LIVING WITH FIRE

A GUIDE FOR THE HOMEOWNER

Paid for by:

LIVING WITH FIRE

North Central Idaho Fire Prevention Cooperative

LIVING IN A NATURAL FIRE ENVIRONMENT

The Northern Rockies is an area where fire has always played a prominent role in the natural environment. Long before towns and subdivisions were established across the landscape, fires were a natural result of the frequent summer thunderstorms that travelled across the mountains and plains. However, decades of fire supression have resulted in fuel conditions in certain forest communities, that have the potential to create intense wildfires.

Within this natural fire environment, there are individual houses, subdivisions, and entire communities. Many homes, however, would be unable to survive an intense wildfire. Since it is not a question of "if" wildfires will occur but "when," they will occur, the likelihood of human life and property loss is great and growing.

Our ability to live more safely in this fire environment greatly depends upon our use of "pre-fire activities." Pre-fire activities are actions taken before a wildfire occurs which improve the survivability of people and homes. They include proper vegetation management around the home (known as defensible space), use of fire resistant building materials, appropriate subdivision design, and other measures. Research clearly demonstrates that pre-fire activities save lives and property.

THE "LIVING WITH FIRE" PROJECT

Photograph courtesy of California Department of Forestry and Fire Protection.

The pre-fire activities implemented by this homewowner included a green and well maintained landscape, reduction of wildland vegetation around the perimeter of the property, a fire resistant roof, and a good access road with a turnaround area. The charred surroundings of the home show that these pre-fire activities effectively protected it when wildfire hit.

THE "WHY WE'RE WORRIED ABOUT WILDFIRE" EQUATION

Fire is a natural part of our environment. Our forests and rangelands were burning long before there were settlements in the Pacific Northwest.

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People are living in this fire environment. Many homes are built and maintained without regard to wildfire.

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With more people using our wildlands, there is a greater chance of fire starts.

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Today's wildfires can burn intensely and be difficult to control.

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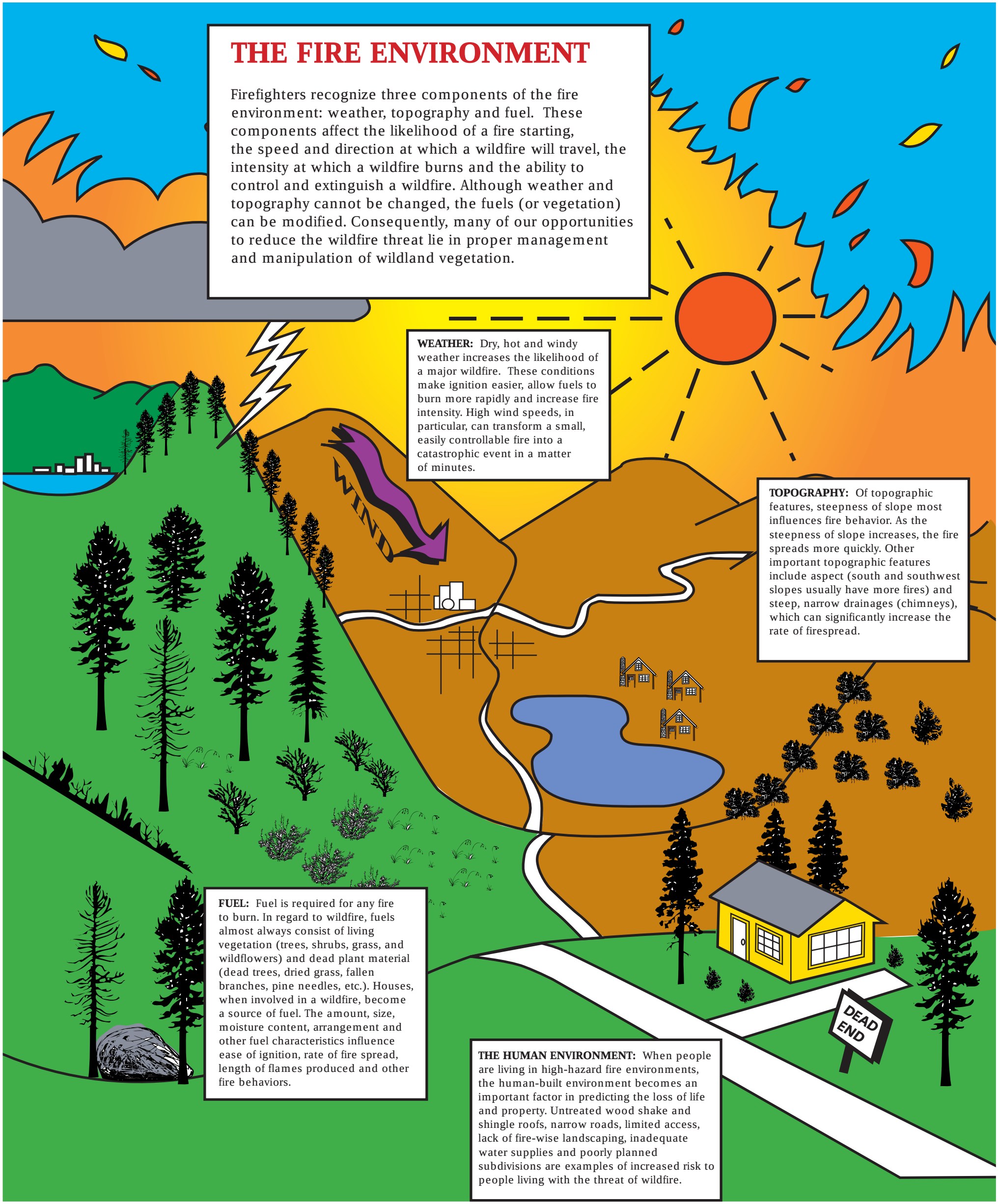
Potential for:

- **Greater loss of life**
- **Increased property losses**
- **More damage to natural resources**
- **More money needed for firefighting.**

Cover photograph courtesy of Scott Waldron - view of Lowyerplex near Kamiah

THE FIRE ENVIRONMENT

Firefighters recognize three components of the fire environment: weather, topography and fuel. These components affect the likelihood of a fire starting, the speed and direction at which a wildfire will travel, the intensity at which a wildfire burns and the ability to control and extinguish a wildfire. Although weather and topography cannot be changed, the fuels (or vegetation) can be modified. Consequently, many of our opportunities to reduce the wildfire threat lie in proper management and manipulation of wildland vegetation.



WEATHER: Dry, hot and windy weather increases the likelihood of a major wildfire. These conditions make ignition easier, allow fuels to burn more rapidly and increase fire intensity. High wind speeds, in particular, can transform a small, easily controllable fire into a catastrophic event in a matter of minutes.

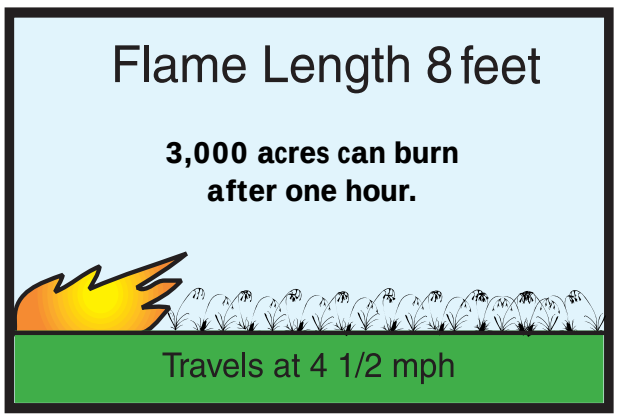
TOPOGRAPHY: Of topographic features, steepness of slope most influences fire behavior. As the steepness of slope increases, the fire spreads more quickly. Other important topographic features include aspect (south and southwest slopes usually have more fires) and steep, narrow drainages (chimneys), which can significantly increase the rate of firespread.

FUEL: Fuel is required for any fire to burn. In regard to wildfire, fuels almost always consist of living vegetation (trees, shrubs, grass, and wildflowers) and dead plant material (dead trees, dried grass, fallen branches, pine needles, etc.). Houses, when involved in a wildfire, become a source of fuel. The amount, size, moisture content, arrangement and other fuel characteristics influence ease of ignition, rate of fire spread, length of flames produced and other fire behaviors.

