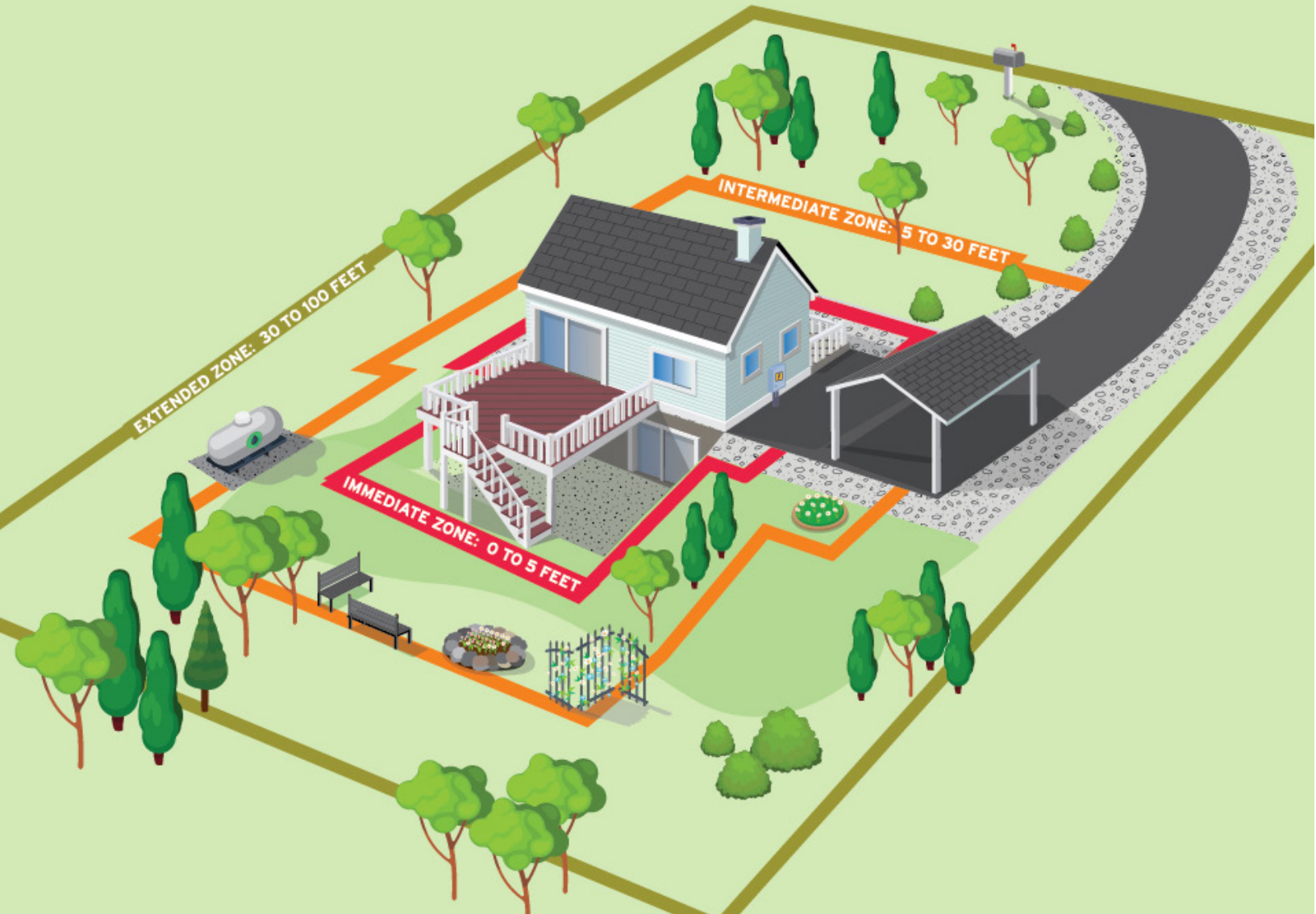


# REDUCING WILDFIRE RISKS IN THE HOME IGNITION ZONE



Projects and tasks that can increase a home's potential survivability in a wildfire.

# THE FACTS

Experiments, models, and post-fire studies have shown homes ignite due to the condition of the home, and everything around it, up to 200' from the foundation.

## HOMES AND THEIR SURROUNDING AREA ARE VULNERABLE TO THREE POTENTIAL TYPES OF IGNITION SOURCES:

**EMBER ATTACKS (A/K/A FIREBRANDS):** Burning pieces of airborne wood and/or vegetation that can be carried more than a mile through the wind can cause spot fires and ignite homes, debris and other objects. They can also penetrate and smolder in woodpiles, patio/deck items, vents and openings, roofs and debris filled gutters. Most home losses in a wildfire are from embers, not by direct contact with flames.

