Napa County Defensible Space Guidelines
March 2008

A. Purpose

These guidelines are ~~directory and not mandatory and are~~ intended to provide examples of fuel modification measures that are to ~~may~~ be used to create defensible space around structures. ~~Fuel characteristics and terrain vary through the County and the individual site characteristics may affect the fuel treatment required.~~ A defensible space perimeter provides firefighters with a safe working environment that allows them to protect buildings and structures from encroaching wildfires and minimizes the chance that a structure fire will escape to the surrounding wildland.

The vegetation surrounding a building or structure in wildland areas is fuel for a fire. Research and experience have shown that fuel ~~reduction~~ modification within 100 feet of~~around~~ a building or structure increases the probability of it withstand~~surviv~~ing a wildfire. *Fuel reduction and modification through vegetation management is the key to creating good defensible space.*

Common practices to ensure creation of adequate defensible space include:

• Modifying or ~~R~~reducing the amount of fuel within 100 feet of ~~around~~ the building or structure, providing separation between fuel~~s~~ types, and/or reshaping retained fuels/vegetation by trimming. ~~Defensible space can be created by removing dead vegetation, separating fuels, and pruning lower limbs.~~

• Arranging planted and native ~~the~~ tree~~s~~, shrubs and other fuel sources in a way that makes it difficult for fire to transfer from one fuel source to another. This does not mean cutting down all trees and shrubs, or creating a bare ring of soil across the property.

A property owner's responsibility is to provide 100 feet of defensible space around all structures and occupied buildings on their property, or to the property line if it is less than 100 feet from the any structure.

When an occupied building is less than one hundred feet from a property line and combustible vegetation on an adjacent parcel presents a fire hazard for the occupied building the owner of the parcel where the hazard exists shall be responsible for fuel modification, on that owner's land, which is within one hundred feet of the occupied structure to the extent required by these guidelines.

Property owner's of vacant parcels one acre or less are required to maintain fuel on their property consistent with the fuel treatment in these Guidelines.

~~The owner of the parcel adjacent to the parcel upon which such occupied building is located shall provide defensible space of 100 feet from an occupied building regardless of property lines and shall either:~~

~~A. Clear the remaining area or areas needed to provide the required 100 feet; or~~

~~B. Allow access to the owner of the parcel with the occupied building located on it for the purpose of clearing the remaining area or areas needed to provide the required 100 feet of defensible space.~~

Tree cutting or removal may require a permit from a State agency. For example, a permit is required from the California Department of Forestry and Fire Protection (CAL FIRE) to remove trees that are used for commercial purposes.

Vegetation (grasses, shrubs and trees) provide valuable ecological functions by maintain and improving water quality, providing habitat for terrestrial wildlife and shading and protection for aquatic species (fish) when adjacent to rivers, streams and drainages. ~~Vegetation R~~removal and the modification of vegetation can cause soil disturbance, soil erosion~~, and regrowth of vegetation~~, and can introduce non-native invasive plants that harm native environments. Always keep soil disturbance to a minimum, especially on steep slopes. Special permits may be required, and extreme care must be taken,~~, especially~~ in areas near springs, ponds, streams and watercourses~~on steep slopes~~. Erosion prevention~~control~~ techniques such as minimizing use of heavy equipment, avoiding stream or gully crossings, using mobile equipment during dry conditions, and re-vegetating all~~covering exposed~~ disturbed soil areas can~~will~~ help reduce soil erosion~~ and plant regrowth~~.

Avoid removing vegetation associated with wet areas or water (springs, ponds/lakes and watercourses) and using heavy equipment in these areas. Clearing/removal or modifying vegetation in regulated stream setback areas requires special controls and supervision as well as permits from local and state agencies. Please contact the CAL FIRE Napa County Fire Department for direction prior to removing vegetation in these areas. It is also not necessary to clear vegetation to bare mineral soil to establish adequate defensible space, this can cause unwanted erosion/soil loss and invasive weeds.

