



IS YOUR BUILDING COMPLIANT WITH IN-BUILDING COVERAGE?



FLORIDA FIRE PREVENTION CODE (NFPA 1) REQUIRES IN-BUILDING COVERAGE.

CODE ADVISORY – Effective July 1, 2021 - Certain building types (high-rise commercial and residential apartments) have been granted an extension. If your building has “dead zones” for public safety radio signals, you must install a BDA system. The new codes will require buildings to be verified and in compliance by 2025. This requirement can apply to many buildings with public safety concerns, including:

- Office buildings
- Parking structures and storage unit facilities
- Hotels and hospitality venues
- High-rises
- Malls and retail centers
- Campuses
- Stadiums and arenas
- Airports, train stations, and other transit centers

As a general contractor, project manager, or building owner, you may be aware that many jurisdictions now require NFPA or IFC-complaint public safety and emergency responder coverage as a prerequisite for getting an occupancy permit. But understanding the details of how coverage is tested and how it can be improved is complicated, and varies greatly by jurisdiction. All commercial, multi-unit residential, governmental, and educational occupancies must have reliable in-building public safety radio communications coverage that meets the most current adopted version of the Florida Fire Prevention Code referenced NFPA requirements.

EMCI provides a turn-key solution to ensure your building is compliant with the new requirements.



KEY DATES

- Existing hi-rise commercial and apartment buildings are required to comply by the Florida Fire Prevention Code beginning January 1, 2025
- By January 1, 2024, an existing hi-rise commercial or apartment building that is not in compliance with the requirements for minimum radio strength for fire department communications must apply for an appropriate permit and must demonstrate that the building will become compliant by January 1, 2025.



WHY ARE BDA'S IMPORTANT?

BDAs, or Bi-Directional Amplifiers, are signal boosters designed to sustain two-way radio communications throughout a building. They're especially useful for hard-to-reach areas like:

- Stairwells
- Basements
- Parking garages

As amplifiers/repeaters offered in different gain and power options, BDAs can boost and distribute signals through various frequencies. BDAs ensure first responders can effectively communicate with each other, not only within your commercial building, but with other users throughout the surrounding area. In an emergency, a lack of signal can cause first responders, medical teams, the police, and firefighters to lose communication. This could put lives at risk.

UNDERSTANDING NEXT STEPS:

1. Determine if sufficient fire department radio signal exists in your building. EMCI's in-building experts can advise on this and check to see if your in-building coverage complies with the law.
2. Contact your local Fire Code Official (AHJ, Authority Having Jurisdiction) to find out how this code is being enforced in your jurisdiction. Some jurisdictions require:
 - Permits to be pulled for performing initial building coverage analysis.
 - Grid test layout be approved prior to performing the testing.
 - Radio delivered audio quality (DAQ) measurements
3. If coverage is insufficient and the AHJ is enforcing this requirement, EMCI has a full range of options that are suitable for in-building wireless networks. EMCI provides turn-key solutions, we will prepare a plan (design, permits, installation) by the deadline listed for your property type.



HOW TO COMPLY WITH NFPA 1221 REGARDING IN-BUILDING PUBLIC SAFETY SIGNAL TESTING

Your local fire marshal's has the final authority, each local fire marshal has an "ERRCS" System (Emergency Responder Radio Coverage System) or BDA system (Bi Directional Amplification) process documentation as it may vary from County, City, and School Districts.

Local jurisdictions don't simply write their own rules, they draw on suggested ordinances written by a few different organizations, including:

- National Fire Protection Agency (NFPA)
- International Code Council (ICC)
- International Fire Code (IFC)
- International Building Code (IBC)
- First Responder Network Authority (FirstNet)

5 WAYS EMCI CAN HELP YOU CAN PREPARE AND COMPLY WITH THESE FIRE CODES:

- 1. REGULATORY REPORTS:** We research local fire codes, assess jurisdiction public safety radio network specifications & liaise with local AHJs. This stage will determine if and how your project will be affected by NFPA 1221 & IFC 510 enforcement:
 - New construction
 - Additions only
 - Existing structures + additions
 - Retro enforcement on all existing buildings
 - Annual recertification
- 2. BUILDING PLAN REVIEWS:** We review building plans to determine the likelihood a Public Safety DAS will be necessary to achieve acceptable indoor RF signal coverage. We will base our recommendations on the site location, proximity to the nearest public safety radio tower, surrounding structures and terrain, building orientation and configuration, and building materials. This stage also helps predict the scope of a Public Safety DAS if a signal enhancement system is required.
- 3. RF SITE SURVEYS:** We conduct benchmark RF site surveys to measure & map unamplified indoor RF signal coverage. If the structure has acceptable signal, we can certify it and provide the AHJ with a Letter of Compliance along with supporting reports/ documentation. If not, we will make recommendations for a signal amplification system based on the survey findings.
- 4. DISTRIBUTED ANTENNA SYSTEM INSTALLATION:** We engineer, design, install, commission & certify Public Safety DAS systems that meet NFPA 1221 & IFC 510 enforcement requirements. We will conduct a grid test (on each floor) to confirm acceptable signal coverage & levels throughout the facility (including underground structures and common signal dead-zones).
- 5. AHJ ACCEPTANCE TESTING:** We facilitate AHJ inspections & Acceptance Testing (required for sign-off and Certification of Occupancy). Additionally, we provide the AHJ and building owner/developer with a DAS Certification/ Letter of Compliance as well as system Submittals.

