



A Tradition of Stewardship  
A Commitment to Service



## Napa County Defensible Space Guidelines

### A. Purpose

These guidelines are intended to provide minimum requirements for fuel modification measures for property owners to create defensible space around structures and are to be used in conjunction with Napa County Code Chapter 8.36. A defensible space perimeter provides firefighters with a safer working environment that allows them to protect structures from encroaching wildfires and minimizes the chance that a structure fire will escape to the surrounding area.

The vegetation surrounding a structure is fuel for a fire. Research and experience have shown that fuel modification within 100 feet of a structure increases the probability of withstanding a wildfire. *Fuel reduction and modification through vegetation management is the key to creating good defensible space.*

### B. Definitions

**Aerial Fuels:** means all live and dead vegetation in the tree canopy or above surface fuels, including tree branches, twigs and cones, snags, moss, and high brush.

**Defensible Space:** means the area around a structure with a minimum distance of a 100-foot radius or to the property line, whichever is less, in which combustible vegetation and other prohibited materials must be treated, cleared, or reduced to slow the spread of fire to and from the structure. The obligations under Napa County Code Chapter 8.36 pertaining to maintenance of defensible space around any structure include the obligation a buffer within 30 feet of any structure and a reduced fuel zone that extends to a minimum distance of 100 feet away from a structure or to the property line adjacent to the structure if less than 100 feet from the structure.. Distances may be increased by the enforcement officer based on site-specific analysis of local conditions.

**Ember Resistant Zone:** means a noncombustible zone within 5 feet of a structure, using non-flammable landscaping materials and/or approved high-moisture-content annuals and perennials. It is the area closest to the structure, including the structure itself, decks, outdoor furniture, and the outside walls and coverings.

**Fire Water Supply:** means any private water supply reserves for wildfire and structure defense for firefighting and emergency responder use.

**Fire Water Supply Infrastructure:** includes, but is not limited to, water storage tanks, fire pumps for fire water supply purposes.

**Fire Water Supply Infrastructure Appurtenances:** includes, but is not limited to underground and above-ground distribution fittings, pipes, valves, and associated appurtenances for fire water supply purposes.

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

**Prohibited Materials:** means combustible vegetation, green waste, rubbish, or weeds as defined in Napa County Code section 8.36.030. “Fuel” means the same as “prohibited materials.”

**Pyrophytic Species:** means fire-prone vegetation that is adapted to or that contributes to rapid burning, high heat output, and ember creation. This includes brush species that are highly flammable and burn with an oily heat and any vegetation that has a strong odor when crushed, has a resinous, gummy sap, or has oils that volatilize and burn readily. These species include, but are not limited to, the following:

**Shrubs:** Chamise, Greasewood, Manzanita, Sagebrush, Coyote Brush, Giant Chinquapin, California Buckwheat, Chaparral Pea, Scrub Oak, Black Sage, Huckleberry.

**Trees:** Sargent Cypress, Tan Oak, Coulter Pine, Knobcone Pine, Monterey Pine, Douglas Fir, California Bay.

**Ecological Weeds:** Acacia, Jubata Grass, Pampas Grass, Scotch Broom, French Broom, Eucalyptus, Fountain Grass, Gorse.

**Exotic Plants:** Firs, Bamboo, Cedars, False Cypress, Junipers, Larch, Japanese Honeysuckle, Palm, Spruces, Pines, Rosemary, Yew, Arborvitae, Hemlock.

**Reduced Fuel Zone:** means the area between 30 and 100 feet away from a structure.

**Structure:** means any constructed building or improvement used for shelter, support, or any other use or occupancy.

**Surface Fuels:** means 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. Defensible Space Considerations

Arrange planted and native trees, 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.

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) provides valuable ecological functions by maintaining and improving water quality, providing habitat for terrestrial wildlife, and shading and protection for aquatic species (fish) when adjacent to rivers, streams, and drainages. Removal and the modification of vegetation can cause soil disturbance, soil erosion, 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, in areas near springs, ponds, streams, and watercourses. Erosion prevention techniques such as minimizing use of heavy equipment, avoiding stream or gully crossings, using mobile equipment during dry conditions, and re-vegetating all disturbed soil areas can help reduce soil erosion.

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 Napa County Planning, Building & Environmental Services Department for direction prior to removing vegetation in these areas. It is not necessary to clear vegetation to bare mineral soil to establish adequate defensible space; this can cause unwanted erosion/soil loss and invasive weeds.

