant communication path back to the control panel.
- e. Reception of an unwanted (interfering) signal, which is continuous for a period of twenty (20) seconds or more, shall cause the repeater to report this condition to the control panel at intervals not exceeding two hundred (200) seconds.
- f. Loss of primary AC power to a repeater shall cause a distinct indication at the control panel and shall latch until a normal condition is restored.
- g. For local systems, the repeater shall provide twenty-four (24) hours of battery backup in normal standby mode, followed by five (5) minutes of alarm operation.
- h. For municipally connected systems, the repeater shall provide sixty (60) hours of battery backup in normal standby mode, followed by five (5) minutes of alarm operation.
- i. A smoke detector shall be installed in the vicinity of all wireless repeaters in accordance with § 13.8.10.5.13.

3. **Low-Power Radio (Wireless) Receiver:** The Receiver(s) shall be UL Listed 864 (UOXX), Control Unit Accessories/Systems and must comply with the provisions of NFPA 72 § 6.16.

- a. The low power radio transmission from the receiver shall be in compliance with the applicable section of FCC Part 15.
- b. The receiver shall be listed for use with the listed control panel.
- c. When the means of transmission from a field located receiver to a wireless control panel is accomplished by means other than air, such as through wiring, the requirements of § 13.8.10.6 shall apply.
- d. When stand-alone receivers are used, the system must provide for a Class “A” signaling as defined in § 13.8.10.4.5.1.2(5). An alternative communications path shall exist between the wireless control panel and the stand-alone receiver(s) used to establish initiation, indication, control, and annunciation.  
Exception: Class “A” signaling shall not be required on local fire alarm systems meeting the requirements of § 13.8.10.4.1 where the receiver is hardwired to the control panel.
- e. A redundant path must be established requiring the installation of a second receiver at each receiving point in order to establish a redundant communication path back to the control panel.  
Exception: A second redundant receiver shall not be required on local fire alarm systems meeting the requirements of § 13.8.10.4.1 where the receiver is hardwired to the control panel.
- f. Reception of an unwanted (interfering) signal, which is continuous for a period of twenty (20) seconds or more, shall cause the receiver to report this condition to the control panel at intervals not exceeding two hundred (200) seconds.
- g. Loss of primary AC power to a receiver shall cause a distinct indication at the control panel and shall latch until a normal condition is restored.
- h. For local systems, the receiver shall provide twenty-four (24) hours of battery backup in normal standby mode, followed by five (5) minutes of alarm operation.
- i. For municipally connected systems, the receiver shall provide sixty (60) hours of battery backup in normal standby mode, followed by five (5) minutes of alarm operation.
- j. A smoke detector shall be installed in the vicinity of all receivers in accordance with § 13.8.10.5.13.

4. **Low-Power Radio (Wireless) Smoke Detector:** Smoke detectors shall be UL Listed 268 (UROX), Smoke – Automatic Fire Detectors.

- a. The low power radio transmission from the smoke detector shall be in compliance with the applicable section of FCC Part 15.
- b. The smoke detector shall be listed for use with the listed control panel.
- c. Smoke detectors shall have the ability to send initial and repeat alarms.

- d. Smoke detectors shall have the ability of sending a supervisory signal indicating the obscuration level has reached a threshold that may cause a false alarm if maintenance is not performed.
- e. Smoke detectors shall have the ability of manually initiating a test routine to verify signal strength to the nearest repeater, receiver or control panel.
- f. The minimum battery life of a smoke detector shall be one (1) year under normal operation.
- g. In the event of a low battery, the smoke detector must be able to remain operable for a minimum of seven (7) days and this condition must be displayed at the control panel indicating a low battery signal and the exact device.
- h. Low battery signals shall be sent no less than once every four (4) hours for a minimum of seven (7) days.
- i. Smoke detectors shall be supervised for tamper (removal). This signal shall be sent to the control panel and indicate a tamper condition and the exact device. This condition must continue to report no less than every two hundred (200) seconds or latch until restored.
- j. Smoke detectors installed on a removable ceiling tile must have the ability to indicate the removal of the tile through a tamper indication.
- k. Smoke detectors shall send test signals not less than once every ninety (90) minutes.

**5. Low-Power Radio (Wireless) Heat Detector:** Heat detectors shall be UL Listed 521 (UQGD), Heat – Automatic Fire Detectors.

- a. The low power radio transmission from the heat detector shall be in compliance with the applicable section of FCC Part 15.
- b. The heat detector shall be listed for use with the listed control panel.
- c. Heat detectors shall have the ability to send initial and repeat alarms.
- d. Heat detectors shall be of the following types:
  - 1. Combination rate-of-rise and one hundred thirty-five degree (135°) to one hundred forty degree (140°) F fixed temperature.
  - 2. Automatic one hundred ninety degree (190°) to two hundred degree (200°) F fixed temperature.
- e. Heat detectors shall have the ability of manually initiating a test routine to verify signal strength to the nearest repeater, receiver or control panel.
- f. The minimum battery life of a heat detector shall be one (1) year under normal operation.
- g. In the event of a low battery, the heat detector must be able to remain operable for a minimum of seven (7) days and this condition must be displayed at the control panel indicating a low battery signal and the exact device.
- h. Low battery signals shall be sent no less than once every four (4) hours for a minimum of seven (7) days.
- i. Heat detectors shall be supervised for tamper (removal). This signal shall be sent to the control panel and indicate a tamper condition and the exact device. This condition

must continue to report no less than every two hundred (200) seconds or latch until restored.

j. Heat detectors installed on a removable ceiling tile must have the ability to indicate the removal of the tile through a tamper indication.

k. Heat detectors shall send test signals not less than once every ninety (90) minutes.

**6. Low-Power Radio (Wireless) Supervised Normally-Open Monitor Modules:** Monitor modules shall be UL Listed 864 (UOXX), Control Unit Accessories System.

a. The low power radio transmission from the monitor module shall be in compliance with the applicable section of FCC Part 15.

b. The monitor module shall be listed for use with the listed control panel.

c. The monitor module shall have the ability to send both initial and repeat alarms.

d. Monitor modules shall be connected to normally open supervised contacts.

e. A single module can only monitor one (1) normally open contact or device.

f. Monitor modules shall automatically reset.

g. The line integrity from the monitor module to the connected device shall be supervised and shall comply with 13.8.10.6. The wiring between the module and the connected device shall be in accordance with the manufacturer's recommendation.

h. Violation of the circuit shall cause a transmission to the control panel at a minimum of every two hundred (200) seconds.

i. The minimum battery life of a monitor module shall be one (1) year under normal operating conditions.

j. In the event of a low battery, the monitor module must remain operative for a minimum of seven (7) days and this condition must be displayed at the control panel indicating a low battery condition and the exact device.

k. Low battery signals shall be sent no less than once every four (4) hours for a minimum of seven (7) days.

l. Monitor modules shall have the ability of manually initiating a test routine to verify the signal strength to the nearest repeater and/or receiver or control panel.

m. Monitor modules must be supervised for removal and a signal must be sent to the control panel indicating a tamper condition and the exact device. This condition must continue to report not less than every two hundred (200) seconds or latch until restored.

n. Monitor modules shall send test signals not less than once every ninety (90) minutes.