**SURFACE FIRES:** Typically small flames burning through grass and ground litter. They can reach houses or attachments if there's no interruption in the types of fuel sources. Flames touching a house, fence or deck can cause them to ignite.

**CROWN FIRE:** Large flames burning in the tops or canopies of trees. These large flames radiate heat that can ignite wood walls from up to 100' away. Other types of large flames can come from detached buildings, burning wood piles and ignited vehicles.

## WHEN YOUR HOME IGNITION ZONE EXTENDS INTO NEIGHBORING PROPERTIES

You may find your home ignition zone overlaps into adjacent properties. To maximize the benefits of your work, it's extremely important to work collaboratively with neighbors to reduce your shared risk.

## ON PARCELS OF LAND LARGER THAN THE 100' EXTENDED ZONE

Property owners with more than 100 feet of land that extends beyond the home should also consider additional actions up to 200 feet into the Extended Zone to provide additional benefits in protecting the home and outbuildings.

### WHAT YOU NEED TO KNOW

Decades of research have shown that both the house and the landscape adjacent to it play a critical role in the structure surviving a wildfire. A wildfire can transfer from ignited vegetation or an ignited home(s) through:

- Radiation
- Convection
- Embers/Firebrands

A home's building materials, design and landscape have a

significant role in the level of exposure that can be endured before ignition occurs from any of these sources.

### WHERE TO START?

When planning your wildfire risk reduction projects, start with the house itself as the point where your efforts begin, then move into the landscaping section of the Immediate Zone; once both have been completed, move

into the Intermediate and Extended Zones.

In many areas, residents can request a fire-risk overview visit from their local forestry or fire agency to learn more about the science-based guidelines that help residents prepare their home and property for wildfires - this opportunity will provide additional information as it pertains to your individual property and topography.

# THE HOUSE AND IMMEDIATE ZONE CHECKLIST

The Immediate Zone includes both the home and the area of 0 to 5 feet out from the furthest attached exterior point of the home.

## THE HOME AND ITS BUILDING MATERIALS

Ignition resistant building materials, construction techniques, along with vegetation and debris removal, play a vital role during wildfires.

### FIRST PRIORITY

- **CARPORTS:** Remove flammable items stored in carports.
- **DECKS AND ELEVATED PORCHES:** Place 1/8" metal mesh screening between low-profile decks from surface to ground, to block embers from collecting underneath. Never store flammable materials underneath elevated decks/porches. Remove dead vegetation and debris from under decks/porches, and between deck board joints.
- **FENCING:** Use non-flammable fencing material (metal or masonry) when attaching directly to the siding. Ensure there's a minimum of at least 5' of noncombustible material where it attaches to the siding. Do not add vines or other types of vegetation to fencing material. Wooden fences can carry flames directly to the house.
- **FIREPLACE CHIMNEYS:** Remove debris that may accumulate at roof-to-wall intersections. Embers from a fireplace can exit the chimney and could ignite a wildfire; to prevent this install a spark arrestor. When wildfires are approaching close the damper, fireplace screens and glass doors.
- **GUTTERS:** Metal roof gutters do not ignite, only the debris material that accumulates in them – that's why keeping them clean is so important. Vinyl roof gutters can ignite when the debris material is ignited and flaming gutters can fall from the roof edge and land next to the house, which is why the immediate zone needs to be clear of flammable materials.

- **ROOF MAINTENANCE:** Keep roofs clean from leaf litter and pine needles. Remove all tree limbs within 10 feet of the chimney, or that overhang the roof.
- **SIDING:** Use ignition-resistant building materials on exterior walls. Examples include: Stucco, masonry products, plaster and cement. Seal gaps and crevices. Examine the siding for locations where embers could accumulate or lodge and apply caulking at trim-to-siding locations where it is missing or has failed.

### SECOND PRIORITY

- **EAVES AND SOFFITS:** Reduce the size and number of embers that pass through vents in the eaves by covering them with a 1/8 inch metal mesh screening. Inspect soffit vents and maintain as needed.
- **CRAWL SPACES:** Remove combustible materials and install 1/8" mesh screening on vents.
- **FOUNDATION:** All foundation vents should have a 1/8 inch corrosion-resistant metal screening.
- **GARAGES:** Weather seal the perimeter of garage doors to help keep embers out. Be sure the door is tight fitting so embers can't slide under the door or in from the sides. If possible, choose a metal or wood core door with metal exterior.

- **SLIDING GLASS DOORS:** Choose double-pane tempered glass. Consider fireproof shutters to protect large windows and glass doors from radiant heat.

