Ready For Wildfire
Fire-Safe Landscaping

Wildland Fire Safety Starts at the HOUSE

FIREWISE USA®
Residents reducing wildfire risks

Greetings from the Darkhorse Fire Safety Committee

Welcome to our beautiful Darkhorse community!

The Fire Safety Committee provides our Darkhorse residents with information, presentations, and training to empower all of us to stay safe in the event of wildfire.

Our mission is to identify and implement local solutions that reduce the risk and consequences of wildfire in the Darkhorse residential development, the Darkhorse golf course, and within the open spaces between properties.

Darkhorse is certified as a Nevada County Firewise Community by the National Fire Protection Association. This status designation may be helpful in reducing your homeowner's insurance rate. Please contact your insurance company to determine whether this is the case for you.

In addition, two of our Darkhorse residents are trained Defensible Space Advisors in Nevada County. They are willing to meet with you to provide guidance on how to make your home and landscaping Firewise safe.

If you have any questions for us, please feel free to contact us by emailing your questions to: **dhfiresafety@gmail.com**

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SCAN ME

www.darkhorsehoa.org/fire-safety

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Defensible Space

Defensible space is the area between your home and an oncoming wildfire. All vegetation, including native plants and ornamental plants, are potential fire fuel. Through proper planning, you can have both a beautiful native landscape and a fire-wise home. Fire-wise landscapes should also include hardscape, such as granite paths and stone walls. These can act as fuel break in-between islands of native vegetation, and help to slow down or change the path of an approaching fire.

For more information go here or scan the QR code below.

www.nevadacountyca.gov/DocumentCenter/View/44617/2022-Ready-Nevada-County-Handbook-PDF

