

PROTECTING YOUR HOME FROM WILDFIRES WITH DEFENSIBLE SPACE

Introduction

Many Woodmoor residents live in a high hazard wildfire environment. They can significantly lower the risk of losing their homes by reducing the vegetation surrounding them. This is accomplished through a well tested system known as "Defensible Fire Space."

Defensible fire space was first described in the 1980's as the area between a house and an on-coming wildfire where the vegetation has been modified to reduce the wildfire threat and help firefighters more effectively defend the house.

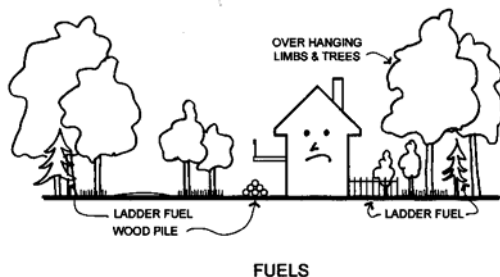
The vegetation near houses has considerable influence upon their survivability. All vegetation is potential fuel for a wildfire. If the vegetation is properly modified and maintained, a fire can be slowed down, the length of flames shortened, and the heat intensity reduced.

Investigations of houses that survived major wildfires indicate that those with defensible space and nonflammable roofs (composition shingles, tile, metal, etc.) are 75% to 90% more likely to survive than houses without defensible space and flammable roofs (wooden shakes or shingles).

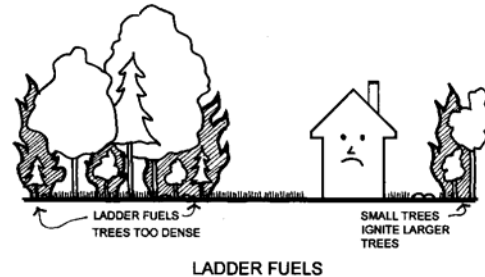
Conditions Needed For Wildfires¹

Conditions must be just right for a wildfire to start and spread. Specifically, fuel, weather and topography work together to determine how quickly a wildfire travels and at what intensity.

The two basic fuel types in Woodmoor are vegetation and structures.



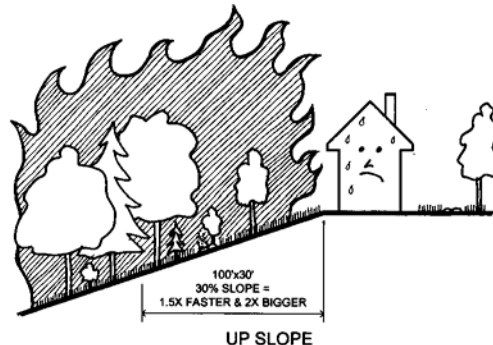
Vegetation: Fuel in its natural form consists of living and dead trees, bushes, and grasses. Typically grasses burn more quickly and with less intensity than trees. Any branches, shrubs or trees between 18 inches and 6 feet tall are considered to be ladder fuels. Ladder fuels help convert a ground fire to a crown fire (tree tops) that moves much more quickly.



Weather: High temperatures, low humidity, and swift winds increase the probability of ignitions and difficulty of control. Short- and long-term drought further exacerbates the problem.

Slope: Slope is the upward or downward incline or slant of terrain. For example, a completely flat plain represents a 0% slope and hillside that rises 30 feet for every 100 feet horizontal distance represents a 30% slope.

Hot gases rise in front of the fire along the slope face, pre-heating the up-slope vegetation, moving a grass fire up to four times faster with flames twice as long as a fire on level ground.



How A House Catches Fire

There are three ways that a wildfire can transfer itself from the natural vegetation or other burning

homes to your home - - through radiation, convection, or firebrands.

Radiation: Wildfires can spread to your home by radiating heat in the same way a radiator heats your rooms in the wintertime. Radiated heat is capable of igniting combustible materials, such as grasses and shrubs, from distances of 100 feet or more.



RADIATION

Convection: Contact with the flames (or convection column) may also cause the wildfire to ignite your house. Typically, the convective heat column rises vertically within the smoke plume.



CONVECTION

Firebrands: Firebrands are burning materials that detach from a fire during strong convection drafts in the burning zone. Firebrands can be carried more than a mile by winds associated with the wildfire.

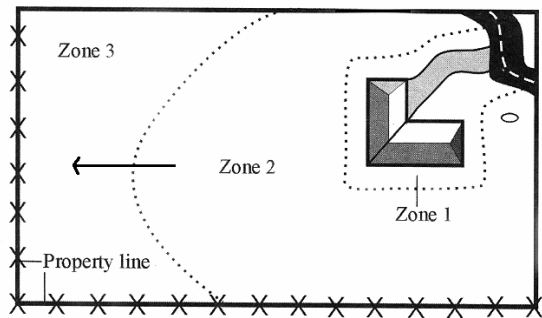


FIREBRANDS

In all cases, your home's building materials and design play a significant role in establishing the level of exposure that can be endured before ignition from radiation, convection, firebrands or any combination of these three.