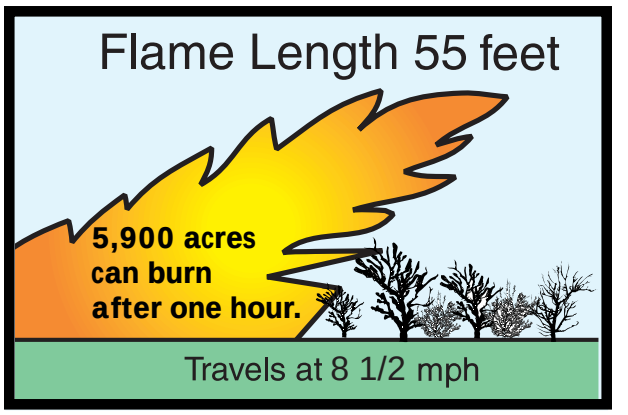
THE HUMAN ENVIRONMENT: When people are living in high-hazard fire environments, the human-built environment becomes an important factor in predicting the loss of life and property. Untreated wood shake and shingle roofs, narrow roads, limited access, lack of fire-wise landscaping, inadequate water supplies and poorly planned subdivisions are examples of increased risk to people living with the threat of wildfire.

EXAMPLES OF LOCAL FIRE BEHAVIOR*

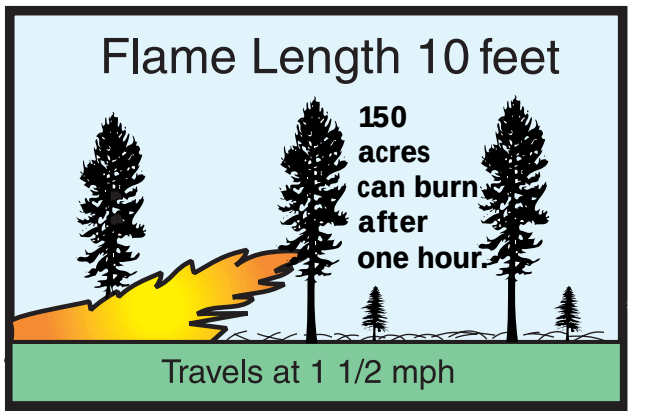
Presented below are five types of vegetation common to our region with computer generated estimates of how they would burn under certain conditions. These predications assume a wind speed of 20 mph, flat terrain, typical moisture contents of living and dead vegetation for summertime, and normal August weather for our area. It is important to note that fire size and rate of spread is largely determined by spotting (embers/firebrands that are thrown ahead and to the sides of actively burning fires). Spotting results in smaller fires that may contribute to the main fire size and rate of spread.



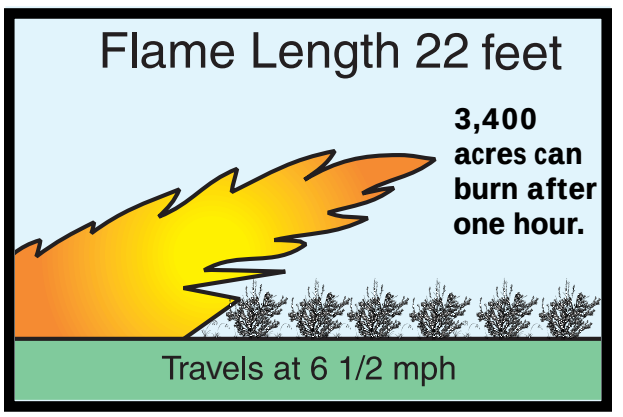
CHEATGRASS: Cheatgrass is an invasive annual grass that usually occupies areas formerly vegetated with big sagebrush. It can dominate old burned areas, abandoned pastures, and other disturbed areas.



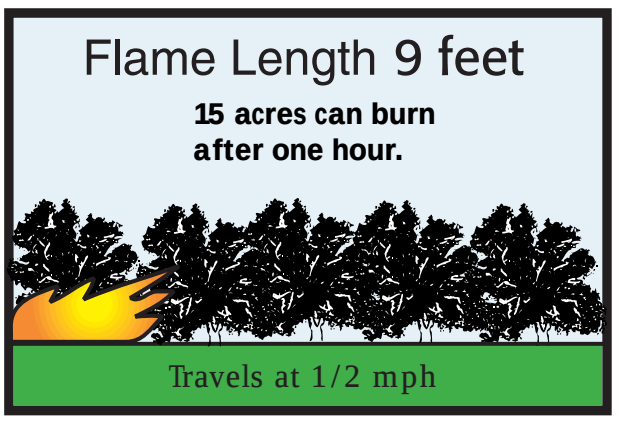
BIG SAGEBRUSH/BITTERBRUSH: This is a heavy brush type consisting of large big sagebrush, bitterbrush, and sometimes mountain mahogany. Usually large amounts of dead woody material are present.



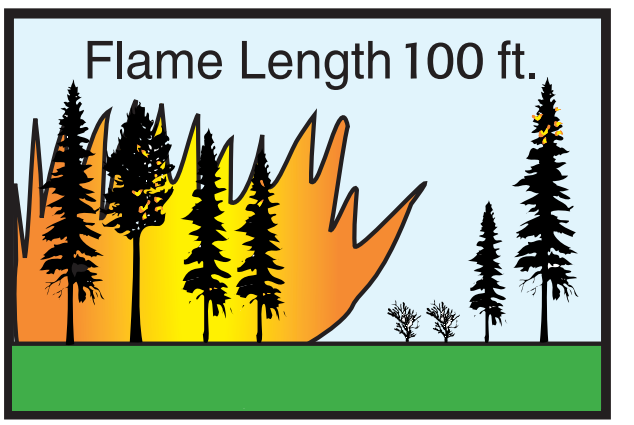
OPEN PINE FOREST: This type consists of open, park-like lodgepole and/or ponderosa pine, often interspersed with fir and other coniferous trees. The understory consists of pine needles, a variety of grasses, and often dense saplings.



MIXED BRUSH: This represents a variety of brush species of varying heights with an understory of grasses and litter. This type is very common in the foothills surrounding the valleys.



DENSE CONIFER FOREST: Thick stand of mature pine, fir and other conifers. There are mixed layers of vegetation among young trees, seedlings and shrubs. There is a large amount of dead or down woody material, needles and organic matter on the forest floor.



CROWN FIRES: Crown fires occur when a ladder of vegetation allows fire to climb to tops of pine and fir trees. Flames can jump 100+ feet high and send burning embers more than a mile away .

Photograph courtesy of Ben Hammack.

When wildfire flame lengths exceed 11 feet, direct firefighting efforts are ineffective. Under these conditions firefighters use roads, streams, and other barriers to control the wildfire.

THE LIMITATIONS OF WILDLAND FIREFIGHTING

A lot of people assume that when a wildfire starts, it will be quickly controlled and extinguished. This is an accurate assumption 97% of the time. Firefighters have the ability, equipment, and technology to effectively suppress most wildfires. But 3% of the time wildfires burn so intensely that there is little firefighters can do. Presented at right are firefighter tactics as they relate to wildfire flame length. Compare this to the flame lengths shown in "Examples of Local Fire Behavior."

FLAME LENGTH	EFFECTIVE FIRE SUPPRESSION TACTICS*
Less than 4 feet	Fireline constructed with hand tools, such as shovels and axes, can be effective at the front of the fire.
4 to 8 feet	Bulldozers and other heavy equipment will be needed to construct an effective fireline. Where bulldozers are not available, fire engines with hoses and water will be required to "knock down" the flames before the fire crews with hand tools can be effective. Or, fire crews must construct a fireline at a considerable distance from the fire.
8 to 11 feet	Airtankers with fire suppressing retardant or helicopters with water are required to reduce the fire's rate of spread before fireline construction by crews or bulldozers can be effective.
More than 11 feet	Direct fire suppression efforts will be ineffective. Retreat to existing roads, streams and other barriers. Burn out vegetation between the fireline and the advancing fire front to eliminate wildfire fuels.

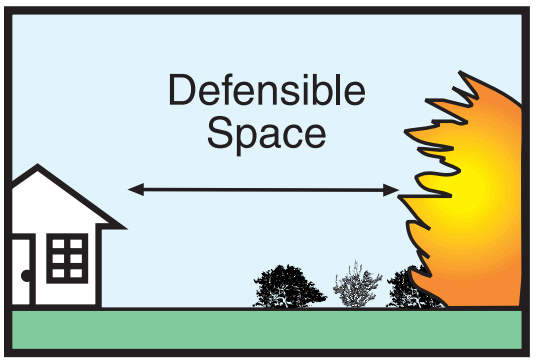
FREQUENTLY ASKED QUESTIONS ABOUT DEFENSIBLE SPACE

Photograph courtesy of Steve Creech

More and more homes are being built in high fire hazard environments (Lolo Complex near Kamiah, ID).

In the 1980's, the term "defensible space" was coined to describe vegetation management practices aimed at reducing the wildfire threat to homes. This article responds to some of the commonly asked questions about defensible space.