**7. Low-Power Radio (Wireless) Manual Fire Alarm Box:** Manual Fire Alarm Boxes shall be dual-action and UL Listed 38 (UNIU), Boxes Non-Coded.

a. The low power radio transmission from the manual fire alarm box shall be in compliance with the applicable section of FCC Part 15.

b. The manual fire alarm box shall be listed for use with the listed control panel.

- c. The manual fire alarm box shall have the ability to send both initial and repeat alarms.
- d. The minimum battery life of a manual fire alarm box will be one (1) year under normal operating conditions.
- e. In the event of a low battery, the manual fire alarm box shall remain operable for a minimum of seven (7) days, and transmit a signal to the control panel indicating a low battery condition and the exact device.
- f. Manual fire alarm boxes shall have the ability to manually initiate a test routine to verify signal strength at the nearest repeater and/or receiver or control panel.
- g. Manual fire alarm boxes must be supervised for removal and a signal must be sent to the control panel indicating a tamper condition and the exact device. This condition must continue to report not less than every two hundred (200) seconds or latch until restored.
- h. Manual fire alarm boxes shall send test signals not less than once every ninety (90) minutes.

**(Add) 13.8.10.4.5.3 DESIGN, INSPECTION, TESTING & CERTIFICATION**

- 1. The system shall be installed in accordance with the manufacturer's specifications and all local code requirements.
- 2. Submitted with the AHJ documents for plans review shall be a drawing indicating the type and quantity of repeaters and/or receivers. Inclusive shall be a diagram of the repeater and/or receivers and the Class "A" Signaling verification in the design, as defined in § 13.8.10.4.5.1.2(5).
- 3. The installing contractor shall be certified by the equipment manufacturer or manufacturer's representative and such certification shall be filed with the plan review documents.
- 4. Operating & Equipment Manuals shall be located at the protected premise at a location approved by the local AHJ.
- 5. The system acceptance testing shall be conducted in accordance with the manufacturer's requirements, NFPA 72, Chapter 10, Table 10.4.2.2(22) and § 13.8.10.8, System Acceptance.
- 6. Periodic testing shall be done in accordance with the manufacturers written documentation, and at least quarterly in accordance with § 13.8.10.9, Maintenance of the System.

**(Add) 13.8.10.5 Equipment**

**(Add) 13.8.10.5.1**

All components of the fire alarm system including, but not limited to control equipment, battery(s) and charger, annunciator, manual fire alarm boxes, automatic heat detectors, smoke detectors, sprinkler flow switches, the extinguishing system switches, door holders, and alarm notification appliances shall be listed by UL or approved by FMG.

**(Add) 13.8.10.5.2**

Manual fire alarm boxes shall be double action, color red, key locked and shall be keyed the same as the fire alarm control unit door lock. Manual fire alarm boxes shall be installed in accordance with NFPA 72 section 5.12.

Exception # 1: In residential occupancies without a common corridor(s) and where multiple dwelling units egress into a common stair enclosure, the manual fire alarm box may be located in the common area within the stair enclosure.

Exception # 2: In residential occupancies such as dormitories, hotels & motels or apartment buildings no more than two ( $\leq 2$ ) stories in height where each guest room or dwelling unit has its own independent and direct exit to a public way, manual fire alarm boxes may be omitted.

**(Add) 13.8.10.5.2.1**

Key-operated manual fire alarm boxes, lockable enclosures, break-glass enclosures or other tamper-resistant devices may be installed in place of or in addition to standard manual fire alarm boxes in areas deemed prone to false alarms, subject to the written approval of the AHJ.

**(Add) 13.8.10.5.2.2**

Manual fire alarm boxes shall also be installed in theaters on all stages, all fixed lighting control areas and all projection booths.

**(Add) 13.8.10.5.3**

Notification appliances shall be installed in accordance with NFPA 72 Chapter 7. Mini horns (or speakers, if applicable) shall be installed in all sleeping rooms, excluding healthcare occupancies and detention and correction occupancies. Mini horns may be omitted from sleeping rooms in residential board and care occupancies with the written approval of the AHJ.

Exception: Mini horns shall not be required in existing buildings with existing fire alarm systems if the sound levels required by NFPA section 7.4.4.1 are met by other system audible notification appliances. A licensed professional engineer shall provide certification of sound levels to the AHJ upon request. In existing buildings, sounder bases shall be permitted, in lieu of mini horns, only if they are listed as notification appliances, are wired and operate in a Class A / Style Z fashion, sound the temporal 3 evacuation signal, and are completely supervised.

**(Add) 13.8.10.5.3.1**

All audible notification appliances installed after February 20, 2004 and used for building evacuation shall be of the distinctive three-pulse temporal fire alarm evacuation signal.

Exception: This evacuation signal shall not be used where, with the approval of the AHJ, the planned action during a fire emergency is not evacuation, but rather is the relocation of occupants or their protection in place as directed by the building fire protection plan or as directed by the fire fighting personnel.

**(Res) 13.8.10.5.3.2**

Reserved.

**(Res) 13.8.10.5.3.3**

Reserved.

**(Add) 13.8.10.5.4**

Combination rate of rise and one hundred thirty-five degree (135°) to one hundred forty degree (140°) F. fixed temperature heat detectors shall be located in all general storage rooms<sup>2</sup>, all utility, electrical, and mechanical equipment rooms, all janitor closets, trash collection rooms, maintenance shops, locker rooms, classrooms, projection booths, above stage areas, below any accessible stage areas, all integral or attached garages and all elevator hoistways.

---

<sup>2</sup> For the purpose of this section, closets having an area of more than 24 ft<sup>2</sup> (2.23 m<sup>2</sup>) shall be protected as storage rooms.

**(Add) 13.8.10.5.4.1**

Combination rate of rise and one hundred thirty-five degree (135°) to one hundred forty -degree (140°) F. fixed temperature heat detectors shall be installed in spaces of 24 in. (0.61 m.) or more above suspended ceilings<sup>3</sup> and installed in accordance with NFPA 72, and shall be on a separate zone from the area below the ceiling.

**(Add) 13.8.10.5.4.2**

Automatic fixed temperature heat detectors with a rating of one hundred ninety degree (190°) to two hundred degree (200°) F. shall be installed in all kitchens appliances, all boiler or furnace rooms, all laundry rooms and all accessible attics or where permanent (hard-wired or direct-piped) cooking or heating equipment is located.

Exception # 1: Kitchens in residential dwelling units utilizing residential cooking appliances shall be protected by a combination rate of rise and one hundred thirty-five degrees (135°) to one hundred forty degrees (140°) F. fixed temperature heat detector in lieu of a fixed temperature heat detector. Previously installed one hundred ninety degree (190°) to two hundred degree (200°) F fixed temperature heat detectors shall be permitted to remain and are deemed compliant.

Exception # 2: Individual permanent heating units located within residential dwelling units shall be protected by a combination rate-of-rise and one hundred thirty-five degree (135°) to one hundred forty degree (140°) F fixed temperature heat detector. Previously installed one hundred ninety degree (190°) to two hundred degree (200°) F fixed temperature heat detectors shall be permitted to remain and are deemed compliant.

Exception # 3: This requirement shall not apply to residential clothes dryers that are located within residential dwelling units.

Exception # 4: Performance-based designs in accordance with 72:5.3 shall be an acceptable method of specifying the type and/or temperature rating of the required heat detector.

