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**Memorandum**

To: Vail Town Council

From: Building and Fire Code Appeals Board  
Community Development Department  
Vail Fire Department

Date: September 7, 2016

Subject: Ordinance No. 25, Series of 2016. Amendments to Sections 10-1-2, 10-1-3 and 14-10-5 of the Vail Town Code related to Wildland Fire Resistant Building Practices

## **I. SUMMARY**

The purpose of this memorandum is to propose to the Vail Town Council amendments to the adopted 2015 International Building Codes (Sections 10-1-2 and 10-1-3, hereinafter referred to as "Building Code") as recommend by the Building and Fire Code Appeals Board of the Town of Vail and accompanying revisions to the Design Review Standards and Guidelines (Design Standards), specifically Section 14-10-5, Building Materials and Design. The purpose of these amendments is to relocate language concerning technical matters related to roofing to the Building Code while maintaining design related matters within the Design Standards. In addition, the amendments clarify allowable roofing materials and propose a reduction in allowable roof repairs of nonconforming roofs before the requirement that a roof be replaced in its entirety is triggered.

Please refer to the matrices included as Attachments B and C for a more detailed explanation of each proposed amendment.

## **II. BACKGROUND**

Over the course of the past year, the Fire Department has evaluated all aspects of the current Wildfire Mitigation Program in an effort to identify opportunities to more effectively reduce the threat of catastrophic wildfire and associated loss of homes. This evaluation included a review of the existing Town Code pertaining to wildfire mitigation and defensible space. In concert with the Community Development Department, the Fire Department has proposed relocating technical data concerning allowable building materials from its current location within the Design Standards into the Building Code.

On May 12, 2016 the Building Fire and Appeals Board unanimously approved the proposed changes. The Community Development Department and Town of Vail Fire Department are in support of this recommendation to the Vail Town Council.

### III. DESCRIPTION OF THE REQUEST

The following amendments are proposed with new language in **bold** and items to be removed designated by a ~~strike through~~.

#### *10-1-2: AMENDMENTS TO BUILDING CODE:*

*The following amendments are hereby made to the international building code, 2015 edition:*

*Section 101.1 - Title: These regulations shall be known as the Building Code Of The Town Of Vail, hereinafter referred to as "this code."*

*Section 101.4 - Referenced Codes: Section 101.4 is deleted and replaced with the following:*

*"The other codes listed in 101.4.1 through 101.4.6 and referenced elsewhere in this code shall not be considered part of this code unless specifically adopted."*

*Section 105.2 - Work Exempt From Permit: Section 105.2 is amended by the addition of the following text:*

*"Item 2: Fences not over 6 feet. Note: Fences required per IBC section 3109 are not exempt from a permit."*

*Item 14: Decks not over 30 inches above grade and not part of a means of egress or an accessible route."*

*Section 110.3.8 - Other Inspections: Section 110.3.8 is amended by the addition of the following:*

*"The building official is authorized to make or require inspection of construction work as required by titles 11 through 14 of the Vail town code."*

~~*Section 1505.1.2 - Class A Roofing: Section 1505.1.2 is deleted and replaced with the following:*~~

~~*"Class A roofing shall be installed on all roofs. Exception: 1. Metal and concrete roof systems."*~~

***Section 1505.1- General: Delete the last sentence referring to minimum roof coverings in its entirety and shall be replaced with the following text: Roof coverings and roof assemblies shall be class A roof coverings or class A roof***

**assemblies for all structures. Wood shingles and shake coverings or assemblies are prohibited except where exempted for replacement or repair as defined below. Where the roof profile allows space between the roof covering and the roof decking at the eave ends, the spaces shall be constructed to prevent intrusion of flames and embers, be firestopped with approved materials, or have one layer of 72 pound (32.4 kg) mineral-surfaced non-perforated cap sheet complying with ASTM D3909 installed over the combustible decking.**