WHAT IS DEFENSIBLE SPACE?
Defensible space is the area between a house and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and to provide an opportunity for firefighters to effectively defend the house. Sometimes, a defensible space is simply a homeowner's properly maintained backyard.



WHAT IS THE RELATIONSHIP BETWEEN VEGETATION AND WILDFIRE THREAT?
Many people do not view the plants growing on their property as a threat. But in terms of wildfire, the vegetation adjacent to their homes can have considerable influence upon the survivability of their houses. All vegetation, including plants native to the area as well as ornamental plants, is potential wildfire fuel. If vegetation is properly modified and maintained, a wildfire can be slowed, the length of flames shortened, and the amount of heat reduced, all of which assist firefighters to defend the home against an oncoming wildfire.

THE FIRE DEPARTMENT IS SUPPOSED TO PROTECT MY HOUSE, SO WHY BOTHER WITH DEFENSIBLE SPACE?
Some individuals incorrectly assume that a fire engine will be parked in their driveway and firefighters will be actively defending their homes if a wildfire approaches. During a major wildfire, it is unlikely there will be enough firefighting resources available to defend every home. In these instances, firefighters will likely select homes they can most safely and effectively protect. Even with adequate resources, some wildfires may be so intense that there may be little firefighters can do to prevent a house from burning. The key is to reduce fire intensity as wildfire nears the house. This can be accomplished by reducing the amount of flammable vegetation surrounding a home. Consequently, the most important person in protecting a house from wildfire is not a firefighter, but the property owner. And it's the action taken by the owner **before** the wildfire occurs (such as proper landscaping) that is most critical.

DOES DEFENSIBLE SPACE REQUIRE A LOT OF BARE GROUND IN MY LANDSCAPE?
No. Unfortunately, many people have this misconception. While bare ground is certainly effective in reducing the wildfire threat, it is unnecessary and unacceptable due to appearance, soil erosion, and other reasons. Many homes have attractive, well vegetated landscapes that also serve as effective defensible space.

DOES CREATING A DEFENSIBLE SPACE REQUIRE ANY SPECIAL SKILLS OR EQUIPMENT?
No. For the most part, creating a defensible space employs routine gardening and landscape maintenance practices such as pruning, mowing, weeding, plant removal, appropriate plant selection, and irrigation. Equipment needed includes of common tools like a chain saw, pruning saw, pruning shears, loppers, weed-eater, shovel, and a rake. A chipper, compost bin, or a large rented trash dumpster may be useful in disposing of unwanted plant material.

HOW BIG IS AN EFFECTIVE DEFENSIBLE SPACE?
Defensible space size is not the same for everyone, but varies by slope and type of wildland vegetation growing near the house. See the article entitled "Creating An Effective Defensible Space" for specific information.

Photograph courtesy of Robert Millage

Lolo Canyon behind Harrisburg & Woodland Juncion near Kamiah, ID

DOES DEFENSIBLE SPACE MAKE A DIFFERENCE?
Yes. Investigations of homes threatened by wildfire indicate that houses with an effective defensible space are much more likely to survive a wildfire. Furthermore, homes with both an effective defensible space and a nonflammable roof (composition shingles, tile, metal, etc.) are many times more likely to survive a wildfire than those without defensible space and flammable roofs (wood shakes or shingles). These conditions give firefighters the opportunity to effectively and safely defend the home.

DOES HAVING A DEFENSIBLE SPACE GUARANTEE MY HOUSE WILL SURVIVE A WILDFIRE?
No. Under extreme conditions, almost any house can burn. But having a defensible space will significantly improve the odds of your home surviving a wildfire.

WHY DOESN'T EVERYONE LIVING IN A HIGH WILDFIRE HAZARD AREA CREATE A DEFENSIBLE SPACE?
The specific reasons for not creating a defensible space are varied. Some individuals believe "it won't happen to me". Others think the costs (time, money, effort, loss of privacy, etc.) outweigh the benefits. Some fail to implement defensible space practices simply because of lack of knowledge or misconceptions.

HOW DO I CHANGE THE VEGETATION ON MY PROPERTY TO REDUCE THE WILDFIRE THREAT?

The objective of defensible space is to reduce the wildfire threat to a home by changing the characteristics of the adjacent vegetation. Defensible space practices include:

- increasing the moisture content of vegetation.
- decreasing the amount of flammable vegetation.
- shortening plant height.
- altering the arrangement of plants.

This is accomplished through the "Three R's of Defensible Space." The article "Creating An Effective Defensible Space" provides detailed information about changing vegetation characteristics for defensible space.

THE THREE R's OF DEFENSIBLE SPACE

Removal	This technique involves the elimination of entire plants, particularly trees and shrubs, from the site. Examples of removal are cutting down a dead tree or cutting out a flammable shrub.
Reduction	The removal of plant parts, such as branches or leaves, constitute reduction. Examples of reduction are pruning dead wood from a shrub, removing low tree branches, and mowing dried grass.
Replacement	Replacement is substituting less flammable plants for more hazardous vegetation. Removal of a dense stand of flammable shrubs and planting an irrigated, well maintained flower bed is an example of replacement.

CREATING AN EFFECTIVE DEFENSIBLE SPACE*

...A Step-by-Step Guide

Are you worried about the wildfire threat to your home, but aren't sure how to get started in making your home defensible? Follow these six steps to an effective defensible space...

STEP ONE: HOW BIG IS AN EFFECTIVE DEFENSIBLE SPACE?

The size of the defensible space area is usually expressed as a distance extending outward from the sides of the house. This distance varies by the type of wildland vegetation growing near the house and the steepness of the terrain.

On the "Recommended Defensible Space Distance" chart presented below, find the vegetation type and percent slope (see "Homeowners Guide to Calculating Percent Slope") which best describes the area where your house is located. Then find the recommended defensible space distance for your situation.

For example, if your property is surrounded by wildland grasses such as cheatgrass, and is located on flat land, your recommended defensible space distance would extend 30 feet from the sides of the house. If your house is on a 25% slope and the adjacent wildland vegetation is dense tall brush, your recommended defensible space distance would be 200 feet.

If the recommended distance goes beyond your property boundaries, contact the adjacent property owner and work cooperatively on creating a defensible space. The effectiveness of defensible space increases when multiple property owners work together. The local assessor's office can provide assistance if the owners of adjacent properties are unknown. **Do not work on someone else's property without their permission.**

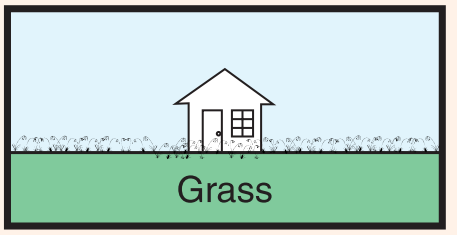
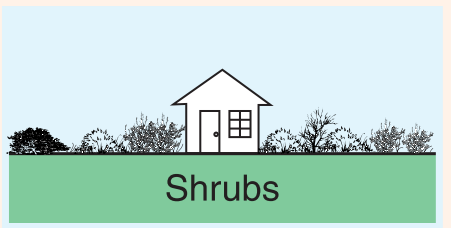
Temporarily mark the recommended distance with flagging or strips of cloth tied to shrubs, trees, or stakes around your home. This will be your defensible space area.

STEP TWO: IS THERE ANY DEAD VEGETATION WITHIN THE RECOMMENDED DEFENSIBLE SPACE AREA?

Dead vegetation includes dead trees and shrubs, dead branches lying on the ground or still attached to living plants, dried grass, flowers and weeds, dropped leaves and needles, and firewood stacks. In most instances, dead vegetation should be removed from the recommended defensible space area. A description of the types of dead vegetation you're likely to encounter and the recommended actions are presented below on the next page.

DEFENSIBLE SPACE

RECOMMENDED DISTANCES—STEEPNESS OF SLOPE

VEGETATION TYPE	Flat to Gently Sloping 0 to 20%	Moderately Steep 21% to 40%	Very Steep +40%
 Grass Wildland grasses (such as cheatgrass), weeds, and widely scattered shrubs with grass understory.	30feet	100feet	100feet
 Shrubs Includes shrub dominant areas.	100feet	200feet	200feet
Trees Includes forested areas. If substantial grass or shrub understory is present, use those values shown above.	30feet	100feet	200feet

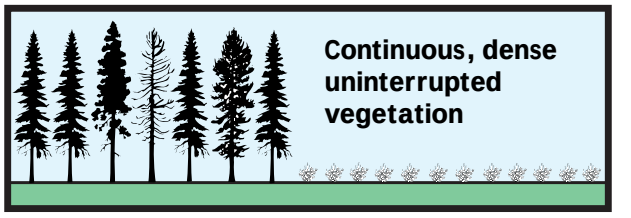
1) Find the percent slope which best describes your property.
2) Find the type of vegetation which best describes the wildland plants growing on or near your property.
3) Locate the number in feet corresponding to your slope and vegetation. This is your recommended defensible space distance.

