

**ORDINANCE NO. 1
SERIES OF 2007**

AN ORDINANCE AMENDING TITLE 10, VAIL TOWN CODE; ADOPTING CHAPTER 3, "IN-BUILDING PUBLIC SAFETY RADIO SYSTEM COVERAGE"; PROVIDING MINIMUM STANDARDS FOR IN-BUILDING RADIO SYSTEM COVERAGE; AND SETTING FORTH DETAILS IN REGARD THERETO.

WHEREAS, the Town of Vail, in the County of Eagle and State of Colorado (the "Town"), is a home rule municipal corporation duly organized and existing under laws of the State of Colorado and the Town Charter (the "Charter"); and

WHEREAS, the members of the Town Council of the Town (the "Council") have been duly elected and qualified; and

WHEREAS, the Council finds that the ability of police, fire, ambulance and other emergency providers and personnel to communicate with each other within buildings and structures, and to communicate from within buildings and structures to personnel and locations outside of the building and structures, is vital to the public safety and welfare; and

WHEREAS, The Council further finds that a failure to communicate in the above-referenced manner creates a hazard to emergency providers, residents and guests; and

WHEREAS, the Council wishes to adopt minimum standards regarding in-building amplification to ensure a reasonable degree of reliable emergency services communications from within certain buildings and structures in the Town, between public safety providers, and to and from the Town of Vail Emergency Communication Center.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF VAIL, COLORADO, THAT:

Section 1. Title 10 of the Vail Town Code is hereby amended by the addition of Chapter 3 to read as follows:

Chapter 3
In-Building Public Safety Radio System Coverage

SECTION:

- 10-3-1: Purpose
- 10-3-2: Radio Coverage
- 10-3-3: Application of Provisions
- 10-3-4: Enhanced Amplification Systems
- 10-3-5: Testing
- 10-3-6: Qualifications of Testing Personnel
- 10-3-7: Property Owner Maintenance Responsibilities
- 10-3-8: Exemptions
- 10-3-9: Failure to Comply
- 10-3-10: Appeals

10-3-1: PURPOSE:

The purpose of this Chapter 3 is to establish minimum standards within certain buildings in the Town of Vail to ensure a reasonable degree of reliable emergency service communications from within certain buildings and structures in the Town, between public safety providers, and to and from the Town of Vail Emergency Communication Center.

10-3-2: RADIO COVERAGE:

Except as otherwise provided, 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 public safety agencies, including but not limited to police, fire, emergency medical services and public works departments. For purposes of this Chapter, adequate radio coverage shall include those specifications set forth in the Town of Vail In-Building Public Safety Radio System Coverage Specifications, which may be amended by resolution of the Town Council and which shall be kept in the office of the Town Clerk. A certificate of occupancy shall not be issued for any building or structure which fails to

comply with this requirement.

10-3-3: APPLICATION OF PROVISIONS:

For the purposes of this Chapter, definitions of basement, building, structure, occupant load, and related elements shall be as defined in the International Building Code. To the extent that the provisions of this Chapter apply to structures and buildings already in existence at the time of the adoption of this Chapter, the owner of said structure or building shall have eighteen (18) months, from the time the owner is notified in writing by the Town of Vail of the need to comply, to file a plan of compliance. Thereafter, the owner shall have an additional eighteen (18) months to bring the building or structure into compliance herewith.

- A. Buildings and structures greater than 25,000 gross square feet or modifications to existing buildings or structures which cause the buildings to be greater than 25,000 gross square feet.
- B. Existing buildings and structures of less than 25,000 gross square feet that have occupancy loads of over one-hundred (100) persons, regardless of the occupancy.
- C. All basements where the occupancy load is greater than fifty (50) persons, regardless of the occupancy.
- D. All sub-level parking areas where radio communications do not meet the minimum requirements as set forth by this Chapter.

