

## NEWINGTON FIRE & RESCUE

### FIRE ALARM SYSTEM GUIDELINES

February 1, 2013

This document is a guideline for installation of fire protection, detection systems and emergency communications systems in the Town of Newington. These guidelines apply to all new construction and renovation projects where required by code and or the authority having jurisdiction (AHJ). All installations and upgrades shall meet or exceed the current adopted NFPA, State, and IMSA standards. Exceptions to this guideline may be granted by the AHJ only.

#### 1. APPROVAL;

1.1 Prior to construction or renovation a complete set of plans, specifications and equipment proposals shall be submitted to Newington Fire & Rescue for review. The plans shall include a one line diagram indicating the devices to be installed on each zone.

1.2 The AHJ or Electrical inspector shall approve complete conduit systems before wires may be pulled and shall approve wire installation before devices may be installed.

1.3 During construction Newington Fire & Rescue may make progress and familiarization inspections.

1.4 A complete test of all devices shall be conducted prior to the connection of the Radio Box to the municipal fire alarm system. Newington Fire & Rescue shall be present for this test. The test shall be scheduled with the AHJ.

1.5 An Alarm Permit Form will be completed and returned to Newington Fire & Rescue with \$275.00 initial fee. A yearly renewal fee of \$75.00 is due February 1st of each year.

#### 2. EQUIPMENT;

2.1 Manual pull stations.

2.1.1 Manual pull stations shall be installed at each point of exiting. Pull stations should be double action type with Cat 30 key reset. Cat 60 keys shall be acceptable. Occupant shall supply the keys to the fire department.

2.1.2 Glass rod pull stations shall not be permitted.

2.1.3 Pull stations will be allowed in public area, AHJ may require it have approved tamper covers.

2.2 Heat detection;

2.2.1 135 rate-of-rise heat detector shall be installed in each bathroom including those protected by sprinkler.

2.2.2 Higher temperature combination heat detectors shall be used where necessary.

2.2.3 Detector type and location shall be approved by the AHJ prior to installation.

2.3 Smoke Detection / CO detection;

2.3.1 Residential smoke detectors shall comply with RSA153:10-a, State Smoke Detector Law.

2.3.2 Detector type and location shall be approved by the AHJ prior to installation.

2.4.2 CO detectors are must be installed when required by State law.

2.4 Extinguishing Systems;

2.4.1 Sprinkler systems shall be designed and installed in accordance with the current adopted code.

2.4.2 The time delay needed for Newington is 30 to 45 seconds.

2.4.3 All water source control valves shall have a tamper switch. Each tamper switch shall be wired to the ALARM condition in the fire alarm control panel.

2.4.4 All water source control valves on the outside of the building shall be chained and locked in the open position. Keys to the locks shall be stored in the Knox box.

2.4.5 All sprinkler systems shall have an electric bell.

2.4.6 All new sprinkler systems or those that have modification with the addition of piping to accommodate at least three sprinkler heads shall require a 2 hour 200 pound hydrostatic test to be witnessed by Newington Fire & Rescue.

2.4.7 A separate zone on the fire alarm panel shall be provided for each sprinkler riser.

2.4.8 A separate zone on the fire alarm panel shall be provided for each Halon, CO<sub>2</sub>, Hood System, Fire Pump, Tamper switches, etc., recommended for protection of special areas.

2.4.9 Extinguishing system type and design shall be approved by the AHJ prior to installation.

2.4.10 Fire Department connections for sprinkler, standpipe, and combination sprinkler/standpipe shall be fitted with a storz 5" fitting with cap color coded as follows; Sprinkler: RED, Standpipe: SAFETYORANGE, Combination: GREEN.

## 2.5 Alarm Signals;

2.5.1 Speaker, Horn / Strobe, or Voice Evacuation shall be installed in accordance with the current adopted code. AHJ shall approve type of signals and locations prior to installation.

## 2.6 Control Panel;

2.6.1 Control panel pass code should be a four 3s (3333) but not more than five 3s (33333.) There shall be no other numbers or letters in the code.

2.6.2 Control panel power source input shall be 115 volts.

2.6.3 Control panel location shall be in close proximity to the radio box (when applicable), readily accessible by authorized personnel. Key for the panel shall be located in the Knox box.

2.6.4 Should a detector or system reset itself, the panel and remote annunciator shall show alarm for the zone until reset manually.

2.6.5 Provision shall be made for door holders, fan shut downs, etc.

2.6.6 Adequate power supply shall be provided for remote annunciator, system smoke detectors, horns, and flashing lights.

2.6.7 Control panel type and location shall be approved by the AHJ prior to installation.

## 2.7 Remote Annunciator;

2.7.1 The remote annunciator type and location shall be approved by AHJ

2.7.2 The remote annunciator shall be LCD display type. If outside bulb may be acceptable. If bulb is approved, must report troubles.

2.7.3 Remote reset key switch shall not be permitted.

2.7.4 Each alarm zone shall be shown and labeled.

2.7.5 Zone designations shall be in plain language.

2.7.6 There shall be a common trouble indication.

2.7.7 A graphic annunciator may be used if plans are approved before fabrication.

2.7.8 Annunciator type and location shall be approved by the AHJ prior to installation.

2.8 Standby Power is required on all systems and shall meet the requirements of NFPA 72.

## 2.9 Finishes;

2.9.1 Pull stations shall be a factory finished in red, not to be field painted. Horn / Strobes should be factory finished in red, but white may be considered, not field painted.

