
Firewise Landscape

People living adjacent to undeveloped wildlands enjoy the solitude and closeness to nature. However, many of these settings are also wildfire-prone areas. Given our dry spring weather, fire departments and local governments encourage us to create and maintain wildfire defensible space. The two goals of wildfire defensible space are to reduce the vulnerability of your house and property to wildfire damage and make it safer for firefighters to defend your property should they be required to do so.

Our goal should be to develop landscapes with design and choice of plants that create wildfire defensible space and enhance outdoor living space on the property. Defensible space landscaping integrates traditional landscape functions with a design that reduces the threat from wildfire. It includes planting for fire safety, vegetation modification techniques, use of fire safety zones, and other principles. When done thoughtfully, defensible space landscaping can also conserve outdoor irrigation water usage.

Through proper plant selection, placement, and maintenance, we can diminish the possibility of ignition, lower fire intensity, and reduce how quickly a fire spreads, all of which increase a home's survivability. Firewise plant selection is primarily determined by a plant's ability to resist ignition thereby reducing wildfire threat. You should minimize use of coniferous evergreen shrubs and trees within 30 feet of a structure because these plants contain oils, resins, and waxes that burn with great intensity when preheated by an approaching fire. Use ornamental grasses sparingly here because they also can be highly flammable. Choose "fire smart" plants. These are low-growing plants with high moisture content. Their stems and leaves are not resinous, oily, or waxy.

Deciduous trees are generally more fire resistant than evergreens because they have higher moisture content when in leaf and a lower fuel volume when dormant, and they typically do not contain flammable oils. Placement and maintenance of trees and shrubs are as important as actual plant selection. When placing trees in a landscape, remember the tree's size at maturity. Keep tree limbs at least 15 feet from chimneys, power lines, and structures. Small specimen trees can be used near a structure if pruned properly and well irrigated.

Defensible space landscaping can also include hardscaping: driveways, walkways, patios, parking areas, areas with inorganic mulches, and fences constructed of nonflammable materials such as rock, brick, or concrete. These non-flammable materials reduce fuel loads and create fuel breaks. Fuel breaks are a vital component in every firewise design. Water features, irrigated lawns, pools, ponds, or streams can be fuel breaks. Boulders and rock-covered areas can also be fuel breaks. Remember, while bare soil is an effective fuel break, it is not recommended for defensible space because of the potential for soil erosion, weed susceptibility, and other concerns.

Homes located within chaparral vegetation or on south- or west-facing slopes pose greater risks and will require more extensive landscape planning for defensible space. Prevailing winds, seasonal weather, local fire history, and characteristics of native vegetation surrounding the site are additional important considerations. Slopes that go upward toward structures should have additional defensible space treatment as fire burns more aggressively when fuels are present on slopes.

The 30 feet closest to the structure is the most critical defensible space area. This is an area where highly flammable fuels are kept to a minimum and plants are kept green throughout the fire season. Use cacti, succulents, and non-woody perennials here. Rock mulches are also good choices close to structures. Patios, masonry, or rock planters are excellent fuel breaks and increase wildfire safety. You can also be creative with boulders, riprap, and dry streambeds.

Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to the surrounding wildlands. Defensible space also provides room for firefighters to do their jobs. Your house is more likely to withstand a wildfire if grasses, brush, trees and other common forest fuels are managed to reduce a fire's intensity. Creating effective defensible space involves developing a series of management zones in which different treatment techniques are used (the distances and descriptions provided below vary according to local rules and conditions).

Zone 1 is the area within 30 feet of any structure in which any flammable material is removed. The 30-foot distance is measured from the outside edge of the home's eaves, decks, garages, storage buildings, barns, or other structures. This is done through pruning, mowing, or completely removing flammable vegetation and other materials. Be sure to use proper pruning techniques when partially removing woody materials. If your home has non-flammable siding (not wood), then perennials and low growing shrubs can be grown in Zone 1. Under no circumstances should trees be planted in Zone 1. Shrubs should be maintained regularly to remove dead wood and keep away from structures.