10-3-4: ENHANCED AMPLIFICATION SYSTEM:

Where buildings and structures are required to provide in-building amplification systems to achieve adequate signal strength, such buildings and structures may use any or all of the following: radiating cable systems, internal multiple antenna systems with a frequency range as specified, with amplification systems as needed, or any other system approved by the Town of Vail.

10-3-5: TESTING:

In-building amplification systems as required by this Chapter shall undergo initial testing,

annual testing and periodic five year testing in accordance with the Town of Vail In-Building Public Safety Radio System Coverage Specifications, which are incorporated into this Chapter by reference and which shall remain on file in the office of the Town Clerk.

10-3-6: QUALIFICATIONS OF TESTING PERSONNEL:

All tests shall be conducted, documented, and signed by a person in possession of a current Federal Communications Commission (“FCC”) general radiotelephone operator license. All test records shall be retained at the inspected premises by the building owner and a copy submitted to Vail Fire & Emergency Services (Fire Department) within thirty (30) days of when the test has been conducted. In the event the test shall fail to comply with the minimum requirements, appropriate repairs shall be made and additional tests conducted until tests meet the minimum requirements of this Chapter.

10-3-7: PROPERTY OWNER MAINTENANCE RESPONSIBILITY:

Upon verification of the initial testing:

- A. The property owner shall be responsible for maintenance of the system.
- B. A copy of the maintenance contract, excluding costs, shall be provided to the Town of Vail Fire Department with the name of contractor, who will supply a 24-hour, 7-day per week emergency response within four (4) hours after notification by the Town of Vail or the property owner.
- C. The maintenance contract shall also contain information as to contact personnel with phone numbers. Property owners shall also submit information to the Vail Public Safety Communications Center with phone numbers for the property owner and manager.
- D. The property owner shall also be responsible for making any repairs, replacement or upgrades to the systems as directed by the Town of Vail, should the system fail or no longer work in the future.

10-3-8: EXEMPTIONS:

- A. Single family / duplex residences and attached garages constructed under the International Residential Code are exempt from the requirements in this Chapter.

B. Single family / duplex residences and attached garages constructed under the International Building Code, under 25,000 gross square feet, are exempt from the requirements in this Chapter.

C. Buildings that meet the minimum In-bound and Out-bound signal strength specifications as delineated in the Town of Vail In-Building Public Safety Radio System Coverage Specifications.

10-3-9: FAILURE TO COMPLY:

Failure to comply with any provision of this Chapter shall be grounds for the Town of Vail to refuse to issue a Certificate of Occupancy or to revoke any previously issued Certificate of Occupancy for the building or structure. Building owners who fail to comply may be subject to additional enforcement actions as provided for in the Town of Vail Municipal Code or Colorado law, which may include a summons and complaint and/or injunctive relief.

10-3-10: APPEALS:

A written appeal may be made to the Building Code Board of Appeals regarding the revocation of the Certificate of Occupancy, or a failure to issue a Certificate of Occupancy, within thirty (30) days of the revocation or from the date of the Town's decision to not issue said certificate. Appeals shall be made to the Town of Vail Building Code Board of Appeals to provide for reasonable interpretations of the provisions of this Chapter. The Board of Appeals shall render timely decisions and findings in writing to the Town of Vail Fire Chief, with a duplicate copy to the appellant.

Section 2. If any part, section, subsection, sentence, clause or phrase of this ordinance is for any reason held to be invalid, such decision shall not effect the validity of the remaining portions of this ordinance; and the Town Council hereby declares it would have passed this ordinance, and each part, section, subsection, sentence, clause or phrase thereof, regardless of the fact that any one or more parts, sections, subsections, sentences, clauses or phrases be declared invalid.

Section 3. The Town Council hereby finds, determines and declares that this ordinance is necessary and proper for the health, safety and welfare of the Town of Vail and the inhabitants thereof. This ordinance shall become effective seven (7) days after final

passage.