Figure courtesy of CALFIRE

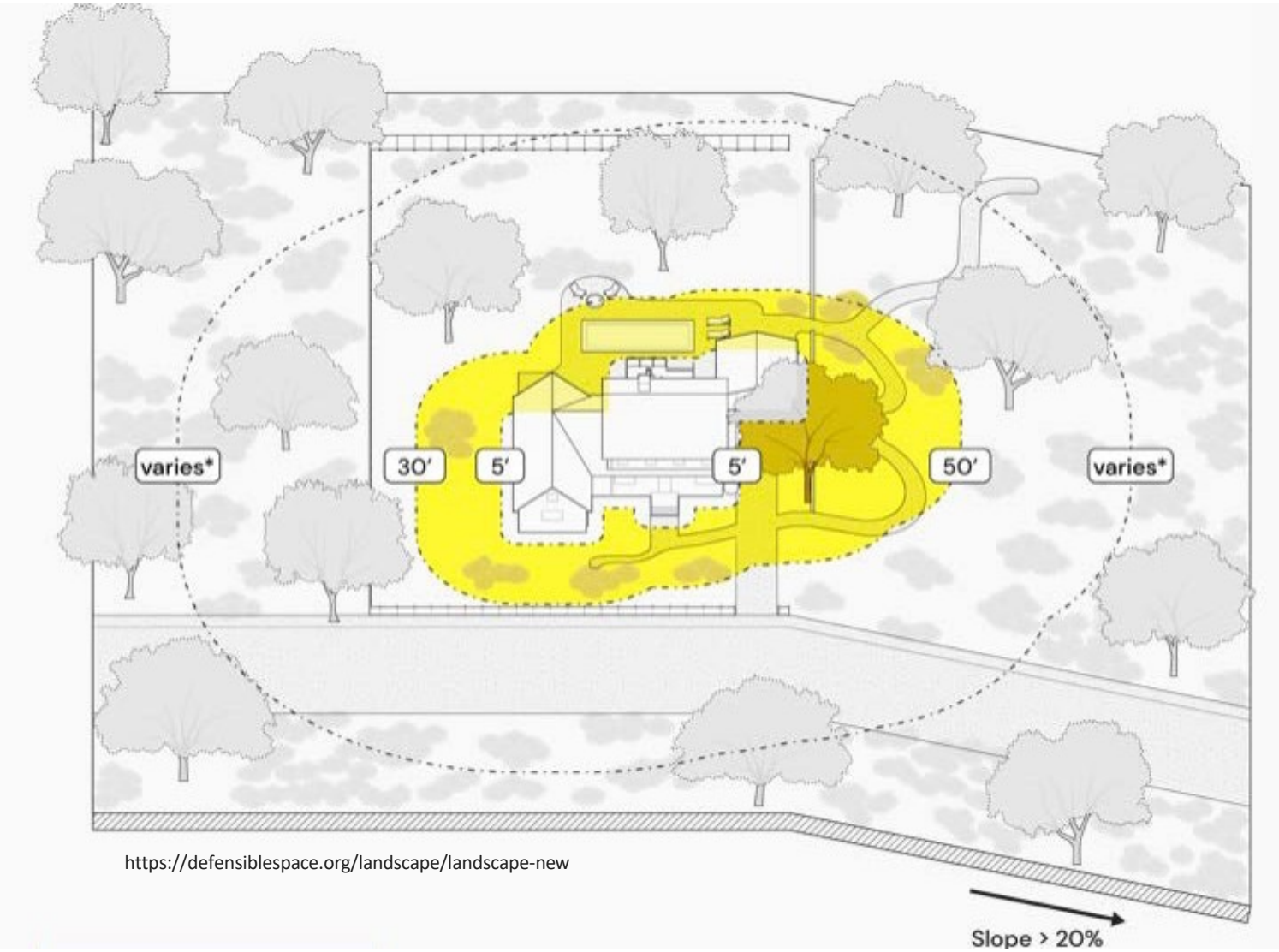
SCAN ME

Defensible Space (cont.)

Home Protection Zone

The Home Protection Zone should be designed to create and maintain a landscape that, if ignited, will not transmit fire to the home. Depending upon the type of wildland vegetation in the area and the steepness of the slope, this zone should have an area at least 30 feet wide (50 feet for slopes above 20%) that is **lean, clean, and green**. Trees should be spaced to allow min 10' clearance to structure at full maturity.

The Home Protection Zone should be designed to promote fire-wise landscaping and water conservation. **It is a recommended minimum planting zone starting with low-density planting to medium-density as you move outward from the house**. The goal is to create a low-ignition landscape capable of slowing down fire spread. Plants that are green and lush give better protection. If regularly watered and pruned to remove dead or unhealthy material, these plants will be far less likely to carry fire to your home. While all plants will eventually burn, healthy ones with a high moisture content are more difficult to ignite.



https://defensiblespace.org/landscape/landscape-new

Defensible Space – Home protection Zone (cont.)

Immediate, Non-Combustible Zone 0-5 Feet Around Your Home

- Create a non-fuel zone 0-5 ft around your home.
- Use hard surfaces such as concrete or fire-resistant material. Avoid combustible mulch.
- Clean and maintain roofs and gutters of dead leaves, debris, and pine needles.
- Reduce embers that could pass through vents in the eaves and foundation vents by installing 1/8-inch metal mesh screening.
- Move any flammable material away from wall exteriors – Mulch, flammable plants, leaves, needles, firewood piles – anything that can burn. Remove anything stored underneath decks or porches.
- If planting, use widely spaced, non-woody, low herbaceous vegetation away from vents, windows, and interior corners.
- Shrubs and trees are not recommended in this zone.

Intermediate, Lean, Clean and Green Zone 5-30 Feet Around Your Home

- Create vegetation “islands” to break up contiguous fuels.
- Remove ladder fuels (grasses, shrubs, young trees, and low hanging branches that allow fire to climb from the ground into the tree canopy).
- Get rid of leaf and needle debris from the yard.
- Keep grass under 4 in.
- When planting trees, space the trees to have a minimum of eighteen feet (18’) between canopy tops with the distance increasing with the percentage of the slope.
- Keep tree canopies no closer than 10 feet (10’) to the edge of any structures on the property.
- Tree and shrubs in this zone should be limited to small clusters of a few each to break up the continuity of the vegetation across the landscape.
- Keep vegetation well-irrigated and free from debris.