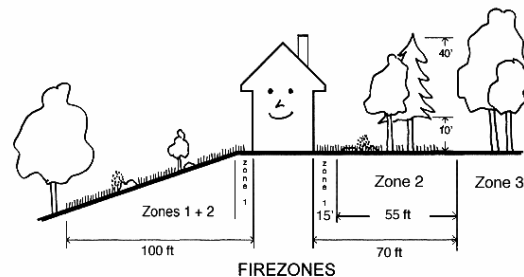
Defensible Space²

Creating an effective defensible space involves developing a series of management zones where various fuels reduction prescriptions are applied. The actual design and development of your defensible space depends on several factors: size (foot print) and shape of your home including decks and attached flammable structures, exterior materials used in its construction, surrounding topography, and sizes and types of vegetation on your property. All these factors will affect your design.



Defensible Space Management Zones

Zone 1. Zone 1 extends 15 feet from the outer most edge of the structure including attached wooden decks, and wooden fences. Vegetative fuels are most reduced in this zone. A few large trees and tall shrubs near the house may be left providing that they are included as part of the structure. The inner edge of this zone begins at the outer edge of these plants.



Zone 2. The size of Zone 2 depends on topography or the uphill and downhill slopes around the house and the distances to property lines. If the topography is “flat” (less than 5%), Zone 2 extends from Zone 1 a distance of 55 feet or to the property line whichever is closest.

If the slope around a house is greater than 5% (i.e., 5 feet rise or drop in 100 feet), Zone 2 extends out 85 feet from Zone 1 on the downhill side or to the property line if it is closer.

In summary, if your property lines permit, the total widths of Zones 1 and 2 are 70 feet for houses on flat ground. It is extended to 100 feet on the downhill side when slopes are greater than 5%.

Zone 3. All forest vegetation outside the “defensible space” defined in Zones 1 and 2 is in Zone 3. It is an area of traditional forest management and has no prescribed size. It extends from the defensible space to the property boundaries.

Prescriptions For Zones 1 and 2

Zone 1

The prescribed treatment for the Zone 1 area is to remove all trees. Past experience with Woodmoor owners indicates that many are unwilling to remove trees nearest their homes. If a tree is not removed, it should be considered a part of or extension of the structure (like a deck) and the zone distance is measured from the edge of the tree. If the tree crown extended 10 feet from a house, the total zone width for that portion would be 25 feet (15' +10') from that edge of the house.

It is very important to isolate uncut tree(s) from neighboring trees by 15 feet, if possible. They should be pruned to at least 10 feet above the ground. Any tree branches that interfere or touch the roof or are within 10 feet of the chimney should be removed.

No “ladder fuels” should be allowed under trees in this zone. Prune large shrubs that are growing in open spaces (like scrub oak) to a height of 10 feet above ground (or 1/2 the shrub’s height, whichever is the least).

If the house has noncombustible siding, then widely spaced foundation plantings of low growing shrubs or other ‘fire wise’ plants are acceptable. Do not plant directly beneath windows or

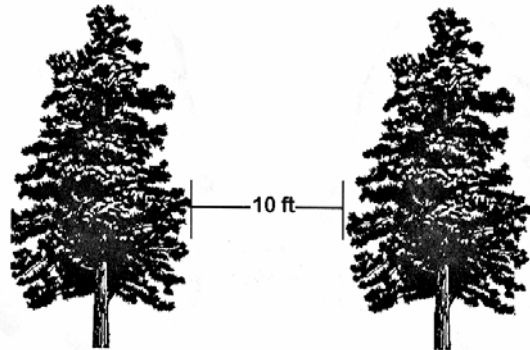
next to foundation vents. Be sure there are no areas of (non-irrigated) continuous grass adjacent to plantings in this area.

Do not store firewood or other combustible materials in this area. Do not use areas under decks for storage. Remove all vegetation that grows under decks.

In brief, the management objective in Zone 1 is to create a 15-foot buffer between the structure and all vegetation that could help ignite your home. Think of your house as a castle and Zone 1 is the moat surrounding it. It is a major part of your defense strategy. If you compromise and leave too many trees (or bridges over the moat), you make it easier for a wildfire to breach the walls of your home.

Zone 2

The management recommendations for Zone 2 are designed to reduce the probability that a crown fire will get close enough to your home to ignite it. These are the recommended management practices.



Thin out trees and large shrubs so there is at least a 10-foot open space between the crowns. Crown separation is measured from the furthest branch of one tree to the nearest branch on the next tree. On slopes greater than 20%, increase this space up to 15 feet.

Remove all ladder fuels from under remaining trees. Carefully prune all live and dead branches of trees to a height of at least 10 feet.

