

## **PORTLAND, MAINE FIRE DEPARTMENT RULES AND REGULATIONS (2005)**

### **a. For Master Box Connections To Municipal System**

The following Rules and Regulations are promulgated pursuant to Section 2.5-31 of the Portland City Code and shall govern all connections of master box alarm systems to the communications center of the Fire Department:

1. Master boxes shall be new "Gamewell" boxes, type number M34-72, as the Fire Chief may direct. No shunt boxes or systems will be permitted. Boxes shall be incapable of being activated from the outside.
2. Code numbers and timing will be assigned by the Fire Chief upon receipt of a complete application for service.
3. Master boxes shall be installed in accordance with modern standards and practices and NFPA requirements and shall conform to NFPA Pamphlet 1221. Boxes shall be located inside the building, adjacent to the fire alarm panel.
4. Any building connected by a master box to the municipal system shall be provided with a Knox Box. Building and fire alarm panel keys shall be kept in the box.
5. The auxiliary alarm system shall be so arranged that one master box does not serve more than 100,000 square feet of total fire area. Additional boxes will be required for any portion greater than 100,000 square feet.
6. A separate master box shall be provided for each building in a group of buildings, each with its own interior system or a DETG electronic master box.
7. All keys to the master box shall be turned over to the Fire Chief after work has been completed and the box is placed in service with the City.
8. Auxiliary system equipment shall be of a type approved by the Fire Chief. A detailed description of equipment and operational functions shall be submitted to the Fire Chief prior to installation or connection to the municipal system.
9. Installation of interior or auxiliary equipment shall be in accordance with modern standards and practices and shall be approved by the Fire Chief. All wiring shall be in rigid metallic conduit or metallic tubing.
10. All equipment shall be made available for testing and/or inspection when required by the Fire Chief.
11. Contractors shall contact the Fire Chief prior to starting work and shall obtain approval of locations and all equipment necessary to connect to the municipal system.
12. All outside wiring shall be in rigid or nonmetallic conduit.
13. No municipal circuit conductors shall be less than #12 gauge wire unless in cable form. All cable shall meet IMSA specifications A or B for conduit, duct work, or aerial work. All installations shall be installed with proper hardware as required. All cables shall be of not less than 3 pair except where line wire is approved by the Fire Chief. Any system requiring a riser pole connection shall be in rigid conduit. All work from riser pole or entrance shall be in conduit and marked with tags at specified locations, or painted red. Tags shall read "DO NOT TOUCH – FIRE ALARM CONNECTIONS". Cable shall be used from riser pole direct to master box without splices. If service is from direct attachment to the building, a weatherhead, and ¾-

- inch rigid conduit. A solid anchor shall be provided and installed by the Contractor to the specifications of the Fire Chief.
14. All connections of master boxes shall include lightning protection. BFD arrester #284C or a TII arrester are types acceptable unless otherwise specified for the installation. An eight-foot by 5/8-inch ground rod shall be connected with a #8 gauge wire to a properly ground protection device for all overhead service connections. An interior master box is to be connected to a #10 gauge ground wire connected in common with the interior fire alarm system ground wire. The ground wire shall be connected to a properly driven ground rod or to an approved source. A tag shall be attached at the ground source stating "DO NOT TOUCH – FIRE ALARM CONNECTION". An approved alternate source is the cold water pipe provided the water meter is jumpered with a #8 gauge copper wire properly connected to each side of the meter.
  15. All joints or connections shall be in pull boxes or terminal boxes. Any boxes containing municipal circuits shall be painted red.
  16. Absolutely no connection shall be made to the municipal circuits except by City Fire Alarm Technicians.
  17. No work shall be done on any sprinkler system or fire detection system tied to the City without first notifying the Dispatch Center to prevent false alarms. (Telephone: - 874-8576).
  18. Each internal alarm system shall have a supervised municipal DISCONNECT SWITCH or a key switch in an electronic box. When shut off, a supervisory bell and light shall activate. If the alarm panel is not in a supervised area, remote annunciation of the bell and light shall be placed in a supervised area.
  19. Connections to buildings, if from an aerial service, shall meet height requirements, as set by the National Electric Code for ground clearance.
  20. Any building having a fire alarm system with pull stations that are not connected to the municipal system shall have a sign permanently attached above each pull station stating, "ALARM NOT CONNECTED TO MUNICIPAL SYSTEM".
  21. Underground conduit shall be Schedule 80PVC or rigid steel conduit. Risers on utility poles shall have steel conduit from below grade to 10 feet above grade level. Minimum conduit size is 2 inches, unless otherwise required due to length or size of cable to suit the job.
  22. All equipment connected with the municipal system shall be of a type and quality and shall be installed such that the dependability of the municipal system shall not be endangered. The Fire Chief shall be the final authority in this regard.
  23. Parties whose premises are served by such systems shall submit in writing to the Fire Chief the names of responsible persons who can be contacted in case of trouble with the system.
  24. The Fire Chief may at any time disconnect a master box for non-compliance with these regulations if the operation or dependability of the municipal -system is endangered. The parties involved will be notified, if available, when disconnections are to be made.
  25. Parties having connection to the municipal system shall submit in writing a copy of a contract for the testing and maintenance of the internal fire alarm system.