**Replacement or repair: Each structure with a nonconforming roof covering or assembly will be allowed one (1) replacement or repair of twenty five percent (25%) or less of the roof area. Replacement or repair greater than twenty five percent (25%) or a second replacement or repair of the roof shall trigger replacement of the nonconforming roof covering or assembly with a conforming roof covering or assembly in its entirety. For the purposes of this Section, a two-family dwelling shall be considered two structures with each dwelling allowed one (1) replacement or repair of twenty five percent (25%) or less of the dwelling unit's roof area. Emergency repairs of less than 10 square feet shall not be considered toward the 25% threshold.**

**Emergency repairs of less than 10 square feet shall not be considered toward the 25% threshold.**

Section 1505.6 - Fire Retardant Treated Wood Shingles And Shakes: Section 1505.6 is deleted and replaced with the following:

"All roof coverings and roof assemblies shall comply with section [14-10-5F](#) of the Vail town code which requires class A roof coverings or class A roof assemblies for all structures in the town. Wood shingles and shake coverings or assemblies are prohibited except where exempted for replacement or repair per section [14-10-5F](#), Vail town code."

Section 1510.7 - Snow Retention: Section 1510.7 is added, to read as follows:

"New roof assemblies shall be designed to prevent accumulations of snow from shedding onto exterior balconies, decks, pedestrian and vehicular exits from buildings, stairways, sidewalks, streets, alleys, areas directly above or in front of gas and electrical utility meters, or adjacent properties. The design of snow retention devices shall be provided by a licensed structural engineer or as determined by the building official. Exception 1: Roof areas with a horizontal dimension of no more than 48 inches that will not receive snow shedding from a higher roof. The horizontal projection shall be measured perpendicular to the exterior wall line from the edge of the roof or eave to any intersecting vertical surface."

Section 1603.2 - Boulder Walls: Section 1603.2 is added, to read as follows:

"Boulder or rock walls more than four feet tall shall be designed by a licensed engineer."

*Section 1604.1.1 - Hazard Areas: Section 1604.1.1 is added, to read as follows:*

*"All new construction and additions to existing structures located in mapped debris flow, rock fall, avalanche and flood hazards shall be designed in compliance with [chapter 12-21](#) of the Vail town code."*

*Section 1608.2.1 - Roof Snow Loads: Section 1608.2.1 is added, to read as follows:*

*"Designs for roof snow loads shall be as follows: Roof pitches of less than 4:12 shall be designed to carry a 100 pound per square foot snow load, and roof pitches of 4:12 and greater shall be designed to carry an 80 pound per square foot snow load. There is no allowance for pitch reduction nor is there a requirement to increase surcharge loading due to snow drifting or type of roof covering."*

*Section 2902.2 - Separate Facilities: Exception 2 of section 2902.2 is deleted and replaced with the following:*

*"Exception 2: Separate facilities shall not be required in structures or tenant spaces with a total occupant load including both employees and customers of 30 or fewer."  
(Ord. 14(2015) § 1)*

#### **10-1-3: AMENDMENTS TO RESIDENTIAL CODE:**

*The following amendments are hereby made to the international residential code, 2015 edition:*

*Section R101.1 - Title: These regulations shall be known as the Building Code Of The Town Of Vail, hereinafter referred to as "this code."*

*Section R105.2 - Work Exempt From Permit: Section R105.2 is amended by the addition of the following:*

*"Item 2, Fences not over 7 feet (2134 mm) high;" and*

*"Item 10, Decks that are not more than 30 inches above grade at any point."*

*Section R313.1 - Townhouse Automatic Fire Sprinkler Systems: Section R313.1 is amended by the addition of the following:*

*"Exception: An automatic residential fire sprinkler system may be required where additions and alterations are made to existing townhomes depending on scope and size of project in accordance with Vail fire and emergency services fire sprinkler installation requirements."*

*Section R313.1.1 - Design And Installation: Section R313.1.1 is deleted and replaced with the following:*