**(Add) 13.8.10.5.4.3**

Smoke detectors shall be installed in all common corridors, in stairwells at each floor level, in all elevator machine rooms and all elevator landings. See also Section 13.8.10.5.13.

---

<sup>3</sup> For the purpose of this section, a suspended ceiling is defined as a grid of metal channels or T-bars suspended from the structure above for acoustic tiles or lay-in panels.

**(Add) 13.8.10.5.4.4**

Rate anticipation detectors, line detectors, beam detectors or other type detectors listed for these applications may be installed in situations where physical, environmental or other conditions would render other detectors impractical.

**(Add) 13.8.10.5.4.5**

Additional detectors shall be required in areas proven essential to life safety by the AHJ, and shall be in compliance with §§ 13.8.10.5 and 13.8.10.6.

**(Add) 13.8.10.5.4.5.1**

Heat detector and smoke detector spacing shall not exceed the linear maximum indicated for that particular device by an UL or FMG approved testing laboratory except as allowed by NFPA 72. In locations where heat detectors and/or smoke detectors are required, the type and/or temperature rating of the heat detector or smoke detector may be modified by the AHJ if, in the authority's judgment, the type or temperature setting of the unit is unsuitable due to environmental or structural conditions unique to that location or multiple nuisance alarms.

**(Add) 13.8.10.5.4.6**

Where subject to mechanical damage, an initiating device shall be protected. A mechanical guard used to protect a smoke or heat detector shall be listed for use with the detector.

**(Add) 13.8.10.5.4.7**

Areas in buildings protected by an approved system of automatic sprinklers (NFPA 13, 13R or 13D systems only), which is interconnected to the fire alarm system, shall be exempt from the requirements for heat detectors. This exemption shall not apply to the requirements for smoke detectors.

**(Add) 13.8.10.5.4.7.1**

Whenever automatic sprinklers are installed above suspended ceiling assemblies as a replacement for heat detectors required by § 13.8.10.5.4.1, the requirement for separate zoning shall not be required.

**(Add) 13.8.10.5.4.8**

Whenever total (complete) coverage is required by this Code or any other code, protection above suspended ceiling assemblies shall be in accordance with §§ 13.8.10.5.4.1.

**(Add) 13.8.10.5.4.9**

In any occupancy where a single-station AC smoke alarm with battery back-up is required, an addressable system smoke detector with audible sounder base programmed as "local" shall be permitted as a substitute for the local smoke alarm.

**(Add) 13.8.10.5.4.10**

Where carbon monoxide detectors are required by the RILSC occupancy chapters, the following modifications shall apply:

- Dormitories, Hotels & Motels: In addition, every hotel or dormitory shall be provided with either hardwired or wireless carbon monoxide (CO) detectors installed in accordance with NFPA 720 in every guest room and every living area and sleeping room within a guest suite where there is a fuel-burning appliance or fireplace located within the room. Carbon monoxide (CO) detectors shall not be required where fuel-burning appliances or fireplaces are remotely located from sleeping rooms or separated from the remainder of the building by fire barriers, smoke partitions or smoke barriers.
- Apartment Buildings: In addition, every apartment building shall be provided with either hardwired or wireless carbon monoxide (CO) detectors installed in accordance with NFPA 720 where there is a fuel-burning appliance or fireplace located within the dwelling unit. Carbon monoxide (CO) detectors shall not be required where fuel-burning appliances or fireplaces are remotely located from sleeping rooms or separated from the remainder of the building by fire barriers, smoke partitions or smoke barriers.
- Lodging or Rooming Houses: In addition, every lodging or rooming house shall be provided with either hardwired or wireless carbon monoxide (CO) detectors installed in accordance with NFPA 720 where there is a fuel-burning appliance or fireplace located within the sleeping room. Carbon monoxide (CO) detectors shall not be required where fuel-burning appliances or fireplaces are remotely located from sleeping rooms or separated from the remainder of the building by fire barriers, smoke partitions or smoke barriers.

- **Residential Board and Care Occupancies:** In addition, every residential board and care occupancy shall be provided with either hardwired or wireless carbon monoxide (CO) detectors installed in accordance with NFPA 720 in every sleeping room where there is a fuel-burning appliance or fireplace located within the sleeping room or dwelling unit. Carbon monoxide (CO) detectors shall not be required where fuel-burning appliances or fireplaces are remotely located from sleeping rooms or separated from the remainder of the building by fire barriers, smoke partitions or smoke barriers.

**(Add) 13.8.10.5.5**

Waterflow switches shall be provided on all sprinkler systems and standpipes installed in all buildings required by this Code to have a fire alarm system. All flow switches shall have a retard feature to prevent false alarms due to a water surge. A flow switch shall be installed in the main riser so that any flow of water in the system will activate this device. This flow switch shall be on a separate zone and will be designated "sprinkler water flow" or "sprinkler/standpipe water flow". Flow alarm switches on sprinkler systems and wet standpipe systems shall be installed so that they cannot be disconnected from the fire alarm system by the operation of a shutoff valve. Sprinkler systems shall be zoned hydraulically as per fire alarm zones with an additional flow switch connected to each fire alarm zone. An inspector's test valve shall be installed in accordance with 13:8.16.4 so as to properly test each required flow switch. Any alarm originating from a sprinkler head or a Class II or Class III standpipe connection<sup>4</sup> shall provide two (2) separate indications on the system annunciator, one to indicate "sprinkler/standpipe" and one to indicate the activated zone. All Class II or Class III standpipe connections on each floor shall be wired with flow switches. The flow switches shall alarm the zone where the standpipe connection is located.

**(Add) 13.8.10.5.5.1**

Exception: Multiplex, addressable and addressable-analog fire alarm systems shall indicate the zone using the square footage of each floor protected by the automatic sprinkler zone as allowed in NFPA 13 - 2002 edition.

**(Add) 13.8.10.5.5.2**

Whenever any supervised automatic sprinkler waterflow alarm signal is required by this Code or any other code to notify the fire department, the requirements of § 13.8.10.7 shall apply

---

<sup>4</sup> NFPA 14:3.3.27

**(Add) 13.8.10.5.6**

Valves on connections to water supplies, sectional control and isolation valves, and other valves in supply pipes to sprinklers and other fixed water-based fire suppression systems shall be supervised by tamper switches. The tamper switch shall activate the fire alarm system sprinkler supervisory signal any time the valve is in an "off-normal" condition and the water supply is shut off or interrupted in accordance with NFPA 13 and 72:6.8.5.7. An alarm condition shall not occur unless specifically requested and authorized by the AHJ.

**(Add) 13.8.10.5.6.1**

Whenever any supervised automatic sprinkler supervisory signal is required to sound and be displayed at a location that is constantly attended by qualified personnel, signals that sound and are displayed in a public or common area of the building shall be deemed to be in compliance. In jurisdictions capable of receiving multiple-zone signaling by way of radio master boxes, digital receivers or other approved methods, signaling shall be provided if required by the AHJ.

**(Add) 13.8.10.5.7**

An alarm-initiating switch shall be provided on all required manual or automatic extinguishing systems, in addition to sprinkler systems, in buildings required by this code to have a fire alarm system. This switch shall activate the building's fire alarm system any time the extinguishing system is activated and shall be on a separate zone.