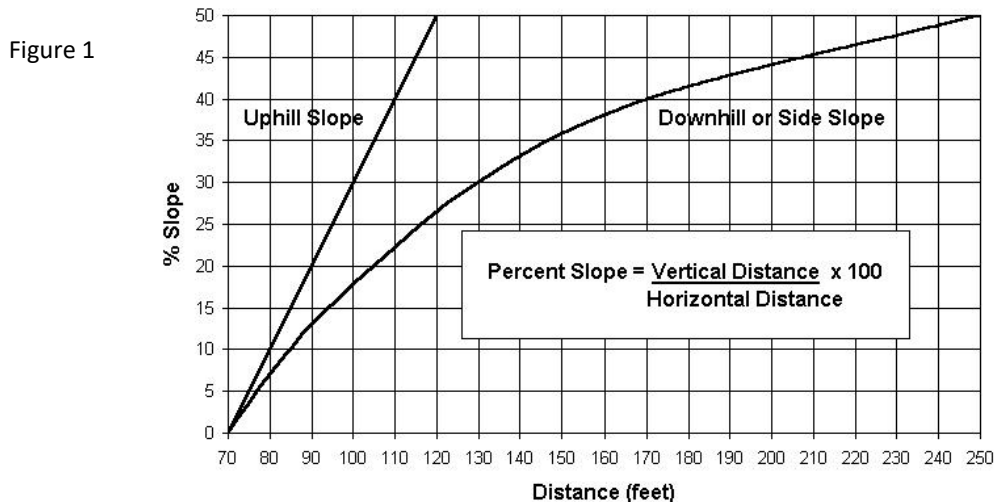
Within Zone 1, the 5 feet nearest the house or structure should only be planted with fire resistant (and sufficiently watered) small species (normally foundation plants). Keep the pine trees, evergreen conifer type shrubbery and ornamental grasses out of the first 30 foot area.

Zone 2 is an area of fuel reduction. It is a transitional area between Zones 1 and the surrounding native plant community. Typically, Zone 2 defensible space should extend at least 75 to 125 feet from the structure. This varies according to slope with the shorter distances being used for level ground and increasing with the steepness of the slope. Within this zone, the continuity and arrangement of vegetation is modified. Remove stressed, diseased, dead or dying trees and shrubs. Thin and prune the remaining larger trees and shrubs. Be sure to extend thinning along either side of your driveway all the way to your main access road. These actions help eliminate the continuous fuel surrounding a structure while enhancing home site safety and make it easier for fire fighters to access your property. The entire area of Zone 2 should be flagged or otherwise delineated prior to start of fuel reduction treatments. Here, multiple decisions must be made based on knowledge of fire behavior, energy contained in the fuel, and the continuity/arrangement of the fuels. Most often, Zone 2 treatments will require some knowledge of proper pruning techniques and personal aesthetics.

This is a true blending of art and science. The following recommendations should be followed when creating Zone 2:

1. Thin trees and large shrubs so there is at least 10 feet between crowns. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree. On steep slopes, allow more space between tree crowns. Remove all ladder fuels (shrubs and low limbs) from under these remaining trees. On large, mature trees, carefully prune limbs up to a height of 10 feet above ground.
2. Because Zone 2 forms an aesthetic buffer and provides a transition between zones, it is necessary to blend the requirements for Zones 1 and 3. Thin the inner portions of Zone 2 more heavily than the outer portions. Gradually increase tree density as you approach Zone 3.
3. Isolated shrubs may remain, provided they are not under tree crowns. Prune and maintain these plants periodically to maintain vigorous growth. Remove dead stems from trees and shrubs annually.
4. Limit the number of dead trees (snags) retained in this area. Wildlife need only one or two snags per acre. Be sure any snags left for wildlife cannot fall onto the house or block access roads or driveways.
5. Mow grasses (or remove them with a weed trimmer) as needed through the growing season to keep them low, a maximum of 6 to 8 inches. This is extremely critical in the fall when grasses dry out and cure or in the spring after the snow is gone but before the plants green up.
6. Stack firewood and woodpiles uphill or on the same elevation as the structure but at least 30 feet away. Clear and keep away flammable vegetation within 10 feet of these woodpiles. Do not stack wood against your house or on or under your deck, even in winter. Many homes have burned from a woodpile that ignited as the fire passed.
7. Locate propane tanks at least 30 feet from any structures, preferably on the same elevation as the house. You don't want the LP container below your house -- if it ignites, the fire would tend to burn uphill. On the other hand, if the tank is above your house and it develops a leak, LP gas will flow downhill into your home. Clear and keep away flammable vegetation within 10 feet of these tanks. Do not screen propane tanks with shrubs or vegetation.
8. Dispose of slash (limbs, branches and other woody debris) removed from your trees and shrubs through chipping or by piling and burning. Contact your local Fire Department for information about burning slash piles. Only if neither of these alternatives is possible, lop and scatter slash by cutting it into very small pieces and distributing it over the ground. Avoid heavy accumulations of slash. Make it lay close to the ground to speed decomposition. If desired, no more than two or three small, widely spaced brush piles may be left for wildlife purposes. Locate these towards the outer portions of your defensible space.