Section 4. The amendment of any provision of the Town Code as provided in this ordinance shall not affect any right which has accrued, any duty imposed, any violation that occurred prior to the effective date hereof, any prosecution commenced, nor any other action or proceeding as commenced under or by virtue of the provision amended. The amendment of any provision hereby shall not revive any provision or any ordinance previously repealed or superseded unless expressly stated herein.

Section 5. All bylaws, orders, resolutions and ordinances, or parts thereof, inconsistent herewith are repealed to the extent only of such inconsistency. This repealer shall not be construed to revise any bylaw, order, resolution or ordinance, or part thereof, theretofore repealed.

INTRODUCED, READ ON FIRST READING, APPROVED, AND ORDERED PUBLISHED ONCE IN FULL ON FIRST READING this 20th day of February, 2007, and a public hearing for second reading of this Ordinance set for the 13th day of March, 2007, at 6:00 P.M. in the Council Chambers of the Vail Municipal Building, Vail, Colorado.

Rodney E. Slifer, Mayor

ATTEST:

Lorelei Donaldson, Town Clerk

READ AND APPROVED ON SECOND READING AND ORDERED PUBLISHED IN FULL this 17th day of April, 2007.

Rodney E. Slifer, Mayor

ATTEST:

Lorelei Donaldson, Town Clerk

ATTACHMENT "A"

TOWN OF VAIL IN-BUILDING PUBLIC SAFETY RADIO SYSTEM COVERAGE **SPECIFICATIONS**

1. Performance

Specifications are provided to assist property owners in satisfying a delivered audio quality (DAQ) of 3 with a 90% reliability factor for emergency personnel using radio communication in their buildings and structures. Property owners who can demonstrate full compliance with the reliability factor without adhering to all of the following specifications may be excused from all or part of these provisions. Property owners who adhere to all of the specifications and fail to reach the reliability factor must employ all resources necessary to ensure full compliance. Performance and compliance will be inspected annually as part of the Vail Fire & Emergency Services Fire Inspection.

2. Signal Strength, Signal Rejection, Modulation Compatibility, and Delivered Audio Quality and Technical Specifications.

The following defines the minimum required level of radio signal strength.

A. Inbound into the building.

1. A minimum average in-building field strength of five (5) micro-volts (-95 dbm) for both analog and digital systems throughout ninety-five percent (95%) of the area of each floor and one hundred percent (100%) of all occupied space of the building and structures, inclusive of stairwells, when transmitted from the Vail Public Safety Communications Center.
2. If the field strength outside the building where the receive antenna system for the in-building system is located is less than five (5) micro-volts (-95 dbm), then the minimum required in-building field strength shall be

equal to the field strength being delivered to the receive antenna outside of the building.

3. As used in these regulations, ninety-five percent (95%) coverage or reliability means the radio will transmit ninety-five percent (95%) of the time at the field strength and levels as defined by these specifications.

B. Outbound from the building.

1. A minimum average signal strength of five (5) micro-volts (-95 dbm) as received by the Vail Public Safety Communications Center.

2. All active devices shall include a minimum of twelve 12 hours of battery backup power. The battery system shall automatically charge in the presence of external power input.

3. There shall be connectivity between the amplification system and fire alarm system. All amplification equipment must be housed in a NEMA-4 sealed cabinet which must protect it from smoke, water, and fire damage.

4. Amplification equipment must have adequate environmental controls to meet the heating, ventilation, cooling and humidity requirements of the equipment that will be utilized to meet the requirements of these specifications.

5. The area where the amplification equipment is located also must be free of hazardous materials such as fuels, asbestos, etc.

6. All communications equipment including amplification systems, cable and antenna systems shall be grounded with a single point ground system of five (5) ohms or less.

7. The ground system must include an internal tie point within three (3) feet of the amplification equipment.

8. System transient suppression for the telephone circuits, ac power, radio frequency (RF) cabling and grounding protection are required as needed.

3. Applicable Federal Communications Commission Rule Compliance

All equipment must be FCC certified and in compliance with FCC Rules and regulations.

