



ROSS VALLEY  
FIRE DEPARTMENT

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# LIVING WITH FIRE IN THE ROSS VALLEY

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SURVIVING WILDFIRE: A GUIDE TO LIVING IN A FIRE PRONE COMMUNITY

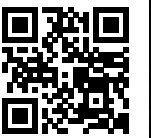


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ADDITIONAL DETAILS ON THE WEB

Look for QR codes in this publication to find additional details and more information on the web.

[www.rossvalleyfire.org](http://www.rossvalleyfire.org) [www.firesafemarin.org](http://www.firesafemarin.org)



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## CONNECTING PEOPLE, IDEAS, AND SOLUTIONS TO REDUCE THE THREAT OF WILDFIRE IN THE ROSS VALLEY.

Destructive wildfires affect virtually every part of the U.S., threatening communities, disrupting residents through evacuations and home losses, causing billions of dollars of damage to homes, businesses and natural resources.

In the past 10 years, annual home losses from wildfire have tripled. In 2012, more than 2,200 primary structures were lost due to wildfire and as the result of home-to-home ignitions. While firefighters work diligently to protect our property, the truth is, they can't save every home, and their efforts and safety are increasingly compromised by today's severe wildfires.

The good news is, unlike floods, hurricanes or earthquakes, there are simple and often inexpensive ways to make homes safer from wildfire. With a good understanding of wildfire hazards and mitigation strategies, community residents can effectively lower the wildfire risk and losses to their homes, neighborhoods and natural resources.

Ross Valley Fire Department recognizes that the change needed to reverse this loss trend begins with a rock-solid understanding of the basics of how wildfires ignite structures combined with scientifically proven mitigation actions.

Read on in this guidebook to learn effective strategies to protect your family, your home, and our community, from the inevitable wildfire.



# ROSS VALLEY FIRE DEPARTMENT

Ross Valley Fire Department is a consolidated fire department with the mission of protecting lives, property and the environments of Ross, San Anselmo, Sleepy Hollow and Fairfax through education, prevention and community service while working together in a professional and caring manner that is fair, honest respectful and ethical. Our Fire Department continues a tradition of fire protection in the Ross Valley dating back more than 100 years.

Ross Valley Fire Department provides fire and EMS response through a Joint Powers Authority with the Towns of San Anselmo, Fairfax, Ross, and the Sleepy Hollow Fire Protection District.



Photo Courtesy of Todd Barbee

The communities of Fairfax, San Anselmo, Ross, and Sleepy Hollow exist in a wildland-urban interface (WUI) zone, defined as the “area where structures and other human development meet or intermingle with undeveloped wildland.” The WUI zone creates an environment in which fire can move readily between manmade and natural vegetation fuels. Development in the WUI has increased the likelihood that wildfires will threaten structures and people.

A long history of fast moving wildfires exists in our valley, including many that have damaged or destroyed homes and killed firefighters.

Ross Valley Fire Department and FIRESafe MARIN ask that all Marin residents follow the simple guidelines in this book, and online at [www.firesafemarin.org](http://www.firesafemarin.org), to create “Defensible Space” and “Harden Your Home” to give firefighters a fighting chance. A small investment in property maintenance can mean the difference between survival and destruction.

California law (PRC 4290 & 24291) and local ordinances require Defensible Space for all homes in the wildland-urban interface. Our goal is to ensure that all properties comply with the law, which will help our community by creating a fire resistant environment and reducing the risk of conflagration.



# WILDFIRES TODAY

According to the National Interagency Fire Center (NIFC), 2013 saw more than 47,000 wildfires burn over 4.3 million acres.

In 2012, more than 2,200 homes and structures were lost due to wildfire.

\$1.5 billion in damage, the highest dollar loss ever recorded in a wildfire. 25 people died.

From 2004 - 2012, more than 13,000 homes were lost to wildfires in the US. California leads the nation in both homes lost and dollars lost to wildfire.

According to the U.S. Fire Administration, in 2012, 67,774 wildfires burned 9,326,238 acres (an area bigger than New Jersey, Connecticut and Delaware combined). This makes 2012 the third highest year for acres burned since national wildfire statistics have been kept. 2006 with 9.9 million, and 2007 with 9.3 million acres, hold the number one and two spots.

The 1991 "Tunnel Fire" in the Oakland and Berkeley hills rained ash and smoke on Marin County as it burned 3,354 homes and caused

# 75%

The number of wildfires threatening homes has increased 75% in the past ten years, and is expected to continue to increase with climate change and a growing population.

Total Number of Wildfires and Acres Burned (1983-2012)



# 45M

More than 45 million homes are built in wildland/urban interface areas in the United States.

# 72k

72,000 communities in the United States have been identified at risk of wildfire.

# 2k

On average, 2,000 homes are lost to wildfire each year in the United States.



# DEFENSIBLE SPACE

Wildland/Urban Interface

## A FIGHTING CHANCE

Creating and maintaining defensible space is essential for increasing your home's chance of surviving a wildfire. It's the buffer that homeowners are required to create on their property between a structure and combustible vegetation. Defensible space helps slow an approaching fire, and allows firefighters to operate more safely.

It's the Law!

## 100 FEET

California Government Code 51182, and Public Resources Code sections 4290 and 4291 require that any person that owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any land covered with flammable vegetation shall at all times maintain 100 feet of defensible space.



Home Ignition

## ZONE CONCEPT

Two important zones make up the required 100 feet of defensible space.