**(Add) 13.8.10.5.8**

A building having a required fire alarm system, which is more than 20,000 ft<sup>2</sup> (1,858.06 m<sup>2</sup>) in total area or which extends to more than one floor, shall have a fire alarm annunciator to visually indicate the location of an alarm within the building located inside the main entrance of the building or in a location as approved by the AHJ. Each floor shall be separately zoned. If a floor area exceeds 20,000 ft<sup>2</sup> (1,858.06 m<sup>2</sup>), additional zoning shall be provided. In no case shall the length of any zone exceed 200 ft. (60.96 m.) in any direction. Fire alarm annunciator visible indicators can not be extinguished until the system is reset. Other identifying devices such as a computer printout are acceptable in lieu of an annunciator, subject to approval of the AHJ. A directory or zone map as required by the AHJ shall be provided for every zoned fire alarm system. Fire alarm annunciator location shall meet the requirements of the AHJ. If the fire alarm annunciator is a remote fire alarm control unit, it shall be key-locked and contain all system functions including a trouble light and audible trouble signal with silence switch, system reset, and system silence with resound and cover all required zones. Annunciation of alarm and trouble indications will be accomplished with the use of separate zone wiring and not with the use of multiple

contact initiating devices. The fire alarm annunciation shall be by floors or locations and not by a zone number only. In the event that a building has a fire pump(s) and/or emergency generator(s), provisions shall be made at the fire alarm control unit and/or fire alarm annunciator for visible/audible indication of generator or fire pump operation. Activation of a fire pump or generator shall not cause an alarm condition or notify the fire department. Power-off switches for any required generator or fire pump shall be monitored at the fire alarm control unit, fire alarm annunciator and at a constantly attended location within the building, if so provided.

**(Add) 13.8.10.5.8.1**

In complexes consisting of multiple building clusters, a common municipal fire department connection may, at the discretion of the AHJ, be used providing a system-powered one million (1,000,000) candle power strobe light shall be installed on each building so as to be visible at the master box or a central location.

**(Add) 13.8.10.5.9**

All required fire alarm systems shall be connected to an approved power source in the building and in addition shall have automatically charged storage type battery standby power (dry cell shall not be used) of sufficient capacity to operate the entire system as required by § 13.8.10.4 for the type of system after the principal source of power has failed. The fire alarm system must be able to function and sound the notification appliances for at least five ( $\geq 5$ ) minutes following the required standby period.

**(Add) 13.8.10.5.9.1**

Systems utilizing an emergency generator as a source of standby power shall not be exempt from the above requirements for battery standby power.

**(Add) 13.8.10.5.10**

In all buildings having a fire alarm system, the fire alarm system shall be interconnected to the building's heating, ventilation and air conditioning [HVAC] line voltage controls so that the fan(s) supplying 2,000 ft<sup>3</sup>/min. [cfm] (56.63 m<sup>3</sup>/min.) or greater capacity of any ventilating system not used for pressurization of a fire safe area shall automatically shut down any time, other than drills or when testing, that any initiating device connected to the fire alarm system is activated. If duct-type smoke detectors are installed in HVAC systems, the duct-type smoke detectors shall be connected to the fire alarm control unit to signal an audible and visual supervisory signal at the fire alarm control unit and annunciator. An alarm condition shall not occur unless specifically requested and authorized by the AHJ.

**(Add) 13.8.10.5.10.1**

Exception: Where total coverage smoke detection is installed in all areas of the smoke compartment served by the return air system, installation of air duct detectors in the return air system shall not be required, provided their function is accomplished by the design of the area detection system.

**(Add) 13.8.10.5.10.1.1**

HVAC shut-down may be waived by the AHJ in select cases such as stand-alone units for data processing rooms, chemical clean rooms or areas where automatic shut-down would be detrimental to the room's use or operation.

**(Add) 13.8.10.5.10.2**

Where installation of automatic smoke area detection is impractical due to ambient conditions, automatic heat detection shall be permitted. In areas covered by automatic sprinkler systems, automatic heat detection shall not be required.

**(Add) 13.8.10.5.10.3**

Exception: High-rise buildings. See § 13.8.10.4.3.3.5.

**(Add) 13.8.10.5.10.4**

A manual override for the HVAC shut-down, elevator recall, stairwell pressurization, smoke venting and smoke control systems control feature shall be provided in the fire alarm control unit for drills and testing of the fire alarm system.

**(Add) 13.8.10.5.11**

Any required smoke and/or fire doors in any building required by this Code to have a fire alarm system may be held open only if equipped with magnetic or electro-mechanical door holders installed so as to automatically release the doors any time the alarm system within the building is activated. System smoke detectors connected to the alarm system within the building shall be installed proximate to every smoke and/or fire door that is held open.

**(Add) 13.8.10.5.12**

Any building that has a fire alarm system required by this Code that requires emergency egress and relocation fire drills to be held shall have a key operated drill switch to activate the notification appliances in the building, installed at a remote location outside of the fire alarm control unit, subject to the approval of the AHJ. Drill switches mounted on the outside of the fire alarm control unit shall be deemed acceptable provided that entry into the fire alarm control unit is not required to operate the drill switch. The drill switch key shall be a different key from the fire alarm control unit key.

**(Add) 13.8.10.5.12.1**

In the case of a day care or school being located in building with other occupancies, identical supplemental notification appliances that sound only in the day care or the school are permissible. Specifically, if the building fire alarm system control unit is not capable of providing a segregated notification signal to the occupancy requiring fire drills, alternative notification appliances may be utilized for drill signaling. However, these alternative notification devices must be installed and maintained at the direction and to the satisfaction of the State Fire Marshal's office. These devices must also be the same devices as those in the building's fire alarm system and positioned in substantially the same locations.

**(Add) 13.8.10.5.13**

All spaces where fire alarm control units or remote fire alarm control unit equipment (such as auxiliary power supplies, remote signaling transmitters or SNAC units) are located shall be protected with a smoke detector located proximate to the control equipment.

**(Add) 13.8.10.5.14**

All new elevators and all existing fully automatic elevators shall be equipped with Phase I Emergency Recall Operation and Phase II Emergency In-Car Operation, installed in accordance with the operational provisions of **72:6.15.3** and ANSI/ASME A17.1-2000, *Safety Code for Elevators and Escalators*. Elevators shall be recalled to floors or levels as designated by the AHJ on any alarm. In the event that the designated level is the zone or area in alarm, the elevators shall return to an approved alternate level where they shall be under the exclusive control of the fire department for the duration of the alarm condition.

Exemption: Existing elevators with a travel distance of less than thirty feet (< 30') shall not be required to comply with this section.

**(Add) 13.8.10.5.14.1**

These requirements shall not apply to elevators located in private one- and two-family dwellings or three-family apartment buildings.

**(Add) 13.8.10.5.15**

In any buildings covered by this chapter having an elevator(s), required sprinkler coverage by this or any other code of any elevator machine room and any elevator hoistway shall not be deleted unless approved by the State Fire Marshal. Any deleted sprinklers shall be replaced with combination rate of rise and fixed temperature heat detectors rated at one hundred thirty-five degrees (135°) to one hundred forty degrees (140°) F. in the hoistway and smoke detectors in the machine room, installed at the direction and to the satisfaction of the AHJ.

