

## **WILDFIRE MITIGATION PLAN**

For Bill Shepard and Shannon Kennedy  
6505 Sunshine Canyon Drive, Boulder, CO  
Docket: LU - 10 - 0003/SPR - 10 - 0005  
Inspection date: 6/28/2010

**Colorado  
State**  
FOREST  
SERVICE  
Boulder District  
5625 Ute Highway  
Longmont, CO 80503  
(303) 823-5774  
FAX: (303) 823-5768

### **Prepared for:**

Bill Shepard and Shannon Kennedy  
579 E. Wisconsin Ave.  
Neenah, WI 54956  
Phone: 303-449-1141 (Sam Nishek)

### **Prepared by:**

Nicole Palestro  
Boulder District  
Phone: (303) 823-5774  
E-mail: palestro@lamar.colostate.edu

## **PURPOSE OF A WILDFIRE MITIGATION PLAN**

The purpose of a Wildfire Mitigation Plan is to give guidelines for reducing wildfire hazards around a home or other structures through fuels reduction. It is a document to inform urban interface home owners of the dangers and responsibilities of living in the interface. This plan will help outline initial and ongoing fuels reduction needed to create and maintain an effective wildfire defensible space. However, having a wildfire mitigation plan, implementation of a defensible space thinning, and following all the recommendations as outlined in this plan **does not guarantee that your home will survive a wildland fire; however, in combination they will give your home the best potential probability to survive a wildland fire.**

## **SITE LOCATION AND PROPERTY DESCRIPTION**

The property is located in Section 8, Township 1N, Range 71, Boulder County, Colorado. It is located within the Sunshine Fire Protection District. The lot is 4.37 acres in size and has a modest ~2-5 percent slope with a southeast aspect. The site is at ~7,272 feet in elevation and located on a midslope which is relatively dry. A small portion of the driveway to the south of the residence will create a small natural barrier that may help slow the spread of a surface fire on the site. Beyond the driveway, there are no other natural barriers that will lessen the spread of a surface fire on the site.

## **CURRENT AND FUTURE PLANS FOR THE SITE**

A 4,950 sq.ft. house with attached garage is proposed for the site. There are no existing structures located on the site at this time.

## **CONSTRUCTION DESIGN AND MATERIALS**

The proposed house with attached garage will have a moderately complex design with a moderately complex roofline and will be oriented with a southeast aspect. Buffer material around the structure will be of pavement on the east, west and south sides and gravel over a non-combustible weed barrier on the north side. **The overall design of the structure greatly influences how it will withstand a wildfire. Complex building forms create heat traps, areas where the walls and roof members intersect with one another creating eddies where hot air and embers from a fire can collect. It is important to keep these areas clear of combustibles such as needles and brush.**

The roofing material will consist of standing seam painted steel. Soffit material will be of 3/8" cement board. **Falling embers and fire brands from a wildfire can land on a roof and ignite the roof, either by directly heating the roofing material, or by igniting light fuels (pine needles) that have collected on the roof. It is recommended to place screening over gutters and/or make a yearly check to keep gutters and roofs clear of leaves and needles.**

The exterior wall material is to be cement stucco. The structure will have 61 windows of all sizes. Windows will be double glazed with Low E-coating and tempered glass where required. Frames will be made of aluminum clad. Exterior doors are to be fire-rated, and made of solid core solid wood that is not less than 1-3/4 inches thick. There will be no window wells present on the structure at this time. **All operable windows must be provided with screening that is constructed of either aluminum, galvanized steel, copper or of an approved material that when exposed to flame for 15 seconds, will not burn through or melt, and remains intact. Windows are one of the weakest parts of a structure with regards to wildfire. They often crack and fail before the structure itself ignites, providing a direct path for embers and radiant heat to reach the interior. It is best to minimize the number of windows, especially on the downhill side of the structure. Fire typically burns uphill faster and will create a great deal of radiant heat.**