4. Test Standards

The following method will be used to conduct the tests:

A. Frequencies

1. Tests shall be made using frequencies close to the frequencies used by the emergency services.

2. If testing is done on the actual frequencies, then this testing must be coordinated with the appropriate emergency services.

3. All testing must be done on frequencies that are authorized by the FCC.

4. A valid FCC license will be required if testing is done on frequencies different from the police, fire or emergency medical frequencies.

B. Measurements Shall Be Made Using The Following Guidelines:

1. With a service monitor using a unity gain antenna on a small ground plane.

2. Measurements shall be made with the antenna held in a vertical position at three to four feet above the floor.

3. A calibrated service monitor (with a factory calibration dated within twelve (12) months) may be used to make the tests.

4. If measurements in a location are varying, then average measurements may be used.

C. Initial Tests

1. Signal strength, both inbound and outbound as defined above, shall be measured on each and every floor above and below ground including stairwells, basements, penthouse facilities, and parking areas of the structure.
2. The structure shall be divided into 50-foot by 50-foot grids and the Measurements shall be taken at the center of each grid.
3. In critical areas such as: Fire Command Center's, elevators, stairwells, protect-in-place areas, lobby refuge areas, equipment rooms, high hazard areas basements, and underground parking areas, the grids shall be reduced to 25-feet. The size of the grids may also be reduced at the discretion of Vail Fire & Emergency Services in areas where displays, equipment, stock or any other obstruction may significantly affect communications in those areas.
4. Each grid area will be tested for transmission/reception; minimum signal strength of -95 dbm. If signal strength fails to meet the requirement, the grid area shall be marked as a fail.
5. When talk back testing is conducted from the site to the Vail Public Safety Communications Center, it should be conducted on a two watt portable transceiver with speaker/microphone and flexible antenna.
6. A spot located approximately in the center of a grid area will be selected for the test, then the radio will be keyed to verify two-way communication to and from the outside of the building. Once the spot has been selected, use of another spot within the grid area will not be permitted.
7. Field strength testing instruments are to be recently calibrated (within the past 12 months) and of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand held transceivers.

8. The gain values of all amplifiers shall be measured and the results 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 re-run the acceptance test to re-establish the gain values.
9. Amplifier primary power shall be supplied from a dedicated breaker in the Emergency Panel. Such electrical breaker shall be clearly marked.
10. Amplifiers shall be provided with a means of electrical disconnect within 6 feet of the amplifier. Such means of disconnect shall be protected from accidental or unintentional operation.

D. Annual Testing

1. The property owner shall conduct an annual test of all active components of the system, including but not limited to amplifiers, power supplies and backup batteries, a minimum of once every twelve (12) months. Amplifiers shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
2. Backup batteries and power supplies shall be tested under load for a period of one (1) hour to verify that they will properly operate during an actual power outage. If within the one (1) hour test period, in the opinion of the testing technician, the battery exhibits symptoms of failure, the test shall be extended for additional one (1) hour periods until the testing technician confirms the integrity of the battery.
3. All other active components shall be checked to determine that they are operating within the manufacturer's specifications for the intended purpose.

E. Five Year Test

In addition to the annual test, the building owner shall perform a radio coverage test a minimum of once every five (5) years to ensure that the radio system continues to meet the requirements of the original acceptance. The procedure set forth above shall apply to such tests.

5. Installation Standards

- A. All installations and maintenance shall be performed by Town of Vail Registered Contractors.
- B. Installations shall conform to at least the minimum standards as prescribed in the National Electrical Code, National Fire Protection Association, International Building Code, Mechanical Code, Fire Code, and the Town of Vail Municipal Code.
- C. These standards are intended to provide a minimum set of criteria and are not limited to or by other nationally recognized practices.
- D. Manufacturer's specifications and recommendations shall be followed.
- E. Where two or more standards, codes, specifications, or other technical criteria appear to conflict, the more stringent of the two shall apply.
- F. Nothing in these standards is intended to prohibit the use of new technology or equivalent means and methods.