**(Add) 13.8.10.5.16**

All fire alarm control units installed pursuant to §§ 13.8.10.4.2, 13.8.10.4.3 or 13.10.4.4 shall be configured or programmed such that when an alarm signal is silenced or acknowledged, the municipal connection shall be restorable. This feature shall not require any password, code or other programming operations by fire department personnel in charge of the scene to operate, reset or disconnect the fire alarm system.

**(Add) 13.8.10.6 Installation And Wiring**

**(Add) 13.8.10.6.1**

All fire alarm system wiring within a building and between buildings in multiple building clusters shall be installed in metal raceway with steel couplings and box connectors or type MC cable rated as FPL and 2-hour fire rated for penetrations by UL. Cast "LB" or "T" type connectors shall be permitted. An equipment-bonding conductor shall be provided in all flexible metallic raceways.

**(Add) 13.8.10.6.1.1**

Exception: Wiring between buildings may be buried if enclosed in PVC conduit using approved IMSA cables, or installed either using approved direct burial type MC cable or run aerially with approved IMSA shielded cable(s) subject to approval by the AHJ.

**(Add) 13.8.10.6.2**

Wiring installation shall meet the following requirements:

**(Add) 13.8.10.6.2.1**

All conductors shall be minimum #16 gauge solid copper, type thhn, thwn or tfn. All wiring shall be run continuously from device to device. With the approval of the AHJ, junction points may be made due to construction hardships where a continuous run would be impractical are met.

**(Add) 13.8.10.6.2.2**

The minimum separation between the outgoing and return circuits shall be a minimum of 1 ft. (0.30 m.) vertically and 4 ft. (1.22 m.) horizontally in accordance with the provisions of **72:6.4.2.2.2**.

Exception: This requirement shall not apply to aerial installations, underground installations or those installations imbedded in slab construction.

**(Add) 13.8.10.6.2.3**

A cable-cutting tool with controlled depth of cut shall be used in all MC cable installations.

**(Add) 13.8.10.6.2.4**

UL listed type MC cable connectors with insulated bushings and screw type cable attachments or box clamps with anti-short inserts shall be used in all MC cable installations. Connectors shall be made of steel, not the cast type.

Exception: UL listed steel junction boxes with screw type box clamps listed for MC cable use may be used provided that an anti-short insert is utilized.

**(Add) 13.8.10.6.2.5**

Conductor size shall be increased as required so as to limit voltage drop in accordance with the lump sum method.

**(Add) 13.8.10.6.2.6**

All initiating devices and notification appliances shall be supported independently of their attachment to the circuit conductors.

**(Add) 13.8.10.6.3**

The color code for all fire alarm system conductors shall be as follows:

**(Add) 13.8.10.6.3.1**

INITIATING DEVICE CIRCUIT shall be red and black. Red shall be positive and black shall be negative [IDC/SLC].

**(Add) 13.8.10.6.3.2**

NOTIFICATION APPLIANCE CIRCUIT shall be blue and white. Blue shall be positive and white shall be negative. When bells, chimes or other audible/visual devices are used in lieu of horns, this color code shall be followed [NAC].

**(Add) 13.8.10.6.3.3**

STROBE CIRCUIT, if a separate feed is required, shall be blue and white. Blue shall be positive and white shall be negative.

**(Add) 13.8.10.6.3.4**

SPRINKLER/STANDPIPE CIRCUITS shall be red and black. Red shall be positive and black shall be negative.

**(Add) 13.8.10.6.3.5**

SMOKE DETECTOR CIRCUITS, if a separate power feed is required, shall be brown and violet. Violet shall be positive and brown shall be negative.

**(Add) 13.8.10.6.3.5.1**

“LOCAL” SMOKE DETECTOR CIRCUITS, if an interconnect wire between sounder bases is required, shall be violet.

**(Add) 13.8.10.6.3.6**

AUXILIARY REMOTE POWER SUPPLY CIRCUITS shall be brown and violet. Violet shall be positive and brown shall be negative.

**(Add) 13.8.10.6.3.7**

ELECTRO-MAGNETIC DOOR HOLDBACK CIRCUITS shall be gray and gray if powered by 24 vDC or black and white if powered by 120 vAC.

**(Add) 13.8.10.6.3.8**

MUNICIPAL MASTER BOX TRIPPING CIRCUITS shall be orange and orange. Conductors for this circuit shall be installed in a separate raceway.

**(Add) 13.8.10.6.3.9**

ELEVATOR CAPTURE CIRCUITS shall be brown and yellow.

**(Add) 13.8.10.6.3.10**

HVAC SHUTDOWN CIRCUITS and AUDIO/VISUAL SYSTEMS SHUTDOWN CIRCUITS shall be orange and yellow.

**(Add) 13.8.10.6.3.11**

REMOTE ANNUNCIATOR CIRCUITS shall be violet and numbered at each end or as required by the control unit manufacturer.

**(Add) 13.8.10.6.3.12**

BOND WIRES from the control panel to the master box ground rod, and all required bonding conductors shall be green or bare.

**(Add) 13.8.10.6.3.13**

MUNICIPAL FIRE ALARM LOOP from the master box to the municipal loop shall be black and white.

**(Add) 13.8.10.6.3.14**

AC SUPPLY CIRCUIT to the main fire alarm control unit shall be white, black and red. The black shall be one phase, and the red shall be the opposite phase, if required. The white shall be the neutral. If a separate feed is required for the battery charger, it shall be black and white unless the main fire alarm control unit requires only one AC feed. In that case, the conductors to the battery charger shall be red and white.

**(Add) 13.8.10.6.4**

Primary AC power and/or battery charger circuits shall be on a dedicated branch circuit(s). Circuit disconnecting means shall have a red marking, shall be accessible only to authorized personnel, and shall be identified as "FIRE ALARM CIRCUIT". Where the disconnecting means is a circuit breaker located within a distribution panel, a circuit breaker lock listed for use with that breaker shall be provided. The location of the circuit disconnecting means shall be permanently identified inside the fire alarm control unit. AC and DC portions of the system shall be installed in separate raceways.

**(Add) 13.8.10.6.5**

Any fire alarm wiring between the fire alarm control unit and remote terminal cabinets or between remote terminal cabinets may, at the option of the installer, be a multi-conductor cable with each conductor numbered at 2 in. (0.05 m.) intervals. All wiring from a terminal cabinet(s) to an alarm device(s) and/or appliance(s) shall conform to the color code specified before herein.

**(Add) 13.8.10.6.5.1**

Terminal cabinets with hinged, lockable red covers shall be provided at all junction points. All conductor splices or terminations shall be made on screw-type terminal blocks – wire nuts, butt or crimp type connectors shall not be used. All terminals within a terminal cabinet shall be properly identified.

Exception: Crimp-type connectors may be used on bonding conductors.

**(Add) 13.8.10.6.6**

Spacing and location of heat detectors or smoke detectors required by this Code shall be in accordance with NFPA 72 Chapter 5 – Initiating Devices.

**(Add) 13.8.10.6.7**

Smoke 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 cleanup by all trades shall be cleaned or replaced per NFPA 72 – Inspection, Testing and Maintenance.

**(Add) 13.8.10.7 Connection To Fire Department**

**(Add) 13.8.10.7.1**

Where a municipally connected fire alarm system required by this Code is installed in a building in a city, town, or fire district having a municipal alarm system, the fire alarm system within the building shall be connected into the municipal system via a local energy master box, auxiliary transmitter, radio master box, or other approved method so that any fire alarm signal within the building will be automatically transmitted to the community's public fire service communications center.

