



# Portsmouth Fire Department Bureau of Fire Prevention and Control

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## **Fire Alarm Regulations**

This document lists the minimum requirements for the installation of a master fire alarm box of auxiliary systems connected to the dispatch center through municipal circuits in the City of Portsmouth, New Hampshire.

## **General Requirements**

Before installation of a private master fire alarm box on a new or existing building, the architect, general contractor, electrical subcontractor and/or company responsible for the proposed system installation shall submit a detailed set of plans and electrical schematic to the Portsmouth Fire Department Fire Alarm superintendent for review and approval.

The entire installation, including all materials to be connected to the municipal fire alarm circuits must be new and must be furnished and installed by the owner of the property.

Complete maintenance of the entire installation shall be the responsibility of the owner(s) of the protected property for as long as the equipment is connected to the municipal fire alarm circuits.

In the event that trouble or faults develop in any part of the private system that might endanger the municipal alarm system, it shall be the prerogative of the Fire Chief to disconnect any part of said private system from the municipal circuits. In the event that disconnection takes place, the property owner or his agent shall be notified in writing.

Local energy type master fire alarm boxes installed on the city of Portsmouth municipal system must have a service contract with a responsible company to test and service the installed equipment.

## **Master Box**

The location of the Master Fire Alarm box shall be determined through consultation with the Fire Alarm Superintendent in a location that is easily accessible at all times. The box shall be mounted at a height of 54" to 60" from finished grade to the bottom of the box.

All Master Boxes installed in finished spaces (lobbies, vestibules, hallways, etc.) shall be of the flush mount design.

The master fire alarm box shall be of the local energy type with the following features:

- Non-interference
- Quick succession
- Automatic grounding under open municipal circuit conditions
- Telegraph key
- Tap bell
- Code wheel index – city of Portsmouth specifications
- Lock and key – city of Portsmouth specifications
- Timing – ½ second timing
- Flush mounted boxes shall be of weatherproof type

The master box shall be installed in accordance with the latest edition of N.F.P.A. 1221 Public Fire Service Communication Systems

### **Supervisory Panel**

A master box supervisory and reset module must be installed in conjunction with the master box. The supervisory module shall be incorporated in the fire alarm panel for the interior system.

### **Smoke Detector Required**

NFPA 72-4.4.5, 2002 edition, requires that every fire alarm panel have a smoke detector installed at the location of the panel unless the panel is in an area continuously occupied (24/7).

### **Wiring**

All wiring from the municipal circuit to the master box and from the master box to the supervisory panel and associated equipment shall be approved for use at 600 volts.

All wiring must be installed in conduit or approved tubing and consistent with the requirements of the latest edition of N.F.P.A 70, National Electric Code and N.F.P.A. 72 National Fire Alarm Code.

### **Addressable Fire Alarm Panel Programming**

All addressable fire alarm panels shall be programmed in a manner that will allow Master Box reset after an alarm has been acknowledged at the fire alarm panel.

The intent of this requirement is to prevent Master Boxes from being left “on manual” for extended periods due to a faulty smoke detector or other device.

### **Connection to municipal circuits**

In areas where the private system is to be connected to a municipal circuit of the aerial construction type, the owner of the property shall bring two #12 solid copper wires (90 degree C. insulation min.) from the master box to a point on the outside of the building designated by the fire alarm superintendent. The conductors shall be a continuous run with no splices. The wires shall be enclosed in rigid conduit, with appropriate watertight connectors, and shall be brought to an approved weather-tight service head. This service head shall be no less than sixteen feet above ground level and shall be securely fastened to the building. A 24” drip loop shall be provided.

Any alternative plan of wiring the fire alarm service connection from the street to the building shall be discussed and approved by the fire alarm superintendent.

### **Underground Fire Alarm Wires**

In areas where it is more expedient to wire using the underground method, the owner shall install 2” schedule 40 conduit from a point designated by the fire alarm superintendent to the master box. If this conduit terminates at a utility pole the last 90-degree sweep and first ten feet of conduit on the pole must be galvanized steel. A pull or string shall be installed in the aforementioned conduit. The 2” conduit may be terminated in a pull box of sufficient size inside the building and a run of smaller size conduit installed from this pull box to the master box with the approval of the fire alarm superintendent. No splices will be permitted between the utility pole and the master box. All duct cable shall be I.M.S.A. 20-1, 2 conductor 12 gauge solid.

### **Grounding**

A 12-gauge solid ground wire will be installed in conduit from the master box to an acceptable ground designated by the fire alarm superintendent. In most cases this will be the street side of the water service. If the master box is surface mounted, a “Gamewell Grounder” from the box to an 8 foot ground rod under the box will be permitted. The resistance of the ground connection shall not exceed 25 ohms.

### **Local Energy Systems**

In the installation of private systems operating from local energy, the system shall be designed so accidental loss of operating current will not prevent operation of the tripping mechanism of the master box.

Back up power shall be provided as per N.F.P.A. 70 and 72.

### **One or more buildings**

In an installation where the fire protection system is installed in more than one building and/or on more than one floor, and where the system is connected to one master box, an annunciator panel and indicator light shall identify the location of all originating signals.

Adjacent to each annunciator panel, there shall be a detailed floor plan identifying zone locations.

### **Upgrades of existing Fire-Protective Systems**

Any or all parts of existing fire protective systems within a building or buildings undergoing extensive remodeling or renovation shall conform to the minimum requirements as listed herein.

### **Testing**

Master boxes will be tested for operation during the regular procedure of this work and they will be tested no less than once every sixty days.

The master box must be available for testing during normal working days and hours when required by the Fire Department.

The Portsmouth Fire Department will not test auxiliary equipment attached to the master box. Testing auxiliary equipment shall be considered to be a part of the property owner's responsibility for maintenance of the system.

Whenever alarm initiating devices are to be tested, the Portsmouth Fire Department will have a person available on a normal work day to test the master box, provided the Fire Department is notified twenty-four hours prior to the desired test.

### **Liability**

The City of Portsmouth or any of its employees shall under no circumstances be liable for the failure of any of the equipment to operate during the transmission of an alarm to the Fire Alarm Center. It is understood that the Portsmouth Fire Department will do all that is possible to render trouble-free, reliable service.

The above requirements are not to be construed to be complete but only as a guide. All questions regarding Fire Alarm Systems shall be resolved before proceeding with construction.