2.9.2 Wiring junction boxes, covers, and conduit shall be field painted to comply with NEC.

2.9.3 No detector or other fire alarm component shall be painted.

## 2.10 General;

2.10.1 Equipment to be listed with a Nationally Recognized Testing Laboratory.

2.10.2 A manufacturers and contractor's submittal and shop drawing shall be approved by the AHJ prior to construction.

2.10.3 Any facility with a fire alarm system is required to have a Knox Box

## 3. Installation;

3.1 All installed components shall comply with State Law, local ordinance, the current adopted additions of the applicable NFPA, NEC, and IMSA standards.

## 3.2 Contractor;

3.2.1 Final AC power connection to the system shall be made by a qualified electrical contractor holding a valid New Hampshire Electrician License.

3.2.2 Installation contractor shall meet the approval of the AHJ prior to beginning the installation.

3.2.3 The AHJ may with just cause have the installation contractor removed from the project.

## 3.3 Wiring Methods;

3.3.1 All exposed fire alarm wiring shall be installed in conduit or MC armor cable. Plenum is acceptable in non-exposed areas.

3.3.2 Exceptions may be considered for renovations to existing buildings, subject to prior AHJ approval.

3.3. Wiring shall be run device to device with no intermediate splice where practical. Exceptions can be made with justification and AHJ approval.

### 3.4 Power Supply;

3.4.1 Normal power connection to the AC system shall have a separate disconnect, after the metering, but ahead of main disconnecting means, or connected to an automatic transfer switch of a generator.

3.4.2 Circuit breakers shall be single pole, and shall be used for each required circuit.

3.4.3 Disconnect and over current protection shall be mounted next to the service equipment and marked "FIRE ALARM SYSTEM SERVICE EQUIPMENT".

3.4.4 Power for fan shutdown relays, magnetic door holders, etc., shall not be on the same circuit as fire alarm operating power.

### 3.5 Supervised Circuits;

3.5.1 The wiring for detection circuits shall be 4 wire Class "A".

3.5.2 Branch, tee splicing, and parallel connections shall not be permitted.

3.5.3 Devices such as smoke detectors and extinguishing systems supervisory switches that break the circuit to indicate trouble conditions shall be wired so as to prevent the disabling of alarms from water flow switches, manual stations or other detectors, when such devices are in a trouble indicating condition.

3.5.4. End-of-line devices shall be mounted in the fire alarm panel unless otherwise approved by the AHJ.

## 4. MAINTENANCE;

### 4.1 Instructions;

4.1.1 A complete set of operation instructions, interconnection diagrams and internal schematic diagrams shall be delivered to the owner.

4.1.2 Manufacturer shall provide operating instructions to owners alarm technician.

4.1.3 Completed floor plans, riser diagrams showing locations of equipment, wiring routing and interconnection noting any changes from original plans and specifications shall be delivered to the owner and Newington Fire & Rescue.

4.1.4 A copy of the operating instructions and lamented plans and prints indicating each device number and location shall be kept near the fire alarm panel. It is preferred to be in a secure device or tube mounted near the panel.

4.1.5 Fire alarm panel zone disconnects for maintenance shall be the responsibility of the property owner. Zone disconnects shall be conducted by a properly certified and licensed Fire Alarm Technician. Newington Fire & Rescue shall not conduct zone disconnects for maintenance.

5. MUNICIPAL NOTIFICATION DEVICES;

5.1 Municipal notification shall be made by a Keltron radio signaling system.

5.2 Keltron Radio Box

5.2.1 Radio box location shall be determined by Newington Fire & Rescue at the time of plans review.

5.2.2 The radio box shall be clearly labeled on the outside with the box number.

5.2.3 Final connections to the municipal fire alarm at Newington Fire Station shall be made by an approved Newington Fire & Rescue representative.

5.3 Active radio signaling system;

5.3.1 Radio signaling systems shall be used when the circuit hard wire is more than fifty (50) feet from the structure to be protected or when directed by the AHJ.

5.3.2 A Keltron RF750F (8 zone) or RF750L (16 zone) transceiver with "DataTap" FACP interface shall be installed per manufacturer specifications.

5.3.4 Transceiver location and number of zones required shall be determined by Newington Fire & Rescue at the time of plans review.

5.3.5 Each radio box shall have an active test period of fifteen (15) days prior to acceptance. A radio box shall be accepted after fifteen consecutive days of uninterrupted operation without a "central poll loss" or "failed to test" signal received.

5.4 Radio amplification system;

5.4.1 This system shall insure a reasonable degree of reliability for emergency communications from within certain buildings and structures in the town of Newington.

5.4.2 This system shall be installed in new structures greater than twenty five thousand (25,000) square feet, existing structures over twenty five thousand(25,000) square feet when modifications, alterations or other repairs exceed fifty percent (50%) of the value of the existing structure and are made within any twelve (12) month period or the usable floor area is expanded or enlarged by fifty percent (50%) and all sublevels, regardless of occupancy, over ten thousand (10,000) square feet.

5.4.3 The system required shall be determined by the AHJ at the time of plans review for the construction or renovation project.

6. EFFECTIVE DATE;

6.1 Date;

6.1.1 Effective date of this Guideline is April 13, 2004

6.1.2 Approval by the Board of Fire Engineers April 13, 2004.

6.1.3 Amended February 2013, approved by the Board of Fire Engineers March 2013