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Broomfield, CO:

V. PUBLIC SAFETY RADIO AMPLIFICATION SYSTEM

810-80. Purpose. The purpose of this part is to provide minimum standards to insure a reasonable degree of reliability for emergency services communication from within certain buildings and structures within the city to and from emergency communication centers. It is the responsibility of the emergency service provider to receive the signal to and from the building or structure.

810-81. Scope. The provisions of this article shall apply to:

- (a) New buildings and structures greater than 50,000 square feet or additions or modifications that cause the buildings to be greater than 50,000 square feet.
- (b) All basements over 10,000 square feet where the design occupant load is greater than 50, regardless of the occupancy.
- (c) Existing buildings and structures of any size or construction type where the Police Chief or the Fire Chief determines that lack of adequate radio coverage for emergency services providers either constitutes a special hazard to occupants or emergency responders or would otherwise likely result in unduly difficult conduct of emergency operations.
- (d) For purposes of this section, fire walls cannot be used to define separate buildings.

810-82. Radio Coverage. Except as otherwise provided in this article, no person shall erect, construct, or modify any building or structure or any part thereof, or cause the same to be done which fails to support adequate radio coverage for emergency services providers.

- (a) After a building permit has been issued, upon request by the owner or the owner's agent, the police department will, within ten to fourteen days, identify the frequency range or ranges that must be supported.
- (b) In the event that an emergency service provider modifies its communications equipment in any way that impairs its ability to communicate with an existing system installed in accordance with this part, such agency shall be responsible for all costs associated with reestablishing communications within the affected building or structure.
- (c) Adequate radio coverage for emergency services providers requires:
 - (1) That on each floor, 85% of valid tests conducted in accordance with Section 810-84 result in intelligible two-way communications between the appropriate dispatch center and the tester in the building; and (2) That 100% of valid tests conducted in accordance with Section 810-84 result in intelligible two-way communications between the appropriate dispatch center and the tester within the following building spaces:
 - a. Throughout vertical exit enclosures and horizontal exit passageways;
 - b. Fire command centers, if provided;
 - c. Police substation.

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(d) FCC Authorization: If amplification is used in the system, all FCC authorizations must be obtained prior to the use of the system. A copy of these authorizations shall be provided to the city.

810-83. Enhanced Amplification Systems.

- (a) Where buildings and structures are required to provide amenities to achieve adequate signal strength, such buildings and structures shall be equipped with any of the following to achieve the required adequate radio coverage: radiating cable systems, internal multiple antenna systems with a frequency range as established in Section 810-82, with amplification systems as needed, voting receiver system, or any other approved system.

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(b) If any part of the installed system or systems contains an electrically powered component, the system shall be capable of operation on an independent battery and/or generator system for a period of at least four hours without external power input or maintenance. The battery system shall automatically charge in the presence of external power input.

810-84. Testing Procedures. Method to conduct the tests:

(a) Measurements shall be made using the following guidelines:

- (1) Each measurement shall be made using a portable radio in general use by each emergency-service-provider agency, which agencies minimally include the police department and the fire department. Any digital, non-simplex channel programmed into such radio may be used during testing; the same channel need not be used for all tests.
- (2) Portable radios used in testing shall not be displaying "low battery" indications.
- (3) During test transmissions, the portable radio shall be held approximately two (2) inches from the mouth of the tester, at approximately a 45-degree angle with the tester's face, with the built-in microphone and speaker directed towards the tester's mouth, and with the antenna in a vertical orientation above the radio. The antenna of each radio shall be mounted directly on the top of the radio body/case. The built-in microphone shall be used for all testing; shoulder or other attached microphones/headsets shall not be used for testing.
- (4) The tester shall orient himself or herself so as to be facing towards the exterior wall of the building nearest the point of the test.
- (5) Both initial and annual tests shall be conducted by persons employed by the emergency-service-provider agency. At least one tester from the police department and one tester from the fire department shall conduct initial and annual tests, unless alternate arrangements are approved by both agencies.
- (6) Each tester shall be solely responsible for determining whether or not radio messages received in the building are intelligible; the dispatcher at the emergency-agency dispatch center shall be solely responsible for determining whether or not radio messages received in the dispatch center are intelligible. An unintelligible message constitutes a failure of the test at the specific location being tested (see below).
- (7) The tester in the building shall initiate each test by attempting to transmit a message to the dispatch center. Failure to receive a reply from the dispatch center constitutes a failure of the test at the specific location being tested.
- (8) The tester in the building shall exercise reasonableness and discretion in the conduct of all tests. If the tester believes a particular test is not valid (e.g., is flawed by human error), then the results of that test may be discarded and the test shall be repeated.

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(b) Initial tests.

(1) Each floor of the structure shall be divided into 100-foot grids, and testing shall be performed at the center of each grid. In critical areas, including (but not limited to) those areas enumerated in Section 810-82(c)(2), the grids shall be reduced to 25 feet. At least one test shall be conducted at the center of every room having a use identified in Section 810-82(c)(2)b or 810-82(c)(2)c. The size of the grids may also be further reduced upon recommendation of any tester in areas where displays, equipment, stock, or any other obstruction may significantly affect communications or attenuate radio signals.

(2) A test shall be performed on every landing within vertical exit enclosures.

(c) Annual tests.

(1) Annual tests will be conducted by both the fire department and the police department. If the communications appear to have degraded or if the testing fails to demonstrate adequate system performance, the owner of the building or structure shall remedy the problem and restore the system in a manner consistent with the original approval criteria.

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(2) If the degradation to the system is due to building additions or remodeling, the owner of the building or structure is required to remedy the problem and restore the system in a manner consistent with the original approval criteria in order to obtain a final inspection for occupancy.

(3) Any system degradation or failure not related to the performance of the owner's on-site system will be the responsibility of the appropriate emergency service agency.



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