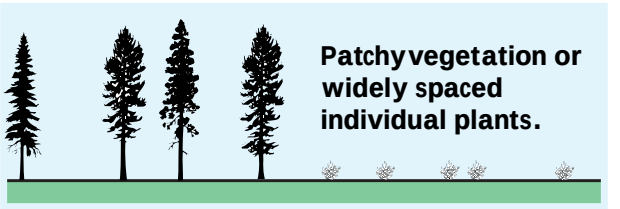
*Please note the recommendations presented in this article are suggestions made by local firefighters experienced in protecting homes from wildfire. They are not requirements nor do they take precedence over local ordinances.

STEP THREE: IS THERE A CONTINUOUS DENSE COVER OF SHRUBS OR TREES PRESENT WITHIN THE RECOMMENDED DEFENSIBLE SPACE AREA?

Sometimes wildland plants can occur as an uninterrupted layer of vegetation as opposed to being patchy or widely spaced individual plants. The more continuous and dense the vegetation, the greater the wildfire threat. If this situation is present within your defensible space area, you should "break-it-up" by providing a separation between plants or small groups of plants.

Not only are steep slopes often considered high wildfire areas, they are also highly erodable. When removing shrubs and trees from steep slopes, keep soil disturbance to a minimum. Also, it may be necessary to replace flammable vegetation with other plant materials to prevent excessive soil erosion.



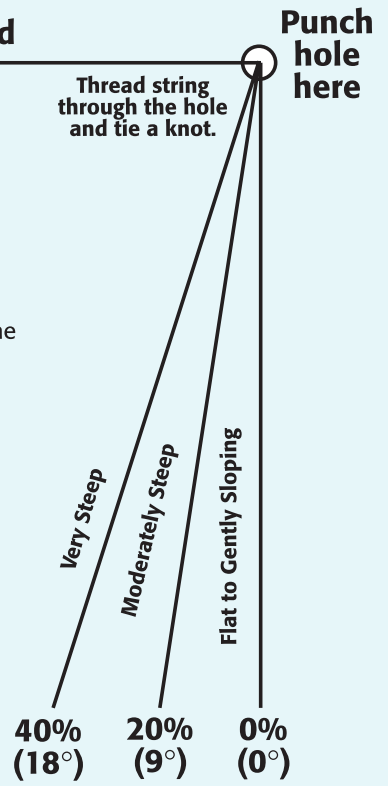


Homeowner's Guide to Calculating Percent Slope

Hold this line parallel to the ground

INSTRUCTIONS:

1. Enlarge this diagram using a photocopying machine.
2. Mount photocopy on a piece of cardboard.
3. Punch a hole through photocopy and cardboard at the designated spot.
4. Thread a 12 inch piece of string through the the hole and tie a knot in the end of the string on the backside of the cardboard.
5. Tie a one inch or larger washer to weight the other end of the string.
6. Hold the designated line parallel to the ground, sighting up slope along the edge of the cardboard.
7. The weighted string will indicate the percent of slope steepness. For convenience, steepness of slope in degrees is presented in parenthesis.

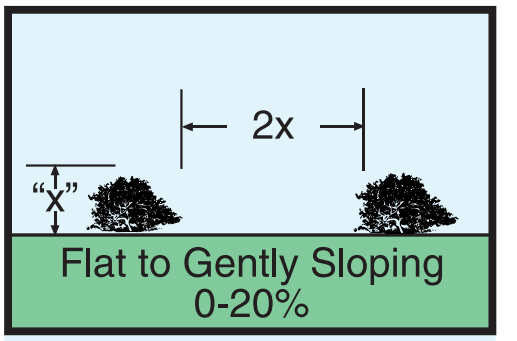


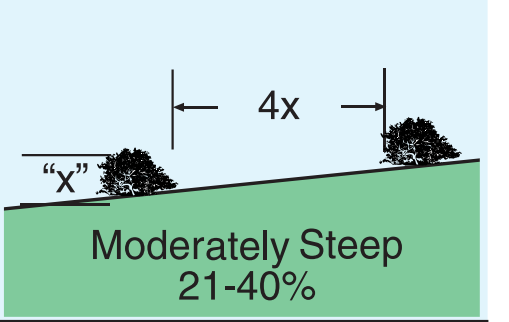
TYPES OF DEAD VEGETATION AND RECOMMENDED PRACTICE

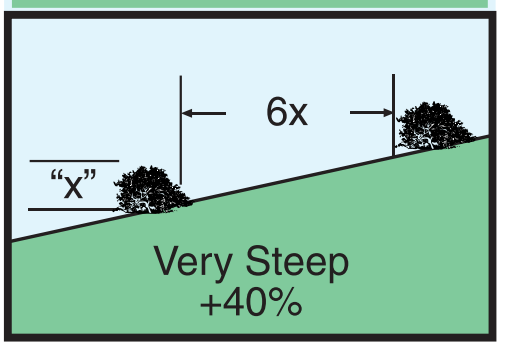
DEAD FUEL TYPE	RECOMMENDED PRACTICE
STANDING DEAD TREE	Remove all standing dead trees from within the defensible space area.
DOWN DEAD TREE	Remove all down dead trees within the defensible space area if they have recently fallen and are not yet embedded into the ground. Downed trees that are embedded into soil and which cannot be removed without soil disturbance should be left in place. Remove all exposed branches from an embedded downed dead tree.
DEAD SHRUBS	Remove all dead shrubs from within the defensible space area.
DRIED GRASSES AND WILDFLOWERS	Once grasses and wildflowers have dried out or "cured," cut down and remove from the defensible space area.
DEAD NEEDLES, LEAVES, BRANCHES, CONES (ON THE GROUND)	Reduce thick layers of pine needles to a depth of two inches. Do not remove all needles. Take care not to disturb the "duff" layer (dark area at the ground surface where needles are decomposing) if present. Remove dead leaves, twigs, cones, and branches.
DEAD NEEDLES, LEAVES, BRANCHES, AND TWIGS (OTHER THAN ON THE GROUND)	Remove all dead leaves, branches, twigs, and needles still attached to living trees and shrubs to height of 15 feet above ground. Remove all debris that accumulates on the roof and in rain gutters on a routine basis (at least once annually).
FIREWOOD AND OTHER COMBUSTIBLE DEBRIS	Locate firewood and other combustible debris (wood scraps, grass clippings, leaf piles, etc.) at least 30 feet uphill from the house.

Recommended Separation Distances for Shrubs and Small Conifers

For areas with dense brush and small conifer trees, the recommended separation distance is dependant upon shrub height and steepness of slope. Specific recommendations are presented below.

