



DEKALB COUNTY FIRE RESCUE DEPARTMENT

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DATE: January 1st 2019

TO: All Fire Marshal's Office Personnel and Contractors

FROM: Division Chief Joseph Cox, Fire Marshal

SUBJECT: 2012 International Fire Code (IFC) Section 510 Requirements for New Construction

The Fire Marshal's Office (FMO) will no longer issue Dekalb County Fire temporary or permanent approvals of occupancy for any building permitted after January 1st 2019, due to the requirements of IFC 510, Emergency Responder Radio Coverage (ERRC), not being met. Any emergency responder radio coverage required by IFC 510 must be installed, tested, and operational prior to the issuance of a Fire Safety Codes release or Certificate of Occupancy. Building owners and designers must take the necessary steps for the testing, design, and installation of any required emergency responder radio system prior to the issuance of a temporary or permanent certificate of occupancy.

Application: All new (proposed) construction and any substantial renovation(s) to existing buildings as defined in OCGA 25-2-14 (O) (d) approved after January 30, 2014. Wired systems as identified in IFC 510.1 exception 1 will not be accepted in lieu of an ERRC.

Exceptions: (As permitted by IFC 510.1 (2))

The following structures are not required to comply with the requirements of IFC Section 510.

1. Buildings with no more than two occupiable stories, no more than 12,000 total square feet, and no floors below grade.
2. Temporary buildings including tents when permitted by the fire marshal.

For additions to buildings, unless the exceptions above are met for the area of the addition, the entire building being expanded must meet IFC 510 requirements.

Testing—Needs Assessment

- 1) Effective January 1st 2019, initial signal strength testing must be completed prior to the approval of site plans for new buildings and building additions.
- 2) Field testing for signal strength certification will not be conducted prior to the building envelope being complete and all doors, windows and exterior openings closed. In buildings with significant internal signal impairments like rack storage of metal parts, interior room enclosures that contain wire mesh security screens, or other interior or exterior features, etc.; all internal construction must be complete prior to final testing for signal strength.
- 3) Testing will be performed in accordance with IFC 510 using the 20 test cell (per floor) criteria for initial testing. For floors 32,000 sq ft or more, each floor of the building shall be divided into grids of approximately 40 ft by 40 ft.
- 4) All critical areas as defined in NFPA 72 chapter 24.5.2.2.1 shall be tested individually and shall not be counted towards the 20 test cell count.

- 5) Testing results will be certified by the testing contractor and forwarded to the FMO. A copy shall be left on site with the approved plans.
- 6) Authorization to operate on frequencies licensed to Dekalb County must be obtained from the Radio System Manager. Send request for frequency coordinates to dekalbFMO@dekalbcountyga.gov. The consent must be maintained in a recordable format that can be presented to an FCC representative or other relevant licensee investigating interference. Consent may be withdrawn by Dekalb County for any reason with notice to the property owner.

Design Considerations—all proposed ERRC system shall be designed in accordance with IFC section 510, good engineering practices and applicable regulations of the Federal Communications Commission. Installations shall be performed by FCC certified technician and all components are FCC Certified. Method of transmission throughout building (“leaking coax” or fiber optics). Penetrations through rated walls will need to be sealed.

Plans must be verified and approved by the FMO prior to installation or modification of an ERRC system. Please send plans in pdf form stamped by qualified design professional to dekalbFMO@dekalbcountyga.gov. Designer shall state that plans being presented indicate required coverage in compliance with IFC section 510. **However the installer carries the full responsibility to assure the installation meets all the applicable National Standards, State and Local Codes.** Plans shall be submitted through local city building department so that appropriate permits must be obtained through the applicable building department. The plans will be routed to FMO through this process the same fire alarm projects are routed to FMO. If building has a required fire alarm system the fire radio system shall be connected to the fire alarm system according NFPA 72, IFC and other applicable codes.

Permits will be issued based on a verification of engineering plans. A design professional stamp to take ownership is required.

Plans shall detail the following:

- 1) Site map showing location of target building and closest donor site antenna
- 2) Statement of work and scope of work describing the system design
- 3) Location(s) of all head end equipment and radio transmitters (BDA's)
- 4) Locations of all “critical areas” as defined in NFPA 72, 24.5.2.2.1 with anticipated signal levels (-95dBm required)
- 5) Single line schematic drawing of antenna lines and data lines
- 6) Type and location of NEMA 4 enclosures
- 7) Battery calculations to show 24 hours capacity at 100% transmit duty cycle
- 8) Floor plan showing distributed antenna system (DAS) antennas and the anticipated signal level in each test grid square, see number 4 above also
- 9) System component specification documents including coax cable(s) and data or fiber optic components, all transmitters shall be FCC Type Accepted, provide documentation
- 10) System monitoring shall include:
 - a. Monitoring equipment and identification of monitoring station.
 - b. Malfunction of the BDA Loss of primary power or related electronic systems
 - c. Antennas and passive filters are exempt from monitoring
 - d. Fire alarm installing contractor if system is to be monitored by FACP
- 11) Detailed acceptance procedures including all provisions of IFC 510.5.3—talk in and talk out signal levels must be included for each zone and critical area.
- 12) Location of document box—shall be co-located with head end equipment

- a. Documents to be included in the document box include
 - i. System design diagrams
 - ii. Acceptance testing documents
 - iii. Identity of persons/company installing the system
 - iv. Identification of the system monitoring company with phone contact numbers
 - v. Test results for the preceding three years of annual test and inspection, refer to 510.6.1
 - vi. FCC 90.219—FCC Letter of consent from DeKalb County
- 13) Dual use antenna systems (Permitted on a case by case review basis)
- a. Show the schematic layout of the head end equipment and the interconnect filtering that will prevent co-system interference.
 - b. Filters must be enclosed in a locked NEMA 4 cabinet
 - c. Cellular system components that cannot create interference with the public safety radio system do not need to be enclosed in NEMA rated cabinets.

Acceptance Testing and Commissioning—Systems must be inspected by approved third party inspection services. Acceptance criteria shall be specified in the plan submittal documents and shall clearly demonstrate the ability of the system to perform in the event of an emergency. The testing shall be conducted both on primary and secondary power sources. A certificate of commissioning shall be completed by an approved contractor and signed by the building owner's representative. An operations and maintenance manual shall be provided to the building owner as part of the commissioning. Refer to IFC 510.5.3 for additional details.

Maintenance—All system and components shall be tested annually in accordance with IFC 510.6. A system test and inspection report shall be maintained on site for inspection by the fire marshal's office. A tag shall be placed on the head end cabinet indicating the date of the last test and the results of the test. All test reports shall be submitted by email to DekalbFMO@dekalbcountyga.gov in an expeditious manner where the office assistant will archive documents. Any system that fails annual testing should be reported to the FMO within 48 hours of testing. Should a system fail to provide adequate signal, cause interference, or fail to perform as originally installed, the Fire Marshal is authorized to order the testing of the system and repair to original installation standards or the current adopted edition of the standard. The Fire Marshal is authorized to order that cellular signal boosting systems that interfere with the public safety radio system be tested or disconnected pending testing in order to eliminate interference.

NOTE: Requirements listed above are not necessarily all inclusive, but are intended as a guide.