



Powell County, Montana

Homeowner's Wildfire Planning Manual & Safety Plan

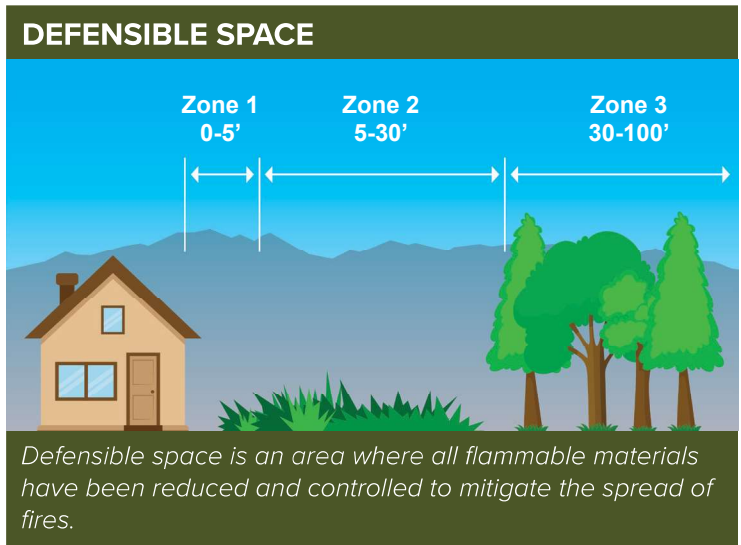


Reducing Wildfire Risks to Your Home and Property

Homeowners can reduce wildfire risks by considering how their home is built and designed. By limiting the amount of fuel surrounding your property, and reducing the ignitability of your structure(s), you can help protect your home, neighborhood, and community from wildfire risks.

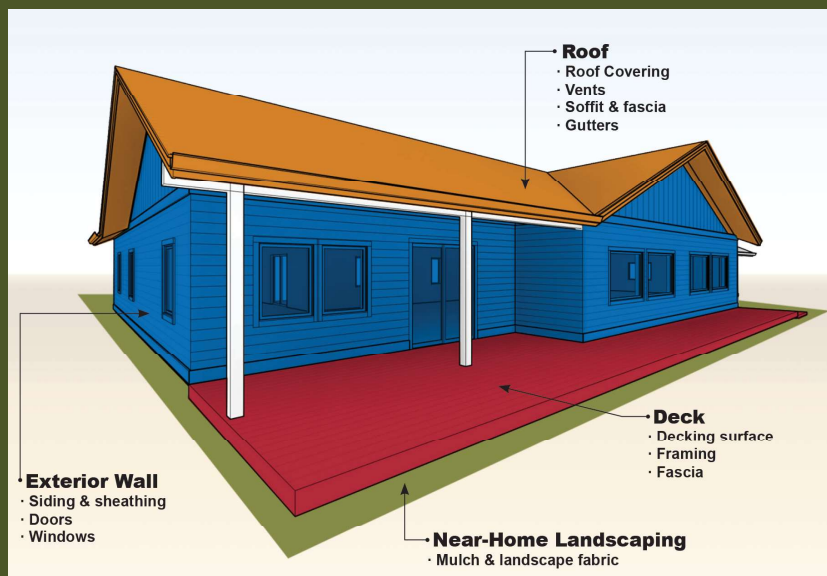
Purpose of this Packet

This packet provides helpful information and tips regarding proper construction techniques, building materials, and design standards for reducing wildfire risks to your home and property.



Maintaining three defensible space zones and managing the vegetation within 100 feet of structures can significantly reduce wildfire damage from flames and embers. In addition, using wildfire-resistant building materials, enclosing or removing firewood and other flammable materials from around your home, keeping your roof and gutters clear of debris, and practicing other wildfire mitigation measures can increase the survivability of your home during a wildfire.