*"Automatic residential fire sprinkler systems for townhomes shall be designed and installed in accordance with NFPA 13D and Vail fire and emergency services fire sprinkler installation requirements."*

*Section R313.2 - One And Two Family Dwellings Automatic Fire Systems: Section R313.2 is deleted and replaced with the following:*

*"Automatic residential fire sprinkler systems shall be designed and installed in accordance with NFPA 13D and Vail fire and emergency services fire sprinkler installation standards."*

*Section R313.2.1 - Design And Installation: Section R313.2.1 is deleted and replaced with the following:*

*"Automatic residential fire sprinkler systems shall be designed and installed in accordance with NFPA 13D and Vail fire and emergency services fire sprinkler installation standards."*

*Section R315.2 - Where Required: Section R315.2 is deleted and replaced with the following:*

*"Carbon monoxide alarms shall be provided in accordance with NFPA 72, NFPA 720, C.R.S. § 38-45-101, and Vail fire and emergency services alarm installation standards."*

*Section R315.2.1 - New Construction: Section R315.2.1 is deleted and replaced with the following:*

*"For new construction, carbon monoxide alarms shall be provided in accordance with NFPA 72, NFPA 720, C.R.S. § 38-45-101, and Vail fire and emergency services alarm installation standards."*

*Section R315.3 - Location: Section R315.3 is deleted and replaced with the following:*

*"Carbon monoxide alarms in dwelling units shall be installed outside of each separate sleeping area in their immediate vicinity of the bedrooms. Where a gas appliance is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. In addition to above locations, alarms shall be installed per the authority having jurisdiction, NFPA 72, NFPA 720, C.R.S. § 38-45-101, and Vail fire and emergency services alarm installation standards."*

*Section R315.6 - Carbon Monoxide Detection Systems: Section R315.6 is deleted and replaced with the following:*

*"Carbon monoxide detection systems shall be permitted to be used in lieu of carbon monoxide alarms and shall comply with NFPA 72, NFPA 720, C.R.S. § 38-45-101, and Vail fire and emergency services alarm installation standards."*

*Section R315.6.2 - Location: Section R315.6.2 is deleted and replaced with the following:*

*"Carbon monoxide detectors shall be installed in the locations specified in NFPA 72, NFPA 720, C.R.S. § 38-45-101, and Vail fire and emergency services alarm installation standards."*

*Section R902.1 – Class A Roofing: Section R902.1 is added, to read as follows:*

*~~"Class A roofing shall be installed on all roofs. Exception 1: Metal and concrete roof systems."~~*

***Section R902.1 Shall be deleted in its entirety and replaced with the following statement: Roofs shall be covered with materials as set forth in Sections R904 and R905. Roof coverings and roof assemblies shall be class A roof coverings or class A roof assemblies for all structures. Class A roofing required by this section to be listed shall be tested in accordance with UL 790 and ASTM E 108. Wood shingles and shake coverings or assemblies are prohibited except where exempted for replacement or repair as defined below. Where the roof profile allows space between the roof covering and the roof decking at the eave ends, the spaces shall be constructed to prevent intrusion of flames and embers, be firestopped with approved materials, or have one layer of 72 pound (32.4 kg) mineral-surfaced non-perforated cap sheet complying with ASTM D3909 installed over the combustible decking.***

***Replacement or repair: Each structure with a nonconforming roof covering or assembly will be allowed one (1) replacement or repair of twenty five percent (25%) or less of the roof area. Replacement or repair greater than twenty five percent (25%) or a second replacement or repair of the roof shall trigger replacement of the nonconforming roof covering or assembly with a conforming roof covering or assembly in its entirety. For the purposes of this Section, a two-family dwelling shall be considered two structures with each dwelling allowed one (1) replacement or repair of twenty five percent (25%) or less of the dwelling unit's roof area.***