26. Twenty-five (25) percent of all fire alarm devices in the building shall be tested quarterly, such that all devices are tested at least once annually. This requirement shall be included in the contract for the maintenance of the system, unless the system is tested and maintained by qualified in-house staff approved by the Fire Chief. Written record of the testing shall be placed on file in the main fire alarm panel, and shall include:
  - a. Date
  - b. Time
  - c. Tested by
  - d. Problems found and corrected by
  - e. Correction Time
  - f. Date
27. The interpretation or application of these Rules and Regulations shall be resolved by the Fire Chief before the contractor proceeds with the installation.
28. Before final connection of a master box, the system shall be inspected and tested by the City of Portland Electrical Division. All internal equipment must be turned on and burnt in for 7 days without a failure before the system will be accepted. Final tests and inspections will be conducted in the company of the installer and representatives of the manufacturer, the Portland Fire Prevention Bureau, and the City of Portland Electrical Division.
29. The Fire Chief may, in writing, waive or vary these regulations upon a showing that (a) strict compliance would be physically impracticable or would create undue financial hardship, and (b) the waiver or variance would not endanger the public health or safety, or nullify the intent of these Rules and Regulations.
30. After acceptance and prior to occupancy the installer shall prevent an electronic drawing of the fire alarm system in a format to be determined by the fire chief.

All questions concerning the interpretation or application of these Rules and Regulations should be addressed to:

#### **b. Master Box Connections By Central Stations**

The following Rules and Regulations are promulgated pursuant to Section 2.5-31 of the Portland City Code and shall govern all connections of master box alarm systems by central stations;

1. Two independent means shall be provided to retransmit a fire alarm signal received from a protected premise to the City of Portland Dispatch Center.

NOTE: The use of the emergency number 911 does not meet the intent of this standard as a principal means of retransmission.

2. The principal means of transmission of a fire alarm to the Dispatch Center shall be through the use of an existing manual transmitter and/or an electronic/computerized transmitter. The transmitter shall be capable of transmitting any desired number up to

