Oregon Fire Code Applications Guide

Based on 2022 Oregon Fire Code

This guide is intended to provide assistance in the application of the fire code in the following jurisdictions and cities/towns within:

Tillamook County

Notes to Users

Check the local city or county development code to determine the applicability of roadway standards as it relates to conflicts with this guide and/or the adopted fire code. (ORS 368.039)

Preamble/Authority and Scope

The above jurisdictions have elected to administer and enforce the Oregon Fire Code under the authority granted to them by ORS 476.030 or ORS 476.060. The Oregon Fire Code is the International Fire Code, 2022 edition, as published and copyrighted by the International Code Council, which has been amended and adopted by the Oregon State Fire Marshal's Office.

The listed jurisdictions have prepared this Applications Guide to provide good faith guidance to building officials, contractors, business owners, the public, and fire marshals on local interpretations and practices that are considered to be in compliance with the Oregon Fire Code. The intent is to clarify aspects of the code that are vague or non-specific by addressing selected issues under normal conditions. This Applications Guide does not create or replace code provisions and is not an adopted policy of the above jurisdictions. The reader is cautioned that the guidance detailed in this Applications Guide may or may not apply to their specific situation, and that the designated authority for each jurisdiction retains final authority to determine compliance.

Dispute Resolution Process: Any disputed inspection findings can be appealed through The Office of State Fire Marshal, based on Section 108 of the Oregon Fire Code.

Please note: A number of the fire service agencies in Lincoln County are staffed by volunteers. Please contact the fire service agencies ahead of time to make an appointment, prior to inspection for an acceptance sign-off.

Jurisdiction Contact Information

Lincoln County Fire Districts & Fire Departments		**Oregon State Fire Marshal Office**
Bay City Fire	503.377.0233	Shannon Miller, Deputy State Fire Marshal, 503.507.1897
Garibaldi Fire	503.322.3635	
Nehalem Bay Fire	503.368.7590	
Netarts/Oceanside Fire	503.842.1153	
Nestucca Rural Fire	503.392.3313	
Rockaway Beach Fire	503.355.2978	
Tillamook Fire District	503.842.7587	

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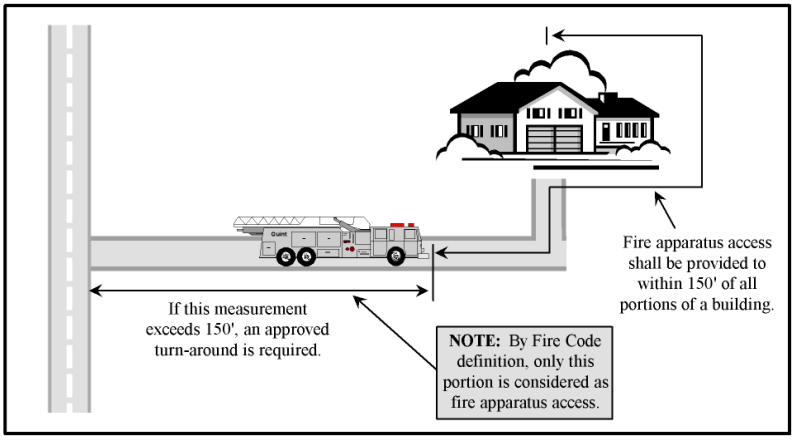
Fire Apparatus Access

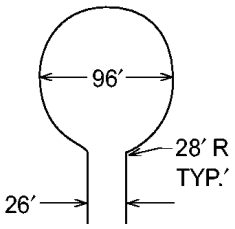
FIRE APPARATUS ACCESS ROAD DISTANCE FROM BUILDING AND TURNAROUNDS: Access roads shall be within 150 feet of all portions of the exterior wall of the first story of the building as measured by an approved route around the exterior of the building. An approved turnaround is required if the remaining distance to an approved intersecting roadway, as measured along the fire apparatus access road, is greater than 150 feet. (OFC 503.1.1)



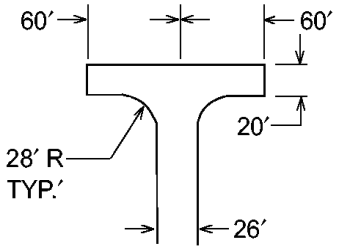
FIRE APPARATUS ACCESS ROAD EXCEPTIONS: The requirements for fire apparatus access may be modified as approved by the fire code official where any of the following apply: (OFC 503.1.1 Exception)

1. Buildings are equipped throughout with an approved automatic fire sprinkler system (the approval of this alternate method of construction shall be accomplished in accordance with the provisions of ORS 455.610(5).
2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.
3. There are not more than two group R-3 or Group U occupancies.