### ZONE 1

Zone 1 extends 30 feet out from buildings, decks, and other structures:

1. Remove all dead plants, grass and weeds.
2. Remove dead or dry leaves and pine needles from your yard, roof and rain gutters.
3. Trim trees regularly to keep branches a minimum of 10 feet from other trees.
4. Remove dead branches that hang over your roof. And keep branches 10 feet away from your chimney.
5. Relocate exposed woodpiles outside of Zone 1 unless they are completely covered.
6. Remove or prune all combustible plants and shrubs near windows.
7. Remove vegetation and items that could catch fire around and under decks and awnings.
8. Create separation between trees, shrubs patio furniture, swing sets, etc.
9. Irrigate plants closest to the home, and choose only fire resistant species.
10. Maintain regularly during fire season, focusing on the areas closest to the structure.

### ZONE 2

Zone 2 extends 30 to 100 feet from buildings and other structures:

1. Cut or mow annual grass down to a maximum height of 4 inches at all times during fire season.
2. Create horizontal spacing between shrubs and trees.
3. Create vertical spacing between grass, shrubs and trees.
4. Remove all fallen leaves, needles, twigs, bark, cones, and small branches. Up to 4 inches of leaf litter may be permitted where erosion control is an issue.

### ALL ZONES

Both Zones, 0 to 100 feet from buildings and other structures:

1. Mow before 10 a.m., but never when it's windy or excessively dry.
2. Maintain driveways and roadways for fire engine access and clearance.
3. Ensure your address number is clearly visible day and night.
4. Protect water quality. Do not clear vegetation near waterways to bare soil. Vegetation removal can cause soil erosion, especially on steep slopes.

Defensible space gives firefighters a fighting chance.





# DEFENSIBLE SPACE



## ZONE 2 30' - 100'

Extends to at least 100' from structures and buildings.

1. Cut or mow annual grass down to a maximum height of 4 inches.
2. Create horizontal spacing between shrubs and trees.

## THE HOME

Includes the structure and attachments such as fences, decks, and awnings.

1. Use fire resistant materials such as tile roofs and stucco siding.
2. Keep the roof, gutters, and deck surfaces clean of leaves, needles, and combustible materials at all times during fire season.

## DRIVEWAYS

Ensure adequate clearance for fire apparatus by clearing vegetation overhead to 13' 6", and clearing vegetation 5-10 feet from sides of driveways and roadways.

A turnaround for fire apparatus may be required, and allows fire engines to quickly assess and access your home during a wild-fire.

Address numbers must be visible to firefighters, day and night. The law requires 4" minimum numbers on a contrasting background. Use reflective numbers if possible.

## ZONE 1 0' - 30'

Extends 30' from structures and buildings. Keep it "Lean, clean, and green!"

1. Remove all dead plants, grass and weeds.
2. Remove dead or dry leaves and pine needles from your yard, roof and rain gutters.
3. Trim trees regularly to keep branches a minimum of 10 feet from other trees.
4. Remove dead branches that hang over your roof. And keep branches 10 feet away from your chimney.
5. Relocate exposed woodpiles outside of Zone 1 unless they are completely covered
6. Remove or prune combustible plants and shrubs near windows.
7. Remove vegetation and items that could catch fire around and under decks and awnings.
8. Create a separation between trees, shrubs patio furniture, swing sets, etc.

## POWER EQUIPMENT

Hundreds of fires are started each year by power tools. If you live in a wildland area, use extreme caution during fire season. Lawn mowers, string trimmers, chain saws, grinders, welders, and tractors can all start fires if not used properly.

Mowing: Striking rocks can create sparks and start fires in dry grass. Use caution, mow only early in the day (before 10AM, when the weather is calm, cool, and moist).

Spark Arresters: In wildland areas, spark arresters are required on all portable, gasoline-powered equipment. This includes tractors, harvesters, chainsaws, weed-trimmers and mowers.

Keep the exhaust system, spark arresters and mower in proper working order and free of carbon buildup. Use the recommended grade of fuel, and don't top it off.



# TREES AND SHRUBS

## Add Space Between Shrubs and Bushes

Choosing the right plants and spacing them properly can slow the spread of fire when it approaches, reducing the chances that your home will burn. Certain fire prone shrubs and trees, like juniper and cypress, are so flammable that they should be replaced with fire resistant plants (see facing page).



## Limb and Maintain Trees



Remove lower limbs of conifers (pine, fir, cedar, etc) so that no leaves or needles are within 10' of the ground, or 1/3 the height of the tree if it's less than 30 feet tall. Space trees so that the canopies do not touch, with added space between fire prone species like conifers. Remove limbs within 10' of structures.

Trees like oaks, bays, and ornamentals with broad leaves should be limbed so that no branches are within 6' of the ground, or 1/3 of the height of the tree if it's less than 18' tall. A licensed arborist can help select the safest species and maintain your trees in good health for optimum fire resistance.

## Choose Fire Resistant Plants

Select from this list of fire resistant plants, or consult a professional for additional species. Remember: even fire resistant plants can be hazardous when not maintained.

