
service in ACTION

Creating fire safe zones around your forested homesite¹

Frank C. Dennis²

no. 6.302

Quick Facts

Wildfire will find the weakest links in the defense measures you have taken on your property. Even small steps that you take to protect your home and property will make them that much more able to withstand fire. Consider the measures below for all areas of your property, not just the immediate vicinity of the house.

intensity. These activities will keep fire away from the home and restrict a fire on your property from damaging adjacent lands.

Historically, small areas of modified fuels were thinned around homes within a larger area of dense fuels. This created a "cookie cutter" effect. While moderately helpful, this does not provide adequate protection, particularly in fuels such as lodgepole pine. Recently, this practice was reviewed and improvements of the concept recommended. The expanded system employs a series of zones and segments (Figure 1), described below.

Fire Safety Zones

Zone 1 is the original (cookie cutter) defensible space area. It is the area of maximum modification and management (described in Colorado State Forest Service publications *Home Fire Protection in the Wildland Urban Interface*, and *Wildfire Protection in the Wildland Urban Interface*).

Introduction

Fire is capricious--it can find the weak link in a home's protection scheme, often gaining the upper hand in spite of traditional defenses. While you may not be able to accomplish all of the measures below, even a few will increase your home's, and possibly your family's, safety.

This information provided by:

Defensible Space

One factor has emerged as the primary determinant of a home's ability to survive wildfire. This is the vegetative clearance around the house, or what fire professionals call "Defensible Space." Defensible space is, in simplified terms, "room" for the fire fighters to do their jobs. Your house is more likely to withstand a wildfire if grasses, brush, trees, and other common forest fuels are removed, reduced, or modified to reduce a fire's

-
1. Service in Action 6.302, Cooperative Extension, Colorado State University. Published June 1992. Reviewed October 1992. Copyright 1992. Produced in cooperation with the Colorado state Forest Service. For more information, contact your county Cooperative Extension office or your district State Forest Service office.
 2. Colorado State Forest Service district forester.
-

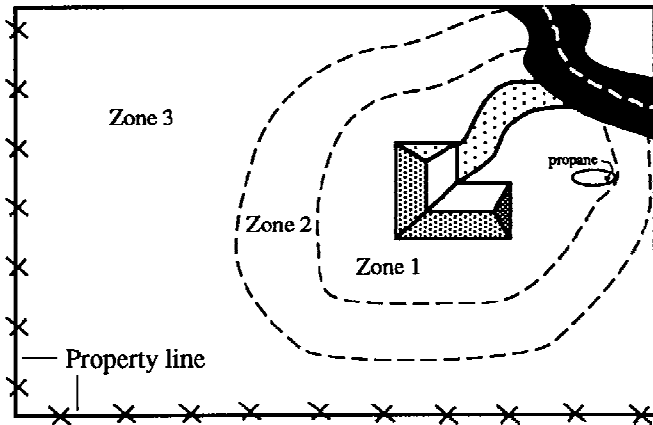


Figure 1. Forested property showing the three zones of fire safety surrounding a homesite or subdivision.

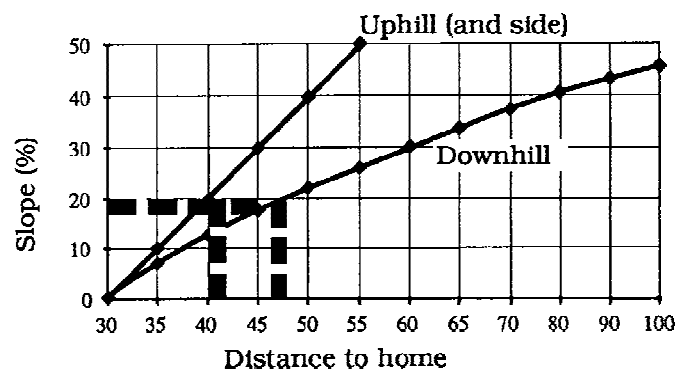


Figure 2. If your home is situated on a 20 percent slope, defensible space dimensions would be 40 feet uphill and to the sides of your home, and 47 feet on the downhill side.