Extended, Wildland Fuel Reduction Zone 30-100 Feet Around Your Home

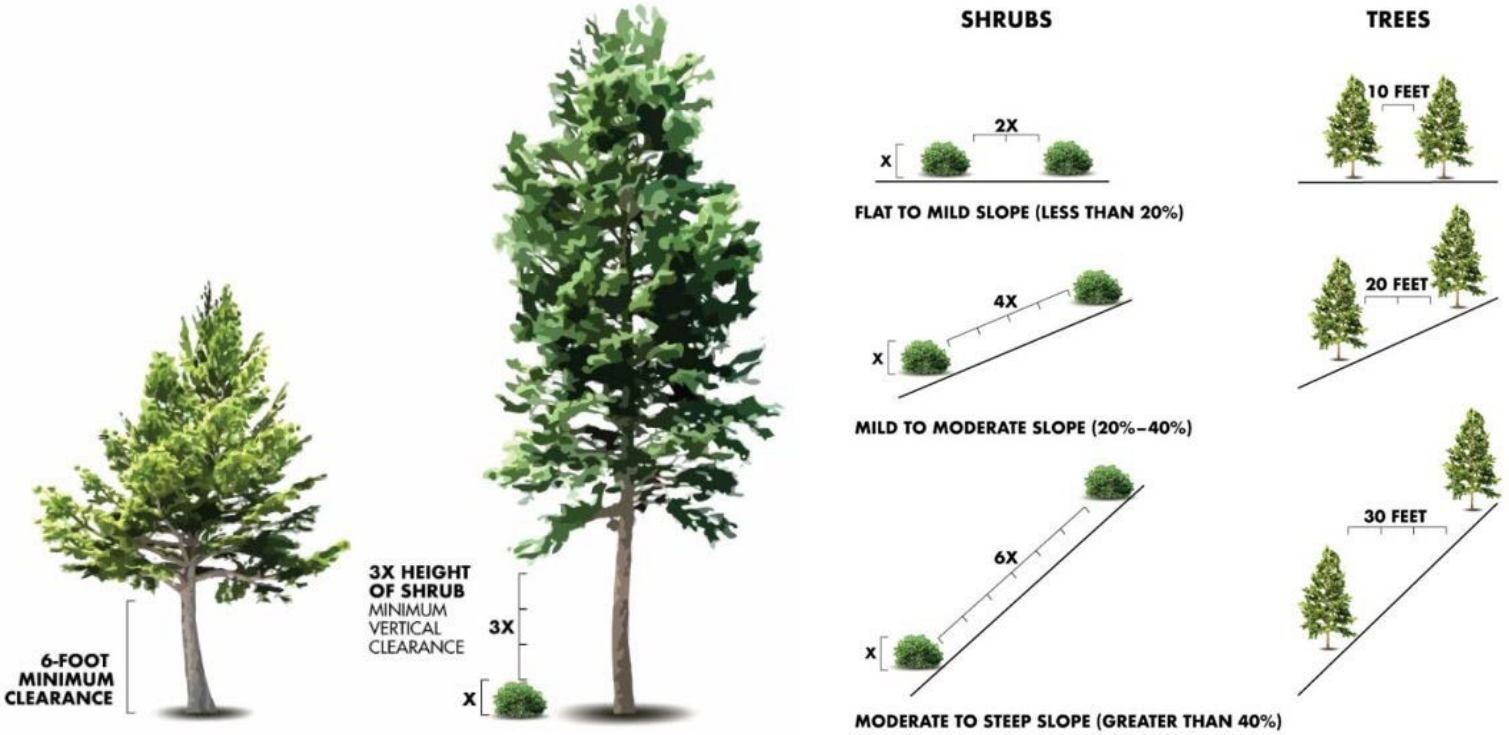
- Create and maintain a minimum of 10 ft between the tops of trees.
- Remove ladder fuels.
- Remove dead trees and shrubs.

Plant and Tree Spacing

The spacing between grass, shrubs, and trees is crucial to reduce the spread of wildfires. The spacing needed is determined by the type and size of brush and trees, as well as the slope of the land. For example, a property on a steep slope with larger vegetation requires greater spacing between trees and shrubs than a level property that has small, sparse vegetation.

Vertical Spacing

Remove all tree branches at least 6 feet from the ground. Allow extra vertical space between shrubs and trees. Lack of vertical space can allow a fire to move from the ground to the brush to the treetops like a ladder. This leads to more intense fire closer to your home. To determine the proper vertical spacing between shrubs and the lowest branches of trees, use the formula below.



https://firesafemarin.org/create-a-fire-smart-yard/plant-tree-spacing

Combustibility of Landscape Mulches

- Unfortunately, despite the positive attributes, many mulches are combustible, a major drawback when used in home landscapes located in wildfire-prone areas.
- With the exception of the composted wood chips, all of the mulch treatments demonstrated active flaming combustion.
- For areas less than five feet away from structures, noncombustible rock, gravel, concrete and pavers should be used. Live plants, even when irrigated, are not recommended.
- Shredded western red cedar (Gorilla Hair) mulch, pine needles and shredded rubber demonstrated the most hazardous fire behavior and need to be avoided.

