



## **Dracut Fire Department**

### **Fire Alarm Installation And Maintenance Standards**



**Revised: May 2021**

Approved. 9-08

Fire Alarm Specifications

Rev. 11-18, 5-21

## **A. Master Boxes**

1. All fire alarm master boxes must be approved by the fire department and installed in accordance with NFPA 1221. No radio type master boxes are permissible.
2. Reconditioned master boxes may be allowed providing that they fully comply with the Town of Dracut Municipal Fire Alarm Box specifications. NO RECONDITIONED MASTER BOX MAY BE INSTALLED WITHOUT PRE-APPROVAL OF THE FIRE DEPARTMENT. Such master boxes must be inspected by the fire department prior to installation.
3. All master box locations must be approved by the fire department prior to installation. The location must be kept accessible year-round.
4. Master box shall be mounted at a height of 48" to 58" from finished grade to the bottom of the enclosure.
5. No keys to the master box are to be given to anyone other than the fire department.
6. All master boxes are to remain covered until they are tied into the municipal fire alarm loop.
7. All master boxes must be local energy type. No shunt type boxes shall be allowed.
8. All boxes must be  $\frac{1}{2}$  second timed. Code wheel information must be obtained from the fire prevention officer.
9. No master box will be tied into the municipal alarm system and placed in service prior to full system acceptance testing.
10. Fire department authorized personnel shall perform all connections to the municipal circuit and fees incurred shall be the responsibility of the project contractor or property owner.
11. When more than one building is constructed as a group of buildings such as multiple residential building complexes, each building shall be required to have the capability of transmitting a unique coded signal through the municipal fire alarm circuit.

## **B. Cable**

1. Any cable extension from the existing fire alarm circuit necessary for connection of a new service shall be the responsibility of the property owner. New cable must be installed by an approved contractor.
2. Any cable to be installed must be inspected and approved by the fire department prior to installation.
3. **ABSOLUTELY NO CONNECTIONS WILL BE MADE TO THE EXISTING FIRE ALARM CIRCUIT EXCEPT THOSE AUTHORIZED BY THE FIRE DEPARTMENT.**
4. Aerial connections shall be made at a minimum of **18 feet** from center of drop to grade.
5. The installer shall supply a suitable point of attachment on the building for the aerial connection.
6. The installer will provide an IMSA spec 29-3 type "C" cable from the master box, within a direct metallic conduit to the point of the aerial connection or a continuous run to the fire alarm terminal box on the utility pole. No other wiring shall be allowed in the municipal circuit conduit. If using a mast, the conduit must be 2-inch galvanized, rigid metal conduit.
7. All connections for municipal wires shall be in an approved junction box with "screw down" terminal strips. No other terminal strips will be acceptable. All junction boxes shall be painted red.
8. All municipal fire alarm cable shall be kept strictly on the exterior of the building and run in the most direct way to the service pole or manhole.
9. It is the responsibility of the installer to provide all overhead cable, hardware, and junction box(s).
10. It is the responsibility of the installer to install all overhead cable. Fire alarm cable is to be run from the master box to a junction box on a utility pole to be designated by the fire department. Acceptance of all overhead fire alarm cable installation is subject to the inspection and approval of the fire department.