~~Areas near water (riparian areas), such as streams or ponds, are a particular concern for protection of water quality. Avoid removing vegetation associated with water or using heavy equipment in these areas; do not clear vegetation to bare mineral soil.~~

B. Definitions

Aerial fuels: All live and dead vegetation in the tree canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush. Examples include trees and large bushes.

Defensible Space: The area where basic wildfire protection practices are implemented, providing the key point of defense from an approaching wildfire or escaping a structure fire. The area is characterized by the establishment and maintenance of a firebreak within 30 feet of an occupied building or structure and a reduced fuel zone that extends to 100 feet away from a building or structure.

Flammable and combustible vegetation: Fuel as defined in these guidelines.

Fuel: Vegetative material, live or dead, which is combustible during normal summer weather.

Ladder Fuels: Fuels that can carry a fire vertically between or within a fuel type.

Occupied Building: A structure either potentially or actually occupied by persons on either a permanent or temporary basis including but not limited to residences and businesses.

Reduced Fuel Zone: The area between 30 and 100 feet away from the building or structure.

Structure: Any building that is used for support or shelter of any use or occupancy.

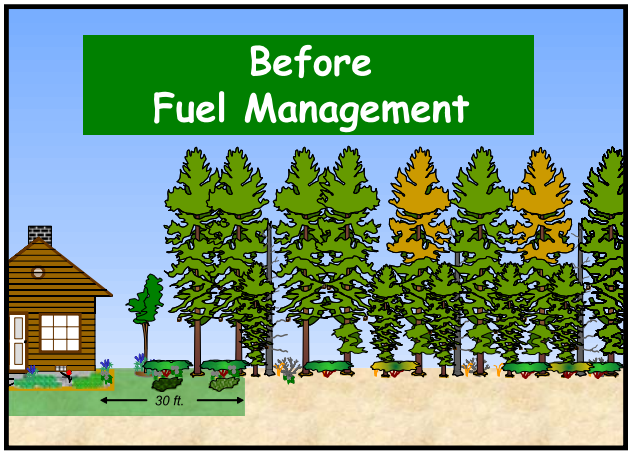
Surface fuels: Loose surface litter on the soil surface, normally consisting of fallen leaves or needles, twigs, bark, cones, and small branches that have not yet decayed enough to lose their identity; also grasses, low and medium shrubs, tree seedlings, heavier branches and downed logs.

C. Fuel Treatment

~~**Guidelines**~~

All persons using these guidelines to comply with the Napa County Fire Hazard Abatement Ordinance shall implement General Guidelines 1, 2, 3, and either 4a or 4b, as described below.

~~**All persons using these guidelines to comply with the Napa County Fire Protection Weed Abatement Ordinance shall implement General Guidelines 1, 2, 3, and either 4a or 4b, as described below.**~~

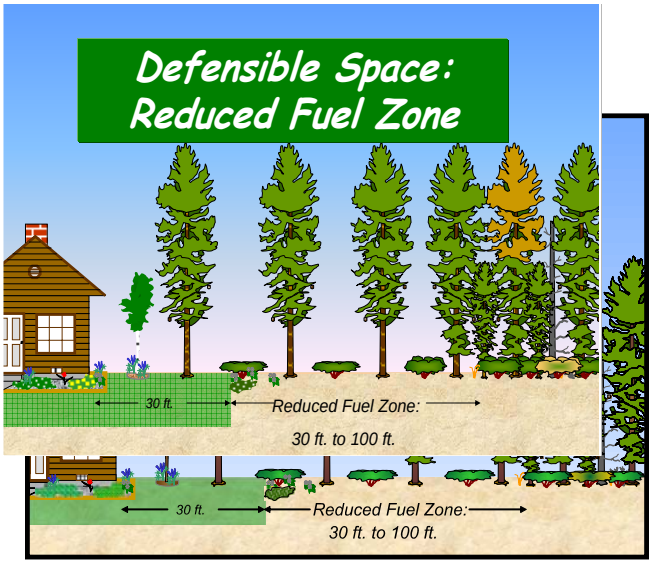


General Guidelines:

1. Maintain a firebreak by removing and clearing all flammable and combustible vegetation within 30 feet of each structure. Single specimens of trees or other vegetation may be retained provided they are well-

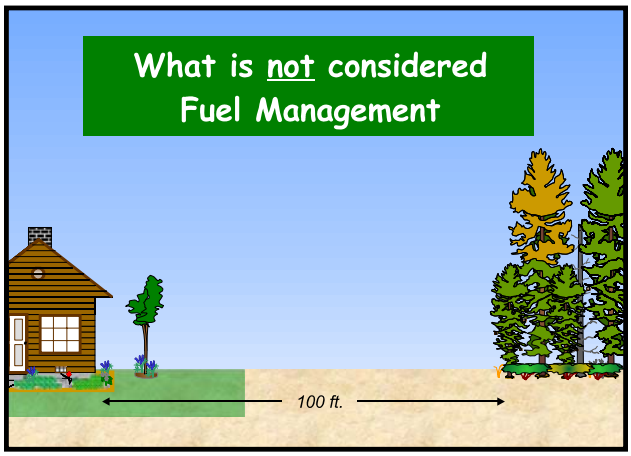
spaced, well-pruned, and create a condition that avoids spread of fire to other vegetation or to a structure~~.~~ .

2. Dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone shall be removed. Loose surface fuels shall be permitted to a depth of 3 inches. This guideline is primarily intended to eliminate trees, bushes, shrubs and surface debris that are completely dead or with substantial amounts of dead branches or leaves/needles that would readily burn.



3. Down logs or stumps anywhere within 100 feet from a structure, when embedded in the soil, may be retained when isolated from other vegetation. Occasional (approximately one per acre) standing dead trees (snags) that are well-spaced from other vegetation and which will not fall on buildings or structures or on roadways/driveways may be retained.

4. Within the Reduced Fuel Zone, one of the following fuel treatments (4a or 4b) shall be implemented. Properties with greater fire hazards will require greater vegetation management and fuel~~clearing~~ treatments. Combinations of the methods may be acceptable as long as the intent of these guidelines is met.