Zone 3 is an area of traditional forest management activities. It is of no specific size, but ideally would extend from the defensible space area to the property boundaries.

Zone 2 is a transitional area between zones 1 and 3. The downhill, uphill and side distance measurements for this area generally are the same as in zone 1, but combined they should extend at least 75 to 100 feet from the house. Within this area, the intent is to "feather" the heavy thinning of zone 1 into the more traditional forest cover of zone 3. This eliminates the wall of dense, unthinned forest fuels which currently exist around defensible space areas, while enhancing homesite safety and the aesthetics of the property.

Prescriptions

Zone 1

Size of this zone is dependent upon the structure size and the slope of ground. See Figure 2 for downhill, uphill, and side distances for specific slopes.

Dispose of all slash in this area by piling and burning, chipping, or hauling away. (Please contact your local Sheriff's office or Colorado State Forest Service

[CSFS] district office for more information on burning recommendations.)

Leave **no** dead (wildlife) trees, except possibly one or two widely-spaced trees at the outer edge of the zone. Be sure such trees cannot fall on the house. An occasional tree may be allowed closer to the house if it is topped to a maximum 10 to 15 feet.

Segment A, the area immediately adjacent to the structure, is 3 to 5 feet wide (Figure 3). **Nothing** should be planted here, particularly if the house is sided with wood, logs, or other flammable material. Decorative rock or gravel creates an attractive, easily maintained nonflammable ground cover.

- * If the house has non-combustible siding, widely-spaced foundation plantings of low growing shrubs are acceptable. **Do not** plant shrubs directly under windows or next to foundation vents. Be sure there are no areas of continuous grass adjacent to the shrubs in this area.

- * **Do not** store firewood or other combustible materials in this area. Enclose or screen decks and extend gravel coverage underneath decks. **Do not** use the area under the deck for storage.

Segment B is the area extending from segment A out approximately 15 feet. Allow about 10 feet between tree **crowns** in this area (Figure 3). Prune trees so that lowest branches are 8 to 10 feet above the ground. Remove all ladder fuels beneath the trees. (Ladder fuels are small shrubs, trees, and tree limbs which could allow a fire to climb into the tree tops.)

- * Isolated shrubs may remain, provided they are not under tree crowns. Prune shrubs periodically to maintain vigorous growth and low form. Remove all dead stems from trees and shrubs annually. (Refer to Service in Action 7.205, *Pruning evergreens*; 7.206, *Pruning techniques for shrubs*; and 7.207, *Pruning deciduous trees* for proper pruning techniques).

- * Mow grasses (or remove with a weed-eater) as needed throughout the growing season to keep them low, a maximum of 6 inches high. This is extremely critical in the fall when grasses dry out and cure, or in the spring before they green up.

- * Locate firewood and propane tanks in the outer portion of this segment. Stack firewood uphill from the house, not below, and do not stack beneath trees. Keep grasses cleared away from firewood stacks. Locate propane tanks where service trucks can reach them but, if possible, on a contour away from structures. Keep grasses cleared away from propane tanks, or, ideally, locate tanks on gravel pads. Do not screen propane tanks with shrubs or trees.

Segment C is the outer segment of zone 1, running from the outer edge of segment B to the edge between zone 1 and zone 2. Thin and prune trees and shrubs as described for segment B. Within the outer portions of this