### THIRD PRIORITY

- **ROOFING MATERIALS:** Types of Class A fire-rated roofing products offer the best protection. Examples include: Composite shingles, metal, cement tile and clay. Inspect shingles/tiles and replace/repair those that are loose or missing to prevent ember penetration. If gaps exist between the roof covering and the roof deck at the eave or ridge, fill the space with a “bird stop” material.
- **SKYLIGHTS:** Remove debris next to and on skylights. Glass is a better option than plastic or fiberglass.
- **VENTS:** Consider purchasing closure devices for foundation and gable end vents and installing a louver- type dryer vent that stays closed unless the dryer is running. Clean debris from attic vents and install 1/8 inch metal mesh screening. For turbine vents, access the attic and inspect where the vent attaches to the roof and attach 1/8 inch screening to the roof sheathing. Dormer-face vents should be replaced with a low-profile vent. Ridge vents should be rated for high wind/rain exposure.
- **WINDOWS:** Multi-paned tempered glass can help reduce the risk of fracture or collapsing in a wildfire.



## LANDSCAPING/HARDSCAPING

Ignition resistant building materials, construction techniques, along with vegetation and debris removal, play a vital role during wildfires.

### FIRST PRIORITY

- Dead vegetation, dried leaves, pine needles and ground debris accumulation should be frequently removed from this area.
- Hardscaping components should be installed around the perimeter of the home - keep them free of ground litter/debris. Concrete, stone or gravel walkways are great additions to the Immediate Zone.
- Remove trees and shrubs from this area; or replace with succulents.
- Wood mulch products should be replaced with non-combustible mulch products such as crushed stone/gravel options.
- Trim tree limbs that overhang from the Intermediate zone into this area.

# INTERMEDIATE ZONE CHECKLIST

The Intermediate Zone includes the area of 5 to 30 feet from the furthest exterior point of the home.

## LANDSCAPING/HARDSCAPING

Ignition resistant building materials, construction techniques, along with vegetation and debris removal, play a vital role during wildfires.

### THIRD PRIORITY

- Clear vegetation from under large stationary propane tanks.
- Keep lawns and native grasses mowed to a height of four inches.
- Remove ladder fuels (vegetation under trees) so a surface fire cannot reach the crowns. Prune trees up to six to ten feet from the ground; for shorter trees do not exceed 1/3 of the overall tree height.
- Water plants, trees and lawns to keep them from becoming dry.

### SECOND PRIORITY

- Space trees to have a minimum of eighteen feet between crowns with the distance increasing with the percentage of slope.
- Trees 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.

### THIRD PRIORITY

- Create fuel breaks with driveways, walkways/paths, patios and decks.
- Tree placement should be planned to ensure the mature canopy is no closer than ten feet to the edge of the structure.

# EXTENDED ZONE CHECKLIST

Extends out from 30 to 100 feet, keep in mind your property line may end prior to 100 feet. In these instances working collaboratively with your neighbor is important to helping protect multiple properties.

## LANDSCAPING

Ignition resistant building materials, construction techniques, along with vegetation and debris removal, play a vital role during wildfires.

### FIRST PRIORITY

- Dispose of heavy accumulations of ground litter/debris.
- Remove dead plant and tree material.
- Remove vegetation adjacent to storage sheds or other outbuildings within this area.

### SECOND PRIORITY

- Remove small conifers growing between mature trees.

### THIRD PRIORITY

- Trees 30 to 60 feet from the home should have at least 12 feet between canopy tops. Trees 60 to 100 feet from the home should have at least 6 feet between canopy tops

## OTHER CONSIDERATIONS

- Add color and interest with high moisture content plants in containers that could be easily moved to the Intermediate zone when wildfires are approaching.
- Addresses should be visible from the road.
- Closable foundation and gable end vents should be shut when threatened by a wildfire and reopened after the danger passes.
- Close and protect home openings, including attic and basement doors and vents, windows, garage and pet doors to prevent embers from gaining access to the home.
- Connect garden hoses, fill pools, hot tubs, garbage cans or other large containers with water and place ladders outdoors. Firefighters have been known to use hoses, ladders and water sources to extinguish spot fires.
- Consider installing non-flammable shutters similar to hurricane shutters.
- Consider using noncombustible deck boards (metal and fiber cement), or a solid light weight concrete.
- Incorporate a mixture of deciduous and conifer trees.
- Install a garage door on both attached and detached garages.
- Move vehicles into a non-combustible area (gravel or concrete) and roll-up all windows.
- When wildfire threat is high, move patio/deck furniture, cushions, door mats and potted plants indoors, or as far away from the home, shed and garage as possible when wildfire warnings are received.

