



Published by the Fire Marshal's Office

Emergency Responder Radio Coverage Systems (ERRCS)

Updated November 2019

Emergency responders need reliable communications wherever they work, including inside buildings. The 2015 International Fire Code (IFC), Section 510, Emergency Responder Radio Coverage requires that certain buildings be provided with radio enhancement systems designed to provide radio coverage in areas of the buildings where signal strength does not meet minimum criteria due to building construction features and/or location. These radio coverage enhancement systems are also referred to as Emergency Responder Radio Coverage Systems (ERRCS), BDA (bi-directional amplifier) and DAS (distributed antenna systems). In this Customer Assistance Memorandum, they are collectively referred to as ERRCS.

Additional information about radio coverage is available through the National Public Safety Telecommunications Council at: www.npstc.org/inbuilding.jsp

Section 1: Buildings required to have an Emergency Responder Radio Coverage System (ERRCS)

All new buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication system of the jurisdiction at the exterior of the building. This standard shall not require improvements of the existing public safety communication system.

Testing for *approved* radio coverage shall be the responsibility of the building owner on commercial buildings meeting any of the following conditions.

- a. The total building is 50,000 square feet or more
- b. Buildings with one or more basements
- c. Buildings with below grade building levels
- d. Underground buildings
- e. Buildings with five or more stories in height

Any building tested when the shell is complete that does not meet the signal strength requirements of IFC, Section 510.4.1 thru 510.4.1.2 shall require an ERRCS. The ERRCS will only be required for the specific areas and required jurisdictional frequencies that are determined deficient by the testing, as described in IFC, Section 510.1 and 510.4.2.2.

Due to special circumstance including but not limited to construction type and materials, shadowing from other buildings or terrain, location and size of the structure, the Fire Code Official retains the authority to require signal strength testing of any structure by the building owner to ensure the presence of *approved* radio coverage. The requirement of an ERRCS shall be based on results of the signal strength testing as defined in IFC, Section 510, Emergency Responder Radio Coverage.

Section 2: Working with the Fire Marshal's Office

During the design, installation and testing of a ERRCS, contractors can expect to work with the City of Richland's Building Department, the Fire Marshal's Office and Radio Maintenance.

Radio Maintenance Requirements

The Radio Maintenance Department manages the Southeast Washington VHF Public Safety Communications System. They works under the authority of the Authority Having Jurisdiction (AHJ). To ensure that ERRCS systems do not cause any harmful interference to the public safety radio system. Building owners or their installers will be required to provide specific manufacturer specifications and drawings for their ERRCS and obtain prior approval for any ERRCS work that may impact the Public Safety Communications System by calling the Radio Maintenance Department at (509) 942-7785.

All ERRCS's are required to use a fully channelized Federal Communications Commission (FCC) Class A bi-directional amplifier.

Section 3: The process for testing, requiring and installing an ERRCS

After building plans have been submitted and the AHJ plan review determines that an ERRCS is require as outline in Section 1, initial non-ERRCS signal strength testing will be conducted as soon as the building is 80% completed. Signal testing strengths for Dispatch, Fire 1, Fire 2 and Emergency channels will be provided on a 20 grid sheet to the Fire Marshal's Office as described in IFC, Section 510.5.3 1-7. Radio Maintenance, under AHJ authority, will review the provided non-ERRCS testing data and determine if an ERRCS is required for the building.

If an ERRCS is required, Radio Maintenance will determine which areas of the building and which frequencies the ERRCS will need to cover. Unless the provided testing data indicates, the entire building will not need ERRCS coverage. Radio Maintenance under the AHJ has final authority in determination of the ERRCS requirements. System coverage requirements will be forwarded to the building owner by the Fire Marshal.

A system designer meeting IFC requirements will design and submit:

1. ERRCS design plans
2. Designer FCC License and system manufacturer in-building training certificate.
3. Lead Installer FCC License and system manufacturer in-building training certificate.
4. All manufacturer system component specifications.

For Radio Maintenance review and Fire Marshal Approval.

Upon receiving stamped ERRCS plans from the Fire Marshal, installation of the system may begin per IFC, Section 510.5. Once installation is complete and 3rd party acceptance testing has passed, the 3rd party testing information shall be forwarded directly to the Fire Marshal's office. Once the Fire Marshal has received acceptance testing data and Radio Maintenance has reviewed it, the AHJ verification testing may be requested by the building owner.

Once AHJ on site verification of 3rd party acceptance testing is completed, all ERRCS permits will be approved.

The Building Department "Certificate of Occupancy" shall not be issued until all ERRCS permits are approved.

Annual testing requirements listed in IFC, Section 510.6.1 start one year from the AHJ approval of all ERRCS permit. 3rd party annual testing will require

the ERRCS to be track in www.tegrisfire.com. Failure to remain current on annual testing and system maintenance requirements will result in warnings, violation notices, code board review and fines.

Section 4: Federal Communications Commission (FCC) Registration Requirements

ERRCS (BDA/DAS) system owners are required by the FCC to register their system (which the FCC identifies as 'signal boosters') with the FCC. This applies to those systems already placed in operation, in permitting or under construction. The FCC Rule requiring registration is CFR 47, FCC Part 90.219(d)(5). Additional information may be found at: <http://wireless.fcc.gov/signal-boosters/part-90-boosters/index.html>

Section 5: Emergency Responder Radio Coverage System Technical Information

The IFC, Section 510.4.2.2 requires the *fire code official* to provide the follow information for the Emergency Responder Radio Coverage System to aid in the design, installation and testing of the ERRCS.

Emergency Responder Radio Coverage System Benton County System Antenna Locations:

Badger Mountain

46-14'01.2N 119-19'08.2W
ELEV 1570
ERP 93W

Jump Off Joe

46-06'14.5N 119-07'52.0W
ELEV 2187
ERP 92W

Rattlesnake Mountain

46-23'50.6N 119-35'58.1W
ELEV 3523
ERP 92W

Emergency Responder Radio Coverage System Franklin County System Antenna Locations:

Badger Mountain

46-14'01.2N 119-19'08.2W
ELEV 1574.5
ERP 93W

Connell Tower Site

46-37'43.1N 118-48'20.1W
ELEV 1175
ERP 100W

Jump Off Joe

46-06'12.7N 119-07'43.49W
ELEV 2169
ERP 42W

Kahlotus Tower Site

46-38'19.16 118'3340.43W
ELEV 1226
ERP 100W

Rattlesnake Mountain (CCCF)

46-23'50.6N 119-35'57.9W
ELEV 3524
ERP 400W

Emergency Responder Radio Coverage System Required ERRCS Coverage Channels:

Dispatch Channel - Duplex

Repeater TX: 154.1750 MHz

Fire 1 Channel - Duplex

Repeater TX 155.3100 MHz
Repeater RX 155.6100 MHz

Fire 3 Channel - Duplex

Repeater TX 154.8150 MHz
Repeater RX 155.6700 MHz

Emergency Channel - Simplex

Repeater TX 153.8000 MHz
Repeater RX 153.8000 MHz