9999. Timing for the transmitter shall be set at one 12 second timing, set to national standards for spacing and approved by the Fire Chief.
3. All central station facilities transmitting alarms to the Dispatch Center shall have either a direct ring down telephone line so designed that no dialing is required from either end or an alternative transmission system otherwise approved by the Fire Chief. Any direct ring down line shall be direct between the Dispatch Center and the central station with no third party connections. Termination at the Dispatch Center shall be at a location determined by the Fire Chief.
  4. Any central station making connection to the Dispatch Center by either means provided in subsection 3 above will be required to provide all necessary equipment to allow for the receipt of an alarm at the Dispatch Center, which equipment may including but not limited to; an alarm card and any digitized/computerized receiving equipment. The company shall be responsible for any annual fees for upgrade or maintenance of such equipment.
  5. When the principal means of transmission is not equipped to permit the Dispatch Center to acknowledge receipt of each fire alarm signal, both means of transmission required in subsection 1 above shall be used to retransmit.
  6. The principal means of transmission shall be supervised so that interruption of the retransmission circuit integrity will result in a trouble signal at the central station in accordance the applicable NFPA standard .
  7. Technical service shall be provided for all premises protected by the central station if an alarm is retransmitted directly to the Fire Department. Response time shall not exceed .1/2 hour to the scene of the call.
  8. All central stations having connection to the Dispatch Center shall provide a list of their employees doing work on fire alarm systems, for identification purposes. No employee shall work on any system without notifying the central station of such work and the estimated completion time, and the central station shall notify the Dispatch Center of such work in order to prevent false or unnecessary response to a premises due to an outside telephone report. The Dispatch Center shall be notified when the work is complete.
  9. No central station employee shall enter any municipal alarm equipment for any purpose without the presence of Fire Department personnel.
  10. All circuits between the Dispatch Center and the central station shall be tested twice (2) daily at a time designated by the Fire Chief. Initiation of the test shall be done by the central station with prior warning by telephone before transmission of the test signals. Written records of the test shall be kept on file, to include: Tested by, time and date.
  11. All alarm numbers for all premises shall be provided by the Fire Chief. The number should be requested at least fourteen (14) days in advance of final acceptance of all premises." The central station shall provide an expected date of final connection at the time of request. Written notification of the company, name, owner, address, type of equipment to be installed, area protected, etc., shall be furnished to the City prior to final connection to the Dispatch Center.
  12. All equipment installations shall be in compliance with applicable Rules and Regulations of the Portland Fire Department, as well as all other applicable standards for proper installation of fire alarm equipment.

13. Before final connection of a master box, the system shall be inspected and tested by the Communications Division. Internal equipment must be turned on and burnt in for 7 days without a failure before the system will be accepted. Final tests and inspections will be conducted in the company of the installer and representatives of the manufacturer, the Portland Fire Prevention Bureau, and the Fire Chief.
14. The Fire Chief may, in writing, waive or vary these Rules and Regulations upon a showing that (a) strict compliance would be physically impracticable or would create undue financial hardship, and (b) the waiver or variance would not endanger the public health or safety, or nullify the intent of these Rules and Regulations.

All questions concerning the interpretation or application of these Rules and Regulations should be addressed to:

Fire Chief  
Fire Department  
City of Portland  
380 Congress Street  
Portland, Maine 04101  
(207) 874-8400

Date of Issuance: \_\_\_\_\_

Effective Date: \_\_\_\_\_  
(30 days after issuance)

\_\_\_\_\_  
Fire Chief



## **DEFINITIONS**

- FIRE ALARM SYSTEM:** A combination of components consisting of initiating devices, signal devices and control devices all of which either report to or receive a signal from a central control point (FACP).
- HIGH-RISE STRUCTURE:** Any structure seventy-five (75) feet or more above grade level. Lineal measure shall be from the lowest point of occupiable space to the top floor of the structure as determined by the Fire Chief.
- CLASS "C" FIRE ALARM SYSTEM:** A fire alarm system of the least degree, intended to be used in occupancies where life safety hazards are minimal and the occupant load is low.
- CLASS "B" FIRE ALARM SYSTEM:** A fire alarm system intended to be used where life safety hazards are greater than usual due to higher fire loads, larger structures or greater occupant loads.
- CLASS "A" FIRE ALARM SYSTEM:** A fire alarm system required in all structures where the greatest hazards are present due to fire loads, high occupant density or excessive size. These systems are intended for use where total evacuation is impractical and/or the earliest possible warning is desirable and a need exists for the control of panic.