VULNERABLE COMPONENTS OF A HOME TO WILDFIRE



The most vulnerable components of a home to a wildfire are the roof, decks, exterior wall, and near-home landscaping.

For more resources, visit:

- <https://planningforwildfire.org>
- <https://disastersafety.org>
- <https://www.nfpa.org>
- <https://fireadaptednetwork.org>

The Homeowner's Wildfire Planning Manual was produced in collaboration with Powell County and Headwaters Economics, through the Community Planning Assistance for Wildfire (CPAW) program. Additional materials provided by the Insurance Institute of Business & Home Safety, CAL FIRE, and the Wildland Fire Assessment Program.

Top 10 Ways to Protect Your Home from Wildfire



Learn more at DisasterSafety.org/Wildfire



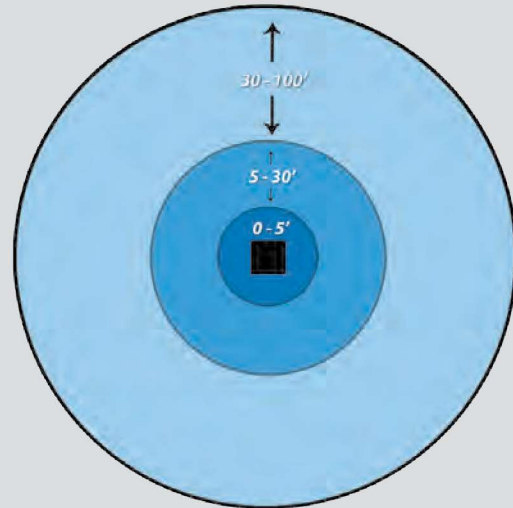
Wildfire Home and Property Checklist

Use the following checklist to help determine what parts of a home and the surrounding property may be most vulnerable during a wildfire. Reduce those risks with the guidance provided in the following pages.



PROPERTY

- Slope / Terrain
- Location of home on parcel
- Defensible space
 - 0-5'
 - 5-30'
 - 30-100'



Know Your Space

Create defensible space to keep wildfire from getting too close to your property.