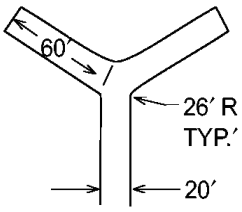
DEAD END ROADS: Dead end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround (OFC 503.2.5). Dead end fire apparatus access roads in excess of 500 in length shall have a driving surface width of not less than 26 feet (OFC Appendix D103.4). Diagrams of typical approved turnarounds are shown below. The Fire Chief may approve other alternates (OFC Appendix D 103.1):



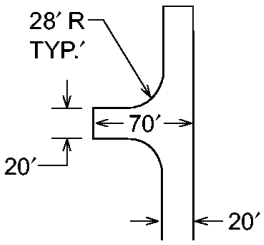
96′ DIAMETER CUL-DE-SAC



120′ HAMMERHEAD



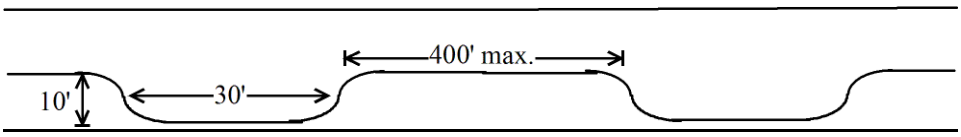
ACCEPTABLE ALTERNATIVE T0 120′ HAMMERHEAD



ACCEPTABLE ALTERNATIVE TO 120′ HAMMERHEAD

TURNING RADIUS: The inside turning radius and outside turning radius shall be not less than 28 feet and 48 feet respectively, measured from the same center point. (OFC 503.2.4 & Appendix D)

TURNOUTS: When any fire apparatus access road exceeds 400 feet in length, turnouts 10 feet wide and 30 feet long shall be provided in addition to the required road width and shall be placed no more than 400 feet apart, unless otherwise approved by the Fire Chief. These distances may be adjusted based on visibility and sight distances. (OFC Chapter 5)



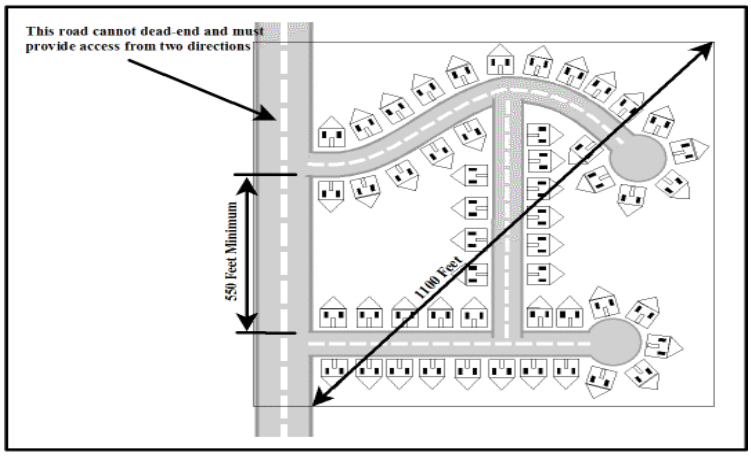
FIRE APPARATUS ACCESS ROAD EXCEPTION FOR AUTOMATIC SPRINKLER PROTECTION: *When buildings are protected with an approved automatic fire sprinkler system (per NFPA 13), the requirements for fire apparatus access may be modified as approved by the Fire Chief. The approval of this alternate method of construction shall be accomplished in accordance with the provisions of ORS 455.610(5). (OFC 503.1.1 Exception*)

GRADE: Fire apparatus access roadway grades shall not exceed 10 percent. Intersections and turnarounds shall be level (maximum 5%) with the exception of crowning for water run-off. When fire sprinklers are installed, a maximum grade of 15% may be allowed. The approval of fire sprinklers as an alternate shall be accomplished in accordance with the provisions of ORS 455.610(5). (OFC D103.2) Grades in excess of the above requirements may be permitted when the access is fully paved and approved by the Fire Chief. (Local adopted road ordinances supersedes OFC).