***R902.2 - Fire Retardant Treated Wood Shingles And Shakes: This section is deleted in its entirety and shall be replaced with the following text: Wood shingles and shake coverings or assemblies are prohibited except where exempted for replacement or repair per section R902.2.***

*Chapter 11 - Energy Efficiency: Chapter 11 is deleted and replaced with the residential provision of the international energy conservation code, 2015 edition, as amended.*

*Chapter 24 - Fuel Gas Code: Chapter 24 is deleted and replaced with the 2012 edition of the Colorado fuel gas code, as amended.*

Chapter 25 - Plumbing Administration: Chapter 25 is deleted and replaced with the 2012 edition of the Colorado plumbing code.

14-10-5: BUILDING MATERIALS AND DESIGN:

**A. The Town is situated within the wildland urban interface where community values intersect with the potential consequences of wildland fires. Wildland fires both big and small have the potential to destroy homes and neighborhoods within the Town. The architecture and chosen materials of a building greatly affect the survivability of that structure in the face of a wildfire. The use of Class A roof coverings and ignition resistant building materials decrease the hazards to the individual structure as well as the surrounding homes.**

**AB.** The use of ~~noncombustible~~ **ignition resistant** building materials and designs intended to prevent the spread of fire are highly encouraged. **Vail Fire and Emergency Services is available to provide more information on the use of ignition resistant materials and designs.** Predominantly natural building materials shall be used within the Town of Vail. The exterior use of wood, wood siding, native stone, brick, concrete, stucco, and EIFS may be permitted. Concrete surfaces, when permitted, shall be treated with texture and color; however, exposed aggregate is more acceptable than raw concrete. The exterior use of the following siding materials shall be prohibited: stucco or EIFS with gross textures or surface features that appear to imitate other materials, simulated stone, simulated brick, plastic and vinyl. The exterior use of any building material, including those not specifically identified by this section, shall only be permitted, unless otherwise prohibited by this code, where the design review board finds:

1. That the proposed material is satisfactory in general appearance, quality over time, architectural style, design, color, and texture; and

2. That the use of the proposed material complies with the intent of the provisions of this code; and

3. That the use of the proposed material is compatible with the structure, site, surrounding structures, and overall character of the Town of Vail; and

4. That the material is noncombustible or aids in the prevention of fires.

**BC.** The same or similar building materials and colors shall be used on main structures and any accessory structures upon the site.

~~CD.~~ Exterior wall colors should be compatible with the site and surrounding buildings. Natural colors (earth tones found within the Vail area) should be utilized. Primary colors or other bright colors should be used only as accents and then sparingly such as upon trim or railings. All exterior wall materials must be continued down to finished grade thereby eliminating unfinished foundation walls. All exposed metal flashing, trim, flues, and rooftop mechanical equipment shall be anodized, painted or capable of weathering so as to be nonreflective.

~~DE.~~ The majority of roof forms within Vail are gable roofs with a pitch of at least four feet (4') in twelve feet (12'). However, other roof forms are allowed. Consideration of environmental and climatic determinants such as snow shedding, drainage, fire safety and solar exposure should be integral to the roof design.

~~EF.~~ Rooflines should be designed so as not to deposit snow on parking areas, trash storage areas, stairways, decks and balconies, or entryways. Secondary roofs, snow clips, and snow guards should be utilized to protect these areas from roof snow shedding if necessary.

~~FG.~~ All structures shall have class A roof assemblies or shall have class A roof covering materials, as defined by the adopted building code. The use of concrete tile, slate, metal, asphalt shingle, fiberglass shingle, and built up tar and gravel roofing may be permitted. Metal roofing, when permitted, shall not reflect direct sunlight onto an adjacent property and shall be surfaced with a low gloss finish or be capable of weathering to a dull finish. Metal roofing, when permitted, shall be of a heavy gauge and designed to provide visual relief to the roof surface (including, but not limited to, a standing seam). Asphalt and fiberglass shingles, when permitted, shall ~~weigh no less than three hundred (300) pounds per roofing square~~ **be designed to provide visual relief through texture, dimension and depth of appearance.** The use of wood shake, wood shingles and rolled roofing shall not be permitted. Two-family and multi-family dwellings shall be required to have uniform roof covering materials, except when the design review board determines that the materials are compatible, are integral to the architectural style of the structure and different materials do not share any ridges or planes, but may share a valley.