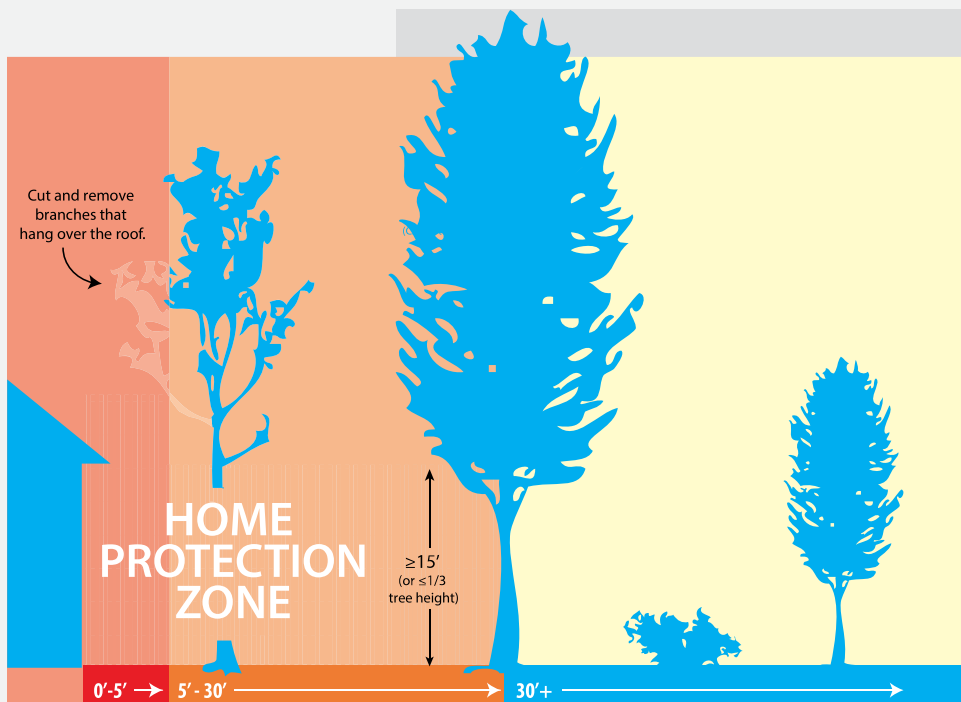
HOME

- Roof
 - Fire rating of covering
 - Shape
 - Edges
 - Skylights
- Exterior Wall
 - Type
 - Foundation type / clearance
 - Eave type
 - (under-eave construction)
 - Windows / Doors
- Vents and Other Openings
 - Face perpendicular to wind
 - Face parallel to wind
 - Ridge vents
 - Mesh screens
- Attachments
 - Deck
 - Enclosure
 - Garage
 - Fence



Assessment:

WHAT TO KNOW TO BETTER PROTECT YOUR HOME FROM WILDFIRE



SLOPE

The slope of the land around your home is a major consideration in assessing wildfire risk. Wildfires burn up a slope faster and more intensely than along flat ground. A steeper slope will result in a faster moving fire, with longer flame lengths.

Homes located mid- or top of a slope (without set back) are generally more vulnerable because of increased flame length and intensity of a fire moving up the slope. Depending on the location of your home, defensible space may need to be increased.

ZONE 1

0-5 ft. around the perimeter

The objective of this zone is to

reduce the chance of wind-blown embers from a nearby fire landing near the home, igniting combustible debris or materials and exposing the home to flames. This zone is closest to the house, so it requires the most careful selection and management of vegetation and other materials.

ZONE 2

5 ft.-30 ft. around the perimeter (or to the property line)

The objective of this zone is to create and maintain a landscape that, if ignited, will not readily transmit fire to the home. Trees and shrubs in this zone should be in well spaced groupings and well maintained. Ladder fuels (i.e., shorter vegetation or shrubs under taller trees) should be avoided to prevent the fire from climbing into the crown or upper portions of trees. If these groupings were to be ignited by wind-blown embers, the resulting fire should not be able to threaten the home by a radiant heat exposure or by flames being able to touch the exterior surfaces of your home.

ZONE 3

30 ft. - 100 ft. (or to the property line)

The objective of vegetation management in this zone is to reduce the energy and speed of the wildfire. Tree and brush spacing should force the fire in the tops of the tree, brush or shrub crowns to drop to the ground. Flame length should decrease.

Assessment:

WHAT TO KNOW TO BETTER PROTECT YOUR HOME FROM WILDFIRE

TREE BRANCHES OVERHANGING OR WITHIN 10 FT. OF THE ROOF

Branches overhanging your roof will result in more debris accumulation on your roof, in your gutters and near your home.

OTHER COMBUSTIBLE ITEMS/STRUCTURES

A fire in close proximity to a propane tank can result in gas releasing at the pressure relief valve, potentially resulting in a column of flame. Flames impinging on the upper surface of the tank can result in an explosion, particularly when the fuel level is low.

If ignited, other combustible items on your property, such as a tool storage shed or gazebo, could expose your home to radiant heat and flames.