**APPLICATION FOR THE INSTALLATION OF FIRE ALARM EQUIPMENT**

CBL: \_\_\_\_\_

STREET NAME: \_\_\_\_\_

STREET NO. \_\_\_\_\_

EXACT LOCATION: (within structure) \_\_\_\_\_

TYPE OF OCCUPANCY: \_\_\_\_\_

BUILDING OWNER: \_\_\_\_\_

INSTALLING CONTRACTOR: \_\_\_\_\_

CONTRACTOR ADDRESS: \_\_\_\_\_

CONTRACTOR TELEPHONE #: \_\_\_\_\_

CONTRACTOR LICENSE #: \_\_\_\_\_

THE FOLLOWING DOCUMENTS HAVE BEEN PROVIDED WITH THIS APPLICATION:

FLOOR PLANS:	YES: _____	NO: _____
WIRING DIAGRAM:	YES: _____	NO: _____
ANNUNCIATOR DETAILS:	YES: _____	NO: _____
BID SPECIFICATIONS:	YES: _____	NO: _____
EQUIPMENT DATA SHEETS:	YES: _____	NO: _____
BATTERY CALCULATIONS:	YES: _____	NO: _____
SEQUENCE OF OPERATIONS:	YES: _____	NO: _____

THIS IS A NEW APPLICATION: YES: \_\_\_\_\_ NO: \_\_\_\_\_

THIS IS AN AMENDMENT TO AN EXISTING PERMIT: YES: \_\_\_\_\_ NO: \_\_\_\_\_

INSERT LANGUAGE RE INSURANCE AND INDEMNITY

PRIOR TO THIS OFFICE ISSUING ANY "CERTIFICATE OF OCCUPANCY", OR ACCEPTING ANY FIRE ALARM SYSTEM, A COMPLETED "FIRE ALARM ACCEPTANCE REPORT" MUST BE RETURNED TO THIS OFFICE, SIGNED BY THE INSTALLING CONTRACTOR. THESE FORMS ARE AVAILABLE AT THE FIRE PREVENTION BUREAU 380 CONGRESS ST.

PERMIT APPLICANT SIGNATURE: \_\_\_\_\_

DATE: \_\_\_\_\_

**GENERAL REQUIREMENTS**

**SECTION 1.0**

- 1.1 All structures, as herein defined, shall be provided with some level of early warning, installed and maintained as detailed by this ordinance and other referenced publications. The intent of this ordinance is to provide early warning to all persons where danger from fire may not be immediately evident, to allow those persons to safely evacuate the area and/or take other appropriate action.
- 1.2 The Fire Prevention Bureau shall review each building permit application for all structures except one (1) and two (2) family homes, to determine the need and extent of fire alarm protection.
- 1.3 The level of protection required shall be based on the size and type of construction, occupancy classification (as defined by NFPA 101) and building contents.
- 1.4 Fire alarm protection may be required in structures not specifically required to be protected by other sections of these standards to offset exit deficiency, mixed occupancies or other safety situations not otherwise addressed.
  - 1.4.1 At the discretion of the Fire Chief, state of the art alternate fire protection systems may be accepted as an equivalent substitute to the fire alarm systems detailed in these standards.
- 1.5 Some level of fire alarm protection shall be required for any of the following occupancies:
  - High rise buildings (any occupancy classification, class "A" system required)
  - High Hazard Occupancies/Public Assemblies
  - Educational Occupancies
  - Health Care Facilities
  - Detention and Correctional Occupancies
  - Hotels and Dormitories
  - Apartment Buildings (4 or more stories or 11 or more units)
  - Residential Board and Care Facility
  - Mercantile Occupancies
  - Business Occupancies (when occupied by 50 or more persons.
  - Industrial Occupancies (when occupied by 50 or more persons or any high hazard classification)
  - Storage (when storage materials are classified as hazardous and the structure is normally occupied)
  - Special Structures (when determined by the Fire Prevention Bureau)
  - Any mixed occupancy which includes a residential use.
- 1.6 All equipment used in any one structure shall be of the same manufacturer. All control equipment shall be listed under "UL" category UOJZ as a single control unit. Partial listings shall not be acceptable.
- 1.7 All control equipment must have transient protection devices to comply with UL864 requirements.