### D. Fuel Treatment Requirements

**In order to comply with the Napa County Fire Hazard Abatement Ordinance, all property owners shall implement Fuel Treatment Requirements D.1 through 5 and either 6a or 6b, and for all new construction, Requirement 7, as described below:**

1. Maintain a buffer by removing and clearing all prohibited materials, including Pyrophytic species, 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. Remove all tree limbs that are touching a structure or are within 10 feet of a chimney or stovepipe. Do not store firewood within 30 feet of any structure.
2. Remove dead and dying woody surface fuels and aerial fuels within the Reduced Fuel Zone. Loose surface fuels shall be permitted to a maximum depth of 3 inches. This requirement is primarily intended to eliminate trees, bushes, shrubs, and surface debris that are completely dead or with substantial amounts of dead branches, leaves, or needles that would readily burn.

3. Provide at least 100 feet of defensible space around all structures on the property, or to the property line if it is less than 100 feet from the any structure. While 100 feet is a minimum, bushes and shrubs may require longer clearance distances depending on topography and fuel loads.

Remove downed logs or stumps anywhere within 100 feet from a structure, unless embedded in the soil and isolated from other vegetation. Standing dead trees (snags) may be retained provided that they occur at a rate of approximately one per acre, are well-spaced from other vegetation, and will not fall on structures or on roadways/driveways.

Property owners of vacant parcels one acre or less in size shall maintain fuel on their property consistent with the fuel treatment requirements.

4. All fire water supply infrastructure shall be protected from wildfire radiant heat, convective heat, and embers by the installation of a defensible space, extending out to a 100-foot slope-adjusted perimeter from the furthest extent of the structure. Distances may be increased by the enforcement officer based on site-specific analysis of local conditions.

5. Adjacent property owner's responsibilities. When a structure is less than 100 feet from a property line and prohibited materials on an adjacent parcel present a fire hazard for the structure, the property owner of the adjacent parcel where the fire hazard exists shall be responsible for clearing the area on that owner's parcel that is within 100 feet of the structure, so as to provide the necessary fire protection in the manner and to the extent required by these Guidelines. Distances may be increased by the enforcement officer based on site-specific analysis of local conditions.

6. Within the Reduced Fuel Zone, one of the following fuel treatments (6.a. or 6.b.) shall be implemented. Properties with greater fire hazards will require greater vegetation management and fuel treatments. Additional removal of surface fuels outside of the required 100-foot zone might be needed to provide adequate defensible space. Combinations of the methods may be acceptable as long as the intent of these requirements is met.

**6.a. Reduced Fuel Zone: Defensible Space with Continuous Tree Canopy**  
*(this is the preferred method).*

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

- 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 fuel types or to a 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.

## 6.b. Reduced Fuel Zone: Fuel Separation

In conjunction with Fuel Treatment Requirements 1 through 5, maintain a minimum distance between fuels surrounding each structure from 4 feet to 40 feet in all directions, both horizontally and vertically.

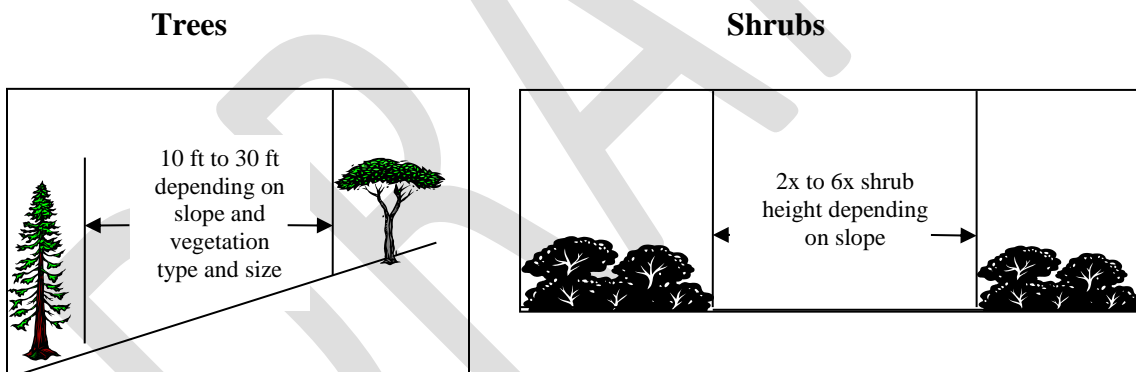
Buffer distances between vegetation will depend on the slope, vegetation size, vegetation type (brush, grass, trees), and other fuel characteristics (fuel compaction, chemical content, etc.).

