



MARIETTA FIRE DEPARTMENT

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DATE: January 1, 2020
TO: All Fire Marshal's Office Personnel and Contractors
FROM: Asst. Chief Grant Pearson, Fire Marshal
SUBJECT: 2018 International Fire Code (IFC) Section 510 Requirements for New Construction

The Fire Marshal's Office (FMO) will no longer issue temporary or permanent Certificates of Occupancy for any building permitted after November 1, 2016, 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 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) 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.
- 2) 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.
- 3) All critical areas as defined in NFPA 1221 chapter 9.6.7.3 shall be tested individually and shall not be counted towards the 20-test cell count.
- 4) Testing results will be certificated by the testing contractor and forwarded to the FMO. A copy shall be maintained on site with the approved plans.
- 5) Authorization to operate on frequencies licensed to Cobb County must be obtained from the Radio System Manager. NOTE: FCC Part 90.219 (b)(1)(i)—Non-licensees seeking to operate signal boosters must obtain the express consent of the licensee(s) (Cobb County DPS/800 MHz) of the frequencies for which the device or system is intended to amplify. The consent must be maintained in a recordable format that can be presented to an FCC

- 6) representative or other relevant licensee investigating interference. Consent may be withdrawn by Cobb 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 and NFPA 1221 chapter 9, good engineering practices and applicable regulations of the Federal Communications Commission.

Plans must be reviewed and approved by the FMO prior to installation or modification of an ERRC system. Plans shall be submitted digitally as a Fire Radio application type in the Fire Construction Permit Application on Marietta's SagesGov portal.

Permits will be issued based on a review of engineering plans. A design professional seal is not 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 1221, 9.6.7.3 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 for electronics and NEMA 3R for batteries
- 7) Battery calculations to show 12 hours capacity at 100% transmit duty cycle
- 8) Dedicated 120 VAC branch circuit for primary power
- 9) Floor plan showing distributed antenna system (DAS) antennas and the anticipated signal level in each test grid square, see number 4 above also
- 10) System component specification documents including coax cable(s) and data or fiber optic components, all transmitters shall be FCC Type Accepted, provide documentation
 - a. System monitoring shall be in accordance with IFC 510.4.2.5
 - b. Bi-directional amplifiers shall be not less than 24 channel class A unless specifically approved
- 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. DAS 3 AND signal level of -95dBm required.
- 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 Cobb 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.

Technical Information—All technical information for the Cobb County Communications system is available on the FCC website, refer to Cobb County FCC License KNJH400, including associated licenses of WPQD278, WPQH732, WQPS664 and WPQH272. Additional technical information may

be obtained by contacting Cobb 911 Radio at 770-499-4164. Please specify the 700/800 MHz spectrum; Class A (channelized) BDAs.

Acceptance Testing and Commissioning—Systems must be inspected by personnel from the FMO and 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 to the FMO in an expeditious manner. 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.



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Qualified Contractors for IFC 510 and Emergency Responder Radio Coverage Testing

No recommendation is given or implied by the Marietta Fire Marshal's Office.

Initial needs testing and final commissioning testing must be performed by an approved contractor. (See list below) Final acceptance inspections are completed by FMO personnel.

Plans must be reviewed and approved by the FMO prior to installation of or modification to an IFC 510/ERRC system. Submittal of plans is required through the Marietta SagesGov plan review portal. After plan approval by the FMO, appropriate permits must be obtained through the building department. Only firms with persons holding a FCC "General Radio Operators" can be issued a permit **and** installation must be supervised by the licensed technicians.

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