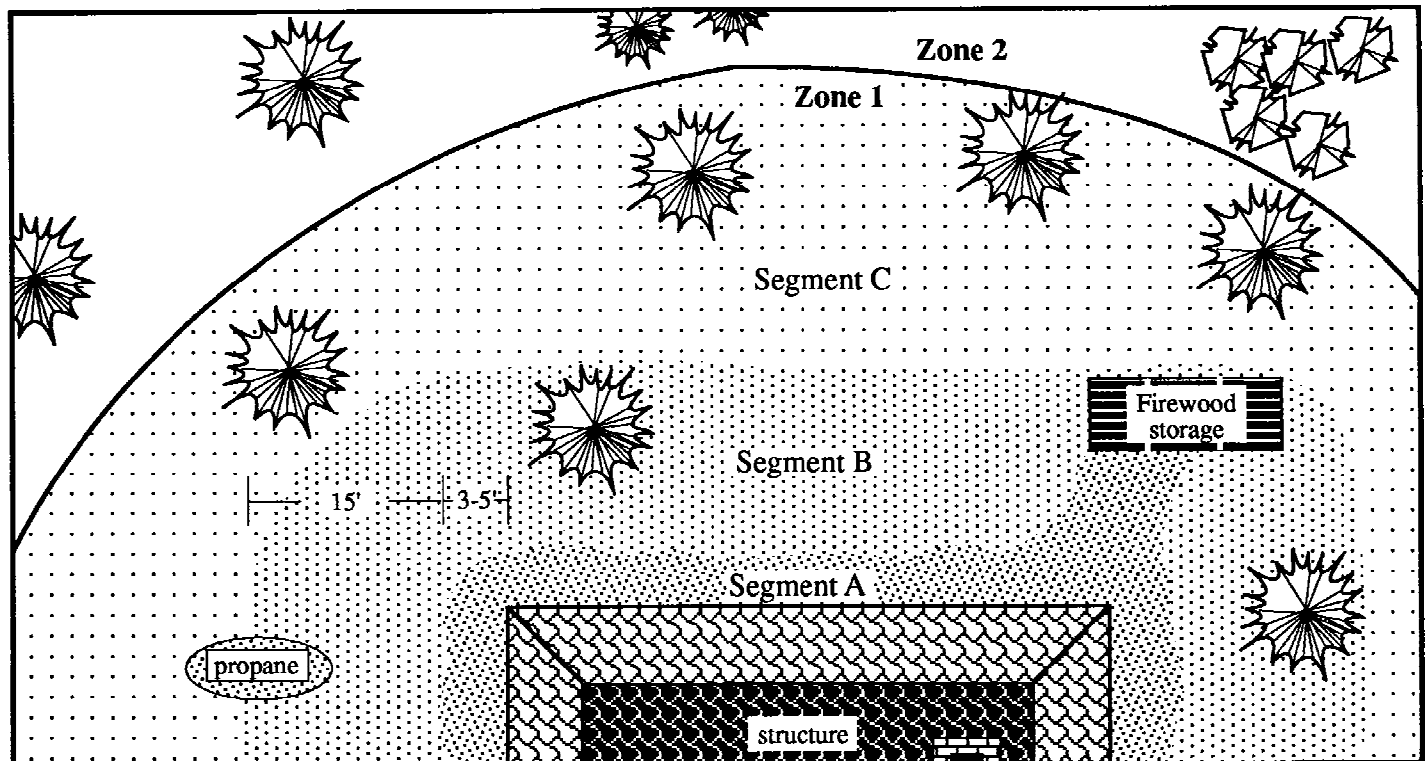


Figure 3. Segment A, segment B, and segment C of zone 1 and the edge between zones 1 and 2.

zone, small groups of trees and widely-separated individual trees may be left unpruned for landscape purposes.

* Cut or mow as needed to keep grass height at a maximum of 8 inches. Again, this is critical in the fall and early spring.

Zone 2

The size of zone 2 is based upon structure size and slope of the ground. These are the same distances as those of zone 1, but the total treated area for zones 1 and 2 combined should extend at least 75 to 100 feet from the house, especially on the downhill side.

Dispose of slash through piling and burning, or chipping. A few small, widely distributed brush piles may be left for wildlife purposes _ no more than 2 or 3 per acre. Small amounts of slash can be lopped and scattered for decomposition. If lop and scatter is used, do not leave continuous areas or large concentrations of slash. (Contact your local office of the Colorado State Forest Service or your local Sheriff's office for information on burning slash piles.)

Limit the number of dead trees in this zone. Wildlife only need 2 or 3 per acre. Be sure that these snags cannot fall onto the house or block access roads or driveways.

Because zone 2 acts as additional protection for the structure, forms an aesthetic buffer, and provides transition between zones, it is necessary to blend the requirements for zones 1 and 3.

* The inner portion of the zone will be thinned

essentially to the same prescription as zone 1, segment C. Tree density will gradually increase until it reaches that of zone 3. A good rule of thumb for tree spacing the outer portions of this zone is 4 to 6 feet between tree crowns (see Figure 4).