Mulch Treatment	Description	
Composted Wood Chips, 2- to 3-inch depth		Fertile Mulch[1], produced by Full Circle Compost, Inc. of Minden, Nev., was used. Wood chips are composted for an eight–week period using a proprietary process.
Medium Pine Bark Nuggets, 2- to 3-inch depth		Garden Bark Western Decorative Bark[1] medium-sized pine bark acquired from a home improvement store was used. Approximately 75% of the material tested consisted of pine bark pieces about 1 inch in diameter. The balance of the material was wood chips and other unrecognizable materials.
Pine Needles, 2- to 3-inch depth		Approximately 80-90% of this material consisted of four to eight inch long needles shed from native ponderosa and Jeffrey pine trees and 10-20% was comprised of twigs, leaves, wood chips and cone scales. This is a popular naturally occurring mulch in the Sierra Nevada region.
Shredded Rubber, 2- to 3-inch depth		DuPont Signature Premium Rubber Mulch[1] acquired from a home improvement store was used. This product is made from 100% recycled rubber, dyed and processed to resemble redwood mulch products.
Shredded Western Red Cedar, 2- to 3-inch depth		Mountain Magic Gorilla Hair Mulch[1] is made from western red cedar that is machine shredded to create a long stringy, fibrous material. Approximately 5% of the material tested consisted of wood chips.
Tahoe Chips, 2- to 3-inch depth		A by-product of Lake Tahoe Basin chipping operations, this product consisted of pine needles, wood chips, bark and other plant biomass. The size, shape and texture of the chips varied and was influenced by the material being chipped.
Tahoe Chips with fire retardant, 2- to 3-inch depth		Same material and application depth as above, but sprayed with an ammonium sulfate-based wood colorant/fire retardant solution manufactured by Fire Chief Coatings, Inc.[1] The retardant was applied at a rate of 1.25 gallons/50 sq. ft. on July 7, 2008 by the manufacturer's representative.
Tahoe Chips, single layer depth		Same material as above, but applied as a single layer of chips without fire retardant. The single layer of chips provided 80-100% ground cover.

[1]Information herein is offered with no discrimination. Listing a commercial product does not imply an endorsement by the authors, University of Nevada Cooperative Extension, University of California Cooperative Extension or its personnel.

Combustibility of Landscape Mulches (cont.)