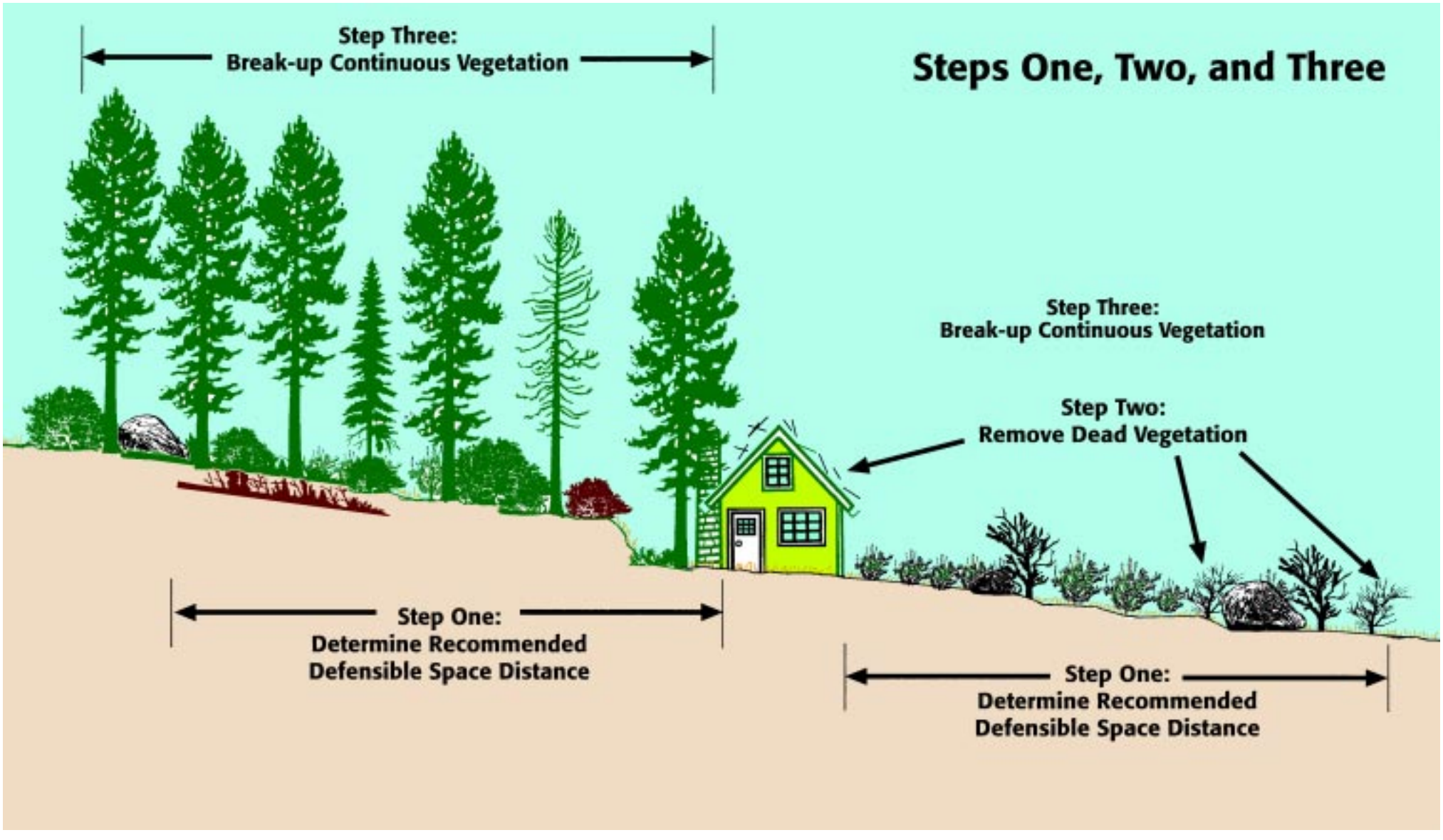






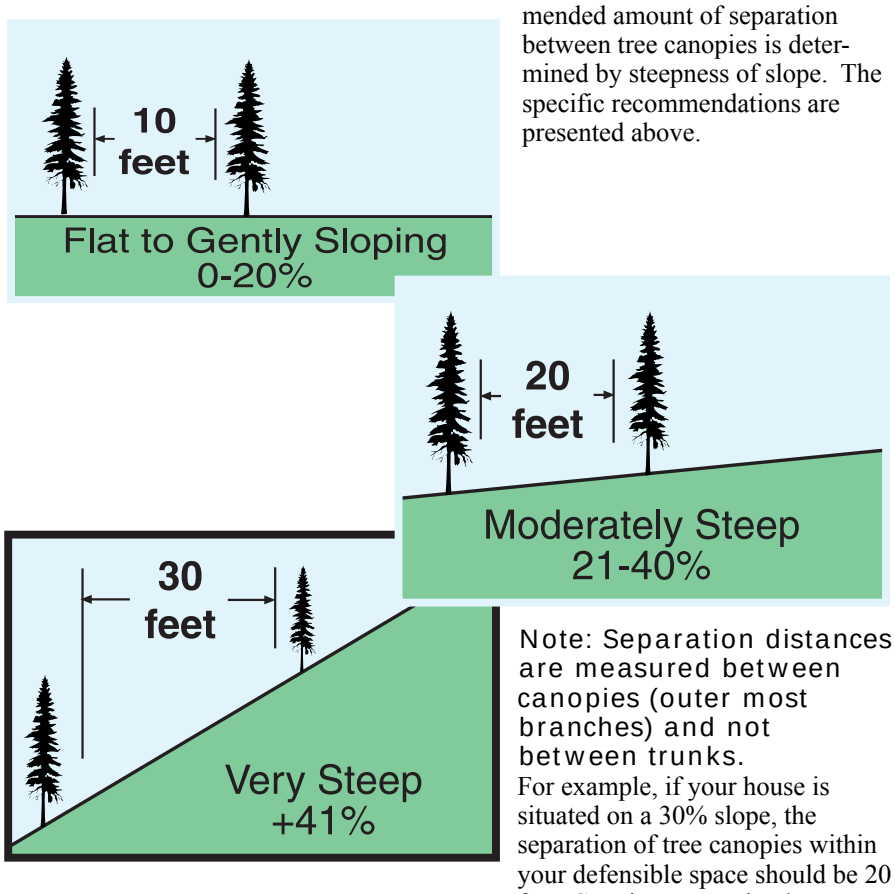
Note: Separation distances are measured between canopies (outermost branches) and not between trunks.

For example, if your home is located on a 10% slope and the brush is four feet tall, the separation distance would be two times the shrub height or eight feet. The recommended separation distance can be accomplished by removing plants or through pruning that reduces the diameter or height of shrubs (shorter height means less separation is needed). Removal works best for sagebrush. For shrubs which readily resprout, pruning to reduce height may be the best approach.



Recommended Separation Distances Between Tree Canopies

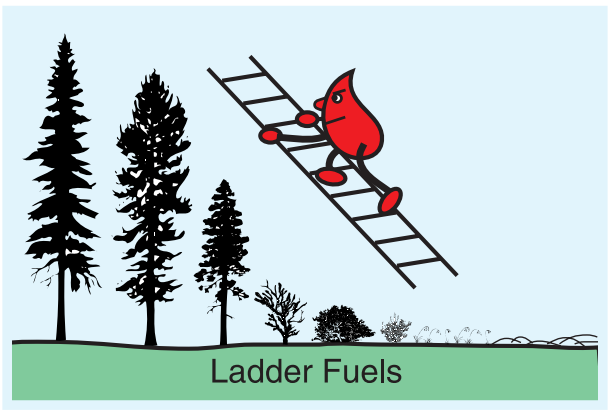
For forested areas, the recommended amount of separation between tree canopies is determined by steepness of slope. The specific recommendations are presented above.



Note: Separation distances are measured between canopies (outer most branches) and not between trunks.
For example, if your house is situated on a 30% slope, the separation of tree canopies within your defensible space should be 20 feet. Creating separation between tree canopies can be accomplished through tree removal.

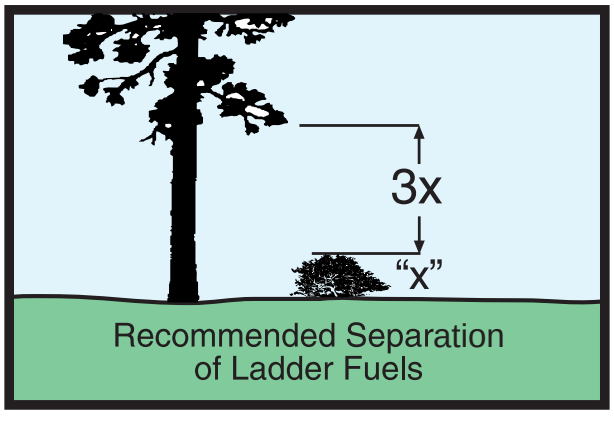
STEP FOUR: ARE THERE LADDER FUELS PRESENT WITHIN THE RECOMMENDED DEFENSIBLE SPACE AREA?

Vegetation is often present at varying heights, similar to the rungs of a ladder. Under these conditions, flames from fuels burning at ground level, such as a thick layer of pine needles, can be carried to shrubs which can ignite still higher fuels like tree branches. Vegetation that allows a fire to move from lower growing plants to taller ones is referred to as "ladder fuel." The ladder fuel problem can be corrected by providing a separation between the vegetation layers.



Within the defensible space area, a vertical separation of three times the height of the lower fuel layer is recommended.

For example, if a shrub growing adjacent to a large pine tree is three feet tall, the recommended separation distance would be nine feet. This could be accomplished by removing the lower tree branches, reducing the height of the shrub, or both. The shrub could also be removed.



STEP FIVE: IS THERE AN AREA AT LEAST 30 FEET WIDE SURROUNDING YOUR HOUSE THAT IS "LEAN, CLEAN, AND GREEN"?