SURFACE AND LOAD CAPACITIES: Fire apparatus access roads shall be of an all-weather surface that is easily distinguishable from the surrounding area and is capable of supporting the imposed load of fire apparatus weighing at least 75,000 lbs. Check with the serving fire jurisdiction as this imposed load may increase based on fire apparatus serving the jurisdiction. Documentation from a registered engineer that the finished construction is in accordance with the approved plans, or the requirements of the fire code may be requested. (OFC D102.1) (Typical surface, 12-inches of pit run base with 2-inches of ¾ minus as a top layer)

MULTIPLE ACCESS ROADS: Developments of one- and two-family dwellings where the number of dwelling units exceeds 30, multiple-family residential projects having more than 100 dwelling units and where vehicle congestion, adverse terrain conditions or other factors that could limit access, as determined by the Fire Chief, shall be provided with not less than two approved means of access. Exceptions may be allowed for approved automatic sprinkler system. The approval of fire sprinklers as an alternate shall be accomplished in accordance with the provisions of ORS 455.610(5). (OFC D106 & D107)

MULTIPLE ACCESS ROADS SEPARATION: Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses. (OFC D104.3 & D107.1)



FIRE APPARATUS ACCESS ROAD WIDTH AND VERTICAL CLEARANCE: Fire apparatus access roads of 150-feet or greater shall have an unobstructed driving surface width of not less than 20 feet (26 feet adjacent to fire hydrants (OFC D103.1)) and an unobstructed vertical clearance of not less than 13 feet 6 inches. (OFC 503.2.1 & D103.1)

Note: When serving two or less dwelling units and accessory buildings, the driving surface may be reduced to 14 feet, although the unobstructed width shall be 20 feet. Turning radii for curves and turnarounds on reduced width roads shall be not less than 28 feet and 48 feet respectively, measured from the same center point.

AERIAL FIRE APPARATUS ROAD WIDTH: Buildings more than 30 feet in height shall have fire apparatus access roads constructed for use by aerial apparatus with an unobstructed driving surface width of not less than 26 feet. (OFC D105.2)

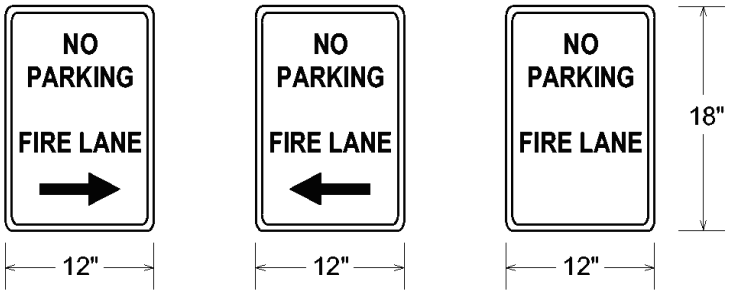
BRIDGES: Private bridges shall be designed and constructed in accordance with the State of Oregon Department of Transportation and American Association of State Highway and Transportation Officials Standards *Standard Specification for Highway Bridges.* A building permit shall be obtained for the construction of the bridge from the building official of the jurisdiction where the bridge is to be built. The design engineer shall prepare a special inspection and structural observation program for approval by the building official. The design engineer shall give in writing final approval of the bridge to the Fire Chief after construction is completed. Maintenance of the bridge shall be the responsibility of the party(ies) that use(s) the bridge for access to their property(ies). The fire district may at any time, for due cause, ask that a registered engineer inspect the bridge for structural stability and soundness at the expense of the property owner(s) the bridge serves. All bridges shall be posted with maximum weight capacity signs. (OFC 503.2.6)

GATES: Gates securing fire apparatus roads shall comply with all the following: (OFC D103.4, D103.5, OFC 503.4, OFC 503.5, OFC 503.6, or as approved by the Fire Chief).