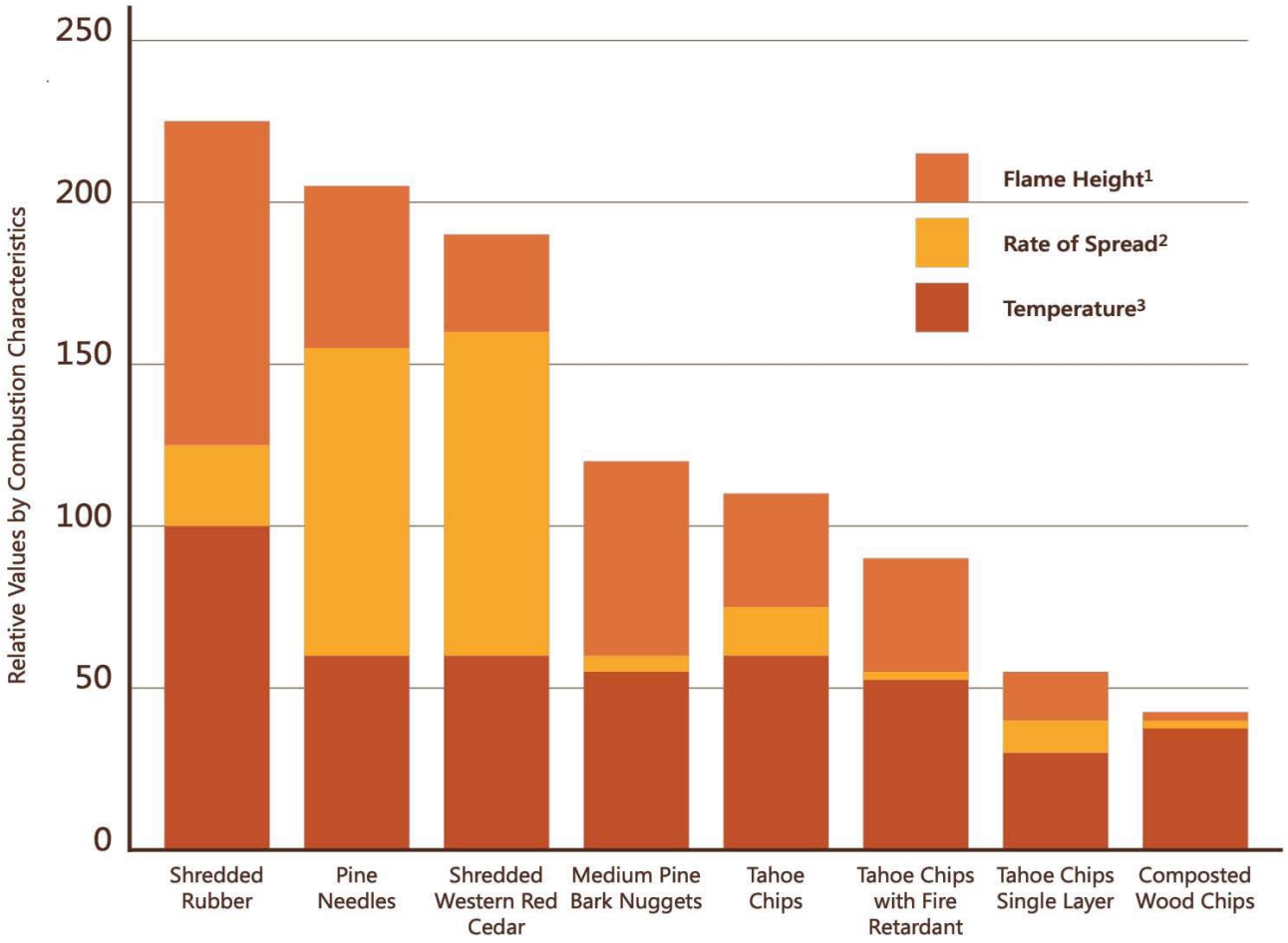


Figure 3. Relative values of three combustion characteristics between eight mulch treatments. (1) Average maximum flame height. (2) Average rate of fire spread. (3) Average maximum temperature measured at four inches above the bed.

Key Findings

- All of the mulches evaluated were combustible under test conditions of dry, hot and windy weather and more than 26 months of outdoor exposure.
- The mulch treatments varied considerably in terms of flame height, speed at which fire spread and temperature measured above the mulch bed.
- With the exception of the composted wood chips, all of the mulch treatments demonstrated active flaming combustion. It is not known if the performance of the composted wood chips is specific to the Fertile Mulch.
- Based on cumulative values for the three combustion characteristics, shredded rubber, pine needles and **shredded western red cedar** demonstrated the most hazardous fire behavior.
- Composted wood chips and Tahoe chips, single layer demonstrated the least hazardous fire behavior based on the factors measured in this evaluation.
- Shredded rubber mulch burned at the hottest average maximum temperature in excess of 630 degrees F and produced the greatest flame heights which averaged over 3 feet. It ignited easily and burned intensely for a prolonged period (Figure 4).
- Pine needles were second only to shredded rubber mulch in terms of the cumulative value of combustion characteristics.

Combustibility of Landscape Mulches (cont.)