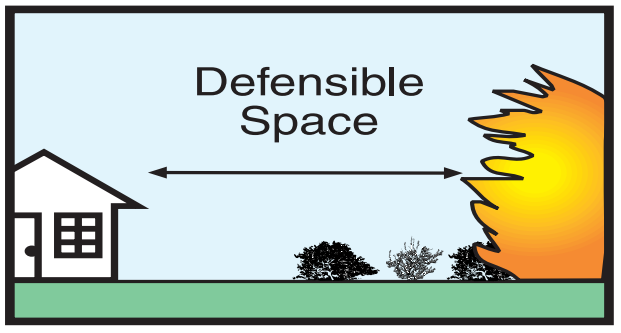
The area immediately adjacent to your house is particularly important in terms of an effective defensible space. It is also the area that is usually landscaped. Within an area extending **at least** 30 feet from the house, the vegetation should be kept....

- Lean—small amounts of flammable vegetation,
- Clean—no accumulation of dead vegetation or other flammable debris, and
- Green—plants are healthy and green during the fire season.

The "Lean, Clean, and Green Zone Checklist" will help you evaluate the area immediately adjacent to your house.

STEP SIX: IS THE VEGETATION WITHIN THE RECOMMENDED DEFENSIBLE SPACE AREA MAINTAINED ON A REGULAR BASIS?

Keeping your defensible space effective is a continual process. At least annually, review these defensible space steps and take action accordingly. An effective defensible space can be quickly diminished through neglect.



THE LEAN, CLEAN, AND GREEN CHECKLIST

Emphasize the use of low growing herbaceous (non-woody) plants that are kept green during the fire season through irrigation if necessary. Herbaceous plants include lawn, clover, a variety of groundcovers, bedding plants, bulbs, perennial flowers, and conservation grasses.

Emphasize use of mulches, rock, and non-combustible hard surfaces (concrete sidewalks, brick patios, and asphalt driveways).

Deciduous ornamental trees and shrubs are acceptable if they are kept green and free of dead plant material, ladder fuels are removed, and individual plants or groups of plants are arranged so that adjacent wildland vegetation cannot convey a fire through them to the structure. Shorter deciduous shrubs are preferred.

Minimize the use of ornamental coniferous shrubs and trees (such as juniper, arborvitae, and mugo pine) and tall exotic grasses (such as pampas grass).

Where permitted, most wildland shrubs and trees should be removed from this zone and replaced with more desirable alternatives (see first box). Individual specimens or small groups of wildland shrubs and trees can be retained so long as they are kept healthy and free of dead wood, are pruned to reduce the amount of fuel and height, and ladder fuels are removed.

For some areas substantial removal of wildland vegetation may not be allowed. In these instances, wildland vegetation should conform to the recommendations presented in steps 2 through 4. Please become familiar with local requirements before removal of wildland vegetation.

Tree limbs within 15 feet of a chimney, encroaching on powerlines, or touching the house should be removed.

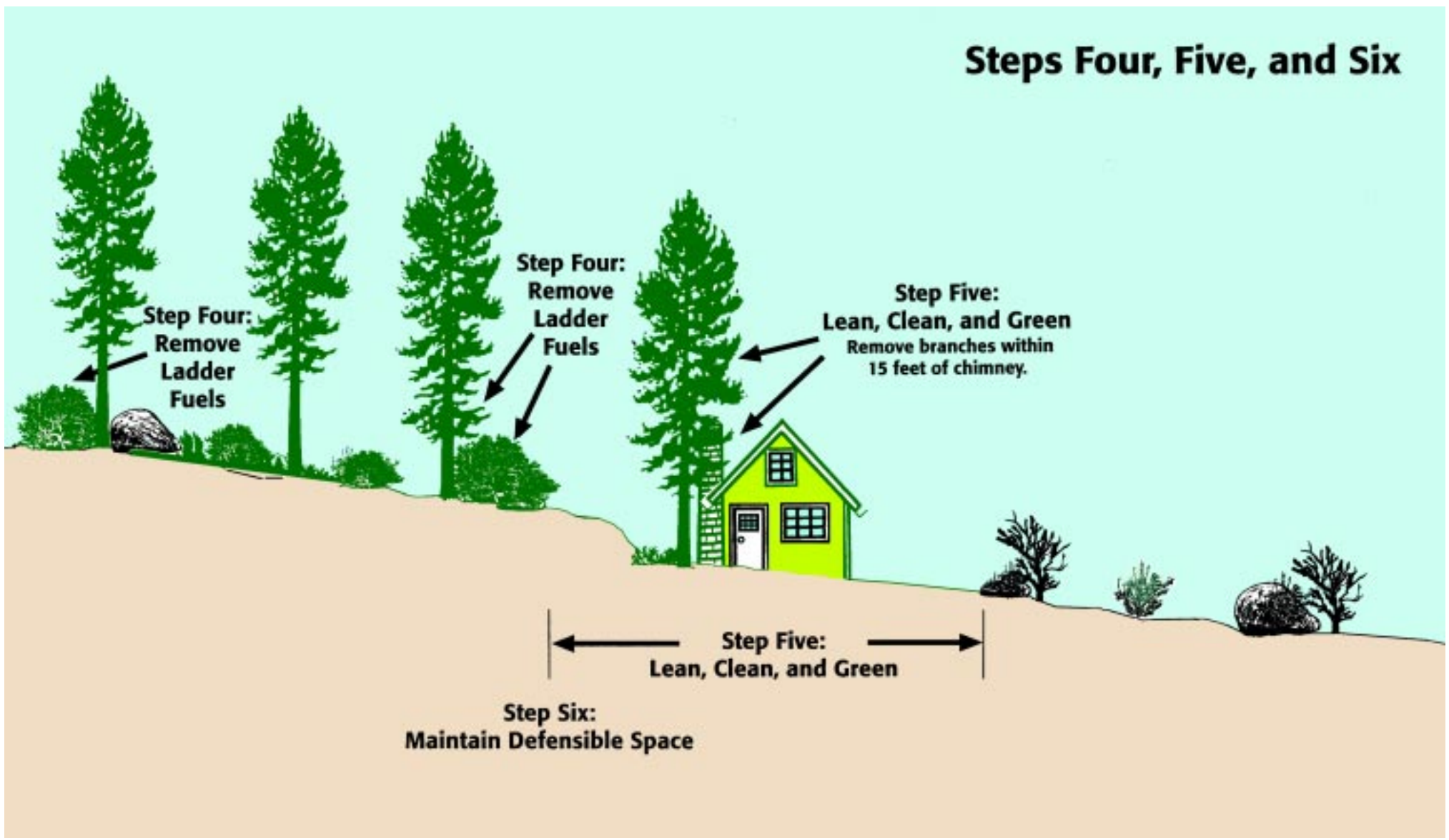


Photo courtesy of Ben Hammock

Lawn can be an effective landscape feature in Firescaping.

FIRESCAPE - FIRE SAFE LANDSCAPE DESIGN

Firescaping is a type of landscape design that reduces a home's vulnerability to wildfire. The goal is to develop and design a landscape with plants that offer fire protection and enhance the property. The idea is to surround the home with things that are less likely to burn.

Proper plant selection, placement and maintenance can diminish the possibility of ignition, lower fire intensity, and reduce how quickly a fire spreads.

Zone 1: Moist and Trim

Choose "firewise" plants. Low-growing, firewise plants resist catching fire and provide little fuel. Lawns, groundcovers, perennials and annuals form a greenbelt that is regularly watered and maintained to eliminate dry plant litter. Rock mulches, patios, masonry or rock planters are excellent fuel breaks. Be creative with boulders, riprap, and dry streambeds. This zone may contain occasional individual shrubs and trees located at least 10 feet from the house.

The traditional foundation planting of junipers is not a viable solution in a firescape design. Because junipers, other conifers and broadleaf evergreens contain oils, resins and waxes that make these plants burn with great intensity, use of these plants should be minimized within 30 feet of structure. A firescape landscape lets plants and garden elements reveal their innate beauty by leaving space between plants and groups of plants.

Characteristics of Firewise Plants

- Little seasonal accumulation of dead vegetation
- Open, loose branching habit
- Non-resinous woody material, avoid junipers and other conifers
- Low volume of total vegetation
- High moisture content in leaves
- Slow growth requires less frequent pruning

Zone 2: Low and Sparse

Slow growing, drought tolerant shrubs and groundcovers keep fire near ground level. Native vegetation can be retained here if it is low growing and does accumulate dry, flammable material. The transition between zones creates breaks in the path to slow advancing flames.

Fire-Wise Plant Material for the Pacific Northwest

Although there are no fire proof plant materials, the following is a list of some firewise plants that can be used in landscaping for fire prevention. Landscape maintenance is far more important to fire prevention than the selection of plant materials. When planning your landscape, use the characteristics of firewise-plants along with site characteristics such as slope, aspect, hardiness zone and amount of precipitation to choose plant material suitable for your site.

