

[Wildfire Preparedness](#) > [Home & Landscape](#) > The ember threat and the home ignition zone

THE EMBER THREAT AND THE HOME IGNITION ZONE

FAQS

# The ember threat and the home ignition zone

## What are the primary threats to homes during a wildfire?

Research around home destruction vs. home survival in wildfires point to embers and small flames as the main way that the majority of homes ignite in wildfires. Embers are 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.

There are methods for homeowners to prepare their homes to withstand ember attacks and minimize the likelihood of flames or surface fire touching the home or any attachments. 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. This is called the Home Ignition Zone (HIZ).

## Wildfire Risk Reduction Actions in the Home Ignition Zone

The concept of the home ignition zone was developed by retired [USDA Forest Service fire scientist Jack Cohen](#) in the late 1990s, following some breakthrough experimental research into how homes ignite due to the effects of radiant heat. The HIZ is divided into three zones.



**Immediate zone:** The home and the area 0-5' from the furthest attached exterior point of the home; defined as a non-combustible area. Science tells us this is the most important zone to take immediate action on as it is the most vulnerable to embers. START WITH THE HOUSE ITSELF then move into the landscaping section of the Immediate Zone.

- Ignition resistant building materials, construction techniques, along with vegetation and debris removal, play a vital role during wildfires (see Home Safety Checklist below)

**Intermediate zone:** 5-30' from the furthest exterior point of the home. Landscaping/hardscaping- employing careful landscaping or creating breaks that can help influence and decrease fire behavior



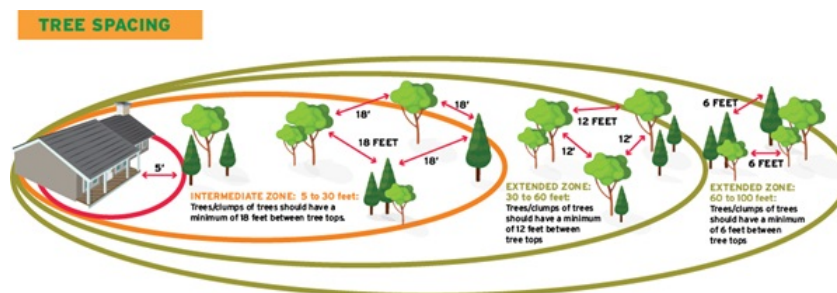
- Clear vegetation from under large stationary propane tanks.
- Create fuel breaks with driveways, walkways/paths, patios, and decks.
- Keep lawns and native grasses mowed to a height of four inches.
- Remove ladder fuels (vegetation under trees) so a surface fire cannot reach the crowns. Prune trees up to six to ten feet from the ground; for shorter trees do not exceed 1/3 of the overall tree height.
- Space trees to have a minimum of eighteen feet between crowns with the distance increasing with the percentage of slope.
- Tree placement should be planned to ensure the mature canopy is no closer than ten feet to the edge of the structure.
- 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.

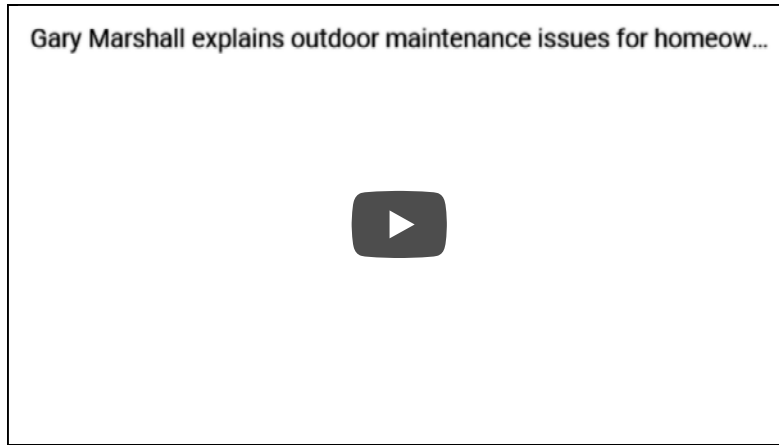


**Extended zone:** 30-100 feet, out to 200 feet. Landscaping – the goal here is not to eliminate fire but to interrupt fire’s path and keep flames smaller and on the ground.

- Dispose of heavy accumulations of ground litter/debris.
- Remove dead plant and tree material.
- Remove small conifers growing between mature trees.
- Remove vegetation adjacent to storage sheds or other outbuildings within this area.
- 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 the canopy tops.\*

*\*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.*





*Gary Marshall, former deputy fire chief in Bend, Oregon, explains outdoor maintenance issues for homeowners in the WUI.*

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