**(Add) 13.8.10.7.1.1**

UL or FM Approved Central Station Service shall be permitted on a 36 month pilot program established by the Fire Safety Code Board of Appeal and Review in accordance with Fire Safety Code Section 10, Rhode Island Fire Alarm Code Section 10-6-1 through 10-6-3.

***(Note: In Formal Interpretation & Blanket Variance 08-01, the Fire Board noted that situations may arise where the original section 13.8.10.7.3 may conflict with new section 13.8.10.7.1.1. The Board advised that, "In such cases of conflict, the new section 13.8.10.7.1.1 would prevail.")***

**(Add) 13.8.10.7.2**

In jurisdictions capable of receiving multiple-zone signaling by way of radio master boxes, digital receivers or other approved methods, signaling shall be provided as required by the AHJ.

**(Add) 13.8.10.7.2.1**

Exception: Existing compliant fire alarm control units not capable of providing multiple zone signaling shall not be required to meet this requirement.

**(Add) 13.8.10.7.2.2**

In no case shall more than one (1) master box or transmitter be required unless the total area protected exceeds 100,000 ft<sup>2</sup> (9,290.3 m<sup>2</sup>).

**(Add) 13.8.10.7.3**

Systems installed in buildings in a city, town, or fire district not having a municipal alarm system shall be connected to the community public fire service communications center via a supervised leased telephone line (or other line) but shall not be connected to any service requiring retransmission to the community public fire service communications center.

*(Note: In Formal Interpretation & Blanket Variance 08-01, the Fire Board noted that situations may arise where the original section 13.8.10.7.3 may conflict with new section 13.8.10.7.1.1. The Board advised that, "In such cases of conflict, the new section 13.8.10.7.1.1 would prevail.")*

**(Add) 13.8.10.7.4**

In either event, the AHJ shall be consulted as to the type and location of the master box or auxiliary transmitter or the location of the remote station.

**(Add) 13.8.10.8 System Acceptance**

**(Add) 13.8.10.8.1**

A pretest will be held with the installer and the manufacturer's technical representative present. In addition to the requirements listed below, the pretest shall demonstrate that each smoke detector is operative and produces the intended response. Each smoke detector shall be tested with smoke generated from a wick/punk source or in accordance with the manufacturer's recommendations to initiate an alarm at its installed location. After certification of a complete pretest, the installing contractor shall provide the AHJ with written documentation from the manufacturer's authorized representative of the outcome of the test and provide a minimum of forty-eight ( $\geq 48$ ) hours' notice to the AHJ for the final inspection test. The installing contractor will re-inspect in the presence of the AHJ and the manufacturer's authorized technical representative. A complete test shall be conducted as follows: the installing contractor, in the presence of a representative of the AHJ, shall manually operate every manual fire alarm box, activate every rate of rise type heat detector and rate anticipation heat detector with heat, manually operate or electrically short out every non-restorable fixed temperature heat detector, activate every smoke detector with smoke generated from a wick/punk source or in accordance with the manufacturer's recommendations to demonstrate that smoke can enter the chamber and initiate an alarm, activate all automatic extinguishing system switches and activate every water sprinkler/standpipe flow switch by a flow of water through the inspectors' test valves. In addition, all protected sprinkler/standpipe valves shall be mechanically operated to verify the supervisory features of the tamper switches. All notification appliances shall be verified as operational at the time of this test.

**(Add) 13.8.10.8.2**

After installation and before the system acceptance test is performed, a copy of the testing and maintenance contract required by § 13.8.10.9.2 shall be furnished to the AHJ by the fire alarm system owner or contractor. The contractor shall prepare and submit a single line diagram of each installation, as built, indicating wiring between equipment and locations of control units, manual fire alarm boxes, detectors, and other devices to the AHJ.

**(Add) 13.8.10.8.3**

Each manual fire alarm box, heat detector, smoke detector, extinguishing system switching circuits, flow switch circuit and each notification appliance circuit shall be opened in at least two locations to test for the correctness of the supervisory circuitry. All communications shall be tested completely. The fire alarm system shall be in accordance with this chapter and in one hundred percent (100 %) operation prior to acceptance and/or issuance of a certificate of occupancy.

**(Add) 13.8.10.8.4**

The fire alarm system may be placed in operation prior to final acceptance if in the opinion of the AHJ it will enhance public safety or provide property protection during the final phases of construction. In this case all devices will be thoroughly cleaned or replaced prior to the system acceptance test. The system will not be placed in operation without the written permission of the AHJ. Under no circumstances will this be considered a final acceptance test.

**(Add) 13.8.10.8.5**

Prior to the final operational acceptance test, a Fire Alarm System Record of Completion shall be prepared and submitted to the fire alarm system owner and the AHJ.

**(Add) 13.8.10.9 Maintenance Of The System**

**(Add) 13.8.10.9.1**

Owners of fire alarm systems shall ensure that the systems and all of their components are in one hundred percent (100%) operating condition at all times other than fire drills, testing & maintenance of the system.

Exception: With the written approval of, and subject to any additional safeguards mandated by the AHJ, fire alarms systems, or portions thereof may be temporarily disabled for events or other occasions where environmental, mechanical or human factors would lead to unnecessary nuisance, accidental or intentional false alarms.

**(Add) 13.8.10.9.1.1**

The fire alarm system owner shall provide a twenty-four (24) hour emergency telephone number of the owner or owner's representative for the fire department to call in the event of an alarm or trouble condition. This telephone number shall be conspicuously posted at the fire alarm control unit. In lieu of the owner's number, the twenty-four (24) hour emergency telephone number of the maintenance company authorized by the owner to respond to service the system may be provided.

**(Add) 13.8.10.9.1.2**

Answering machines or voice-mail are not acceptable methods for contacting the owner or the authorized maintenance company.

**(Add) 13.8.10.9.2**

Owners of fire alarm systems shall provide written evidence to the AHJ that there is a testing and maintenance program<sup>5</sup> in force for the fire alarm system providing for periodic testing of the system. A local system as described in § 13.8.10.4.1 with twenty-four or fewer ( $\leq 24$ ) initiating devices shall be tested at least once every six (6) months with fifty percent (50 %) of all manual fire alarm boxes, heat detectors, smoke detectors and other devices and components operated with each test. A different fifty percent (50 %) of the above-mentioned devices will be operated at each inspection so that the entire system will have been tested at the end of each year. All other systems shall be tested at least once every three (3) months with twenty-five percent (25 %) of all manual fire alarm boxes, heat detectors, smoke detectors and other devices and components operated with each test. A different twenty-five percent (25 %) of the above-mentioned devices will be operated at each inspection so that the entire system will have been tested at the end of each year. In addition to the initiating devices to be

---

<sup>5</sup> Holders of C or D Certificates issued pursuant to RIGL §§ 5-6-10 or 5-6-10.1 shall provide written evidence of an internal testing and maintenance program.

tested above, during each test, the fire alarm control unit, all notification appliance circuits and every zone shall be tested.

**(Add) 13.8.10.9.2.1**

In addition to the testing and maintenance requirements set forth above, an annual certification shall be provided to the AHJ that all system smoke detectors located within the protected premises have been externally cleaned at least once every twelve (12) month period. In residential occupancies<sup>6</sup> having single- or multiple-station local smoke alarms, these devices shall be tested and cleaned at least once per year.