11. All overhead cable shall be IMSA spec 29-3 type "C" 12-GA **hard drawn SOLID COPPER** wire with red PVC jacket. Standard tangent supports and approved hardware shall be used with dead ends at corners, at the building, and at the point of termination. "Slack loops" may be required at intervals and locations to be determined by the fire department.
12. All overhead cable must be run 24 inches below the secondary power lines and above the cable lines wherever possible. On poles where this is not possible, the fire alarm cable shall be attached at a point above the cable line, but not infringing on the secondary power lines.
13. Where underground service is required, the installer shall provide a dedicated 2" (2 inch) galvanized rigid metal or schedule 40 PVC conduit for fire alarm cable only. All conduit above ground, as well as the sweeps connecting the underground to the riser pole and master box, shall be galvanized rigid metal only. Metal conduit must extend for a minimum of 10' (ten feet) above grade at the riser pole and 12" (12 inches) above grade at the master box. All conduits are to be weather sealed at the ends.
14. All underground conduits must be inspected by the fire department before burial. NO EXCEPTIONS.
15. All underground conduits shall be marked with caution tape at the time of burial to prevent accidental damage in the future.
16. The installer shall submit an as-built plot plan to the fire department showing the following:
  - a. Location of the building
  - b. Exact location of all underground fire alarm conduit, including where it enters the ground, location underground, and where it exits the ground. All locations must include exact distances from the building to the street. (see Schedule A)The plot plan must be submitted to the fire department prior to final approval of the fire alarm system.
17. All underground duct cable shall be IMSA spec 20-1 12-gauge solid copper, **five conductor** cable. No direct burial cable will be accepted.
18. All galvanized rigid metal conduit risers at the utility pole servicing underground fire alarm installations shall be bonded with a minimum # 8 solid copper grounding conductor from a Thomas & Betts 2-TB (or equivalent) ground clamp located 4"- 6" from the top of the riser conduit to 5/8" x 8' copper weld grounding electrode.

19. A continuous #8-gauge solid copper conductor must be run from the master box to either a driven ground rod, the street side of the building's copper water main, or to building steel if the water main is not copper. A copper conductor driven to a ground rod must be protected by a thin-walled metal conduit (EMT). No twisted strand copper ground wire will be permitted. If building steel is utilized for such grounding, it **MUST** be made accessible for inspection by the fire department.
20. All master box enclosures must be bonded and include a solid-state lightning arrestor.
21. All equipment shall be made available for test and inspection upon request of the fire department.
22. All work shall be the responsibility of the installer.

## **C. Fire Alarm Control Panel**

1. All FACP's must be approved by the fire department prior to installation, be a Class "A" system, and shall require an installation permit. All systems and devices must be UL® or Factory Mutual® rated for the such installation.
2. All addressable fire alarm panels shall be programmed in a manner that will allow master box re-set after an alarm has been acknowledged at the fire alarm panel. (Fire Lite may require a MBT-1 module)
3. The installer shall furnish a list of all device and module addresses and coordinate labeling with the fire prevention officer.
4. Instructions for enabling/disabling devices or modules shall be posted inside the panel enclosure.
5. A fire alarm document cabinet shall be installed at the FACP for all addressable systems. A full list of devices, modules, loops etc. shall be furnished and left on site.
5. Smoke detectors shall indicate activation by a steady burn red LED.
6. All detection devices shall be ceiling mounted unless prior approval is given by the fire department.
7. An exterior beacon shall be required to be installed at a location approved by the fire department.

8. If supervising an automatic suppression system, all tamper switches and flow switches shall send an alarm signal. Low air and or water shall send a supervisory or trouble alarm.
9. HVAC or duct smoke detectors shall send an alarm signal. Test/indicator switches shall be located in an area approved by the fire department.
10. The FACP shall allow for silencing audible alarms while maintaining the visual alarm display.

## **D. System Repair and Maintenance**

1. No fire alarm system or master box shall be taken offline without notification to the fire department under any circumstances.
2. Only Dracut Fire Department personnel, or credentialed technicians (See Addendum A) approved by the Dracut Fire Department, may take a master box offline.
3. Failure to notify the Dracut Fire Department of any work that causes a system to be offline shall result in a non-criminal citation issued to the individual. (527 CMR 1.13.1.8) regardless of whether the permission is verbal or written to perform work.
4. Credentialed technicians may take a master box offline and restore it in accordance with the policies and procedures attested to in the credentialing process.
5. Written permits are not required for routine maintenance and testing of accepted fire alarm systems nor repair/replacement of one for one devices. Notification to the fire department shall be deemed a verbal permit to take a fire alarm system offline for these purposes only.
6. Written permits shall be required for the replacement, expansion, or modification to any accepted fire alarm system or fire alarm control panel (FACP).
7. FACP replacements shall require the submittal of necessary cut sheets for approval. Final system test and material reports and installation affidavits shall be submitted to the fire prevention officer for final acceptance at the completion of the work.
8. NO FIRE ALARM SYSTEM IS TO BE LEFT OFFLINE OVERNIGHT without the notification and approval of the fire department.

