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KNOW THE CODE

What you should know about public safety in-building requirements.

BY DOMINIC VILLECCO

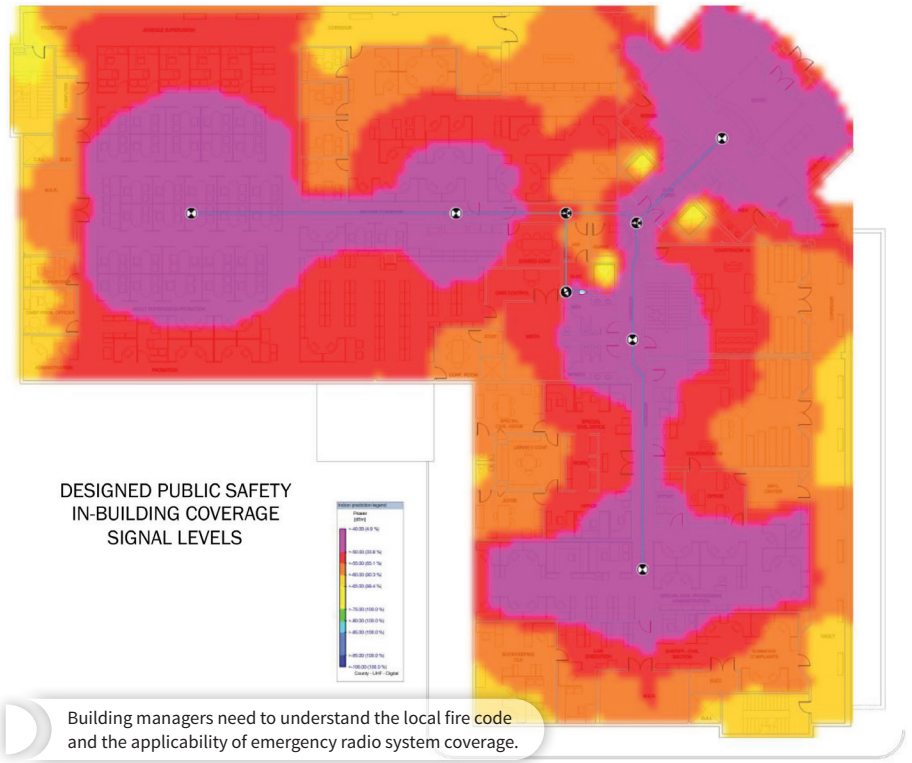
A lot goes into a building. You need permits, contractors and seemingly exhaustive resources to turn your plans into reality. You also need to make sure you're following proper safety codes to ensure the safety of your tenants and reduce your liability as a building owner.

Your building is an investment. You invest a lot of money, time and sweat equity into your plan to make it a reality. So, why would you risk everything you've built by skipping safety codes and regulations? The answer is: You wouldn't. Any smart building owner understands the importance of regulation compliance. And in-building public safety radio coverage is no exception.

The International Code Council's (ICC) International Fire Code (IFC) formulated a set of requirements for in-building coverage of public safety radio communication systems known as Section 510. This requirement was first introduced in 2009 and has been updated and propagating its way into local building codes since inception. This requirement is intended to help first responders with more effective communications via available radio systems in times of emergency or disaster, which would involve your building and its tenants.

The National Fire Protection Association (NFPA) also produced a similar set of regulations known as the National Fire Alarm and Signaling Code, or NFPA 72. Like Section 510 of the IFC, NFPA 72's Emergency Communications Systems requirements are designed to help save lives in the event of an emergency involving your building. This fire code, like IFC, includes minimal received radio signal levels, statistical percentage coverage of your building, backup power and other similar technical and operational requirements that must be adhered to for proper compliance.

All codes typically designate an authority having jurisdiction (AHJ) as the party or group responsible for ensuring you meet the requirements outlined in the code. Often times, the AHJ is the fire department in the municipality where your building resides. Many times the radio signal coverage requirement is to ensure fire department radio channels will work properly in your building in case of emergency. However, we have seen individual AHJs require emergency medical services (EMS) and police department (PD) radio coverage requirements



Building managers need to understand the local fire code and the applicability of emergency radio system coverage.

as well, often times complicating the ability to address the overall radio signal coverage requirement due to multiple disparate systems located in different areas or directions from your location.

There can also be variations to each code, as many municipalities across the nation have adopted either IFC, NFPA 72 or some variant thereof as their standard fire code regulations. Most New Jersey municipalities, for example, use IFC. However, just across the Hudson River, New York City developed its own set of fire safety requirements. The latest revision requires certain new construction to include a specifically designed system that enables radio communication for the New York City Fire Department (FDNY). This standard, found under New York City Building Code Sections 403.4.4 and 907.2.13.2, is otherwise known as FDNY's auxiliary radio communication system (ARCS). And, much like IFC Section 510 and NFPA 72, FDNY ARCS establishes standards for design, installation, operation and maintenance of new and existing in-building communication systems city-wide.

South of New York City, the City of Philadelphia adopted IFC Section 510's equivalent in its Philadelphia Building Construction and Occupancy Code Sections F-510, B-403.4.4 and B-915.1. These codes do not specifically require radio systems to be installed in all new buildings, but that radio signal strength is adequate for emergency communications, as defined by specified criteria, to facilitate fire department activities during emergencies.

Interestingly, the requirement only applies to existing buildings where the existing wired communication system cannot be repaired. In this Philadelphia code, these radio systems are known as emergency responder radio coverage (ERRC). There was apparent confusion over the implementation of this new code and, according to a code bulletin released by the City of Philadelphia in April 2016, ERRC systems were installed in many buildings without notifying or consulting the fire department. In one instance, one of these unknown ERRC systems was activated and resulted in partial failure of the city's digital radio system.

> "Working with your AHJ will go a long way in helping you meet the requirements."

UNDERSTAND THE CODE

It is very important to understand your local fire code and the applicability of emergency radio system coverage requirements. If there is adequate signal penetration upon completion of construction, no system may be needed. In this case, it is important to have a qualified firm measure and document the current signal levels in your building. This measured radio signal coverage information will be presented in report form to the AHJ in your municipality for review and approval. If the AHJ agrees your building has adequate signal strength, no further action will be required of you as the building owner.

In the event you do not have adequate coverage, it may be necessary to install such a system to meet the requirements. It is very important to hire qualified radio engineers to design said system. Installing an improper emergency radio system in your building, which causes interference to the local emergency radio system, can be a major liability. Except for the FDNY ARCS system, which uses a specifically installed Fire Department base radio, many of these ERRC systems utilize a bi-directional amplifier to pick up "off-air" signals and rebroadcast them throughout your building.

An improperly designed or installed system can rebroadcast too much signal. When an amplifier is over-driven, it can cause distortion and even begin to oscillate, thereby generating interference to the system you are trying to augment.

Remember, it is important to know your local code and have a qualified resource available to assist in the design and implementation of an emergency radio system. Also, make sure your local AHJ is notified and your activities are coordinated with the agency. Working proactively with your AHJ will go a long way in helping you meet the requirements and, more importantly, ensuring your tenants and first responders are safe in the event of an emergency.

Dominic Villecco is president and founder of V-COMM LLC.

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