The older, natural regenerated pine of Woodmoor often grow in clumps and are not evenly spaced. Sizes range from tall dominants to short suppressed trees. Many trees have dwarf mistletoe and are vulnerable to droughts and bark beetles. Thus, the decision on which trees to cut, or leave,

is often a balancing act. Should I leave the healthiest trees and remove the weakest and most diseased? Or do I first select on the basis of Zone 2 spacing guidelines?

Answer: It is always preferable to leave the healthiest and most vigorous trees. Defensible space recommendations are secondary to maintaining a healthy forest. The best “leave” trees are not likely to have 10-foot crown separations. Some will have less and others more. The best compromise is to leave the healthiest trees that come closest to the recommended spacing.

This tree selection process may result in retaining a few clumps of 2 to 3 trees in Zone 2. If so, treat the clump as one tree with a single large crown. Try to leave more than 10 feet separation space between it and neighboring trees.

Isolated shrubs, such as scrub oak, may remain, provided they are not under tree crowns. Prune and maintain these plants periodically to promote vigorous growth. Remove any dead branches annually.

Remove all dead trees (snags). Mow or remove grasses 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 and before the plants green up.

Firewood and woodpiles should be stacked uphill or on the same elevation as the structure. They should be at least 30 feet away from the building. 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. Wildfire can burn at almost any time in Colorado.

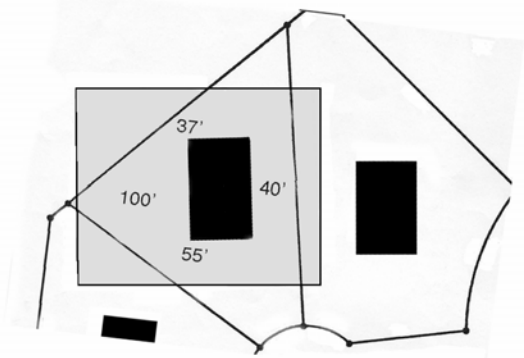
Zone 3

Although Zone 3 is not a “defined” part of defensible space, homeowners are encouraged to reduce the density of forest fuels in this area. Given the history of droughts and bark beetle attacks on stressed trees in Woodmoor, removal of small trees with low vigor in order to provide more water, nutrients, and light to larger trees is highly recommended. Call the WIA office if you would like helpful advice from a Tree Monitor.

Excellent information on recommendations for thinning in Zone 3 may be found in Colorado State University’s Fact Sheet No. 6.302, “Creating Wildfire-Defensible Zones”. This and other useful publications are available from the internet on the CSU website: www.ext.colostate.edu.

A Unique Woodmoor Challenge

The guidelines from the state Forest Service and other organizations presume that homes are located on large rectangular lots and that owners have control over the land within 100 to 200 feet of their homes. This is not a good assumption for many Woodmoor residents. They have the challenge of getting the full risk reduction offered by defensible space when their space extends into their neighbors’ property.



Defensible Space applied to a Woodmoor home

The figure above illustrates the challenge facing a Woodmoor owner with a 0.5-acre triangular shaped lot. His defensible space guidelines are: Zones 1 plus 2 are 70 feet on the uphill (right) and sides of the house and 100 feet on the downhill (left) side. The shaded areas around the house show the prescribed space. The distances from the property lines to the nearest point on his house are shown. Approximately 40% of his defensible space extends onto his neighbors’ property. The size, shape and location of the house on the lot limits the defensible space he controls.

The figure shows that his neighbors will have the same problem if they apply defensible space to their properties. The only solution is for them to work together in creating cross boundary defensible space that benefits everyone. If one or more neighbors are unwilling to participate, he is encouraged to implement the guidelines to the extent possible on his own property.

¹ Taken from *“Is Your Home Protected From Wildfire Disaster?”* Institute for Business & Home Safety, 2001, 20 pages

¹ Taken from *“Creating Wildfire Defensible Zones”*, Colorado State University’s Natural Resources Fact Sheet No. 6.302 - May 2003, by F. C. Dennis, Colorado State Forest Service.

Maintaining Your Defensible Space

Your home is located in a forest that is dynamic, always changing. 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 and FireWise Annual Checklist

- Trees and shrubs are properly thinned and pruned within the defensible space. Slash from thinning is properly disposed of.
- Roof and gutters are clear of debris.
- Branches overhanging the roof and/or 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 clearance of trees and branches is adequate for fire and emergency equipment. Driveways need to have a minimum cleared width of 12 feet and overhead clearance of 13.5 feet for Woodmoor-Monument Fire Department vehicles.
- Road signs and house number are posted and easily visible.
- You have practiced family fire drills and your fire evacuation plan.
- Your escape routes, meeting points and other details are known and understood by all family members.
- Trash and debris accumulations are removed from the defensible space.