Properties with greater fire hazards will require greater buffers between fuels. For example, properties on steep slopes having large sized vegetation will require greater spacing between individual trees and bushes. Groups of vegetation (numerous plants growing together less than 10 feet in total foliage width) may be treated as a single plant. For example, 3 individual

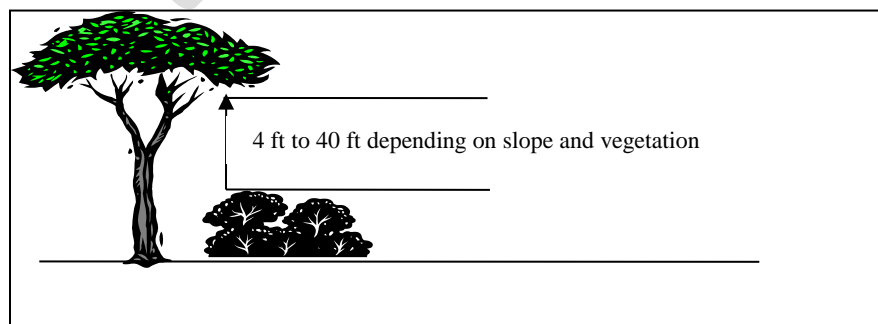
manzanita plants growing together with a total foliage width of 8 feet can be “grouped” and considered as one plant and spaced accordingly. See Plant Spacing Guidelines, below.

*Clearance requirements include:*

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



- 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.



**7. New Construction.** For all new construction where construction commences on or after the effective date of these Guidelines both of the following shall be required:

**7.a.** The establishment and maintenance of an Ember Resistant Zone within 5 feet of a structure is required. This is the area closest to the structure, including the structure itself, decks, outdoor furniture, and the outside walls and coverings. This area is most vulnerable and should be maintained most aggressively for fire resistance.

**7.b.** All fire water supply infrastructure appurtenances shall be protected from wildfire radiant heat, convective heat, and embers by either: (1) underground burial in accordance with industry standards, (2) the use of non-combustible materials, such as concrete or metal, and/or (3) installation of a defensible space, extending out to a 100-foot slope-adjusted perimeter from the furthest extent of the structure. Distances may be increased by the enforcement officer based on site-specific analysis of local conditions.

## **E. Recommendations.**

For properties that are not subject to Requirement 7, above, the following additional fuel modification measures are recommended:

- Remove any combustible outdoor furniture.
- Replace jute or fiber doormats with fire resistant materials.
- Remove or relocate all combustible materials, including garbage and recycling containers, lumber, trash, and patio accessories.
- Clean all fallen leaves and needles regularly. Repeat often during fire season.
- No Pyrophytic vegetation is recommended within 5 feet of structures. Vegetation in the Ember Resistant Zone area will be evaluated for compliance.
- Other plant species not listed or named should be reviewed by the Fire Code Official.
- Remove tree limbs that extend into this zone. Fire-prone tree varieties should be removed if they extend within 5 feet of any structure.
- Do not store firewood, lumber, or combustibles here, even (especially) under decks or overhangs. Move stored combustibles inside, or at least 30 feet away from structures.
- Use only inorganic, non-combustible mulches such as stone or gravel.

PLEASE CONSULT LOCAL AND STATE AGENCIES TO  
DETERMINE IF PERMITS ARE REQUIRED

	<p align="center"><b>PLANT SPACING GUIDELINES</b></p> <p align="center">These guidelines are designed to break the continuity of fuels and be used as a “rule of thumb” for achieving compliance with the  <i>Napa County Fire Hazard Abatement Ordinance (Napa County Code chapter 8.36)</i></p>	
<b>TREES</b>	<b>Minimum horizontal space from edge of one tree canopy to the edge of the next</b>	
	<b>Slope</b>	<b>Spacing</b>
	0% to 20%	10 feet
	20% to 40%	20 feet
	Greater than 40%	30 feet
<b>SHRUBS</b>	<b>Minimum horizontal space between edges of shrubs</b>	
	<b>Slope</b>	<b>Spacing</b>
	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
<b>VERTICAL SPACE</b>	<b>Minimum vertical space between top of shrub and bottom of lower tree branches:</b> 3 times the height of the shrub	