- Minimum unobstructed width shall be 20 feet.
- Gates serving one- or two-family dwellings shall be a minimum of 14 feet in width.
- Gates shall be set back at minimum of 30 feet from the intersecting roadway.
- Gates shall be of the swinging or sliding type.
- Manual operation shall be capable by one person.
- Electric gates shall be listed in accordance with UL 325 and ASTM F2200, equipped with a means for operation as approved by the Fire Chief
- Locking devices shall be approved by the fire code official/Fire Chief.

NO PARKING SIGNS: Where fire apparatus roadways are not of sufficient width to accommodate parked vehicles and 20 feet of unobstructed driving surface, "No Parking" signs shall be installed on one or both sides of the roadway and in turnarounds as needed. Roads 26 feet wide or less shall be posted on both sides as a fire lane. Roads more than 26 feet wide to 32 feet wide shall be posted on one side as a fire lane.

Signs shall read "NO PARKING - FIRE LANE" and shall be installed with a clear space above grade level of 7 feet. Signs shall be 12 inches wide by 18 inches high and shall have red letters on a white reflective background. (OFC D103.6)



PAINTED CURBS: Where required, fire apparatus access roadway curbs shall be painted red (or color used by jurisdiction for no parking such as yellow) and marked "NO PARKING, FIRE LANE" at approved intervals by approved signs or other approved notices or markings. OPTIONAL: Lettering shall have a stroke of not less than one inch wide by six inches high. Lettering shall be white on red background for curb lettering. (OFC 503.3)

PREMISE IDENTIFICATION: Buildings shall have address numbers or approved identification placed in a position that is plainly legible and visible from the access road fronting the property. Numbers shall contrast with their background and shall be a minimum of 4 inches high with a minimum stroke width of ½ inch. (OFC 505.1). Check the local city or county development code for additional or alternative requirements.

Firefighting Water Supplies

COMMERCIAL BUILDINGS - FIRE FLOW: The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be determined according to OFC Appendix B. The required fire flow for a building shall not exceed the available GPM in the water delivery system at 20 psi.

SINGLE FAMILY DWELLINGS - REQUIRED FIRE FLOW: The minimum available fire flow for single family dwellings and duplexes served by a municipal water supply shall be 1,000 gallons per minute. If the structure(s) is (are) 3,600 square feet or larger, the required fire flow shall be determined according to OFC Appendix B. (OFC B105)

RURAL BUILDINGS - REQUIRED FIRE FLOW: Required fire flow for rural and suburban areas in which adequate and reliable water supply systems do not exist may be calculated in accordance with National Fire Protection Association Standard 1142, current adopted edition, when approved by the Fire Chief. Please contact the local fire department office for special assistance and other requirements that may apply. (OFC B103.3)

ACCESS AND FIRE FIGHTING WATER SUPPLY DURING CONSTRUCTION: Approved fire apparatus access roadways and fire fighting water supplies shall be installed and operational prior to any combustible construction or storage of combustible materials on the site, except where approved alternative methods of protection are provided. (OFC 501.4)

Fire Hydrants **Required fire hydrant locations shall be approved by the fire chief**

FIRE HYDRANTS – COMMERCIAL BUILDINGS: Where a portion of the building is more than 400 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the building, on-site fire hydrants and mains shall be provided where required by the fire code official. (OFC 507.5.1)

> Note: This distance may be increased to 600 feet for buildings equipped throughout with an approved automatic sprinkler system or Group R-3 and Group U occupancies.