### Shade Tolerant

- |                                |                        |
|--------------------------------|------------------------|
| <i>Agapanthus</i>              | Dwarf lily-of-the-Nile |
| <i>Liriope</i>                 | Lily turf              |
| <i>Vinca minor</i>             | Dwarf periwinkle       |
| <i>Galium odoratum</i>         | Sweet woodruff         |
| <i>Lavandula angustifolia</i>  | English lavender       |
| <i>Rosmarinus officinalis*</i> | Tuscan blue' rosemary  |
| <i>Salvia chamaedryoides</i>   | Sage                   |
| <i>Teucrium chamaedrys</i>     | Germander              |
| <i>Thymus serpyllum</i>        | Thyme                  |
| <i>Thymus vulgaris</i>         | Thyme, Silver thyme    |

- |                               |                  |
|-------------------------------|------------------|
| <i>Lavandula angustifolia</i> | English lavender |
| <i>Rhamnus californica</i>    | Coffeeberry      |
| <i>Santolina virens</i>       | Santolina        |

### Hedges and Screens

- |                                 |                              |
|---------------------------------|------------------------------|
| <i>Acer ginnala</i>             | Amur Maple                   |
| <i>Azadirachta indica</i>       | Fern Pine                    |
| <i>Arbutus unedo</i>            | Strawberry Tree              |
| <i>Camellia japonica</i>        | Camelia                      |
| <i>Carissa grandiflora</i>      | Natal Plum                   |
| <i>Ceritonia siliqua</i>        | Carob                        |
| <i>Citrus species</i>           | Lemons, Limes, Oranges, etc. |
| <i>Cocculus laurifolius</i>     | Cocculus                     |
| <i>Cornus mas</i>               | Cornelian Red, Sorbet        |
| <i>Cornus stolonifera</i>       | Red-Osier Dogwood            |
| <i>Crataegus phaenopyrum</i>    | Washington Thorn             |
| <i>Elaeagnus angustifolia</i>   | Russian Olive                |
| <i>Elaeagnus pungens</i>        | Silverberry                  |
| <i>Eriobotrya japonica</i>      | Loquat                       |
| <i>Escallonia rubra</i>         | Escallonia                   |
| <i>Eugenia species</i>          | Eugenia                      |
| <i>Euonymus species</i>         | Euonymus                     |
| <i>Feijoa sellowiana</i>        | Pineapple Guava              |
| <i>Hibiscus rosa-sinensis</i>   | Tropical Hibiscus            |
| <i>Hibiscus Syriacus</i>        | Rose of Sharon               |
| <i>Ligustrum lucidum</i>        | Glossy Privet                |
| <i>Ligustrum species</i>        | Privet                       |
| <i>Magnolia species</i>         | Little Gem Magnolia          |
| <i>Malus species</i>            | Apple                        |
| <i>Myoporum laetum</i>          | Myoporum                     |
| <i>Myrica californica</i>       | Pacific Wax Myrtle           |
| <i>Nerium oleander</i>          | Oleander                     |
| <i>Olea europaea</i>            | Swan Hill Olive              |
| <i>Osmanthus fragrans</i>       | Sweet Olive                  |
| <i>Photinia fraseri</i>         | Photinia                     |
| <i>Pittosporum crassifolium</i> | Karo                         |
| <i>Pittosporum tobira</i>       | Mock Orange Pittosporum      |
| <i>Pittosporum undulatum</i>    | Victorian Box                |
| <i>Plumbago auriculata</i>      | Cape Plumbago                |
| <i>Podocarpus macrophyllus</i>  | "Yew" Tree                   |
| <i>Prunus caroliniana</i>       | Cherry Larel                 |
| <i>Prunus ilicifolia</i>        | Hollyleaf Cherry             |
| <i>Prunus laurocerasus</i>      | English Laurel               |
| <i>Pyrus kawakamii</i>          | Evergreen Pear               |
| <i>Rhamnus species</i>          | Buckthorn                    |
| <i>Rhododendron species</i>     | Azalea, Rhododendrons        |
| <i>Vaccinium species</i>        | Blueberry*                   |
| <i>Viburnum tinus</i>           | Viburnum*                    |
| <i>Xylosma congestum</i>        | Xylosma                      |

### Drought Tolerant

- |                                 |                    |
|---------------------------------|--------------------|
| <i>Achillea millefolium</i>     | Common yarrow      |
| <i>Ceanothus 'concha'</i>       | Wild lilac         |
| <i>Ceanothus maritimus</i>      | Maritime ceanothus |
| <i>Cistus purpureus</i>         | Orchid rockrose    |
| <i>Dietes fortnight</i>         | Llily              |
| <i>Lavandula dentata</i>        | French lavender    |
| <i>Limonium perezii statice</i> | Sea lavender       |
| <i>Ribes viburnifolium</i>      | Catalina perfume   |
| <i>Solanum jasminoides</i>      | Potato vine        |
| <i>Tecomaria capensis</i>       | Cape honeysuckle   |

### California Natives

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| <i>Carpenteria californica</i>  | Bush anemone                        |
| <i>Eschscholzia californica</i> | California poppy                    |
| <i>Fremontodendron cal.</i>     | Common flannel bush                 |
| <i>Mahonia repens</i>           | Creeping mahonia                    |
| <i>Mimulus longiflorus</i>      | Monkey flower                       |
| <i>Polystichum munitum</i>      | Sword fern                          |
| <i>Ribes sanguineum currant</i> | Pink winter & red flowering currant |
| <i>Salvia clevelandii</i>       | Sage                                |
| <i>Salvia sonomensis</i>        | Sage                                |
| <i>Zauschneria californica</i>  | California fuschia                  |

### Perennials

- |                              |                   |
|------------------------------|-------------------|
| <i>Ajuga reptans</i>         | Carpet bugle      |
| <i>Chrysanthemum maximum</i> | Shasta daisy      |
| <i>Echinacea purpurea</i>    | Purple coneflower |
| <i>Prunus florabunda</i>     | Flowering cherry  |
| <i>Rhododendron</i>          | Azalea            |
| <i>Rosa florabunda</i>       | Rose              |
| <i>Rudbeckia fulgida</i>     | Black-eyed susan  |
| <i>Teucrium cossoni</i>      | Germander         |

### Shrubs and Groundcovers

- |                               |                           |
|-------------------------------|---------------------------|
| <i>Erigeron karvinskianus</i> | Santa Barbara daisy       |
| <i>Festuca glauca</i>         | Fescue                    |
| <i>Iris douglasiana</i>       | Douglas iris              |
| <i>Kniphofia uvaria 'DWF'</i> | Red-hot poker, torch-lily |
| <i>Lantana camara</i>         | Lantana                   |

\*(these species are only firesafe when irrigated and maintained free of dead material). Learn more online at [www.firesafemarin.org](http://www.firesafemarin.org).