OVERVIEW: NFPA 72 AND IFC REQUIREMENTS

The NFPA and IFC are the most commonly used standards and have been adopted by many local authorities. It is imperative that you understand these requirements, because your building, and any installed public safety DAS, must meet all of them to pass inspection.

Most common and important requirements:

- **Wireless Coverage:** The NFPA dictates that 99% coverage is required in areas of “vital importance”, which are designated by your local fire department. In other areas, 90% coverage is required.
- **Equipment Enclosures:** The NFPA and IFC specify that all equipment supporting the public safety network must be housed in NEMA-4 compliant enclosures.
- **Minimum Signal Strength:** According to both the NFPA and IFC, a minimum signal strength of -95 dB is required for adequate coverage.
- **Battery Backup:** Equipment that supports the public safety radio system must be able to function for 24 hours on a backup battery.
- **Antenna Isolation:** The NFPA dictates that antenna isolation must be 15 dB higher than the gain of the amplifier.
- **Fire Ratings:** Cables connecting public safety electronic equipment must meet a two-hour fire rating. This also applies to the room that contains the equipment.



NEW-CONSTRUCTION OR RETRO-FIT

A DAS or BDA design can be developed to retro-fit an existing building or to be included in a new building currently in design or permitting. EMCI offers a DAS design package with the following services:

- Heat maps indicating signal strength throughout the building(s) by floor
- Floor plans with all headend equipment and antennas
- Equipment list of all equipment by which the design is based on
- Network system design showing how the equipment connects and the cabling needed
- CAD exports of network system design and floor plans for easy integration in existing drawings
- Signed & Sealed set of drawings to include in permitting set

EMCI PROVIDES TURN-KEY SOLUTIONS TO ENSURE YOUR BUILDING IS COMPLIANT

Do it right the first time. EMCI's in-building specialists can assist through the entire process of installing a public safety system in your building, including:

INITIAL SURVEY

Our certified team will assess your specific building needs with an on-site evaluation. No two systems are ever exactly alike, and each BDA system needs to be tailored to precise measurements.

- Performing initial tests to see if the building requires a public safety DAS.

CODE COMPLIANT CONSULTATION

EMCI is familiar with all relevant codes regarding BDA systems. EMCI will make sure your building complies with government mandates and stays code compliant.

- Researching the utilized public safety frequencies in your area.
- Understanding your local jurisdiction's coverage testing protocols.
- Choosing the right public safety coverage system that conforms to your local requirements and standards.

EXPERT INSTALLATION

EMCI provides design services on BDA equipment and installation. Our experienced drafters and installers will make sure your project moves along on time and on budget.

- Ensuring that you are using the right NEMA enclosures.
- Installing sufficient battery backup capacity.

TEST AND INSPECTION SERVICES

Being a full-service organization, our work does not end after design and installation. We offer maintenance and Test & Inspection services to maintain a functioning BDA system so our clients and emergency personnel can have the peace of mind that, should an emergency happen, communication will go uninterrupted.



WHY EMCI?

EMCI Wireless (Electronic Maintenance & Communications Inc.) was established in 1975 and is one of the largest solution providers for mission-critical and commercial wireless communications networks. Throughout our 40 years in business, we have been dedicated to developing strong, trusted relationships with our customers and industry partners. We are a certified Motorola Solutions Service Specialist, and our experienced technicians are highly trained. We partner with several leading manufacturers and solutions providers within the telecommunications industry.

Engaging EMCI as your turn-key vendor ensures that all proper requirements are met. Working with radio frequencies (RF) to do your walk testing, design, installation, turn-up, and maintenance will save you money and time in the long run. Given the compliance complexities and the importance of proper installation the first time around, considering the cost of efficiency and building occupant safety, it's absolutely critical that building managers work with specialized installation experts who can help them figure out what they need to do to achieve compliance. Contact EMCI to find out how we can help.



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