FIRE HYDRANTS – ONE- AND TWO-FAMILY DWELLINGS & ACCESSORY STRUCTURES: Where a portion of a structure is more than 600 feet from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the structure(s), on-site fire hydrants and mains shall be provided. (OFC 507.5.1 exception 1)

FIRE HYDRANT NUMBER AND DISTRIBUTION: The minimum number and distribution of fire hydrants available to a building shall not be less than that listed in Table C 105.1. See page 11 for hydrant proximity to FDC. (OFC Appendix C)

TABLE C105.1
NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (Gpm)	MINIMUM NUMBER OF HYDRANTS	AVERAGE SPACING BETWEEN Hydrants[a, b,c] (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A Hydrant[d]
1,750 or less	1	500	250
2,000-2,250	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more[e]	200	120

For SI: 1 foot = 304.8 mm, 1 gallon per minute = 3.785 L/m.

a. Reduce by 100 feet for dead-end streets or roads.

b. Where streets are provided with median dividers which can be crossed by fire fighters pulling hose lines, or where arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute and 400 feet for higher fire-flow requirements.

c. Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at spacing not to exceed 1,000 feet to provide for transportation hazards.

d. Reduce by 50 feet for dead-end streets or roads.

e. One hydrant for each 1,000 gallons per minute or fraction thereof

f. A 50% spacing increase shall be permitted where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 of the International Fire Code

g. A 25% spacing increase shall be permitted where the building equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2 or 903.3.1.3 of the International Fire Code or Section P2904 of the International Residential Code.

h. The fire code official is authorized to modify the location, number and distribution of fire hydrants based on site-specific constraints and hazards.

FIRE HYDRANT DISTANCE FROM AN ACCESS ROAD: Fire hydrants shall be provided along required fire apparatus access roadway and adjacent to public streets unless approved by the Fire Chief. (OFC C102.1)

FIRE DEPARTMENT WATER SUPPLY CONSTRUCTION: Hydrant outlet threads shall have NHS external threads for the side outlet supplied as specified in NFPA 1963, Standard for Fire Hose Connections.

Installation of hydrants, fire department connections, underground fire line, water supply tanks, ponds and piping shall be compliant with Oregon Fire Code, NFPA 1142, NFPA 22, NFPA 24 and NFPA 14 with other applicable codes and standards.

NOTE: Contact serving fire jurisdiction for water supply and FDC location. Contact serving fire jurisdiction for draft ports location, size and connection type when installing draft hydrants for rural and suburban water supply.

FIRE HYDRANT/FIRE DEPARTMENT CONNECTION: With respect to hydrants, driveways, buildings and landscaping, fire department connections shall be so located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise approved by the Fire Chief. (OFC 912.2)

A fire hydrant shall be located within 100 feet of a fire department connection (FDC). Fire hydrants and FDC's shall be located on the same side of the fire apparatus access roadway. (OFC Appendix C102.1 and NFPA 14) Fire department connections shall be located not less than 1 inches nor more than 4 inches above the level of the adjoining ground, sidewalk or grade surface and installed/supported in accordance with NFPA 13 and 14.

A working space of not less than 36 inches in width, depth and 78 inches in height shall be provided and maintained in front and to the sides of wall mounted fire department connections and around the circumference of free-standing fire department connections.