- 1.8 The installation of any fire alarm system shall comply with the performance standards for a Type “A”, “B”, or “C” system or as specified or modified by the Fire Prevention Bureau.
- 1.9 The “Performance Standards” for Type “A”, “B”, and “C” systems shall be met unless waived by the Fire Chief in his discretion
- 1.10 All structures requiring a fire alarm system shall be provided with a “Knox Box” – make, model and size as determined by the Portland Fire Prevention Bureau. Knox Box shall be located as specified by the fire department. All keys required to operate the fire alarm system shall be placed within this box.
- 1.11 All installations shall comply with the applicable requirements of NFPA 72, the National Electrical Code, and the Fire Prevention Bureau.
- 1.12 All applications for “Fire Alarm Permits” shall be made at the building inspection office on forms provided by the Fire Prevention Bureau. All information requested on the forms shall be completed when applicable to the proposed installation and all supportive documentation provided before the permit can be reviewed.
- 1.13 In addition to the “Fire Alarm Permit”, the installer shall apply for an electrical permit through the building inspection office.
- 1.14 Any application for a Class A or B fire alarm system shall include:
  - 1) A copy of the Bid Specification.
  - 2) Complete descriptive data indicating “UL” listings for all system components.
  - 3) A complete description of the sequence of operation.
  - 4) A complete system wiring diagram for all components being connected to the system.
  - 5) Floor plans indicating the placement of all equipment.
  - 6) Annunciator details showing the labeling of all zones.
  - 7) Battery calculations.
- 1.14.1 Any application for a Class C fire alarm system shall include those items listed above as may be required by the Fire Prevention Bureau.
- 1.15 Any additions or modifications from the approved plans will require the submission of an amendment and approval from the fire department.
- 1.16 After the completion of installation, the installing contractor shall provide the Fire Prevention Bureau with a “Fire Alarm Acceptance Report” Per NFPA 72 before the “Certificate of Occupancy” can be issued.
- 1.17 All fire alarm wiring shall be protected from vandalism by means of electrical mechanical tubing (“EMT”) or metal conduit or concealment within the wall cavity.
- 1.18 Any fire alarm system, including all peripheral devices, shall be maintained and kept operational at all times. Whenever any initiating device is activated and rendered

inoperational, it shall be repaired or replaced within twenty-four (24) hours. Any other component needing repair or replacement shall be started within twenty-four (24) hours of disablement and continued until completed as parts are received.

1.19 Any alarm system requiring more than one (1) zone shall be provided with individual zone disconnects.

1.20 Any class "A" or "B" fire alarm system shall submit CAD drawings of said system.

## **CONTROL EQUIPMENT**

### **SECTION 2.0**

- 2.1 The Fire Alarm Control Panel (FACP) or an annunciator panel shall be placed at the primary point of entry as defined by the Fire Prevention Bureau.
- 2.2 Programmable systems shall be capable of being programmed onsite.
- 2.3 FACP and annunciator panels shall have visual and audio trouble indicators.
- 2.4 All control features shall be placed within the FACP only.
- 2.5 Any FACP which is placed within a space shall have the door leading to that space labeled with the words "Fire Alarm Control Panel".
- 2.6 The tripping of a tamper switch shall activate a trouble condition only and shall not sound the evacuation signals.
- 2.7 The activation of a Class "A" or "B" fire alarm system shall automatically send a signal to either the "Municipal" fire alarm or an approved private "Central Receiving Station" when required by Municipal Ordinance 2.5. All "Municipal" Fire Alarm Connections shall be approved by the Fire Chief.
- 2.8 Any structure required to have a fire alarm system shall provide a firefighter communication system, which, at the discretion of the Fire Chief, may consist a telephone communication system or a state of the art system such as a fixed repeater system. Said system shall be a Motorola Approved Fixed repeater system and shall meet the interface requirements of the City of Portland's 800 mhz radio system. All such equipment shall be properly installed and regularly maintained by the property owner and be available for inspection and use of the City of Portland 24/7..