1. Nonconforming Structures: All structures that do not have a class A roof assembly or class A roof covering material, or structures with wood shake or wood shingles shall ~~come into compliance~~ **replace the roof covering** as follows:

~~a. Repair And Maintenance: Repair and maintenance of twenty five percent (25%) or more of the roof area of a single-family dwelling, a side of a two-family dwelling, or of an entire multiple-~~



~~family dwelling within a twelve (12) month period, or fifty percent (50%) or more of the total roof area in any time period shall require compliance of the entire roof of the single-family dwelling, the affected side of a two-family dwelling, or an entire multiple-family dwelling.~~

~~ba.~~ **Additions:** All additions affecting roof area shall trigger compliance of the roof structure of a single-family dwelling, a side of a two-family dwelling, or the entire multiple-family dwelling, except for a onetime exemption of up to five hundred (500) square feet of GRFA, occurring after February 6, 2007, where any addition of roof area does not share a plane or ridge with the nonconforming roof, and may only share a valley. The additional roof area shall conform to roofing regulations, and shall be deemed compatible by the design review board.

~~eb.~~ **Two-Family Structures:** Upon reroofing one side of a two-family dwelling, the other side ~~may~~ **shall** be required to be reroofed if the two (2) sides have roof systems that share ridges or planes. Different materials on each side of the two-family dwelling may be permitted by the design review board if the materials are deemed compatible, integral to the architectural style of the structure and share a valley or do not intersect.

~~ec.~~ **Developments With Multiple Structures:** Upon reroofing a single structure that is part of a multi-structure project with conforming roof covering materials that do not match existing materials, the conforming materials shall be deemed compatible with the existing nonconforming materials by the design review board. Upon reroofing of additional structures in the development, the materials shall match the approved conforming materials. Should the matching material no longer be manufactured, a different material may be permitted, should the materials be deemed compatible by the Design Review Board.

~~GH.~~ **Rooftops:** Rooftop heating and air conditioning equipment, large vent stacks, elevator penthouses and similar features should be avoided; however, if necessary, shall be designed to be compatible with the overall design of the structure or screened from view of all adjacent properties. Rooftop antennas shall not be permitted unless as allowed under a conditional use review as specified within the zoning code.

~~HI.~~ **Solar Energy Devices:**

~~IJ.~~ **Overhangs:** Deep eaves, overhangs, canopies, and other building features that provide shelter from the elements are encouraged.

***JK.** Fenestration: Fenestration should be suitable for the climate and for the orientation of the particular building elevation in which the fenestration occurs. The use of both passive and active solar energy systems is strongly encouraged.*

***KL.** Duplexes: In no instance shall a duplex structure be so constructed as to result in each half of the structure appearing substantially similar or mirror image in design.*

***L.M** Footings And Foundation: Building footings and foundations shall be designed in accordance with the minimum standards of the adopted building code. Footings and foundations shall also be designed to be responsive to the natural topography of the site, and shall be designed and constructed in such a manner as to minimize the necessary amount of excavation and site disturbance.*

#### **IV. ACTION REQUESTED OF THE VAIL TOWN COUNCIL**

The Vail Town Council shall approve, approve with modifications, or deny Ordinance No. 25, Series of 2016 upon first reading.

#### **V. ATTACHMENTS**

- A. Ordinance No. 25, Series of 2016
- B. Changes to Chapter 10-1 Building Codes Matrix
- C. Changes to Chapter 14-10 Design Review Standards and Guidelines Matrix