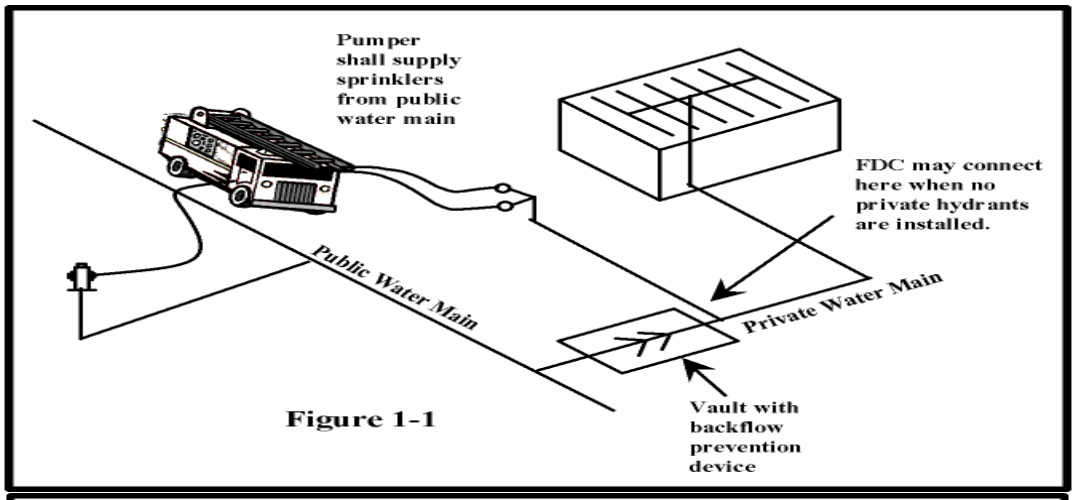


Figure 1-1

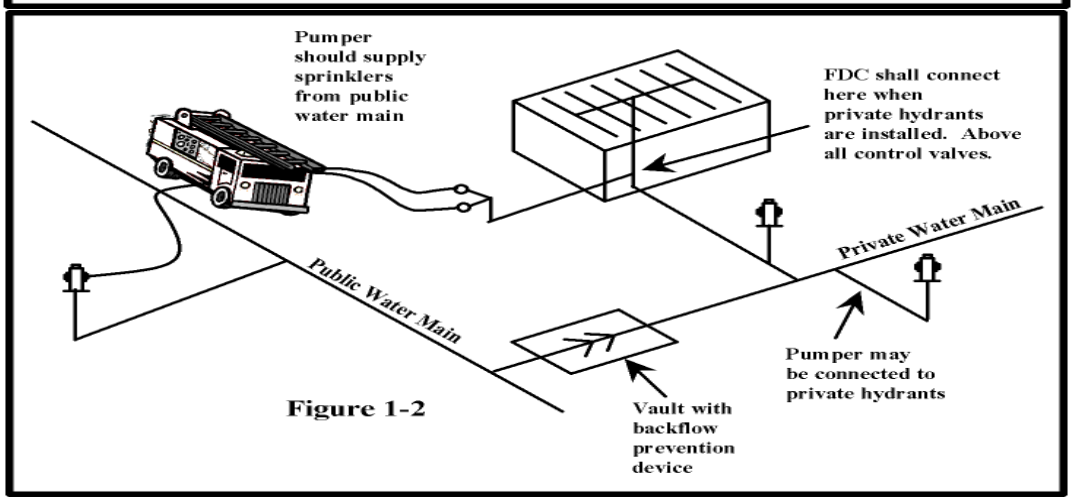


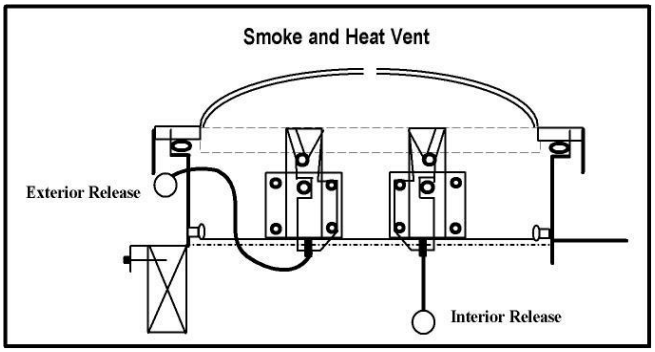
Figure 1-2

Key Boxes

KEY BOX: A key box for building access may be required. Please contact the local fire department for information and instructions regarding installation and placement requirements. (OFC 506)

Smoke and Heat Vents

MANUAL RELEASE: Manual releases shall be provided for use during fire suppression operations. Individual exterior release mechanisms shall be provided for each vent.



Fire Watch

FIRE WATCH: Whenever a *required* fire alarm, detection or suppression system is out-of-service and a life hazard and or distinct fire hazard is present, the fire code official and/or the property owner or manager shall initiate a fire watch. A fire watch is defined as a temporary measure intended to ensure continuous and systematic surveillance of a building or portion thereof by one or more qualified individuals for the purposes of identifying and controlling fire hazards, detecting early signs of unwanted fire, raising an alarm of fire and notifying the fire department. Each affected area or building must be patrolled hourly and documented on a written log. Individuals assigned to fire watch duty must be provided with a means of communication such as a cell phone or two-way radio and their only duties shall be to perform constant patrols. The watch shall remain in effect until repairs are made and the system(s) are back in-service. *When in doubt if a system is required or if a fire watch is needed, contact the local Fire Marshal's Office for consultation and or response.* (OFC, Section 901.7, Appendix T & Section 202)

Fire watch is not acceptable as an alternative for new construction occupancy until the building is complete.

