

WILDFIRE MITIGATION PLAN

For Kenneth & Marlene Swanson
967 Copperdale Lane, Golden, CO 80403
Docket: SPR - 08 - 091
Inspection date: 1/14/2008

**Colorado
State**
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Prepared for:

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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 31, Township 1S, and Range 71W, Boulder County. The property is located within the Coal Creek Fire Protection District (303-642-3121). The lot is 1 acre in size and has a modest ~2-5 percent slope with a east aspect. The site is at ~8,000 feet in elevation and located midslope which is relatively dry. Copperdale Lane to the north and The Lane on the east will create a small natural barrier that may help slow the spread of a surface fire on the site.

CURRENT AND FUTURE PLANS FOR THE SITE

A 672 sq. ft. shed is proposed for the site. There are 3 other structures on the site at this time.

CONSTRUCTION DESIGN AND MATERIALS

The existing houses have a simple design with a simple roofline and will be oriented with a north aspect. **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 existing roofing material consists of class-A laminated asphalt shingles. **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 existing exterior wall material is wood. Soffits and fascia are 3/4" plywood. The structure has 18 small to large sized windows with the primary viewing direction being toward the northeast side of the structure. Windows are single glazed. Frames are made of aluminum. Exterior doors are fire-rated, and made of wood. **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 up hill faster and will create a great deal of radiant heat.**

An existing deck is constructed of wood decking material with 6" timber posts. The deck is open overhead and enclosed underneath. The deck will have a buffer material of crushed rock. **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.**

The proposed shed has a simple design with a simple roofline. It will be oriented with a northern aspect. The wall material will consist of metal as well as the roof material. This shed will be mainly used for storage and will have its own access.

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 dirt over a 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.

OTHER DEFENSIBLE SPACE RECOMMENDATIONS

As detailed in fact sheet 6.302, *Creating Wildfire Defensible Zones*, an important factor that determines a structure's ability to survive wildfire is defensible space. Defensible space is a maintained area around a structure where fuels (flammable materials) are modified to slow the possible spread of wildfire to the structure, as well as from the structure to the surrounding areas. Defensible space provides a place where structure protection and fire suppression operations may occur. Wildfire hazard mitigation work breaks up fuel continuity, potentially decreasing a wildfire's intensity, and for more effectiveness should be completed beyond a home's defensible space, zone 1 and 2, area into zone 3.

In addition to the above recommendations, several other measures can be taken to make your home more fire safe and add an additional measure of safety for your family. While not required through site plan review, the following measures should be undertaken to maintain the home and defensible space in the future.

- Keep firewood at least 30 feet away from buildings; clear weeds and grass from around wood piles
- When possible, create and maintain an irrigated green space in zone 1 and/or 2; keep grasses mowed at least 6" to 8" in height
- Place and maintain screens and spark arresters on chimneys
- Place and maintain screens on soffit vents, roof vents, and attic openings
- Place shutters, fire curtains or heavy drapes on windows.
- Enclose sides of stilt foundations and decks.



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.

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.

DEFINITIONS

Aspect – Exposure. The direction a slope faces.

Canopy – The cover of branches and foliage formed collectively by crowns of adjacent trees.

Crown – Branches and foliage of a tree.

Dominant fuel type – Matter that would carry a fire, found on the ground.

Duff – a layer of accumulated dead organic matter (pine needles).

Eddies – Small wind occurrences that are separate from normal wind flows.

Fuel Model – A number system that identifies the types of fuels found on the property that will directly influence fire behavior.

Fire danger - An assessment of both fixed and variable factors of the fire environment, which determine the ease of ignition, rate of spread, difficulty of control, and the fire impact.








Fire hazard - The potential fire behavior for a fuel type, regardless of the fuel type's weather-influenced fuel moisture content or its resistance to fireguard construction. Assessment is based on physical fuel characteristics, such as fuel arrangement, fuel load, condition of herbaceous vegetation, and presence of elevated fuels.

Fire management - The activities concerned with the protection of people, property and forest areas from wildfire and the use of prescribed burning for the attainment of forest management and other land use objectives, all conducted in a manner that considers environmental, social and economic criteria.

Fire risk - The probability or chance of fire starting determined by the presence and activities of causative agents.

Property of
Kenneth and Marlene Swanson
967 Copperdale Lane
Golden, CO
SPR - 08 - 091

Legend

-  Zone 1
-  Zone 2
-  Well
-  Leach field
-  Driveway
-  Property boundary
-  Leave Trees

House

Garage

Proposed shed

N

0 45 90 180 Feet

Colorado State Forest Service Wildfire Mitigation Plan Data Form

Please be specific. Fill out the data form as completely and as accurately as possible, **do not** leave any blanks. Leaving blanks can delay the process of your wildfire mitigation plan. You may email fax it to 303-823-5768, or bring it to the scheduled appointment.

The cost of the Wildfire Mitigation Plan is \$300.00. An invoice will be included when you receive the plan. Payment is due within 30 days from the date of the invoice. Any **Bolded** categories will be filled in by the Colorado State Forest Service (CSFS) representative at the time of initial site visit. If you have any questions about this form please contact Nicole Palestro at 303-823-5774.