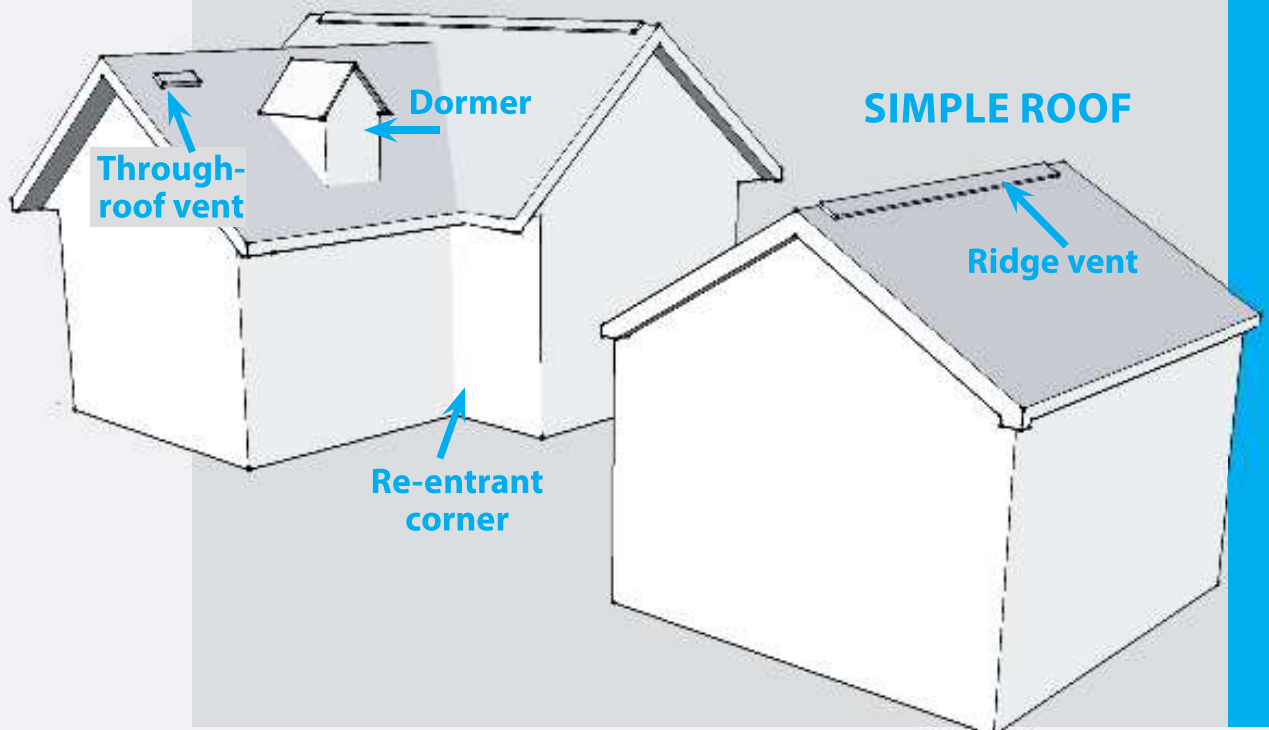
ROOF SLOPE

Roof slope is important because it will affect the amount of debris that accumulates and will also influence the radiant exposure to the roof if nearby vegetation or buildings ignite.

ROOF MATERIAL

Your roof is a large, relatively horizontal surface where debris from trees and other vegetation can accumulate. When a wildfire is threatening your home, wind-blown embers can also land on your roof and ignite this debris, potentially putting your home at risk. Your roof must be able to resist the burning embers from the wildfire and flames from ignited debris. Roof coverings are rated as Class A, B, or C. A Class A fire-rated roof covering offers the best protection.

COMPLEX ROOF



Assessment:

WHAT TO KNOW TO BETTER PROTECT YOUR HOME FROM WILDFIRE

ROOF DESIGN

Even with a Class A roof, locations where the roof covering meets another material can be vulnerable. Debris can accumulate at these locations, and so can wind-blown embers. It is important to inspect these locations as they are potential “weak links” on your roof (for example, wood shingle siding on a dormer next to a Class A roof covering), or areas where the Class A roof can be by-passed (for example, non-bird stopped tiles at the roof edge).

SKYLIGHTS

During a wildfire, skylights could be an entry point for wind-blown embers and flames if the glass or Plexiglas opening were to fail. Operable skylights would also be vulnerable if left open when a wildfire threatens. Debris accumulation on top of and around skylights will be greater on flat or lower-sloped roofs. Dome-type skylights use an acrylic glass product and flat-type skylights use tempered or other specialized glass. Performance differences between acrylic and glass would make the flat-type skylights less vulnerable to wildfire exposures. All skylights incorporate metal flashing at the base, where it integrates with the roof.