TREES	common name
Conifers;	
Calocedrus decurrens	Incense cedar
Thuja plicata	Western red cedar
Deciduous:	
Acer spp.	Maple
Alnus spp.	Alder
Betula	Birch
Catalpa speciosa	Northern catalpa
Celtis occidentalis	Hackberry
Cornus florida	Flowering dogwood
Fagus spp.	Beech
Fraxinus spp.	Ash
Gleditsia tricanthos	Honeylocust
Liquidambar styraciflua	Sweetgum
Malus spp.	Apple
Populus spp.	Aspen, cottonwood, poplar
Prunus spp.	Cherry
Quercus spp.	Oak (white, burr or red)
Robinia pseudoacacia	Black locust
Salix spp.	Willow

PERENNIALS	common name
Achillea spp.	Yarrow
Allium schoenoprasum	Chives
Bergenia spp.	Bergenia
Brodiaea spp.	Lillies
Coreopsis spp.	Coreopsis
Erysimum linifolium	Wall flower
Eschscholzia spp.	California poppy
Fragaria spp.	Wild strawberries
Geranium spp.	Geranium
Hemerocallis hybrids	Daylillies
Heuchera spp.	Coral bells
Hosta spp.	Hosta
Iris spp.	Iris
Kniphofia uvaria	Red hot poker
Lupinus spp.	Lupine
Oenotheria spp.	Evening primrose
Penstemon spp.	Beard tongue
Solidago spp.	Goldenrod
Strachys byzantina	Lamb's ear

SHRUBS	common name
Amelanchier spp.	Serviceberry
Atriplex canescens	Four wing saltbrush
Berberis spp.	Oregon Grape
Buddelia davidi	Butterfly bush
Caryopteris x clandonensis	Blue-mist spirea
Cornus sericea	Red osier dogwood
Cotoneaster spp.	Cotoneaster
Gaultheria shallon	Salal
Holodiscus discolor	Oceanspray
Liqustrum spp.	Privet
Mahonia spp.	Creeping grape holly
Pachistima canbyi	Dwarf mountain lover
Philadelphus spp.	Mock orange; syringa
Rhamnus fragula	Buckthorn
Rhododendron spp.	Azaleas, rhododendrons
Rhus spp.	Sumac
Ribes spp.	Currant
Sheperdia argentea	Silver buffaloberry
Symphoricarpos albus	Snowberry
Viburnum trilobum	Cranberry bush
Yucca spp.	Yucca

GROUNDCOVERS	common name
Succulents:	
Delosperma nubigenum	Hardest ice plant
Echeveria spp.	Hens & chicks
Sedum spp.	Stone crops
Non-succulents:	
Achillea tomentosa	Wolly yarrow
Ajuga reptans	Carpet bugle
Arctostaphylos uva-ursi	Kinnikinnick
Armeria maritima	Sea pink; thrift
Cerastium tomentosa	Snow in summer
Cotoneaster dammeri	Bearberry cotoneaster
Euonymus fortunei	Winter creeper
Hypericum calycinum	St. Johnswort
Potentilla tabernaemontanii	Spring cinquefoil
Senecio cineraria	Dusty miller
Thymus praecox arcticus	Mother of thyme
Verbenia bipinnatifida	Verbenia
Vinca minor	Periwinkle

Firewise plants of northwest

Zone 3: High and Clean

Fire intensity is reduced where it can burn less fuel. Native trees are thinned and dry debris on the ground is removed. Prune tree branches to 10' or more above ground to reduce the possibility of surface fires spreading into tree crowns. This zone requires removing overgrowth and major pruning every three to five years. Specimen trees can be planted at the edge of this zone if pruned properly.

Regular Maintenance

Experience and research has shown that a distance of 100-150 feet around your home needs this comprehensive landscaping. Greater distances are necessary on steep slopes or windswept exposures.

Most plants accumulate excess woody material and all shed seasonal foliage. Branches spread, often touching other vegetation. Weeds grow between landscape plants. You must actively reduce this accumulation of potential fuel by regular pruning, mowing and raking, followed by proper disposal. The less accumulated plant debris, the slower a fire will spread.

OTHER CONSIDERATIONS IN MAKING YOUR HOME SURVIVABLE

How a house is designed, where it is built, materials used in its construction and landscape, and access to the home all influence survivability during wildfire. Presented below are recommendations and an illustration modified from the publication "How to Make Your Home Fire Safe." These recommendations will make a home much easier to defend and will improve its chances of surviving a wildfire.

1. ROOF

- Your roof is the most vulnerable part of your house in a wildfire. If you have a wood shake roof consider replacing it with class C or better fire resistant roofing.
- Remove dead branches hanging over your roof.
- Remove any branches within 15 feet of your chimney.
- Clean all dead leaves and needles from your roof and gutters.
- Cover your chimney outlet and stovepipe with a nonflammable screen of one-half inch or smaller mesh.

2. CONSTRUCTION

- Build your home away from ridge tops, canyons and areas between high points on a ridge.
- Build your home at least 30 feet from your property line .
- Box your eaves.
- Use fire resistant building materials.
- Enclose the underside of balconies and above-ground decks with fire resistant materials.
- Limit the size and number of windows in your home that face large areas of vegetation.
- Install only dual-paned or triple-paned windows.
- Consider sprinkler systems within the house. They may protect your home while you're away or prevent a house fire from spreading into the wildlands.

3. LANDSCAPE

- See "Creating An Effective Defensible Space" and "Firescape - Fire Safe Landscape Design."

4. YARD

- Stack woodpiles at least 30 feet from all structures and clear away flammable vegetation within 10 feet of woodpiles.
- Locate LPG tanks (butane and propane) at least 30 feet from any structure and surround them with 10 feet of clearance.
- Remove all stacks of construction materials, pine needles, leaves and other debris from your yard.
- Contact your local fire department to see if open burning is allowed in your area; if so, obtain a permit before burning debris.
- Where burn barrels are allowed, clear flammable materials at least 10 feet around the barrel; cover the open top with a non-flammable screen with mesh no larger than one-quarter inch.

5. EMERGENCY WATER SUPPLY

- Maintain an emergency water supply that meets fire department standards through one of the following:
  - — a community water/hydrant system
  - — a cooperative emergency storage tank with neighbors
  - — a minimum storage supply of 2,500 gallons on your property
- Clearly mark all emergency water sources and notify your local fire department of their existence.
- Create easy firefighter access to your closest emergency water source.
- If your water comes from a well, consider an emergency generator to operate the pump during a power failure.

6. ACCESS

- Identify at least two exit routes from your neighborhood.
- Construct roads that allow two way traffic.
- Design road width, grade and curves to allow access for large emergency vehicles.
- Construct driveways to allow large emergency equipment to reach your house.
- Design bridges to carry heavy emergency vehicles, including bulldozers carried on large trucks.
- Post clear road signs to show traffic restrictions such as dead-end roads, and weight and height limitations.
- Make sure dead-end roads and long driveways have turnaround areas wide enough for emergency vehicles. Construct turnouts along one-way roads.
- Clear flammable vegetation at least 10 feet from roads and five feet from driveways.
- Cut back overhanging tree branches above roads.
- Construct fire barriers, such as greenbelts, parks, golf courses and athletic fields.
- Make sure that your street is named or numbered, and a sign is visibly posted at each street intersection.
- Make sure that your street name and house number are not duplicated elsewhere in the county.
- Post your house address at the beginning of your driveway, or on your house if it is easily visible from the road.

7. OUTSIDE

- Designate an emergency meeting place outside your home.
- Practice emergency exit drills regularly.
- Make sure that electric service lines, fuse boxes and circuit breaker panels are installed and maintained as prescribed by code.
- Contact qualified individuals to perform electrical maintenance and repairs.

*If connected to the house, i.e., fences and decks, consider it part of the house.

FIRE BRANDS AND THE WOOD SHAKE ROOF HAZARD

Firebrands are burning embers produced by wildfire which are lifted high into the air and carried beyond the fire front. Firebrands are one of the major causes of homes burned due to wildfire.

Typical firebrand materials include pine cones, bark, and if houses are involved, wood shakes and shingles. Depending on wind speed and size of materials, firebrands can be carried more than one-half mile ahead of the fire front.

