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| <p>July 1, 2010</p> | <p>SANTA ROSA FIRE DEPARTMENT FIRE PREVENTION BUREAU STANDARD</p> |
|  | <p>RADIO COMMUNICATION SYSTEM FOR EMERGENCY RESPONDERS</p> |

PURPOSE

The purpose of this system is to insure a reasonable degree of reliability for emergency services communications from within certain buildings and structures within the City to and from emergency communications centers. This requirement applies to new buildings exceeding 25,000 square feet in area or four or more stories in height as well as tenant improvements exceeding 50% of the square footage of the first floor.

CODE REFERENCES

2007 California Fire Code (CFC) Chapter 5 - 18.44.511

PERMIT(S) REQUIRED

An In Building Public safety Radio System Installation permit is required. Categories and fee amounts are found at: <http://ci.santa-rosa.ca.us/doclib/Documents/IB%20018.pdf>

ATTACHMENTS

- 1) Plan Review Checklist – In Building Public Safety Radio System
- 2) Inspection Checklist – In Building Public Safety Radio System

REQUIRED INSPECTIONS

- 1) Performance and Verification Test (Fire Department Final)

Inspections shall be scheduled a minimum of 48 hours in advance. Directions for scheduling are found at: <http://ci.santa-rosa.ca.us/news/Pages/AutomatedFireInspectionRequestSystem.aspx>

DESIGN AND TESTING CRITERIA

RADIO COVERAGE:

1. Inbound into the building:

A minimum average in-building field strength of 8µV (-88 dBm) throughout 90% of the area of each floor of the building when transmitted from the nearest police/fire radio site. If the field strength outside the building where the receiving antenna system for the in-building system is located is less than the -88 dBm, then the minimum required in-building field strength shall equal the field strength being delivered to the receiving antenna of the building.

2. Outbound from the building:

Minimum average signal strength of 4µV (-95 dBm) measured at the nearest police/fire receiver site. (Voting receiver or Repeater.)

Any building or structure that cannot meet the required level of radio coverage shall be equipped with a Radio Signal Booster System consisting of an exterior antenna, a FCC Type Accepted Bi-Directional amplifier system with a backup power supply mounted in a suitable location in the building and an in-building antenna or radiating cable system. The Signal Booster System shall be designed to operate in the VHF, UHF, 700 and 800 megahertz (MHz) bands, Nextel/Mobile Display Terminals frequencies and shall be capable of operating on an independent battery and/or generator system for a period of at least twelve (12) hours without external power input.

The battery system shall automatically charge in the presence of external power input. There shall be no connectivity between the amplification system and fire alarm system. Where signal booster equipment is located in an equipment room that may become water soaked or sprayed with fire retardants during a fire, the installations will require the use of a watertight case, typically "NEMA-4", which is an industry standard specification for a sealed wall mounted cabinet.

Exception: Elevator coverage is exempt.

ACCEPTANCE TESTING;

Acceptance testing shall be as follows:

1. When an in-building radio system is required, upon completion of installation the radio system, and prior to issuance of certificate of occupancy, the property owner shall provide for testing to ensure that two-way coverage on each floor of the building is a minimum of ninety (90) percent. Each floor of the building shall be divided into a grid of approximately twenty (20) equal areas. A maximum of two (2) of the areas will be allowed to fail the test. 2. In the event that three (3) of the areas fail the test, in order to be more statistically accurate, the floor may be divided into forty (40) equal areas. A maximum of four (4) areas will be allowed to fail the test. After the forty (40) area test, if the system continues to fail, it will be the building owner's responsibility to have the system altered to meet the ninety (90) percent coverage requirement.
2. The voice test shall be conducted using a portable radio with specifications equivalent to the Santa Rosa fire/police personnel portable radios, talking through the city and REDCOM public safety communication systems.
3. The data system test shall be conducted using a laptop computer communicating with the computer aided dispatch system. A spot approximately in the center of the grid area will be selected for the test, then the radio will be keyed to verify two-way communications to and from the outside of the building through the city and REDCOM public safety communications system. Once the spot has been selected prospecting for a better spot in the grid area will not be permitted.
4. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified each year during the annual tests. In the event that the measurement results become lost, the building owner will be required to rerun the acceptance test to reestablish the gain values. Copies of all tests shall be forwarded to the attention of the 911 communications supervisor of the city.
5. Where radio retransmission equipment is required, an annual test shall be performed as described in the administrative regulations issued by the Fire Chief to ensure that the building continues to meet the radio coverage requirements of this section, and a copy of such test shall be kept on record by the property owner and available for inspection at any time by Fire Department representatives.
6. Personnel conducting acceptance and annual radio system tests shall be qualified to perform the work. All tests shall be documented and signed by a person in possession of a current FCC license, a current technician certification issued by the Associated Public Safety Communications Officials International (APCO), or the Personal Communications Industry Association (PCIA).

Standard

In Building Radio Communication-draft

7. Public safety personnel shall have the right to enter onto the property to inspect and to conduct field-testing at all reasonable times to be certain that the required level of radio coverage is present.