# THE FIRE SAFE HOME

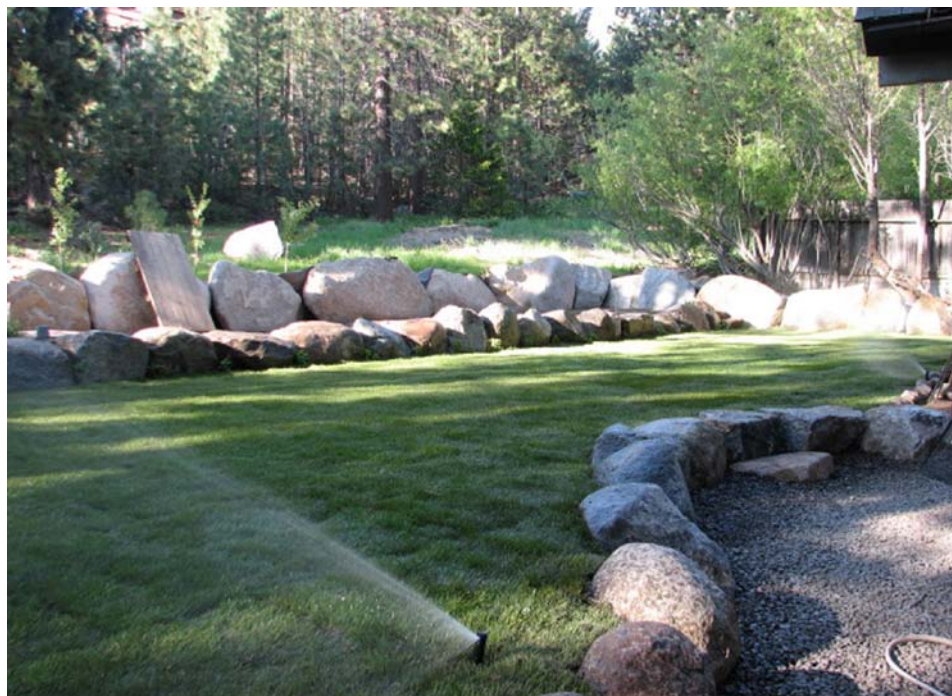
## Landscape Design

# FIRESCAPING

Firescaping is landscape design that reduces a property's vulnerability to wildfire. The goal is to develop a landscape design and choice of plants that offers the best possible fire protection. Select plants that are less likely to burn and use "hardscape" features such as paths and retaining walls that will not burn, while blocking radiant heat and catching wind blown embers.

Appropriate manipulation of the landscape can make a significant contribution towards wildfire survival. Firescaping integrates traditional landscape functions and needs into a design that reduces the threat from wildfire.

In addition to meeting a homeowner's aesthetic desires and functional needs, firescaping includes vegetation modification techniques, planting for fire safety, defensible space principles, thoughtful use of hardscape features, and the use of fire safety "zones."



Three factors determine wildfire intensity: topography, weather, and vegetation fuels. Property owners can only control the "fuel" component, through proper selection, placement, and maintenance of vegetation. Careful planning and firescape design will diminish the possibility of ignition, lower fire intensity, and reduce the speed at which fire spreads – all factors which will increase a home's survivability during a wildfire.

In firescaping, plant selection is primarily determined by a plant's ability to reduce the wildfire threat. Other considerations may be important such as appearance, ability to hold the soil in place, and wildlife habitat value.

**"When designing a firesafe landscape, remember that less is better."**

Minimize use of evergreen shrubs and trees within 30 feet of a structure. Junipers and other conifers and broadleaf evergreens contain oils, resins, and waxes that make these plants burn with great intensity.



Choose "fire smart" plants - typically plants with a high moisture content, larger leaves, low growing, with stems and leaves that are not resinous, oily or waxy. Deciduous trees are generally more fire resistant than evergreens because they have a higher moisture content when in leaf, and a lower fuel volume when dormant.

Placement and maintenance of trees and shrubs is as important as actual plant selection. When planning tree placement consider their size at maturity. Keep tree limbs at least 10 feet from chimneys, power lines and structures, and separate canopies so no trees touch. Do not plant shrubs beneath trees.

Firescape design uses driveways, lawns, walkways, patios, parking areas, areas with inorganic mulches, and fences constructed of nonflammable materials such as rock, brick, or concrete to reduce fuel loads

and create fuel breaks. Fuel breaks are a vital component in firescape design. While bare soil can not burn, it is not promoted as a firescape element due to aesthetic and soil erosion concerns.



When designing a firesafe landscape, remember that less is better. Simplify visual lines and groupings.

A firesafe landscape lets plants and garden elements reveal their innate beauty by leaving space between plants and groups of plants. In firescaping, open spaces are as important as the plants.