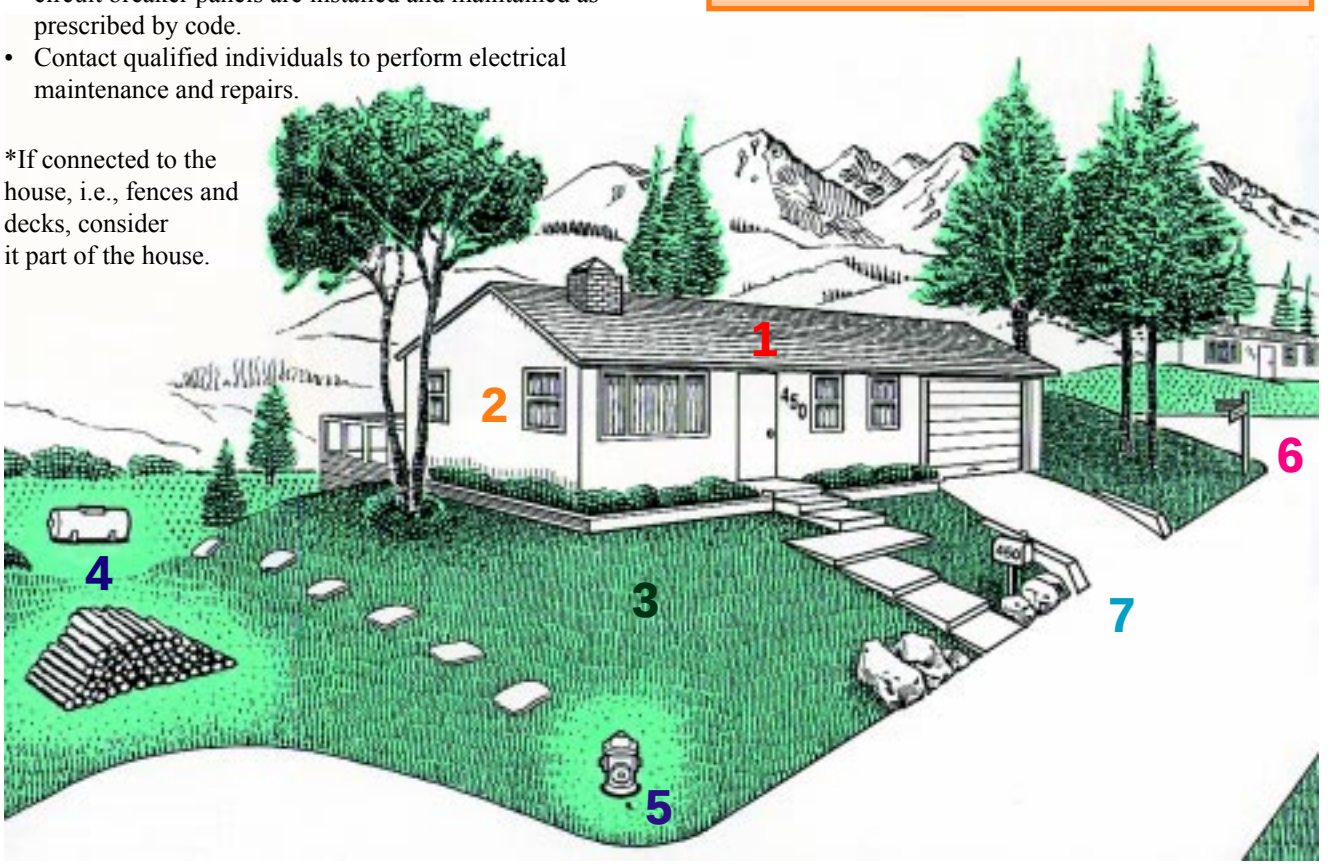
A shower of thousands of firebrands can be produced during a major wildfire event. If these firebrands land in areas with easily ignited fuels, numerous spot fires can start. Homes located blocks away from the main fire front can be threatened.

A house can be threatened by a wildfire in three ways: direct exposure from flames, radiated heat, and airborne firebrands. Of these, firebrands account for the majority of homes burned by wildfire. The roof of the house is the most vulnerable to firebrands.

Because of its angle, the roof can catch and trap firebrands. If the roof is constructed of combustible materials such as untreated wood shakes and shingles, the house is in jeopardy of igniting and burning.

Not only are combustible roofing materials a hazard to the structure on which they are installed, but they also pose a threat to other houses in the vicinity. Burning wood shakes can become firebrands, be lifted from the burning roof, and carried blocks away, and land in receptive fuel beds such as other combustible roofs.

Unfortunately for homeowners with existing combustible roofs, there are no long-term reliable measures available to reduce roof vulnerability to wildfire other than re-roofing with fire resistant materials.



WHEN WILDFIRE APPROACHES

Should homes be threatened by wildfire, occupants may be advised to evacuate to protect them from life-threatening situations. Homeowners, however, do have the right to stay on their properties if they so desire and so long as their activities do not hinder fire fighting efforts. If occupants are not contacted in time to evacuate or if owners decide to stay with their homes, these suggestions will help them protect their properties and families.

Evacuate, if possible, all family members not essential to protecting the house. Evacuate pets as well.
Contact a friend or relative and relay your plans.
Make sure family members are aware of a prearranged meeting place.
Tune into a local radio station and listen for instructions.
Place vehicles in the garage, have them pointing out, and roll up windows.
Place valuable papers and momentos in the car.
Close the garage door, but leave it unlocked. If applicable, disconnect the electric garage door opener so that the door can be opened manually.
Place combustible patio furniture in the house or garage.
Shut off propane at the tank or natural gas at the meter.
Wear only cotton or wool clothes. Proper attire includes long pants, long sleeved shirt or jacket, and boots. Carry gloves, a handkerchief to cover face, water to drink, and goggles.
Close all exterior vents.
Prop a ladder against the house so firefighters have easy access to the roof.
Make sure that all garden hoses are connected to faucets and attach a nozzle set on "spray."
Soak rags, towels, or small rugs with water to use in beating out embers or small fires.
Inside, fill bathtubs, sinks, and other containers with water. Outside, do the same with garbage cans and buckets. Remember that the water heater and toilet tank are available sources of water.
Close all exterior doors and windows.
Close all interior doors.

Photograph by Robert Millage

Photo taken near Kamiah, ID

Open the fireplace damper, but place the screen over the hearth to prevent sparks and embers from entering the house.
Leave a light on in each room.
Remove lightweight and/or non-fire resistant curtains and other combustible materials from around windows.
If available, close fire resistant drapes, shutters, or venetian blinds. Attach pre-cut plywood panels to the exterior of windows and glass doors.
Turn off all pilot lights.
Move overstuffed furniture (e.g. couches, easy chairs, etc.) to the center of the room.
Keep wood shake or shingle roofs moist by spraying water. Do not waste water. Consider placing a lawn sprinkler on the roof if water pressure is adequate. Do not turn on until burning embers begin to fall on the roof.
Continually check the roof and attic for embers, smoke, or fire.

If a fire should occur within the house, contact the fire department immediately. Continue to inspect your house and property for embers and smoke.

Most importantly, STAY CALM!

In May of 1999, the University of Nevada, Reno (Cooperative Extension and Agricultural Experiment Station) and the Sierra Front Wildfire Cooperators initiated a program entitled Living With Fire. One of the products of the Living With Fire program was a publication for homeowners.

The North Central Idaho Fire Prevention Cooperative reviewed and modified this publication for use throughout the Nothern Rockies.

For more information please contact your local fire service office.

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Fire Drill

To find out if your home makes the grade, answer the following questions. Your goal is to make your home survive a wildfire, so be honest in evaluating your progress.

***True/False**

T	F	I have a minimum 30-foot non-combustible area around my home
T	F	My landscaping includes fire-resistive varieties
T	F	I have evaluated my wood shake roof for treatment or replacement
T	F	Overcrowded or weakened trees have been thinned or removed from my property, and low-hanging branches have been pruned
T	F	The grass and weeds are consistently cut
T	F	My wood pile and left-over building materials are at least 30 feet from my house
T	F	I've cleared needles, leaves and debris from my roof and deck
T	F	Street signs and the address of my home are visible from the road
T	F	I have an emergency checklist in the event of a wildfire, and I know to monitor local media for up-to-date information

*If you answered False to any of these questions, bone up your efforts and try again! The more correct answers you give, the greater your chances of survival—and passing the ultimate test!

The North Central Idaho Fire Prevention Cooperative (NCIFPC)

The North Central Idaho Fire Prevention Cooperative is comprised of volunteer, federal, state, tribal, county, city, and private fire fighting agencies/organizations, emergency and disaster services agencies/organizations from Latah, Lewis, Clearwater, Idaho, and Nez Perce counties.

Our Mission:
To work collaboratively to educate the public by providing a unified message with regard to fire prevention, prescribed fire, Firewise landscaping, home fire safety, and the ecological importance of fire in Idaho's forests.

FOR MORE INFORMATION
www.idahofirewise.org
www.firefree.org
www.firesafespokane.com
www.nifc.gov
www.fema.gov
www.firesafecouncil.org
www.idfireprevention.com