How to calculate defensible space distance for Zone 2 using percent slope for uphill, downhill, and side slope. For example, if your home is situated on a 20 percent slope, the minimum defensible space dimensions would be 90 feet uphill and to the sides of the home and 105 feet downhill from the home.



If you are on level ground, the distance for Zone 2 is 70 feet. If there is any slope whatsoever, the distance of Zone 2 increases as slope increases. To determine the defensible space needed for Zone 2, you must measure percent slope on all sides of Zone 1. This is done by measuring the vertical distance (change in elevation) and horizontal distance (level distance). Divide the vertical distance by the horizontal distance and multiply times 100. After you have calculated percent slope, simply determine the distance of Zone 2 from Figure 1. This is the distance along the surface of the ground to measure outward from Zone 1.

Zone 3 is the area beyond Zone 2, which extends outward to your property boundaries. Zone 3 is of no particular size and is not considered defensible space. Some sources say from the end of Zone 2 to the property line other sources say at least 200 ft. However, if there is something particularly flammable or otherwise hazardous, it may be wise to take steps to reduce the hazard.

While pruning generally is not necessary in Zone 3, it may be a good idea from the standpoint of personal safety to prune trees along trails and fire access roads. Or, if you prefer the aesthetics of a well-manicured landscape, you might prune the entire area. In any case, pruning helps reduce ladder fuels, thus enhancing wildfire safety. Mowing is not necessary in Zone 3.

Landscapes change over time. Trees and shrubs continue to grow, plants die or are damaged, new plants begin to grow, and plants drop their leaves and needles. Like other parts of your home, defensible space requires maintenance. Use the following checklist each year to determine if additional work or maintenance is necessary.

Defensible Space Annual Checklist

- Trees and shrubs are properly thinned and pruned within the defensible space. Slash from the thinning is disposed of.
- Roof and gutters are clear of debris.
- Branches overhanging the roof and chimney are removed.
- Chimney screens are in place and in good condition.
- Grass and weeds are mowed to a low height.
- An outdoor water supply is available, complete with a hose and nozzle that can reach all parts of the house.
- Fire extinguishers are checked and in working condition.
- The driveway is wide enough. The clearance of trees and branches is adequate for fire and emergency equipment. (Check with your local fire department.)
- Road signs and your name and house number are posted and easily visible.
- There is an easily accessible tool storage area with rakes, hoes, axes and shovels for use in case of fire.
- Attic, roof, eaves and foundation vents are screened and in good condition. Stilt foundations and decks are enclosed, screened or walled up.
- Trash and debris accumulations are removed from the defensible space.
- A checklist for fire safety needs inside the home also has been completed. This is available from your local fire department.

Additional Resources:**[Creating Wildfire-Defensible Spaces for Your Home and Property](#)**

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[Fire-Resistant Landscaping](#)

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[Homeowners' "Inside and Out" Wildfire Checklist](#)

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[Firewise Plant Materials for 3000 ft Elevations and Higher](#)

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