# FIRESCAPING

# 1



## PLANT SELECTION

In firescaping, plant selection is primarily determined by a plant's ability to reduce the wildfire threat. Other considerations may be important, such as appearance, ability to hold the soil in place, and wildlife habitat value.

# 2

## PLANNING & DESIGN

When designing a landscape for fire safety remember: less is better. Simplify visual lines and groupings. A fire safe landscape lets plants and garden elements reveal their innate beauty by leaving space between plants and groups of plants. In firescaping, the open spaces are more important than the plants.

# 3



## HARDSCAPING

Fire safe landscapes should also include "hardscape" materials, like granite paths or stone walls. These can act as a fuel break and help to slow down or change the path of an approaching fire. Hardscaping reduces water usage, provides visual and aesthetic details, and requires little maintenance. Carefully placed hardscape features like stone walls and basins can act as "ember catchers," reducing the likelihood that wind blown embers will reach more vulnerable parts of your home.



## Architecture

## DESIGN &amp; MATERIALS

A fire resistant home requires recognition of the structure's unique site characteristics, the use of fire-resistant building materials and architectural features, good landscaping practices, and proper upkeep and maintenance during the fire season.

**W**hen planning improvements to reduce wildfire vulnerability, consider your home's immediate surroundings. A structure's vulnerability is determined by the exposure of its external materials and design to flames and embers during wildfires.

The higher the expected fire intensity near your home, the

greater the need for fire resistant construction materials and building design. Since embers may travel great distances, ember resistance must be considered even when direct flame contact is unlikely.

In California, the WUI Building Standard, Chapter 7A of the California Building Code, affects how new homes are built

in wildfire-prone areas. The ideal time to address home ignition risk is when the structure is in the design phase. However, you can still take steps to reduce ignitability to an existing home.

Existing homeowners should utilize the code to help decide what fire resistant features and materials are required when remodeling. Check with your local fire and building departments to find out about additional local requirements.

Simple design and material decisions can make a big difference when a wildfire approaches. Choosing composition tile for a roof (versus wood shingles); siding materials like stucco and tile; double paned windows; and the use of 1/8" wire mesh screens over attic, basement, and soffit vents can potentially save your home, family, and belongings.



## Fire Resistant Structures

## BUILDING FEATURES

ROOFING (see page 20)

The roof is the most vulnerable part of your home. Homes with wood or shingle roofs are at high risk of being destroyed during a wildfire.



Build your roof or re-roof with materials such as composition, metal, or tile. Block any spaces between roof decking and covering to prevent embers from catching. Roofing material with a Class A rating is fire resistant and will help keep the flame from spreading.

Examples include:

- Composition shingle
- Metal
- Clay or Cement tile

GUTTERS (see page 20)

Screen or enclose rain gutters to prevent the accumulation of plant debris. Choose metal gutters instead of vinyl. Clean frequently during fire season.

## SIDING

Wood products, such as boards, panels or shingles, are combustible, making poor choices for fire-prone areas.

Consider replacing wood siding with ignition resistant building materials.

Examples include:

- Cement
- Plaster
- Stucco
- Masonry (concrete, stone, brick or block)

\* While vinyl siding is relatively difficult to ignite, it can fall away or melt when exposed to radiant heat from wildfires.

## WINDOWS

Use Double-Paned or Tempered Glass. Double-pane glass can help reduce the risk of fracture or collapse during an extreme wildfire. Tempered glass is the most effective.

Consider limiting the size and number of windows that face large areas of vegetation.

## SKYLIGHTS

For skylights, glass is a better choice than plastic or fiberglass.

## SOFFITS &amp; EAVES

Enclose Eaves, Fascias, Soffits and Vents. 'Box' eaves, fascias, soffits and vents, or enclose them with metal screens.

Eaves and soffits should be protected with ignition-resistant or non-combustible materials. Soffit vent openings should be covered with 1/8" metal screen.

## VENTS

Vents on homes create openings for flying embers. Cover all vent openings with 1/8-inch metal mesh. Do not use fiberglass or plastic mesh because they can melt and burn.

Protect vents in eaves or cornices with baffles to block embers. (Mesh is not enough.)

## CHIMNEYS

Cover your chimney and stovepipe outlets with a non-combustible screen. Use metal screen material with openings between 3/8" and 1/2" to prevent embers from escaping and igniting a fire. Ensure that no tree limbs are closer than 10' to the roof or chimney.



## Fire Resistant Structures

# EXTERIOR FEATURES

### ATTACHMENTS

Anything attached to the house, such as room additions, bay windows, decks, porches, and carports, should be considered part of the house. These can act as fuel bridges and ember catchers, and are particularly dangerous if constructed from combustible materials.

Protect all overhangs and “attachments” by removing vegetation and other fuels within 5 feet. Follow the steps shown in “defensible space” withing 30’ of these features.



Never store combustible items such as lumber or firewood beneath your deck.

### DECKS, BALCONIES

Enclose the undersides of decks, overhangs, and balconies with noncombustible or fire resistant materials. Use 1/8” wire screen to keep embers out.

Decks and elevated porches should be kept free of combustible materials and debris.

Deck surfaces within 10 feet of the building should be built with ignition-resistant, non-combustible, or other approved materials.

Elevated wooden decks should not be located at the top of a hill. Consider a terrace with a concrete, stone or brick surface.

### FENCES

Wood fences should not be attached directly to the house, as they catch wind blown embers and readily ignite. Positioned properly, fences can catch embers before they reach the house. Consider using ignition resistant or non-combustible fence materials. If a wood fence must be attached to the house, separate the fence from the house with a masonry or metal barrier.