## **E. Access**

1. All buildings equipped with an automatic fire alarm system shall have access available to the fire department 24 hours per day by means of a rapid entry key access system at the expense of the building owner.
2. All key boxes must be of an approved type manufactured by the KNOX COMPANY.
3. Key access boxes may be ordered online at [www.knoxbox.com](http://www.knoxbox.com)
4. Installation and location of rapid access key boxes shall be approved by the fire department.

The above requirements are a guide to be utilized by individuals knowledgeable in the design, installation, and repair of fire alarm systems and not to be construed as complete. All questions regarding fire alarm system installation, repair, modification, or testing shall be resolved before proceeding with construction. Any discrepancies between these requirements and those in NFPA 70 and NFPA 72 will be resolved between the contractor and the fire prevention officer. The decision of the AHJ shall be final.

The Town of Dracut, Dracut Fire Department, any of its employees, or its contractor, shall under no circumstances be liable for the failure of any fire alarm equipment to operate during the transmission of an alarm over the municipal fire alarm system. It is understood that the Dracut Fire Department will do all that is possible to render trouble-free, reliable service and immediately respond, identify, and repair troubles or disruptions in service.

## **Addendum A**

### **Credentialing of Service Technicians**

1. Only Dracut Fire Department personnel, or credentialed technician approved by the Dracut Fire Department, may take fire alarm system and /or a master box offline. A certificate of credential is obtained from the Fire Prevention Officer.
2. Credentials are entrusted to the alarm company and issued to the individual. The company bears full responsibility for the actions or inactions of its employees.
3. Credentials may be revoked at any time by the AHJ.
4. Failure to notify the Dracut Fire Department of any work that causes a system to be offline shall result in a non-criminal citation issued to the individual. (527 CMR 1.13.1.8) regardless of whether the permission is verbal or written to perform work.

### **Eligibility**

1. Credentials will be given for 3 levels, fire alarm service, fire alarm technician, and fire alarm testing.
2. The alarm company is responsible for furnishing a “short arm” clearly marked with the initials of the company for work on master box protected properties.
3. A fire alarm service credential is issued to the fire alarm company itself.
4. A fire alarm technician credential may only be issued to those possessing a valid class A, B, C, or D license by the Commonwealth of Massachusetts Board of State Examiners of Electricians and are employed by a credentialed company doing business within the Town of Dracut. Sole proprietor licensed individuals shall only require a service credential.
5. A fire alarm testing credential may be issued to those individuals employed by a credentialed fire alarm service whose responsibility is testing fire alarm systems only. This credential is issued at the discretion of the alarm company AND the Fire Prevention Officer.
6. All credentials require completion of an application, submission of a copy of applicable licenses and/or UL testing certificate, and an affirmation of understanding of The Town of Dracut Fire Department Fire Alarm Installation and Maintenance Standards.

## **Addendum B**

### **General Rules**

- Prior to beginning ANY work, the technician shall call dispatch @ 978-454-2113 and give the following:
  1. Name of company
  2. Technician ID number (on credential)
  3. Location of work
  4. Box number if applicable
  5. Type of work (testing, maintenance, repairs, etc.)
- The safety of the building occupant shall always be of the highest priority.
- Master Boxes serving more than one building MAY NOT be taken offline without the submission of an impairment plan to the Fire Department. The building being worked in may be taken out of the box loop. (Exception being testing where the master panel is being physically monitored for alarms)
- No building's FACP or master box will be left offline or impaired without a technician being physically present on the premises. (including lunch or parts runs)
- Fire detection and notification systems may not be taken offline for sprinkler work. The zones or devices tied to the sprinkler work may be disabled for that work only.
- Permits must be granted prior to beginning permit-required work (Section D).
- System impairments shall be kept to a minimum to always allow for the greatest system protection. Impairments made to make the work easier are usually not made to make the occupants safer.
- A fire department official must be notified if the FACP is showing any condition other than "Normal" BEFORE leaving the premises. A cause and anticipated time of repair shall be reported at that time.
- When work has been completed, dispatch shall be called to report same and that the box/system is back online or to speak with a fire department official to report any remaining issues with the system.