



City of Bellevue Fire Department
 P.O. Box 90012
 Bellevue, WA 98009 (425) 452-6872

Operational Permit Application

Emergency Responder Radio Coverage

Work or activity requiring a permit shall not commence until such work or activity has been inspected and authorized with a valid permit. Violation of this condition may result in additional permit or inspection fees.

GENERAL INFORMATION (to be completed by the permit applicant) (PLEASE PRINT)

Business Name:		
Address:		
City:	State:	Zip:
Contact Person:	Phone No.	
Email Address:		

LOCATION OF PERMITTED ACTIVITY (if different than above) (PLEASE PRINT)

Business Name:		
Address:		
City:	State:	Zip:

PERMIT BILLING (if different than above) (PLEASE PRINT) (Permits will be invoiced by the City of Bellevue)

Business Name:		
Address:		
City:	State:	Zip:
Contact Person:	Phone No.	
Email Address:		

Permit fee: Please refer to the website for the permit fee amount, which will be invoiced by the City of Bellevue in the following manner:

- Temporary use permits are invoiced within 30 days of permit issuance.
- Until revoked permits are invoiced January each year.
- All permits are subject to a late fee if not paid within 30 days of receipt.

Governmental or non-profit organizations are exempt from permit fees. If non-profit, please provide IRS documentation for non-profit status.

 Applicant Signature

 Date

FIRE PREVENTION OFFICE USE ONLY:

Specific Permit Conditions:	
Application Disposition: <input type="checkbox"/> Approved <input type="checkbox"/> Denied	
Reason for Denial:	
Reviewed / Inspected By:	Date:



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PERMIT CONDITIONS

Emergency Responder Radio Coverage

The following conditions shall be adhered to at all times for the permit to be valid.

An operational permit is required to operate an Emergency Responder Radio Coverage System.

Emergency responder radio coverage. All new buildings shall have approved radio coverage for emergency responders within the building installed in accordance with Section 510 of the International Fire Code and with applicable provisions of NFPA 72, National Fire Alarm Signaling Code. This section shall not require improvement of the existing public safety communication system.

Exceptions:

1. Buildings and area of buildings that have minimum radio coverage signal strength levels of the King County Regional 800 MHz Radio System within the building.
2. Buildings constructed primarily of wood frame that do not have storage or parking areas extending more than one level below grade.
3. Buildings thirty-five (35) feet high (As defined by International Building Code Section 502) or less that do not have below grade storage or parking areas extending more than one level below grade. Should construction that is thirty-five (35) feet high or less include subterranean storage or parking, then this requirement shall apply only to the subterranean areas.
4. One and two family dwellings and townhouses.

Emergency responder radio coverage in existing buildings. Existing buildings shall be provided with *approved* radio coverage for emergency responders as required in BCC 23.11.1103.2.

Construction Permit required. A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in IFC Section 105.7.5. Maintenance performed in accordance with the International Fire Code is not considered a modification and does not require a permit.

Technical requirements. Systems, components, and equipment required to provide emergency responder radio coverage system shall comply with IFC Sections 510.4.1 through 510.4.2.5.

Radio signal strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95% of all areas of the building and 99% in elevators (measured at the primary recall floor), stair shafts and Fire Command Centers meet the signal strength requirements in IFC Sections 510.4.1.1 and 510.4.1.2.

Minimum signal strength into the building. A minimum signal strength of -95 dBm shall be receivable within the building.

Minimum signal strength out of the building. A minimum signal strength of -95 dBm shall be received by the agency's radio system when transmitted from within the building.

System Design. The emergency responder radio coverage system shall be designed in accordance with IFC Sections 510.4.2.1 through 510.4.2.5.

Amplification systems allowed. Buildings and structures which cannot support the required level of radio coverage shall be equipped:

1. A radiating cable system and/or
2. An internal multiple antenna system with FCC certificated bi-directional 800 MHz amplifiers or,
3. Systems otherwise approved by the city radio system manager in order to achieve the required adequate radio coverage.
4. Technical criteria.

Frequency range. The frequency range which must be supported shall be 806 MHz to 824 MHz and 851 MHz to 869 MHz and such other frequencies as determined by the Regional Radio System operator in all areas of the building.

Power supply. Power supplies shall conform with NFPA 72, Section 10.5 (Power Supplies).

Secondary Power. If any part of the installed system or systems contains an electrically powered component, the installed system or systems shall be provided with an independent battery system or an emergency generator capable of operating for a period of at least twenty four (24) hours without external power input. The battery system shall automatically charge in the presence of external power input.