### GARAGE

Install weather stripping around and under the garage door to prevent embers from blowing in. Keep combustibles elevated off of the floor on shelving in case an ember gets in.

### PATIOS

Use ignition resistant materials such as tile, stone, or concrete.

### DRIVEWAYS

Driveways should be built and maintained in accordance with state and local codes to allow fire and emergency vehicles to reach your home. Maintain access roads with a minimum of 10 feet of clearance on either side, allowing for two way traffic. Fire Engine turnarounds may be required on new driveways.

Ensure that gates open inward and are wide enough for emergency vehicles.

Trim trees overhanging roads and driveways to 14’ to allow emergency vehicle clearance.

### ADDRESS NUMBER

Make sure your address is clearly visible from the road. 4” numbers on a contrasting background are required.

### WATER SUPPLY

Keep multiple garden hoses attached that are long enough to reach all areas of your home and other structures on your property. If you have a pool or well, install a fire pump.

## Architecture

# ROOF AND GUTTERS



The roof is one of the most vulnerable areas of a home, with a large surface likely to catch embers during a wildfire.

Roofs tend to collect dead vegetation such as pine needles and leaf litter, which will readily ignite from even tiny embers. Even a small handful of leaf litter is too much. Regular cleaning and maintenance of a roof is as important as the materials used to construct it.



The roof is most likely to ignite along the surface and the edge where gutters are connected, usually from embers landing and igniting debris.

**“Regular cleaning and maintenance of a roof is just as important as the materials used to construct it.”**

Homeowners can reduce this threat by keeping leaves, needles, and debris cleared rom the roof and using ignition-resistant roofing materials.

Roofing materials are “rated” for fire resistance. Class A is

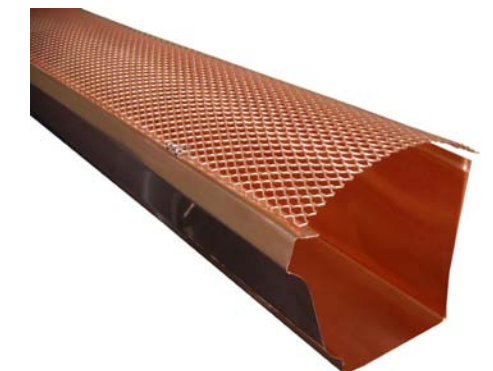
the highest rating, offering the highest resistance to fire, and is required for new roofs.

Recommended roof materials:

- Metal
- Tile (with bird stops)
- Asphalt shingles

### RAIN GUTTERS

During a wildfire, material in gutters is likely to ignite, allowing to fire to spread to the eave. Metal angle flashing should be placed between gutters and fascia to provide som eprotection. Vinyl gutters can melt and detach, leaving this area exposed.



Recommended gutter materials:

- Metal (aluminum, copper)
- Metal gutter guards
- Metal flashing

Install gutter guards to keep debris from accumulating. Maintain the roof where the gutter connects to make sure debris does not accumulate between the guard and roof.



# EMBERS



Embers are the most significant cause of home ignition in wildfires. Research indicates that most homes are ignited by wind-dispersed embers, and not from the actual flames of the fire.

Embers are the most significant cause of home ignition in wildfires. Recent research indicates that two out of every three homes destroyed during the 2007 Witch Creek fire in San Diego County were ignited either directly or indirectly by wind-dispersed, wildfire-generated, burning or glowing embers (Maranghides and Mell, 2009) and not from the actual flames of the fire.

Embers are capable of igniting and burning your home in several ways. In order to have a wildfire-safe home, two equally important factors must be implemented: 1) select building materials and designs that help the home resist the wildfire and the intrusion of embers; and 2) create adequate defensible space and firescaping based on the

“Flying embers can be carried up to a mile from a fire, sometimes destroying homes in areas assumed to be safe.”

wise selection, placement, and maintenance of vegetation and hardscape features. Protection from embers should be every homeowner’s top priority when creating a fire safe home.



## The Ember Problem

Wildfires can shower entire neighborhoods with millions of tiny, burning embers or firebrands, often well in advance of the main fire, and before firefighters have time to respond. Embers can travel up to a mile ahead of a fire, carried by wind and convection.

## Vent Screens

Research conducted by the Insurance Institute for Business and Home Safety shows that simple, inexpensive measures such as placing 1/8” wire mesh screens over attic and basement vents can prevent ember intrusion, potentially saving your home.

## Roofing Materials

A fire resistant roof is among the most important features a homeowner can install to protect from embers. Class “A” fire resistant roof structures, such as metal, tile, and asphalt shingles are less likely to ignite from an ember than wood shakes and shingles.

## Rain Gutters

Even homes with a fire resistant roof can burn if rain gutters are not kept clean. Just one handful of leaves or needles is enough to ignite from an ember and spread fire to the home. Metal rain gutters are safer than vinyl in fire prone areas. Clean regularly!



# HOMEOWNER RESOURCES



**ROSS VALLEY  
FIRE DEPARTMENT**

[www.rossvalleyfire.org](http://www.rossvalleyfire.org)

## OUR MISSION

To protect the lives, property and environment of Ross, San Anselmo, Sleepy Hollow and Fairfax through education, prevention and community service in a professional and caring manner that is fair, honest, respectful and ethical.