- The most rapid rate of fire spread came from **shredded western red cedar** (Figure 5), traveling at an average rate of 47.9 feet per minute. Temperatures averaging 380 degrees F and it produced a relatively low average flame height of 11.4 inches. This mulch treatment also produced embers which moved beyond the plot perimeter and ignited adjacent mulch plots.
- Medium pine bark nuggets produced relatively moderate flame height and temperature values and also exhibited a low rate of flame spread.
- Flame height and temperature values for Tahoe chips, 2 to 3 inch depth and Tahoe chips with fire retardant, 2 to 3 inch depth were similar. The fire spread values, however, for the chips treated with fire retardant were lower than those for the untreated chips. The retardant delayed fire spread for approximately 5 to 10 minutes, then spread was similar to the untreated chips.
- The lowest temperature values were produced by the Tahoe chips, single layer treatment. They also produced relatively low flame heights and rates of fire spread.
- Composted wood chips demonstrated the slowest fire spread rate of the eight mulch treatments evaluated, less than 0.3 feet per minute (Figure 6). Since the progress of smoldering combustion was, at times, obscured by a non-burning surface layer of chips, fire rate of spread values are an approximation. They also produced the shortest average maximum flame height (note: flaming combustion was rare). The average temperature was the second lowest recorded and was comparable to the Tahoe chips, single layer treatment.

▲ Figure 4. Rubber mulch produced the greatest flame height and temperature of the mulch treatments evaluated in this study.

▼ Figure 5 Shredded western red cedar bark, as shown in this photograph, ignited easily and produced the fastest rate of spread of the eight mulch treatments evaluated.

▶ Figure 6. The composted wood chip product, Fertile Mulch, primarily burned through smoldering combustion as indicated by the darker areas and smoke. It produced little flame and had the slowest rate of fire spread of the mulch treatments evaluated.

Plants to Avoid

Species	Common Name(s) Form
Acacia	Acacia
Adenostoma fasciculatum	Chamise
Arctostaphylos	Manzanita
Bambusa vulgaris	Bamboo
Cedrus	Cedar
Cortaderia jubata	Spruce
Cortaderia selloana	Pampas Grass
Cupressus	Cypress
Cytius scoparius	Scotch Bottom
Eucalyptus	Eucalyptus
Heteromeles arbutifolia	Toyon (Holly)
Juniperus	Juniper
Pennisetum setaceum	Fountain Grass
Pinus	Pine
Pseudotsuga menziesii	Douglas Fir
Salvia Rosmarinus	Rosemary

Any plant will burn under the right conditions. Simply choosing plants from a "fire-safe" plant list is NOT enough. Rather, use "Right Plant, Right Place" to build a robust, fire-adapted landscape.
Some plants are marketed and described as “firesafe” or “fire resistant”, all plants will burn under the right conditions, regardless of how they are classified.

A plant with a good water supply could have a greater growth form and hold leaves longer, whereas a plant in a stressed or drought condition may have stunted growth and accumulated dead materials. Some plants may develop a dead thatch layer under a green surface that is highly combustible.

When bringing a fire-resistant framework to plant selection consider:

- Does the plant contain a lot of waxes, oils, and resins?
- What is the leaf moisture content?
- Does the plant have an open-growth structure?
- How fast does the plant grow?
- How tall will the plant grow?
- Does the plant shed bark?

Maintaining Your Property

Pruning, maintenance, and cleanup can have a greater impact on whether a plant ignites than does the type of plant it is. A plant that has a big leaf or needle drop will result in the need for more maintenance-related cleanup on the property, on the roof, and in rain gutters. A plant that grows quickly may exceed growth expectations and require greater maintenance.

- ✓ Make sure your trees are trimmed and maintained to allow for horizontal and vertical spacing with your house and other plants or structures.
- ✓ If your tree is more than 18-feet high, it is recommended to remove all tree branches at least 6 feet off the ground for lone trees.
- ✓ If your tree is less than 18-feet high, it is recommended to remove all tree branches within the first 1/3 of the tree height.
- ✓ Trees (either lone or grouping) should ideally be at least 10 feet of horizontal spacing between the branches of other trees or structures such as decks, garages, sheds. Additional spacing may be required on steep slopes.

Laddering Effect

Plants protect soils from erosion and provide aesthetic and ecological benefits. Trees and shrubs are acceptable as long as they are widely spaced and do not provide a continuous path of fuel for a fire to climb from the ground to a tree crown or roof (a fuel ladder). Proper landscape maintenance can dramatically improve the fire safety of a yard.

Fall is a good time in California to begin new plantings. The weather is beginning to cool down, yet temperatures are still warm enough to encourage germination. Ensure that your landscape is still fire-safe. Clear your roof of fallen debris to prevent ignition from flying embers in the event of a wildfire. Maintaining your property is a year-round task. With the start of our rainy season in mid-October, begins our Mediterranean climate's "green season", which is the best time to plant new young plants.

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