**(Add) 13.8.10.9.2.2**

EXCEPTION: A local fire alarm system as described in § 13.8.10.4.1 with twenty-four or fewer ( $\leq 24$ ) initiating devices may be tested quarterly, as described in § 13.8.10.9.2, at the option of the fire alarm system owner.

**(Add) 13.8.10.9.2.3**

The entire fire alarm system is the responsibility of the system owner and shall be tested and maintained by a single contractor hired by the owner, irrespective of the number of individual tenants – multiple testing contracts on one system is not permitted.

**(Add) 13.8.10.9.3**

The person(s) and firm performing any testing and/or maintenance required by this Code shall be licensed as required by R.I.G.L., 1956, as amended, § 5-6-2<sup>7</sup>.

**(Add) 13.8.10.9.3.1**

This licensing requirement shall not apply to fire department personnel in charge of the scene to acknowledge, silence, reset or disconnect the fire alarm system as authorized by the AHJ.

**(Add) 13.8.10.9.3.2**

Nothing in this section shall be construed so as to prevent any licensed<sup>8</sup> person or firm from flowing water in a standpipe/automatic sprinkler system at the inspectors' test valve during periodic testing, however an electrical "B" or "BF" license is required for any access to any wiring, device or the fire alarm control unit.

---

<sup>6</sup> This testing requirement does not apply to one- and two-family dwellings or three-family apartment buildings.

<sup>7</sup> ELECTRICIANS: Work for which a license is required.

<sup>8</sup> RIGL § 28-27-5.1

**(Add) 13.8.10.9.4**

The AHJ shall be notified a minimum of forty-eight ( $\geq 48$ ) hours prior to conducting any tests.

**(Add) 13.8.10.9.5**

Certification of these tests and results shall be forwarded to the AHJ and the fire alarm system owner from the person(s) or firm performing the test within ten (10) days of the completion of the test. The person(s) or firm performing the testing and maintenance of the fire alarm system shall notify the AHJ within five (5) days, in writing, after any cancellation of a testing/maintenance agreement with the fire alarm system owner.

**(Add) 13.8.10.9.5.1**

Certification of any periodic testing required by the Code shall be on the Uniform Testing Report [UTR] approved by the State Fire Marshal and adopted by the Fire Safety Code Board of Appeal and Review. This UTR shall be utilized by all persons and firms performing fire alarm testing and inspections pursuant to this Code and shall bear the name and license number of the licensed person performing the test.

**(Add) 13.8.10.9.5.2**

In addition, the person(s) or firm performing the test shall conspicuously indicate that the fire alarm system providing protection at the protected premises was in 100% operating condition upon completion of the most recent test and that the testing complied with all requirements of § 13.8.10.9. The UTR sticker attesting to this certification shall be located on or within 36 in. (0.91 m.) of the fire alarm control unit [FACU] or remote annunciator if the FACU is not in a public area, following each required test. If the FACU is not in a public area and the remote annunciator is located on the outside of the building, the AHJ shall be consulted as to the location of the posting of the certification.

**(Add) 13.8.10.9.5.3**

If any impairment(s) is discovered during a routine test or inspection and it cannot be corrected within four ( $\leq 4$ ) hours, the AHJ shall be notified, who may invoke the provisions of § 13.1.9 if he or she deems the impairment(s) to jeopardize the safety of the building occupants. If a building fire alarm system is out of service for more than four (4) hours in a twenty-four (24) hour period, the provisions of 13.7.1.4.5 shall apply.

**FIRE SAFETY CODE SECTION 10  
(RHODE ISLAND FIRE ALARM CODE)**

**I. ADOPTION OF NFPA 72 AS THE RHODE ISLAND FIRE ALARM CODE.**

**10-1-1**

The *National Fire Alarm Code*, NFPA 72 (2002 Edition), as amended by sections 10-1-2 and 10-1-2.1 below, is hereby adopted as the "*Rhode Island Fire Alarm Code*".

**10-1-2**

The specific rules addressing which use and occupancy groups require fire alarm systems, any additional requirements for the installation of these systems, and designating the party or parties responsible for the approval of these systems, are outlined in *Fire Safety Code* Section 7 (the *Rhode Island Uniform Fire Code*) Sections 13.7 and 13.8 and *Fire Safety Code* Section 8 (the *Rhode Island Life Safety Code*) occupancy Chapters 12 through 42.

**10-1-2.1**

In larger fire departments, with separately certified and specialized AHJs, the fire prevention AHJ shall make the initial determination as to whether or not a fire alarm system is required and, if so, what type of system is mandated. This would involve a determination as to occupancy, proper separation, and whether any exemptions apply. If an alarm is required, the fire alarm AHJ shall be notified and shall oversee installation of the fire alarm system through plan review and any follow-up inspection and testing of the system necessary to bring it into full compliance with RIUFC, Chapter 13 and NFPA 72.

## II. EXTENSION OF CERTAIN FIRE ALARM INSTALLATION DEADLINES.

### 10-2-1

The deadline found in RIGL 23-28.25-1(a) for the installation of fire alarm systems is hereby extended for certain Business, Mercantile, Industrial, and storage occupancies as follows:

- (i) Existing business, mercantile, industrial and/or storage buildings, having a total floor area greater than two thousand five hundred (2,500) square feet, but no more than ten thousand (10,000) square feet, that are currently protected by an existing previously approved and properly maintained fire alarm system, shall not be required to upgrade that fire alarm system until July 1, 2012.
- (ii) Existing business, mercantile, industrial and/or storage buildings, having a total floor area greater than two thousand five hundred (2,500) square feet, but no more than ten thousand (10,000) square feet, that maintain no residential occupancy, shall not be required to install an approved fire alarm system until July 1, 2009.
- (iii) Existing business, mercantile, industrial and/or storage buildings, having a total floor area greater than two thousand five hundred (2,500) square feet, but no more than ten thousand (10,000) square feet, that maintain one (1), two (2) or three (3) family dwelling units, shall not be required to install an approved fire alarm system until July 1, 2008.

### **III. ALARM UPGRADE EXEMPTION FOR ORIGINAL TIMELY COMPLIANCE.**

#### **10-3-1**

Any building that is not a place of assembly, that installed the required fire alarm system pursuant to the Rhode Island Fire Code, as amended by the Comprehensive Fire Safety Act of 2003, and secured the approval of said system, by the authority having jurisdiction, on or before July 1, 2005, shall be exempt from having to upgrade that fire alarm system until July 1, 2015.

#### **10-3-2**

Any place of assembly that installed the required fire alarm system pursuant to the Rhode Island Fire Code, as amended by the Comprehensive Fire Safety Act of 2003, and secured the approval of said system, by the authority having jurisdiction, on or before the applicable deadline outlined in section 23-28.6-21, shall be exempt from having to upgrade that fire alarm system until July 1, 2015.

### **IV EXEMPTION OF SMALLER BUSINESS GROUP BUILDINGS.**

#### **10-4-1**

Fire alarm systems shall not be required in existing business, mercantile, and storage buildings having a total floor area of two thousand five hundred (2,500) square feet, or less, unless the authority having enforcement jurisdiction determines, in writing, that a fire alarm system would be necessary to protect the occupants of the building, and/or the surrounding building owners, from the specific hazards outlined below *and* this initial determination is approved, in writing, by the State Fire Marshal's Office.