Ross Valley Fire Department is a consolidated fire department with the mission of protecting lives, property and the environments of Ross, San Anselmo, Sleepy Hollow and Fairfax through education, prevention and community service while working together in a professional and caring manner that is fair, honest respectful and ethical. Our Fire Department continues a tradition of fire protection in the Ross Valley dating back more than 100 years. prevention, education, and emergency response.

Ross Valley Fire Department provides fire and EMS response through a Joint Powers Authority with the Towns of San Anselmo, Fairfax, Ross, and the Sleepy Hollow Fire Protection District.

# FIRE CODES

Towns and fire agencies adopt fire codes to establish minimum standards that increase the ability of a building to withstand the effect of a wildfire. Compliance with codes is required by law, and contributes to a systematic reduction in conflagration losses and increased public safety.

## WILDFIRE CODE EXAMPLES

These are examples of codes specifically related to reducing the risk of damage from wildfires. Communities may adopt different, sometimes stricter codes, so it is important to check with Ross Valley Fire Department and your community's planning and building department before starting a remodel or new construction project.

*Any person that owns, leases, controls, operates, or maintains an occupied dwelling (in or near the wildland) shall maintain defensible space of 100 feet from each side and from the front and rear of the structure, but not beyond the property line (Government Code 51182 & PRC 4291)*

*Ignition-resistant building materials and standards give structures an increased ability to resist intrusion of flame or burning embers projected by a vegetation fire. Certain jurisdictions may have requirements regarding installation of roofs, eave and roof vents, exterior wall materials, exterior windows and doors as well as decks. (CRC R327)*

*All new construction must utilize Class A Fire Resistive roofing.*

*Spark arrestors are required on all chimneys and outdoor fireplaces. Spark arrestor shall be constructed with heavy wire mesh*

*with openings not to exceed 1/2 inch to prohibit the release of fire brands and embers. (CCR Title 19, 3.07)*

*Access and Roads, including private driveways, must be maintained for fire apparatus clearance, with a road width of at least 20 feet and vertical clearance of 13 feet 6 inches. (CFC 503.2.1). Fire apparatus access shall not be obstructed in any manner including vehicle parking or vegetation intrusion. (CFC 503.4)*

*Address numbers must be plainly legible and visible from the street. Numbers must be at least 4 inches high on contrasting background. Streets and roads must be identified with approved signs. (CFC 505.1 & 505.2)*

*Security Gates: The installation of a security gate shall be approved by the fire department. Gates shall have an approved means of emergency operation. (CFC 503.6)*

*Bridges must be constructed and maintained to carry the load of fire apparatus. Load limits shall be posted at both entrances to the bridge. (CFC 503.2.6)*

*Water Supply and Storage: Minimum water supply for new dwellings (less than 3,600 square feet) shall be capable of supplying a flow of 1000 gallons of water per minute for duration of 2 hours. (CFC Appendix B-105.1) In areas without a water service provider, contact the local fire agency for specific storage and hydrant requirements.*

*Fire Hydrants: A fire hydrant shall be accessible at all times and shall have a perimeter clearance of 3 feet. (CFC 507.5.5)*



[www.firesafemarin.org](http://www.firesafemarin.org)

FIRESafe MARIN members include:

- Homeowners, neighborhood groups
- Community service organizations
- Emergency management agencies
- Fire departments
- Insurance companies
- Public land managers
- Utility companies.

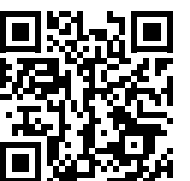
FIRESafe MARIN promotes effective fire safety by:

- Informing groups interested in fuels management
- Sponsoring educational programs for professionals
- Coordinating vegetation reduction projects
- Developing technical tips for managing vegetation
- Providing a list of fire-resistant plants
- Senior Citizen Assistance Projects

FIRESafe MARIN is a non-profit organization dedicated to reducing Wildland Fire hazards and improving Fire-safety awareness in Marin. We foster community involvement by building partnerships and providing resources for mitigating fire danger.

In the aftermath of the Oakland Hills fire in 1991, several public agencies and private interests wanted to reduce the likelihood that a similar tragedy would be repeated in Marin County. FIRESafe MARIN was formed to promote fire safety and stimulate communities to collaborate when solving problems related to wildland fire protection.

Visit Ross Valley Fire Department's fire prevention page for detailed information.





## PG&E SAFETY TIPS

### Plant the “Right Tree in the Right Place”

#### Tree Planting Safety

Your safety is PG&E's top priority. Planting trees under power lines can pose electrical shock hazards and fire safety risks. To stay safe, keep the lights on and get the long-term benefit, beauty and satisfaction from the trees you plant, refer to the planting zone guidelines below.