Signal Booster Requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a NEMA4-type waterproof cabinet.
2. The battery system shall be contained in a NEMA4-type waterproof cabinet.
3. The system shall include automatic alarming of malfunctions of the signal booster and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 or, when approved by the fire code official, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC certification prior to installation.
5. Signal boosters must be equipped with filters that reject adjacent frequencies in addition to the multi-band pass filters.

Installation requirements. The installation of the public safety radio coverage system shall be in accordance with IFC Sections 510.5.1 through 510.5.5.

Approval Prior to Installation. No amplification system capable of operating on frequencies used by the Regional 800 MHz Radio System shall be installed without prior coordination and approval of the radio system licensee (The Eastside Public Safety Communications Agency – www.epsca.com – (425) 556-2515) and any such system must comply with any standards adopted by the King County Regional Communications Board.

Minimum Qualifications of personnel. The system designer, lead installation personnel and personnel conducting radio system tests shall be qualified to perform the work.

Design documents and all tests shall be documented and signed by a person in possession of a current FCC General Radio Telephone Operator License and a certificate or certification issued by the:

1. Associated Public Safety Communications Officials International (APCO), or
2. National Association of Business and Education Radio (NABER) or
3. Personal Communications Industry Association (PCIA), or
4. Manufacturer of the equipment being installed.

Acceptance Test procedure. Acceptance testing for Emergency responder radio amplification system is required, upon completion of installation. It is the building owner's responsibility to have the radio system tested by qualified personnel to ensure a minimum of 95% two-way coverage on each floor of the building.

A report shall be submitted to the Bellevue Fire Department at the conclusion of acceptance testing containing a floor plan and the signal strengths at each location tested and other relevant information. A representative of the Bellevue Fire Department may oversee the acceptance test. Acceptance testing is also required whenever changes occur to the building that would materially change the original field performance test. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of approximately forty (40) equal areas.
2. Testing shall use a two (2) watt, portable transceiver with speaker/microphone and flexible antenna (or any calibrated device which will produce signal levels useable by the prescribed portable radio). Field strength testing instruments must have been calibrated within one (1) year of the date of the acceptance test. Field strength testing instruments must be of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand held transceivers. City Radio System Manager may designate alternate methods of measuring the signal level, which satisfy appropriate levels of public safety coverage.
3. A maximum of two (2) nonadjacent areas will be allowed to fail the test.
4. In the event that three (3) of the areas fail the test, the floor may be divided into eighty (80) equal areas in order to be more statistically accurate. In such event, a maximum of four (4) nonadjacent areas will be allowed to fail the test. After the eighty (80) area tests, if the system continues to fail, the building owner shall have the system altered to meet the 95% coverage requirement.
5. A spot located approximately in the center of a grid area will be selected for the test, then the radio will be keyed to verify two-way communication to and from the outside of the

building through the Regional 800 MHz Radio System. Once the spot has been selected, prospecting for a better spot within the grid area is not permitted. The gain values of all amplifiers shall be measured and the results kept on file with the building owner so that the measurements can be verified each year during the annual tests. In the event that the measurement results become lost, the building owner will be required to rerun the acceptance test to reestablish the gain values.

6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building *owner* so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building *owner* shall be required to rerun the acceptance test to reestablish the gain values.

7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

FCC compliance. The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations including, but not limited to, FCC 47 DFR Part 90.219.

Approval Prior to Occupancy. A Certificate of Occupancy will not be issued to any structure if the building fails to comply with BCC 23.11.510.

Maintenance. The emergency responder radio coverage system shall be maintained operational at all times in accordance with IFC Sections 510.6.1 through 510.6.3.

Testing and proof of Compliance. The emergency responder radio coverage system shall be inspected and tested annually, or whenever structural changes occur to the building that would materially change the original field performance tests by a consultant approved by the Fire Code Official. The performance test shall include at minimum a floor plan and the signal strength in various locations of the building.

1. Testing shall consist of the following:
2. In-building coverage test as described in IFC Section 510.5.3.
3. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
4. Backup batteries and power supplies shall be tested under load of a period of one hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
5. All other active components shall be checked to verify operation within the manufacturer's specifications.
6. At the conclusion of the testing, a report, which shall verify compliance with IFC Section 510.5.3, shall be submitted to the fire code official not later than January 30th of each year.

Additional frequencies and change of frequencies. The building owner shall modify or expand the frequency range at his or her expense in the event frequency changes are required by the FCC or

additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this requirement.

Identification. Radio Coverage system shall be identified by a sign located on or near the Fire Alarm Control Panel stating ***“This building is equipped with an Emergency Responder Radio Coverage System.”***

Field Testing. Police and Fire Personnel shall at any time have the right to enter onto the property to conduct its own field-testing to be certain that the required level of radio coverage is present.