- * Prune trees to a height of about 8 feet at the inner portion of the zone, gradually decreasing to a height of about 5 feet at the outer portions of the zone. The closer the proximity to zone 3, the higher number of unpruned trees that can be left in this zone.
- * Mowing is generally not necessary in this zone except under trees such as spruce where low-growing branches have been left for aesthetic purposes.

Zone 3

This zone is of no specified size--it extends from the edge of zone 2 to the property line.

Any approved method of slash treatment is acceptable for this zone, including piling and burning, chipping, or lop-and-scatter.

A greater number of (dead) wildlife trees can remain in this zone, but generally only 2 or 3 per acre are necessary for good wildlife habitat. Make sure that dead trees and snags pose no threat to power lines or fire access roads.

Zone 3 is an area of traditional forest thinning. Typical management objectives for areas surrounding homesites or subdivisions are: to provide optimum recreational opportunities; enhance aesthetics;

maintain tree health and vigor; provide barriers for wind, noise, dust, and visual intrusions; support limited production of firewood, fence posts, and other forest commodities; and sustain the growth of Christmas trees or transplants.

Specific thinning requirements are dictated by the landowner's objectives for his land. However, most thinnings are done from below (leaving the biggest and best trees) and on an individual tree selection basis. Thinnings sanitize and improve the forest stand by removing trees that have been damaged, attacked by insects, infected by disease, or are of poor form or low vigor. (For more information about thinning the trees on your property, see the CSFS publication *Landowner Guide to Thinning*.)

Tree spacing is usually dependent upon the species being managed and factors such as susceptibility to windthrow or damage from heavy snow loading. For ponderosa pine and Douglas-fir, a good rule of thumb for stem spacing is Diameter +7. For lodgepole pine and Engelmann spruce, the stem spacing guide is Diameter + 5. (Diameter is measured in inches and converted to feet. For example, if the average tree to be left after thinning was an 8-inch diameter ponderosa pine, $8 + 7 = 15$, for a spacing of 15 feet between trees, as measured between tree stems).

While pruning is generally not necessary in zone 3, it is a good idea from the standpoint of personal safety to prune those trees along trails and fire access roads. Or, if you prefer the aesthetics of a well-manicured forest, there is nothing wrong with pruning the entire area. In any case, any pruning helps reduce "ladder" fuels within the tree stand, thus enhancing fire safety.

Mowing is not necessary in zone 3.

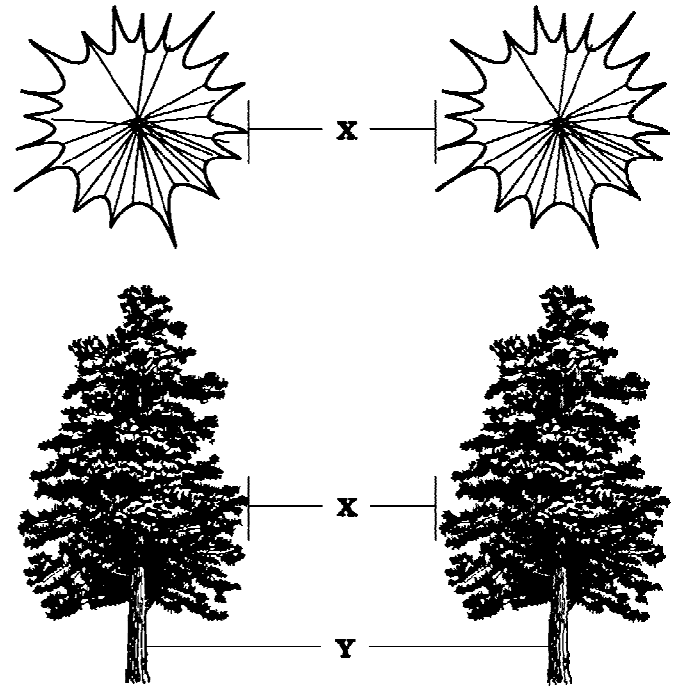


Figure 4. X = crown spacing; Y = stem spacing. (Do not measure between stems for crown spacing--measure between the edges of tree crowns.)