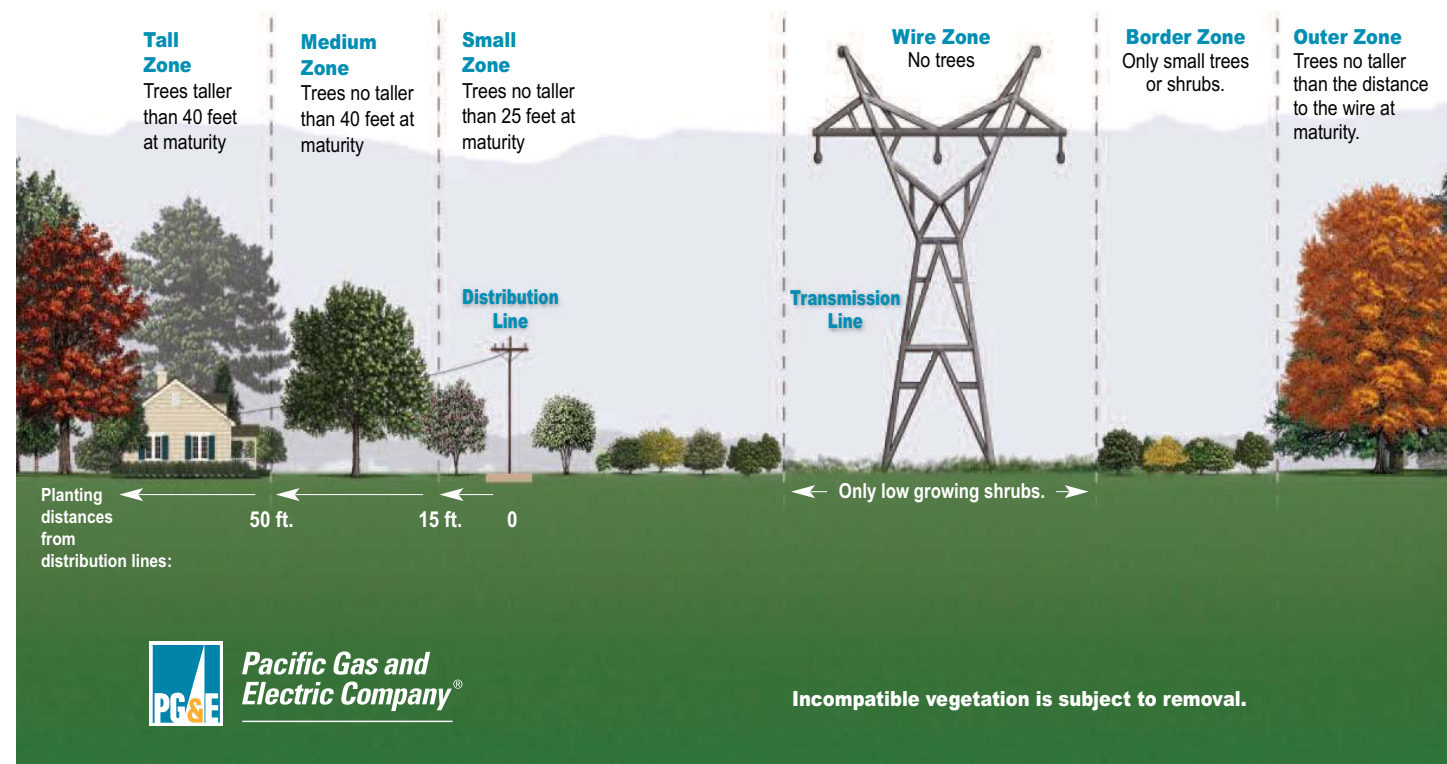
When landscaping be sure to consider overhead power lines and underground utilities in addition to fire hazard, sun exposure and soil conditions when selecting shrubs and trees.

The best way to protect yourself and your home is by planting the “right tree in the right place.” Though some large trees grow under power lines naturally, many are planted without the realization of how large they would eventually become. So, select a tree with the proper height at maturity for its location.

Plant for personal and fire safety. Use the "Small, Medium and Tall Zone" guidelines near distribution lines and the "Wire Zone, Border Zone, Outer Zone" guidelines near transmission lines. If you're not sure whether a line is distribution or transmission call us at 1-800-743-5000.

#### For more information about trees and power lines:

- Visit [www.pge.com/trees](http://www.pge.com/trees)
- Request a "Guide to Planting Small Trees Near Distribution Lines" by calling 1-800-743-5000 or email: [RightTreeRightPlace@pge.com](mailto:RightTreeRightPlace@pge.com). Specify: Northern California, Central California or the Bay Area/Inland area.



## Wildfire Preparedness CHECKLIST

The work you do today will make a difference. Follow these simple action steps now, and repeat annually to prepare and help reduce the risk of your home and property becoming fuel for wildfire:

- Clean leaves and other debris from gutters, eaves, porches and decks to help prevent embers from igniting your home. Repeat often during fire season.
- Remove all dead leaves and vegetation from decks and within 10 feet of the house. Repeat often during fire season.
- Remove any combustibles stored underneath decks or porches.
- Screen or box in areas below patios and decks with 1/4 inch wire mesh to prevent debris and combustible materials from accumulating.
- Remove all combustible materials such as firewood, propane tanks, and dry vegetation within 30 feet of your home's foundation and out-buildings, including garages and sheds. If it can catch fire, don't let it touch your house, deck, or porch.
- Wildfire can spread to treetops via "ladder fuels." Prune trees annually so the lowest branches are 6 to 10 feet from the ground. Remove shrubs beneath trees.
- Keep your lawn cut and maintained. If it's brown, cut it to less than 4 inches. Cut grass early in the day, when fire danger is lower. Repeat as needed.
- Rake and remove debris and lawn cuttings. Dispose of cut material in green cans to reduce fuel on your property.
- Inspect shingles, roof tiles, and flashing. Replace or repair as needed to prevent ember penetration. Consider installing a fire resistant roof if you don't have one already.
- Cover exterior vents with 1/8 inch metal wire mesh to prevent embers from entering the home.
- Ensure that your address number is visible. 4" numbers on a contrasting background are required.
- Learn more about how to keep your family safe and reduce your home's risk of wildfire damage online at [www.firesafemarin.org](http://www.firesafemarin.org).





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2014 Edition

LIVING WITH FIRE IN THE ROSS VALLEY

[www.rossvalleyfire.org](http://www.rossvalleyfire.org)

[www.firesafemarin.org](http://www.firesafemarin.org)

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