A deck will be constructed of composite wood/plastic decking material with steel beams. The deck will be open overhead and underneath. The deck will have a buffer material of pavement. **Decks must be kept clean and free of combustible materials. Keep debris such as pine needles, wood, and vegetation away from deck. Each year rake pine needles and other combustible material from underneath decks and overhangs.**



## **DEFENSIBLE SPACE MANAGEMENT**

There are three defensible space zones to be created around the structure(s) on the site. Please note that it is possible that one or more of these zones will cross over the subject property onto adjacent properties. Property boundaries must be respected; mitigation work is not required beyond immediate boundaries. However, landowners are encouraged to contact and work with neighbors if property lines limit the ability to mitigate within the prescribed area. **Defensible space is a benefit, not only to the individual but also to the community as a whole.**

**Zone 1** - Starts at the foundation and extends out 15 feet in all directions from the outside edge of the structure(s). Zone 1 is broken down into three segments:

**Zone 1A** - Consists of the structure(s) and the area immediately adjacent to and surrounding the structure(s) on all sides. **A five-foot wide, non-flammable strip must be created using over a polyester weed barrier material. This strip will also extend back under, and out to, two feet past the drip line of any decks.**

**Zone 1B** - Extends out from Zone 1A to 10 feet from the structure. **In this zone, all highly flammable vegetation such as ground juniper should be removed.** Ground juniper contains a high oil content. This in combination with the dead material that builds up underneath the shrub produces very flammable vegetation. Any large dead woody material on the ground must also be removed. Firewise plants should be used for landscaping and re-vegetation. Grasses should be irrigated when possible and mowed to a maximum height of 6 to 8 inches twice per growing season to a distance of 30 feet from the structure.

**Zone 1C** - This zone extends out from Zone 1B to 15 feet from the structure. **All understory trees (ladder fuels) must be removed as marked.** These are small seedling and sapling size trees that can be ladders for fire to get in the crowns of the larger trees. A few of the larger, healthy trees can to be retained for screening. All remaining trees in this zone must be pruned to a height of 10 feet. They must be well spaced so that the crowns are not touching (10 foot minimum crown spacing). No trees should overhang the house or decks, unless approved by Boulder County or CSFS as "part of the structure" with additional fuels reduction around those trees to insure the defensible space integrity. **Trees should be at least 15 feet away from the house on all sides, and a minimum of 20 feet from chimneys.**

**Zone 2** - This zone extends out from Zone 1C, and acts as a transition zone between the heavily thinned areas near the house to the existing forest setting. It extends down slope between 100-170 feet depending upon slope steepness. Zone 2 also extends on either side of the structure a minimum of 100 feet and behind the house between 70-100 feet assuming no boundary restrictions. Tree spacing begins as in Zone 1C and gradually decreases as you approach the outer edge of the zone. Thinning and crown spacing becomes greater in areas of steep slopes. Ladder fuels and poor quality, suppressed and/or diseased trees, 6 to 8 inches in diameter, make up the majority of the removals. The remaining mature trees must be pruned to a height of 10 feet at the intersection of Zones 1 and 2 with limbing reduced in height to 6 feet as you approach Zone 3. If there are any questions pertaining to slope and the changes in thinning spacing and distance regulations please refer to <http://www.ext.colostate.edu/pubs/natres/pubnatr.html> and find the *Quick Facts 6.302 Creating Wildfire Defensible Space*.

**Zone 3** - This zone extends out from Zone 2 to the edge of the property. It may extend out to areas that are not part of the immediate mitigation efforts. In this zone, a few thicker clumps of trees are acceptable, as well as some unpruned trees near the outer edge. Thinning in this zone adds some protection, but is aimed more at forest health. Trees that are of poor quality or form, or have insect or disease infestations, should be removed retaining the larger, healthier trees. Snags, 2 to 4 per acre, can be retained for wildlife. Slash in this zone can be lopped and scattered and/or piled for wildlife use. Large amounts of slash should be disposed of by chipping, hauling to an approved site, or burning. Burn permits can be obtained from Boulder County.