## **INITIATING DEVICES**

### **SECTION 3.0**

- 3.1 Exhaust hood extinguishing systems , halon systems, and standpipe systems shall be electrically connected to the evacuation system.
- 3.2 Detection devices located within concealed spaces or spaces deemed inaccessible by the Fire Prevention Bureau shall have an indicator visual to the firefighter from all normally occupied spaces approved by the Fire Prevention Bureau.
- 3.3 Any initiating device not connected to the FACP shall be so labeled.
- 3.4 All fire alarm pull stations, control equipment, and audio visual equipment shall be red, with the exception that FACP may be of a different color when proper labeling is provided.
- 3.5 All areas which are part of a defined exit system (hallways, stairways, lobbies, etc.) and any areas prone to smoldering fires shall be protected with smoke detectors. All other areas shall be protected with heat detector. The heat detectors shall be rate-of-rise in all cases when practical.
- 3.6 The fusing of any sprinkler head shall activate the fire alarm.
- 3.7 All detection devices shall be protected against radio frequency activation.

## SIGNAL DEVICES

### SECTION 4.0

- 4.1 The use of bells as a signal device is prohibited in any system.
- 4.2 All class “A” systems shall be provided with two (2) separate signal circuits installed so as to reduce the chances of both being damaged by a single incident.
- 4.3 The activation of the fire alarm system in all high rise occupancies shall sound an audible and visual alarm on the floor of initiation, the two (2) floors above, and the floor below. Whenever any incident requires the activation of a floor connected to other floors by means of an unprotected vertical opening, the alarm activation shall be extended to include all floors so interconnected. If a second zone goes into alarm, then a general evacuation shall be sounded.
- 4.4 All other structures shall sound a general evacuation throughout all floors unless otherwise approved by this office.
- 4.5 All residential occupancies requiring a fire alarm system shall equip each living unit with an approved “mini-horn” connected to the FACP.
- 4.6 The use of chimes shall be restricted to hospitals, nursing homes, convalescent homes, institutions for the mentally handicapped, and other occupancies where sudden loud noises might cause panic or confusion to the occupants. Any occupancy using chimes as the signal devices must provide a staff which is awake twenty-four (24) hours a day.
- 4.7 The Fire Prevention Bureau may require multi-lingual voice evacuations systems in all facilities using prerecorded voice evacuation systems. Prerecorded messages shall use a female voice and state the following at the completion of a thirty (30) second alert tone:

*“Attention Please! The fire alarm system has detected an emergency condition within the building. Please proceed to the nearest stairway and exit the building. Do not use the elevators.”*

## **TYPE A FIRE ALARM SYSTEM PERFORMANCE STANDARDS**

### **SECTION 5.0**

#### 5.1 Type "A" Fire Alarm System Performance Standards.

- 1) "UL" Listed
- 2) Meet all applicable NFPA; local and state standards
- 3) Supervision of all peripheral devices
- 4) Addressable detection devices
- 5) Alarm verification
- 6) Voice communications
- 7) Firefighter telephones and/or radio communications
- 8) Municipal connection
- 9) Separate audio and visual trouble indication
- 10) Individual zone or device disconnect
- 11) Building systems status indication
- 12) Elevator recall
- 13) Sprinkler activation and zone indication
- 14) History recall
- 15) Prerecorded messages
- 16) Drill switch
- 17) "Knox Box"
- 18) Field programmable
- 19) Two (2) separate signal circuits per floor

Fire Chief

## **TYPE B FIRE ALARM SYSTEM PERFORMANCE STANDARDS**

### **SECTION 6.0**

6.1 Type “B” fire alarm system performance standards:

- 1) “UL” listing
- 2) Meet all applicable NFPA, local, and state standards
- 3) Zone indication
- 4) Separate audio and visual trouble indication
- 5) Municipal connection capabilities
- 6) Supervision of all peripheral devices
- 7) Sprinkler activation and zone indication (when applicable)
- 8) Individual zone disconnect
- 9) Drill switch

(See Section 1.9)

## **TYPE C FIRE ALARM SYSTEM PERFORMANCE STANDARDS**

### **SECTION 7.0**

7.1 Type “C” fire alarm system performance standards:

- 1) “UL” listed
- 2) Meet all applicable NFPA, local, and state standards
- 3) Zone indication
- 4) Separate audio and visual trouble indication
- 5) Supervision of all peripheral devices
- 6) Sprinkler activation and zone indication (when applicable)

(See Section 1.9)