##### **10-4-1.1**

In determining whether a fire alarm system would be necessary, the authority having enforcement jurisdiction may consider fire department access, the proximity of the building to other structures, and/or specific hazards maintained within the building.

##### **10-4-1.2**

The above determinations involving building construction, fire department access and proximity to other structures shall be based upon nationally recognized construction codes and/or insurance guidelines approved by the Board.

### 10-4-1.3

The State Fire Marshal's written approval or disapproval of such initial determinations is deemed necessary by the Board in order to assure uniform statewide enforcement of the fire alarm provisions of this code.

### 10-4-2

Any exempted building above, that also maintains residential occupancy, shall, as a condition of the exemption, be required to protect that residential occupancy with an approved system of hardwired or approved wireless smoke detectors and, if required, carbon monoxide detectors, installed at the direction and to the satisfaction of the authority having enforcement jurisdiction.

### 10-4-3

A building owner may appeal the above "approved determination" or any other requirement(s) of this section, to the Fire Safety Code Board of Appeal & Review pursuant to the procedures outlined in Fire Safety Code Section 6.

***(Note: In Formal Interpretation & Blanket Variance 08-01, the Fire Board advised that, with regard to the qualified exemption of smaller business group buildings from the fire alarm requirements, it was the intent of the Board address the exemption on a case-by-case basis. Specifically, "The above provisions recognize review by the fire marshal with appeal to the Board on a case-by-case basis." Additionally, the Board noted that potentially exempt buildings, that had previously received variances based upon the installation of a fire alarm system, should be brought to the Board to either re-affirm or otherwise address the original variance prior to the removal of a fire alarm system.***

## **V SEPARATION OF CERTAIN OCCUPANCIES FOR FIRE ALARM REVIEW**

### **10-5-1**

Where existing low to ordinary hazard business and/or mercantile occupancies can be separated from the remainder of a building by construction maintaining an “approved acceptable separation” as outlined herein, the fire alarm square footage calculation, for this existing separated occupancy, shall be limited to the space within the “approved acceptable separation”.

#### **10-5-1.1**

In addition to the “approved acceptable separations” listed below, any properly installed UL or FM listed two (2) hour fire rated assembly shall be deemed to provide proper separation of these occupancies.

#### **10-5-1.2**

For the purposes of determining whether a fire alarm system is required within a separated low to ordinary hazard business or mercantile space, a wall assembly, consisting of double five eighth (5/8) inch type-x sheetrock over an existing wall and fastened to the structure, shall be deemed to be an “approved acceptable separation.”

#### **10-5-1.3**

For the purposes of determining whether a fire alarm system is required within a separated low to ordinary hazard business or mercantile space, a ceiling and/or floor assembly, consisting of a layer of five eighth (5/8) inch type-x sheetrock attached to the existing floor joists and separated from a second required layer of five eighth (5/8) inch type-x sheetrock, by three quarter (3/4) inch, or deeper, metal furring strip or stud, shall be deemed to be an “approved acceptable separation”.

#### **10-5-1.4**

The Board recognizes that full continuity of construction, and/or full support for the rated assemblies, may never be achieved in retrofitting an existing business and/or mercantile occupancy with an “approximate” two hour fire rated assembly. However, the authority having enforcement jurisdiction may request reasonable additional construction safeguards, such as the filling of any visible voids between wall and floor/ceiling assemblies with non-combustible materials and/or reasonable alternative structural support if necessary.

**10-5-1.5**

A building owner may request review of such “additional construction safeguards” to the Fire Safety Code Board of Appeal & Review pursuant to the procedures outlined in Fire Safety Code Section 6.

***(Note: In Formal Interpretation & Blanket Variance 08-01, the Fire Board advised, “It is the intent of the Board to allow “approved acceptable separations in cases where existing low to ordinary hazard business and/or mercantile occupancies are found in existing buildings that were originally built as one, two and three family homes. The Board notes that providing a structurally independent approved separation in these occupancies would impose a structural hardship upon the building owner.”)***

**VI. UL or FM Approved Central Station Service–36 MONTH PILOT PROGRAM.**

**10-6-1**

In light of the widespread support of 2007-H 6541 (Substitute A), and its legislative directive to the Board to establish a pilot program in order to determine whether approved private third party supervision of certain fire alarm systems is a viable alternative option to the current state-wide practice of direct municipal fire alarm connection, the Board hereby establishes the following 36 Month Pilot Program:

**10-6-1.1**

Effective March 1, 2008, the owner of any existing Business, Mercantile, Industrial and/or Storage occupancy, maintaining a total area of up to ten thousand (10,000) square feet, may voluntarily participate in a pilot program to determine whether approved third party supervision UL or FM approved Central Station Service, in full compliance with chapter 8.2 of NFPA 72 (2002 edition), is as efficient and safe as the current state-wide practice of direct municipal fire alarm connection. The State Fire Marshal is hereby granted the authority and discretion to unilaterally increase the above maximum square footage in order to create a larger, more accurate statistical base for this pilot program.

**10-6-1.2**

In order to participate in the above 36 month pilot program, the above building owner must first provide both the local authority having enforcement jurisdiction, and the Fire Alarm Division of the State Fire Marshal's Office, with official copies of his or her signed contract with the approved private third party supervising UL or FM approved Central Station Service that is in full compliance with section 8.2 of NFPA 72 (2002 Edition) (the *Rhode Island Fire Alarm Code*).

**10-6-1.3**

Any participating approved private third party UL or FM approved Central Station Service supervising central station shall be, and remain, in full compliance with section 8.2 of NFPA 72 (2002 Edition) throughout the entire term of the 36 month pilot program. The UL or FM approved Central Station Service shall further provide the Fire Alarm Division of the State Fire Marshal's Office with detailed monthly activity reports.

#### **10-6-1.4**

The total costs of purchasing, installing and/or maintaining any additional dedicated telephone lines, radio receivers and/or other necessary equipment to support the UL or FM approved Central Station Service shall be split among the participating UL or FM approved Central Station Services serving the participating city, town or fire district and in no case shall this cost be borne by the city, town, fire department, fire district and/or their taxpayers.

#### **10-6-2**

During the 36 month pilot program, the local Authority Having Enforcement Jurisdiction shall provide the Fire Alarm Division of the State Fire Marshal's Office with detailed reports covering any incidents involving the UL or FM approved Central Station Service that is providing its service in his or her participating city, town or fire district.

#### **10-6-3**

On or before December 31, 2010, the State Fire Marshal shall review the above documentation that it receives during the course of this pilot program, and advise the Board of its findings and its recommendations as to whether to continue this program. The Board shall review the State Fire Marshal findings and recommendations and make its final recommendation to the Governor and the General Assembly on or before January 31, 2011.

Effective date: March 20, 2008

***(Note: In Blanket Variance 08-03, the Board extended all of the previously-granted time variances, based upon the original projected effective dates of the updated 2008 fire code, through the new official effective date of March 20, 2008. Specifically, the extensions previously granted to the faith community, the marine trades, the farm bureau and others have now been automatically been extended through March 20, 2008. Accordingly, any new time extensions contained in the 2008 fire code and listed in the specific occupancy sections, would now be relied upon by the AHJ to determine actual required compliance dates.)***