## **Annual Fire Safety Checklist**

- Thin trees and brush properly within defensible space.
- Remove trash and debris from defensible space.
- Remove needles and pine cones from window wells.
- Clear leaves and debris from the roof and gutters of structures.
- Remove branches that overhang a chimney or roof.
- Stack firewood uphill from a home or on a contour at least 30 feet away from structures.
- Clear weeds and grass from around wood piles.
- Check and maintain screens on soffit vents, roof vents, and attic openings.
- Remove any combustibles from under decks, porches or entrances ways.
- Clear vegetation from around fire hydrants, cisterns, propane tanks, etc.
- Make sure that an outdoor water supply is available with a hose, nozzle and pump.
- Make sure address signs are still clearly visible from the street or road.
- Make sure that driveways are wide enough for fire trucks and equipment.
- Practice a family fire drill and evacuation plan.

## **Evacuation Tips**

- If a wildfire is threatening your area, listen to the radio for updated reports and evacuation information.
- Confine pets to one room and make plans to take care of them in the event of evacuation.
- Arrange for temporary housing with a friend or relative whose home is outside the threatened area. Leave a note in a prominent place in your home that says where and how you can be contacted.
- If your home is threatened by wildfire, you will be contacted and advised by law enforcement officers to evacuate. If you are not contacted or you decide to stay and help defend your home, evacuate pets and family members who are not needed to protect your home.
- Remove important documents, mementos, etc. from the possible fire area.
- Choose an evacuation route away from the fire if possible. Watch for changes in the speed and direction of the fire and smoke.

Take a disaster supply kit containing:

- Drinking water.
- A change of clothing and footwear for each family member.
- Blanket or sleeping bag for each person.
- First-aid kit and prescription medications.
- Emergency tools including a battery-powered radio, flashlight and extra batteries.
- Extra set of car keys and credit cards, cash or traveler's checks.
- Extra pairs of eyeglasses or other special items for infants, elderly or disabled family members.

## Safety Zone Guidelines

A Safety Zone is an area that in the event of a wildland fire you could survive the passing fire without the aid of a fire shelter. A natural safety zone could be an area already burned clean by the fire (in the black), rock areas where flashy fuels are absent, or large bodies of water. A manmade safety zones could be pre-constructed sites such as clear cuts. It should be close enough to your home to consider escape time to reach the safety zone. They should not be located upslope or downwind of the fire or in heavy fuels.

1. Avoid locations that are downwind from the fire.
2. Avoid locations that are in chimneys, saddles, or narrow canyons.
3. Avoid locations that require a steep uphill escape route.
4. Take advantage of heat barriers such as lee side of ridges, large rocks, or solid structures.
5. Burn out safety zones prior to flame front approach.
6. For radiant heat only, the distance separation between you and the flames must be at least four times the maximum flame height. This distance must be maintained on all sides, if the fire has ability to burn completely around the safety zone. Convective heat from wind and/or terrain influences will increase this distance requirement.

### Calculations Assuming No Slope and No Wind

<u>Flame Heights</u>	<u>Distance separation</u>	<u>Area in Acres</u>
10 feet	40 feet	1/10 acre
20 feet	80 feet	1/2 acre
50 feet	200 feet	3 acres
75 feet	300 feet	7 acres
100 feet	400 feet	12 acres
200 feet	800 feet	50 acres

**Note:** Distance separation is the radius from the center of the safety zone to the nearest fuels. When fuels are present that will allow the fire to burn on all sides of the safety zone this distance must be doubled in order to maintain effective separation in front, to the sides, and behind the person.

Area in Acres is calculated to allow for distance separation on all sides for a three person family and a vehicle. One acre is approximately the size of a football field or exactly 208 feet x 208 feet.











