

**CORVALLIS FIRE DEPARTMENT
DEPARTMENTAL OPERATING GUIDELINES**

D.O.G. 11.2.7
DATE: 11/16/2001
REV: 11/06/2003

**FIRE ALARM SYSTEMS
PLANS REVIEW, INSTALLATION AND ACCEPTANCE TESTING REQUIREMENTS**

PURPOSE

Specifies the requirements and procedures for plan review, installation and acceptance testing of both code-required and non-code-required fire alarm systems.

SCOPE

In accordance with City Municipal Code 7.08.090, all new installations or alterations of fire alarm systems (with the exception of private residential fire alarm systems installed in single-family or duplex occupancies) are required to have a Uniform Fire Code (UFC) permit, plan review and field acceptance test from the Corvallis Fire Prevention Office. This process is to be coordinated with Development Services' permit requirements for plan review and inspection of code-required fire alarm systems (Procedure #PRO 3029).

APPLICABLE CODES

All fire alarm systems and components shall meet applicable requirements listed in the edition of the following codes in effect at time of installation or alteration: the Oregon Structural Specialties Code, the Oregon Electrical Code, the Oregon Uniform Fire Code, Article 10 and UFC Standard 10-2.

PROCEDURE

Code-Required Fire Alarm Systems:

1. The plan review process is coordinated by Development Services. Applicant submits plans and requests inspections through the Development Assistance Center (DAC).
2. In addition to the building and electrical permits required by Development Services, the applicant shall apply for a UFC permit from the Corvallis Fire Department, Fire Prevention Office.
3. The Fire Prevention Office performs a plan review in conjunction with Development Services, and submits all comments to the DAC Plans Examiner.
4. Development Services coordinates field inspections and final acceptance testing with the applicant and the Fire Prevention Office.

Non-Code-Required Fire Alarm Systems:

1. A plan review is performed by the Corvallis Fire Prevention Office. Applicant submits plans and requests inspections through the Fire Prevention Office.
2. In addition to the UFC permit obtained from the Fire Prevention Office, the applicant obtains a low-voltage electrical permit from DAC.
3. The Fire Prevention Office performs a final inspection and observes an acceptance test.

REQUIREMENTS (CODE AND NON-CODE REQUIRED SYSTEMS)Plan Review and Permits

1. Applicant shall submit plans to the appropriate office (see above) and apply for permits prior to installation or alteration of a fire alarm system.
2. Plans and specifications for fire alarm systems shall include, but not be limited to:
 - a. A floor plan indicating the use of each area or room
 - b. Location of all alarm-initiating and alarm-signaling devices
 - c. Alarm control- and trouble-signaling equipment
 - d. Annunciation
 - e. Power connection
 - f. Battery calculations
 - g. Conductor type and sizes
 - h. Voltage drop calculations
 - l. Manufacturer, model numbers and listing information for all equipment, devices, and materials.
3. All code-required system plans shall be stamped by a State of Oregon licensed design professional, and shall be designed and installed in accordance with applicable codes as noted above.
4. All non-code-required system plans shall be prepared by a fire alarm system design professional, in accordance with applicable codes as noted above.
5. UFC permit fees shall be paid prior to issuance of permit.

Design Requirements:

1. Specific design and installation requirements are contained in NFPA 72, and in Oregon Uniform Fire Code Standard 10-2 (based on NFPA 72,).
2. Fire alarm control unit shall be located in a supervised and/or secure area, where it will not be tampered with but can be heard if a trouble signal sounds. If installed in a secure, normally unstaffed area (i.e., the utility room), the door providing access to that room shall be identified with a sign. The sign shall have 1-inch (minimum) red lettering and shall read, "Fire Alarm Control Unit."
3. A remote annunciator panel shall be located near the most appropriate entrance as designated by the Fire Marshal based on the access which will be utilized by fire emergency vehicles. The Knox Box and Fire Department Connection (FDC) will also be located in proximity to this same entry. The location of the annunciator panel will be identified on the approved plans prior to issuance of the fire alarm permit. If possible, the annunciator panel shall be mounted on an interior wall

where it is visible from the exterior (through a glass door or window). In those occupancies where a voice annunciation system is required, the panel containing the microphone provided for fire department use shall be located adjacent to the remote annunciator panel.

4. When two or more alarm zones are required, fire protective signaling systems shall be divided into zones to assist in determining the fire location. The annunciation of all zones and device identification shall be on electrically supervised initiating circuits to the main fire alarm control unit and remote annunciator panels. Alarm, supervisory, and trouble signals shall be annunciated in the main control unit by means of an audible signal and a visual display. Such annunciation shall indicate the building, floor, zone, or other designated area from which the alarm or trouble signal originated. For the purposes of annunciation, zoning shall be in accordance with the following:
 - a. When the fire protective signaling system serves more than one building, each building shall be considered a separate zone.
 - b. Each floor of a building shall be considered a separate zone.
 - c. Each section of floor of a building that is separated by area separation walls or by horizontal exits shall be considered a separate zone.
 - d. Identification of the type of alarm, initiating devices such as manual pull, smoke detector, heat detector, sprinkler water flow, sprinkler supervisory switches, hood suppression system, etc., shall be separately indicated on electrically supervised initiating circuits to the main fire alarm control unit and remote annunciator panels.
5. On non-addressable fire alarm systems or addressable fire alarm systems connected to non-addressable initiating devices, a permanent zone identification map and labeling shall be provided at the fire alarm control panel and annunciator panel/s. The proposed map and labeling shall be submitted to the Plans Examiner for review and approval prior to installation. An acceptable method is to have the map mounted on the wall by the annunciator panel and fire alarm control unit, with a plexiglas cover protecting the map. A properly installed and programmed fully addressable fire alarm system provided with initiating devices that are all individually addressable does not need to be provided with a zone map. Written operating, *testing and maintenance* instructions and *as-built drawings* shall be provided and stored at the fire alarm control unit.
6. Alarm System Monitoring. When fire alarm systems are required to be monitored, it shall be by an approved central, proprietary, or remote station service except where local monitoring is allowed by the Oregon Structural Specialty Code and/or the Oregon Uniform Fire Code. The method of providing systems monitoring may be any of the above as permitted by the Code and shall be identified on the plans submitted for permit application.
7. The use of the distinctive three-pulse temporal pattern fire alarm evacuation signal is required. This pattern consists of an "on" phase lasting 0.5 seconds, followed by an "off" phase lasting 0.5 seconds for three successive "on" periods, which is then followed by an "off" phase lasting 1.5 seconds. The signal will be repeated for not less than 180 seconds [1997 UFC Std. 10-2, A-3-7.2(a)].

Final Inspection & Acceptance Testing

1. Written certification shall be submitted to either Development Services (for code-required systems) or the Fire Department (for non-code-required systems) stating that the system has been installed in accordance with the approved plans, specifications and appropriate standards

(refer to Oregon Uniform Fire Code, Std. 10-2, "Certificate of Compliance" requirements and form). All functions of the system shall be tested, including operation of the system in various alarm and trouble modes for which it is designed. NFPA 72 shall be used as a guideline for the testing process.

2. Upon completion of installations or any alterations, tests of the system shall be conducted in the presence of and as directed by the Building Inspector and the Fire Prevention Officer, using NFPA 72, 1996 edition, as the guide for the testing process.

Dan Campbell, Fire Chief

Next scheduled review date: November, 2006