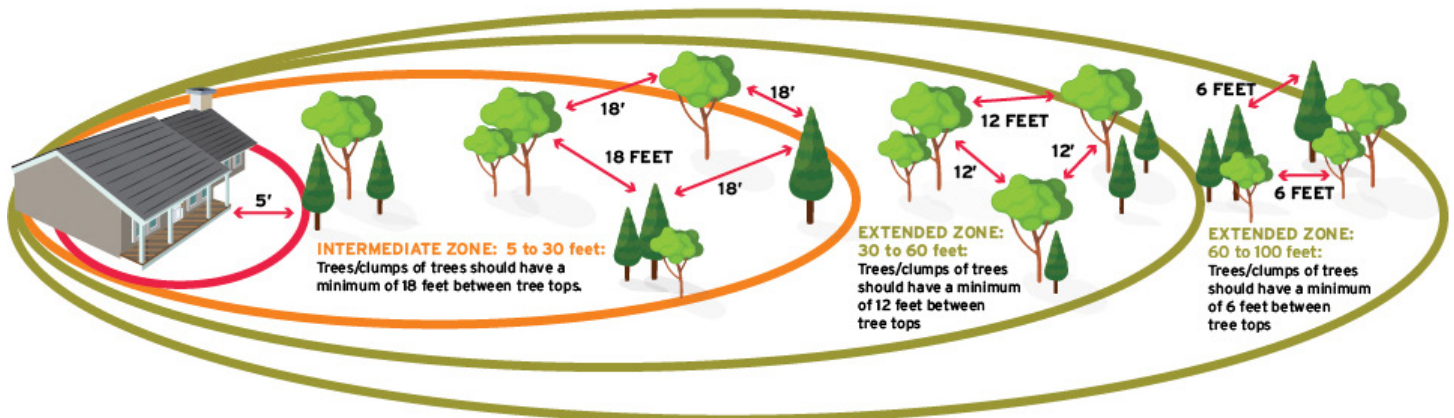
## OTHER CONSIDERATIONS (continued)

- Place swing/playsets in the Extended Zone.
- Use rubber doormats instead of those manufactured with natural fiber materials.
- When making future patio furniture purchases select fire resistant options.

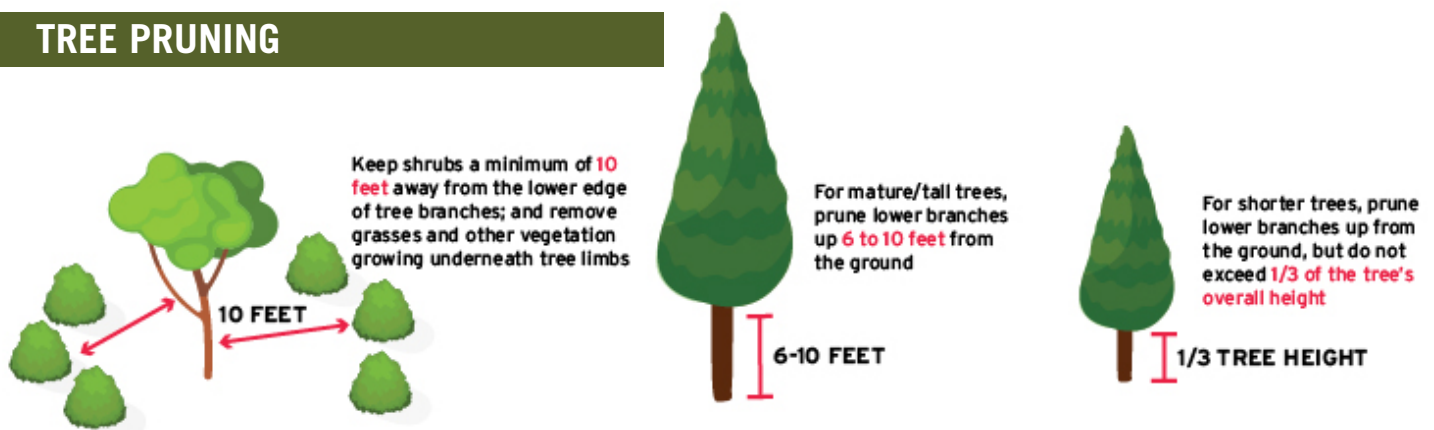
# TREE SPACING AND PRUNING GUIDELINES

Guidelines for tree crown clearance vary depending on slope, tree species and understory vegetation, along with proximity to homes and other site specific factors. Check with your local forestry or fire agency to get specific distance recommendations for where you live.

## TREE SPACING



## TREE PRUNING



The distances listed for crown spacing are suggested based on NFPA 1144. However, the crown spacing needed to reduce/prevent crown fire potential could be significantly greater due to slope, the species of trees involved and other site specific conditions. Check with your local forestry professional to get advice on what is appropriate for your property.