EXAMPLES:
The automatic smoke detection system in the Family Birth Center at the local Hospital is taken off-line due to unwanted false alarms and an alarm technician has been dispatched to evaluate the system. This is a required detection system, and the patients occupy the floor. A fire watch is required and could be conducted by nursing and or security personnel.

The manual fire alarm system at a local Elementary School is initiating false alarms and is taken offline by school district personnel; the automatic smoke detection and fire sprinkler system are operational. It's Saturday afternoon and the building is not occupied. Although this is a required system, a fire watch may not be required to be evaluated on the situational basis by the fire code official.

The water main that serves a local apartment complex is damaged in a construction accident rendering the fire hydrants and residential fire sprinkler systems out-of-service. It's Sunday night and nearly all of the apartments are occupied. Both systems are required and a continuous fire watch is needed.

Link to the 2022 Oregon State Fire Code Digital Codes (iccsafe.org)

General Building Information for Fire Maintenance

Construction and plans approval for building and building life safety system(s) must be approved and tested by Oregon Building Official per the current code adopted at time of construction.

Ensure the additions/repairs/alterations/maintenance are within compliance of the Oregon Fire Code, NFPA Standards, including but not limited to:
NFPA 13 – Automatic Sprinkler Systems,
NFPA 13R- Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and including four stories in height,
NFPA 13D Standard for the Installation of Sprinkler Systems in 1 and 2 Family Dwellings
NFPA 14 Standard for the Installation of Standpipe and Hose systems
NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection
NFPA 72 – National Fire Alarm and Signaling Code,
NFPA 1142 Standard on Water supplies for suburban and rural firefighting,
NFPA 22 standard for water tanks for private fire protection and
NFPA 24 – Standard for the installation of private fire service mains and their appurtenances.
NFPA 25 Water-Based Fire Protection Systems (Maintenance standard for fire sprinkler, standpipe, fire pumps and water supply)

Any additions/remodeling or changes to the kitchen hood system to be compliant with the Oregon Fire Code, Oregon Mechanical Code, NFPA 17A Standard for Wet Chemical Extinguishing Systems and NFPA 96 Standard for Ventilation Control and Fire Protection of commercial Cooking Operations

Fire Extinguishers

Size and distribution of fire extinguishers shall be compliant with Oregon Fire Code section 906 and NFPA 10 Standard for Portable Fire Extinguishers. Depending on occupancy type and hazard, size and location distance of fire extinguishers may vary.

Examples: For general light hazard occupancies a 2A 10 BC minimum rated fire extinguisher to be located in an accessible location not less than 4” nor greater than 60” in height. One for each 75 feet travel distance or each 3,000 square feet throughout the building. A 2A 20 BC minimum rated fire extinguisher accessible within 50 feet for places such as a repair garage with flammable/combustible liquids or a gas station and mounted no less than 4” nor greater than 60” in height. A Class k fire extinguisher when cooking with grease laden product shall be provided within 30 feet access and in compliance with Oregon Fire Code section 906.4

FIRE LIFE AND SAFETY SYSTEMS (for information purposes only construction)

Provide building official approved plans and permit for fire alarm, fire alarm/sprinkler monitoring, fire sprinkler system, kitchen hood suppression system and other fire suppression system if required by the building official.

- Fire sprinkler system plans and/or underground plans shall have the valve locations, underground fire line type and size to and including the in-building risers.
- In-Building risers shall be of approved type and size and installed per manufacture specifications (double wrap protection of stainless steel with 2” annular space through foundation).
- Valves shall not be on the underground fire line to the building unless protected with a P.I.V or other approved alternative.
- Do not connect building overhead sprinkler system to the underground fire line until the underground fire line has been hydrostatically tested and flushed witnessed by the AHJ.
- OREGON FIRE CODE – 903.4.2 ALARMS – an approved audible device, located on the exterior of the building in an approved location, shall be connected to each automatic sprinkler system.
- Fire monitoring system - ensure the monitoring company is UL listed and appropriate signals such as, but not limited to, Water flow, Fire Alarm, Supervisory, Trouble report as per NFPA 72 and NFPA 13.