**Example:** Given a fire with 10 foot flame heights (no wind or slope). You would need a minimum of 40 feet between you and the flames. So your total safety zone should be 80 feet x 80 feet. If you are settled into the middle of the safety zone you will have a minimum distance of 40 feet to each edge of the zone.



Property of  
Shepard/Kennedy  
6505 Sunshine Canyon Dr.  
LU - 10 - 0003/  
SPR - 10 - 0005



Legend

-  Zone 1
-  Zone 2
-  Driveway
-  Property Boundary
-  Septic field
-  Well
-  Cistern
-  Propane
-  Large leave trees
-  House



0 62.5 125 250 375 500 Feet



Name: Bill Shepard and Shannon Kennedy

Address: 579 E Wisconsin Avenue, Neenah, WI 54956

Phone: 303-449-1141 Sam Nishek Architect. 303-442-4322 Tom Stanko Contractor

Building Address: 6505 Sunshine Canyon Dr, Boulder CO

Legal description: Boulder Valley Lode, parcel # 146108000118

→ 98-IN-71

SPR (Site plan review number): LU-10-0003/SPR-10-0005:Kennedy/Shepard

Elevation: 7,272 feet

Total acreage of property: 4.37

Any existing structures present that are staying: NO

Total square feet of structure: 4,950

Will garage be attached: yes, 2-car

Direction front door will be facing: West

Total number of windows: 61 openings

Size of windows (small, medium, large): varies

Window construction (low-e rated, double paned): Low-E, Double pane

Window frame material: Aluminum Clad wood.

Screening material: Fiberglass

Window wells present: NO

Sliding glass doors: (2) Bi-Fold doors

Siding material: Cement Stucco

Roof material: Standing seam painted steel

Gutters present: yes

Soffit material: Cement board

Exterior door material: Solid Wood



Will there be decks attached to structure: yes

Deck material: \_Composite wood/plastic\_\_\_\_\_

Deck supported by (timber posts, concrete): \_Steel Beams\_\_\_\_\_

Enclosed or open: \_Open Below\_\_\_\_\_

Ground level or raised off ground: \_9' above concrete driveway\_\_\_\_\_

Type of barrier protection (gravel, rock, weed barrier): \_\_Paving on West, South and East, gravel over weed barrier on north.

Driveway length: \_approx. 1,000 feet\_\_\_\_\_

Turnarounds or pullouts: \_4, per approved SPR review\_\_\_\_\_

## Utilities

Water supply (well or main system): \_Well\_\_\_\_\_

Location of well (approximate feet and direction away from structure): \_30' west of house

Electric pole (location and direction from structure): \_\_Buried in driveway

Gas or propane (approximate feet and direction away from structure): Propane tank buried 50 feet west.

Septic system (location and distance from structure): 60 feet east of house

Cistern (location and distance from structure): 30 feet west of house

Cistern size: 5000 gallons per Sunshine FPD

In house sprinkler required: yes

If yes did you talk to your local fire protection district: yes, Sunshine FPD

## Mitigation work

Slash treatment (pile burn or chipping): Chipping ??

*Menziesii  
pseudotsuga  
Scopulorum*



[illegible]

## A1.0

Site Plan

Shannon Kennedy & Bill Shepard  
6505 Sunshine Canyon Drive, Boulder, Colorado, 80302

**BARRETT STUDIO architects**

Architecture Community/Urban Design Interiors

**USDA SW-1**  
Date: 28 January 2010  
Revisions:  
16 March 2010

the first time the book was published in 1971, it was a landmark work in the field of international law. It was the first time that a book of this kind had been published in the United States. It was also the first time that a book of this kind had been published in the United Kingdom. It was a landmark work in the field of international law. It was the first time that a book of this kind had been published in the United States. It was also the first time that a book of this kind had been published in the United Kingdom.