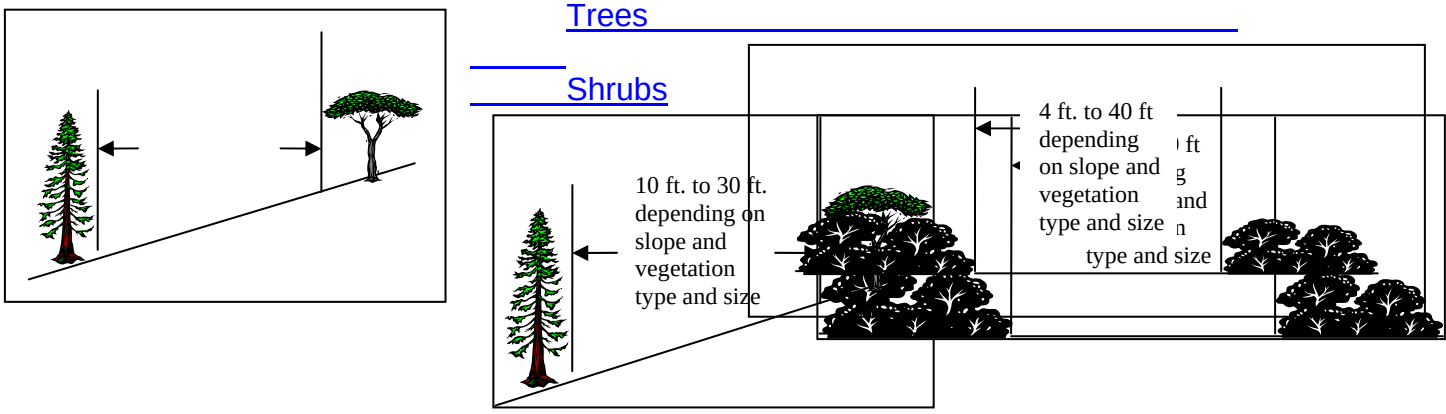


4a. Reduced Fuel Zone: Fuel Separation
In conjunction with General Guidelines 1~~., 2., and~~ through 3, above, minimum dist~~clear~~ance between fuels surrounding each building or structure will range from 4 feet to 40 feet in all directions, both horizontally and vertically.

Buffer ~~Clearance~~ distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content, etc.). Properties with greater fire hazards will require greater buffers~~separation~~ between fuels. For example, properties on steep slopes having large sized vegetation will require greater spacing between individual trees and bushes (see Plant Spacing Guidelines below). Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, three individual manzanita plants growing together with a total foliage width of eight feet can be “grouped” and considered as one plant and spaced according to the Plant Spacing Guidelines in this document.

Clearance requirements include:

• Horizontal clearance between aerial fuels, such as the outside edge of the tree crowns or high brush.

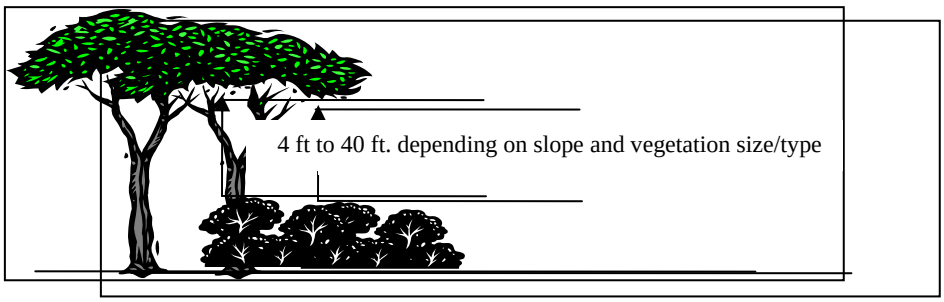


Horizontal clearance between aerial fuels

Horizontal clearance between aerial fuels

• Vertical clearance between lower limbs of aerial fuels and the nearest surface fuels and grass/weeds. Vertical clearance removes ladder fuels and helps prevent a fire from moving from the shorter fuels to the taller fuels.

Vertical between fuels



clearance aerial

Vertical clearance between aerial fuels

Plant Spacing Guidelines Guidelines are designed to break the continuity of fuels and be used as a "rule of thumb" for achieving compliance with the *Napa County Weed Abatement Ordinance*.		
TREES	**Minimum horizontal space from edge of one tree canopy to the edge of the next**	
	Slope	**Spacing**
	0% to 20%	10 feet
	20% to 40%	20 feet
	Greater than 40%	30 feet
SHRUBS	**Minimum horizontal space between edges of shrubs**	
	Slope	Spacing
	0% to 20%	2 times the height of the shrub
	20% to 40%	4 times the height of the shrub
	Greater than 40%	6 times the height of the shrub
VERTICAL SPACE	**Minimum vertical space between top of shrub and bottom of lower tree branches:** 3 times the height of the shrub	

4b. Reduced Fuel Zone: Defensible Space with Continuous Tree Canopy

To achieve defensible space while retaining a stand of larger trees with a continuous tree canopy, apply the following treatments:

• Generally, remove all surface fuels greater than 4 inches in height. Single specimens of trees, shrubs or other vegetation may be retained provided they are well-spaced, well-pruned, and create a condition that avoids spread of fire to other ~~vegetation~~ fuel types or to a building or structure.

• Remove lower limbs of trees ("prune") to at least 6 feet up to 15 feet (or the lower 1/3 branches for small trees). Properties with greater fire hazards, such as steeper slopes or more severe fire danger, will require pruning heights in the upper end of this range.