VENTS

Most homes have enclosed spaces that are vented, including attics and crawl spaces. Other openings in an exterior wall include those for dryer vents and vents to supply make-up air for rooms where gas appliances are operating (e.g., furnace and/or water heater). Wind-blown embers that enter the attic or other enclosed spaces can ignite combustible materials that have either accumulated there or have been stored there.

Vents on vertical walls or surfaces have been shown to be vulnerable to the entry of embers. For the attic, these vents would include gable end vents, through-roof vents with a dormer face and under-eave vents used in open-eave construction. Crawl space vents (also called foundation vents), dryer vents and vents to supply make-up air would also be vulnerable to the entry of embers.

Some attic and foundation vents that have been specifically designed to resist the entry of embers and flames are commercially available. Your local fire or building department would know if any of these vents have been approved for use in your area.

Consider using closure devices. There are commercially available options or you can make your own and store in a place where they can be easily retrieved and installed when wildfire threatens. The commercial devices should be deactivated, or home-made covers removed, after the wildfire passes. Some gable end and crawl space vents have been designed to resist the entry of embers and flames - check with your local fire or building official to find out if any have been approved for use in your area.

EXTERIOR WALL - FOUNDATION

There are three basic types of foundations: concrete slab-on-grade, raised floor (i.e., one having a crawl space) and pier (or “post”) and beam (unless a perimeter skirting has been installed, this one will be open underneath). An “open underneath” foundation will be vulnerable if combustible materials or vegetation and debris has accumulated or has been stored there. Raised floor and slab-on-grade foundations can be vulnerable if the distance from

Assessment:

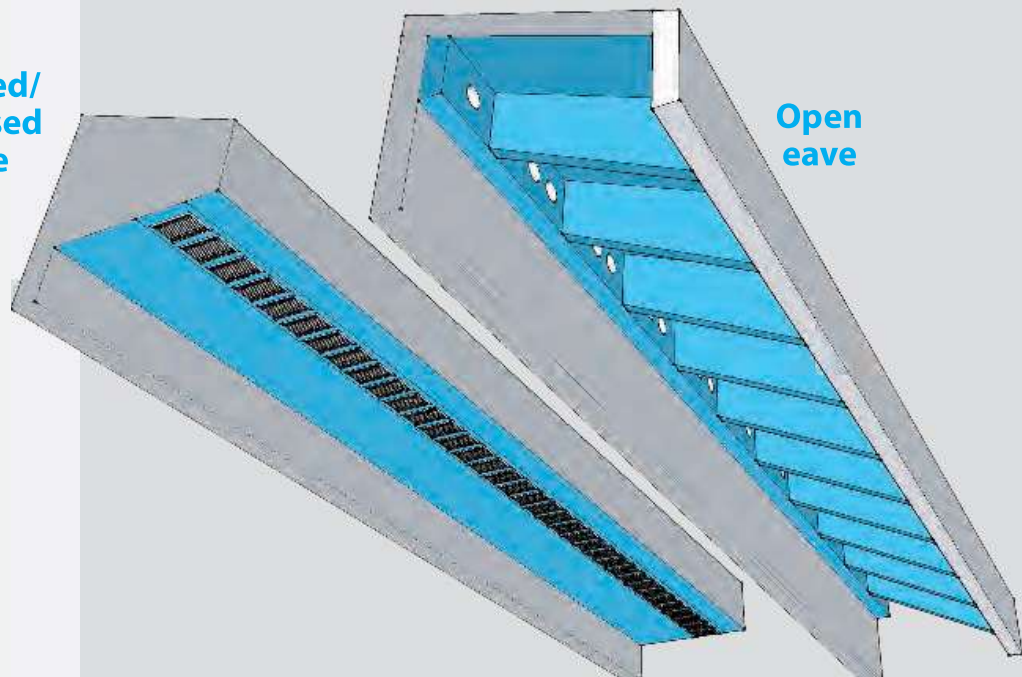
WHAT TO KNOW TO BETTER PROTECT YOUR HOME FROM WILDFIRE

the ground to the siding is much less than 6 in., or, in the case of a crawl space, ember entry occurs through a foundation vent. Combustible siding will be more vulnerable if the ground-to-siding clearance is less than 6-in. if embers can accumulate at the base of the wall. The use of combustible mulch and woody vegetation will make this area even more susceptible to ignition from wind-blown embers. Untreated wood shingle and vinyl siding are relatively more vulnerable to flame contact and radiant heat exposures that would result from an ember ignition of near-home debris or other combustible items.

UNDER-EAVE CONSTRUCTION

Under-eave construction consists of either “open-eave framing” or is enclosed with a “soffit” material (also called “boxing-in”). Vent openings are often found in this area. Vents in open-eave construction can be vulnerable to the entry of embers, and are more vulnerable to ember entry than vents located in a soffit-ed eave. Open-eave construction can also trap heat if subjected to flames, resulting in more rapid ignition of combustible construction materials and lateral flame spread. Flames reaching the under-eave area would be more likely if combustible vegetation and mulch were included in the 0-5 ft. “near-home” zone and similarly, if combustible siding were used.

Soffited/
enclosed
eave



Open
eave

EXTERIOR WALL - MATERIAL

Siding is vulnerable when it ignites and flames or embers get into the cavity behind it or if the flames spread vertically, impinging on windows and the eave. With inadequate ground-to-siding clearance, accumulated embers can ignite combustible siding directly. Ignition is more likely if combustible siding is exposed to a direct flame contact or extended radiant heat exposure. The chance of direct flame contact is greater if you haven't created

Assessment:

WHAT TO KNOW TO BETTER PROTECT YOUR HOME FROM WILDFIRE

and maintained a 0-5 ft. noncombustible zone around your home. An extended radiant heat exposure is possible if nearby combustibles (for example, a firewood pile) or a nearby building ignite. Untreated wood shingle and vinyl siding are relatively more vulnerable to flame contact and radiant heat exposures.

RE-ENTRANT (INTERIOR) CORNER

An interior corner that is constructed using combustible siding and trim will be more vulnerable to flames. If ignited, flames will spread vertically more quickly.

WALL VENTS AND OPENINGS

Vents located on a vertical wall, including crawl space vents (also called foundation vents), gable end vents, and other openings such as a dryer vent, will be very vulnerable to the entry of wind-blown embers.

WINDOWS

An open window is the most vulnerable window when a wildfire threatens - embers can easily enter the home. Closed windows are vulnerable to radiant heat and direct flame contact exposures. If the frame ignites or melts, the fire may burn into the stud cavity and into the living space of the home. If glass breaks, embers and flame can easily enter the home. Of these, the glass is the most vulnerable component.

GARAGE (ATTACHED OR DETACHED)

Most people store combustible materials in their garage. Garage (vehicle access) doors, particularly on older garages, can have small gaps at the top, sides and bottom that can allow embers to enter. These embers can ignite combustible materials stored in the garage.

DECK

Your decks is a vulnerable part of your home when it ignites. A burning

deck will expose the building to radiant heat and flames, potentially igniting combustible siding and breaking glass in windows and doors. The materials used to build the deck, combustible materials you store under your deck, vegetation around it and the location of your deck relative to the slope around your house all contribute to how vulnerable your deck will be. Debris that accumulates between deck boards and at deck-to-wall intersections can be ignited by embers. Rotted wood deck boards and structural support members are more easily ignited when they are dry.



©Insurance Institute for Business & Home Safety

MINIMUM VERTICAL CLEARANCE



MINIMUM HORIZONTAL CLEARANCE

SHRUBS

TREES

