



A message from:
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Emergency Responder *Radio Coverage*



Emergency responder radio coverage (ERRC) was first introduced in the 2009 International Building Code. The ERRC requirement was established to address the performance of emergency responders' portable radios inside buildings because building construction, building size, construction features, and other elements can absorb or block radio communications. Concrete or metal construction, larger buildings, underground buildings, and buildings that use low-E (low emissivity) glass windows have been found to be problematic in achieving adequate ERRC. Communications affected include radio transmissions from responders inside buildings to an incident commander outside and/or the public safety communications center, or vice versa. During an incident, lack of communication can result in dire consequences.

In the 8th Edition of the Massachusetts State Building Code (adopted in 2011), designers were first required to provide emergency responder radio coverage in all new buildings (780 CMR 915.0) in Massachusetts. There was a major revision to 780 CMR 915.0 on April 11, 2014.

If a building needs ERRC, the most common solution is the installation of a bi-directional amplifier (BDA). Other methods have also been used to resolve ERRC, including two-way radio repeaters, or using the building's wired emergency service communication systems (FD phones).

Many design professionals are not aware of the ERRC requirements. If ERRC is not referenced on a building submittal, the fire official should immediately notify the building official and design professional, in writing, that the ERRC must be evaluated; and if the existing radio coverage has not been maintained, then ERRC must be provided.

Here are several helpful hints regarding common ERRC issues that have transpired across the state:

1. The ERRC requirement does not mean that every new building needs a communication system. It requires that all buildings be evaluated to ensure that proper radio coverage can be maintained throughout the building. [2010 NFPA 72: 24.5.2.2]
2. ERRC cannot be accurately determined until a building is

almost finished. This uncertainty makes it difficult for design professionals to design and project total costs. To reduce the uncertainty, some design professionals pre-wire the building assuming that ERRC will be required, others have the building prematurely evaluated during construction to see if it fails.

3. An evaluation to determine if ERRC is required in a building is performed by measuring the inbound/outbound signal strength in decibels-milliwatts (dBm) by special measuring devices. These evaluations can be done by specialized third-party communication companies and some fire department radio companies. Simply calling back and forth between dispatch and fire department personnel inside a building to see if the radio transmissions are clear is not a proper evaluation method.
4. ERRC is specifically required for the protection of responders during an emergency. The local building official and/or design professional cannot waive this requirement for any reason. The local fire official can waive the ERRC if it is not needed, but considerable thought should be given before doing so.
5. The threshold requirements, design, testing and monitoring of the ERRC must be in accordance with the 2010 NFPA 72: Chapter 24.
6. The ERRC must be monitored by the fire alarm system to ensure that the communication enhancement system is functioning properly.

With the anticipated adoption of a 9th Edition of 780 CMR, the ERRC requirement is expected to change very little. Minor changes to aid design professionals may be included.