Inspection Date: 1-12-09

Landowner name: KENNETH L & MARLENE K. SWANSON

Mailing address: 967 COPPERDALE LN.

City, State, Zip: GOLDEN, CO 80403

Site address: 967 COPPERDALE LN, GOLDEN, CO 80403

Phone number: ~~604~~ 303-642-0743

Road access: (Directions from main access road)
.9 MILE ON COPPERDALE LN - FIRST HOUSE
ON LEFT AFTER THE LANE RD.

Docket number: SPR-08-091 (SPR, SPRW, LU, Etc.)

Section: 3151

Township: 1S

Range: 71W

Legal Description:
LOT 51 COPPERDALE LN 2

Elevation: 8000 (feet)

Lot size: 1 (Acres)

Number of Structures: 3 (All structures to be present, including sheds, garages and out buildings)

Existing Structures: 2 HOUSE - 2 CAR GARAGE (House/barn/garage/etc.)
PLUS SHOP

New Structure: STORAGE SHED/POLE BARN (House/Barn/garage/new addition/etc...)

Driveway length: 200 FT (Actual length in feet from road to home)

Driveway trees removed: _____ (few/many/none)

House design: _____ (moderately complex – any shape with a few alcoves or complex – any shaped with a number of alcoves complex design)

Home buffer material: DIRT (Material that is spread 5 ft. wide around the house - stone/crushed gravel/decorative stone)

Roof Design: FLAT / PITCHED (moderately complex/complex)

Roof material: ASPHALT SHINGLES (Class A- Asphalt shingles/concrete tiles/metal (wood roof is not permitted in Boulder County))

Soffit type and thickness: 3/4 PLYWOOD (3/4" Plywood or 3/8" hardboard/cement board)

Siding material: WOOD (Cement/hardboard/log/stucco/stone/wood - **wood siding is not permitted on high hazard sites**)

Windows (#): 18 (number of windows in the structure)

Window Size: 6 ~~SMALL~~ MED
8 SMALL (On average: small - <3x4', medium - 4x5', large <5x6')
4 LARGE

Window Frames: ALUMINUM (Wood or aluminum clad wood/ **vinyl is not permitted on high hazard sites**)

Window Aspect: NE (Dominant viewing direction)

Window Construction: SINGLE GLAZED (Low E- Coating/Tempered glass/etc...)

Window Wells: NONE (Number and location if present, these are windows that sit below ground level, usually in a basement)

Sliding Glass Doors: NONE (Location and Number)

Door Material: WOOD (Wood/steel/fiberglass/composite)

Deck material: WOOD (type of composite materials, **wood is not permitted**)

Deck Description: OPEN DECK (Enclosed deck/open deck/enclosed underneath/open underneath)

Deck support type: TIMBER (Timber posts/logs/steel/ concrete/decorative stone)

Deck buffer material: ROCK - DIRT (Crushed rock/ gravel/decorative stone)

Deck weed barrier: NONE (Fiber glass/polyester)

Structure Square feet: New Shed 672 1660 (Total sq. ft. of structure – **this must be accurate and match the sq. ft. that you submitted for SPR, if it has changed, please specify**)

Structure aspect: EAST (Dominant facing direction/view, N, S, E, W)

Utility Location: POLE - 20 Ft (Pole/buried: Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Detached Garage (if applicable): 817 (Total square feet)

Out buildings: 672 (Total square feet of any and all sheds, cabins, ect...)

Leach field: SE (Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Cistern size (if applicable): NA (g allons - <2,000 sq. ft – 1,800 gal., >2,000 to 2,500 sq. ft – 2,400 gal., >2,400 gal. to 3,599 – 3,600 gal., and >3,600 full interior NFPA 13 D Sprinkler system per Boulder County)

Cistern Location: _____ (Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Cistern Type: _____ (Domestic Cistern or Fire Cistern)

Making a donation to community cistern : YES (Yes or No)

Have you talked to the local fire department : NO (Yes or No)

Are you required to have a sprinkler system : NO (Yes or No) (If your house/addition is greater than 3,600 sq. ft. you are required to have an a full interior NFPA 13 D Sprinkler system per Boulder County)

Water supply: WELL (Well or main line)

Well (if applicable): NORTH (Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Propane or natural gas: NATURAL GAS

*walls
not steel*

Propane Tank location: _____ (Direction and distance from residence – N, S, E, W/20ft, 30ft, 40ft, etc...)

Slash disposal: HAULED (Chipped/hailed/burned/lop-scatter)

Can you provide a map of utility locations for the property: YES (e.g. location of propane, tank, leach field, well, cistern, etc... Yes or No)

Comments: _____

This part will be filled out by the CSFS inspecting forester

FPD: _____

Dominant fuel type: _____ (Grass/forbs/shrubs/slash/etc)

Dominant overstory: _____

Co-dominant overstory: _____

Fuel model type: _____

Aspect: _____ (Direction of slope)

Slope: _____ (Percent)

Building site: _____ (Chimney/saddle/valley/ridge/mid-slope)

Site moisture: _____

Natural fire barrier: _____

Insect & Disease Diagnosis: _____

Comments: _____

