Wildfire Safety

Home Hardening Guide

Roof

Your roof is one of the most vulnerable areas of your home! Due to its large surface area, your roof is more susceptible to embers and flame.

How is a roof vulnerable?

- Combustible roof coverings such as non-fire-retardant treated wood shake or shingle roof. Roof coverings and assemblies are recommended to be Class A-rated. Common Class A roof coverings include asphalt shingles, tile or cement shingles, or metal panels.
- Gaps or openings in your roof assembly that have degraded exposing unprotected roof components.
- Debris accumulation on your roof, especially when located next to vulnerable areas such as combustible wall intersections.

What to do about a roof

- Keep your roof clear of debris and vegetation.
- Fill in gaps between the roof covering and the sheathing to prevent the intrusion of embers and flame.
- When it is time to replace your roof, install a Class A-rated roof covering such as asphalt fiberglass composition shingles.
- Replace combustible siding at roof-to-wall intersections with noncombustible siding.

How are roof attachments vulnerable?

- Debris accumulation around roof attachments.
- Gaps or penetrations in the roof covering from the installation of a roof attachment like a solar panel.

What to do about roof attachments

- Check periodically and keep areas around roof attachments free of debris.
- Ensure that roof attachments have enough space underneath them so that debris does not accumulate.
- Ensure openable skylights have a noncombustible metal mesh screen not exceeding 1/8 inch and have multipaned glazing with one layer of tempered glass.
- Install metal flashing around exposed wood frame skylights.

Gutters

Check your gutters! Clean gutters regularly and install noncombustible gutter covers on gutters.

How are gutters vulnerable?

- Gutters without a gutter cover can allow accumulation of debris, making it highly susceptible to embers and fire. If the debris catches on fire, it exposes unprotected combustible areas of your roof assembly.
- Gutters made of combustible materials such as vinyl can catch on fire and expose unprotected combustible areas of your roof assembly.

What to do about gutters

- At a minimum, clean your gutters regularly.
- Consider installing a noncombustible gutter cover to reduce the buildup of debris. When it is time to replace your gutters, replace them with a non-combustible option such as metal.
- Ensure your roof has a metal drip edge installed that completely covers the space above your gutter system.

Vents

Make sure your vents are protected from embers and fire. Upgrade your vents!

How are vents vulnerable?

- Access points such as your attic or crawlspace vents are areas embers or flames can enter and ignite combustible materials inside your home.
- Inlet vent that allows for the entry of wind-blown vegetative debris. Ridge or off-ridge vents located on your roof are more susceptible.
- Vents constructed of flammable materials such as plastic are highly vulnerable to embers and flames.

What to do about vents

- Attic and underfloor vents with openings larger than 1/8 inch are susceptible to embers.
- For fire protection, it is recommended to replace them with flame and ember-resistant vents or cover them with noncombustible, corrosion-resistant metal mesh between 1/16 and 1/8 inch in diameter. However, please keep in mind that these fire protection modifications may reduce airflow and ventilation to attics and underfloor spaces. Be sure to consult your local building official about ventilation requirements in your area before replacing or covering your vents and hire a licensed contractor to complete the project.
- Keep debris away from all vents.
- Do not add metal mesh or screening to dryer vents.

Eaves

Plug gaps or openings in your eaves and remove all vegetation and combustible materials that are directly underneath.

How are eaves vulnerable?

- Open eave construction with gaps or penetrations between the rafter tails and blocking are entry points for embers.
- Vents in eaves with gaps or penetrations in the blocking.
- Wide overhangs.
- Combustible fuel sources next to your home can create a fire pathway for embers or flames to your eaves.

What to do about eaves

- Remove vegetation and combustible materials directly below eaves.
- Create a soffit eave (horizontal) or enclose eave (angled) using noncombustible material. *Consult your local building official or licensed contractor for building codes in your area.*
- Inspect eaves for gaps around rafter roof tails and blocking. Plug or caulk gaps.

Siding

Exterior siding that is combustible, has gaps, holes, or rot is vulnerable to both embers and flame.

How is siding vulnerable?

- If ignited, combustible siding can provide a path for flames to penetrate through other vulnerable areas such as windows, under-eave areas, or vents.
- Siding ignition from nearby combustibles that are too close to the house.
- Roof-to-wall areas where combustible siding is present.
- Gaps or penetrations in the exterior covering that are larger than 1/8 of an inch.

What to do about siding

- Plug or repair all gaps, holes, or rot in your exterior siding.
- Consider replacing combustible siding with a noncombustible or ignition-resistant material option. *Consult your local building official or licensed contractor for local building codes in wildland areas.*
- If a full replacement of your exterior covering is not possible then consider a partial replacement by using a noncombustible siding material for the bottom 2 feet from the ground and add metal flashing to protect the bottom edge sheathing.

Windows

Remove combustibles and vegetation around windows and upgrade older vulnerable single-pane windows with ones designed for areas that experience wildland fire.

How are windows vulnerable?

- Windows that are left open unattended.
- Combustible framing material that, when ignited, glass breaks or falls out providing a path for embers or flames to enter your home.
- Radiant heat which can cause windows to break even before fire reaches the house. Single-pane and large windows are particularly vulnerable.
- Windows that face large vegetation areas or have vegetation directly underneath.
- Vinyl windows that do not have an internal reinforcement bar in the horizontal or vertical separator member as they are prone to failure from radiant exposure due to deformation of the frame.

What to do about windows

- Install or upgrade to double-pane tempered glass windows. Tempered glass is about four times more resistant to breaking during a wildfire.
- Noncombustible metal framing material is an optimal choice.
- Confirm if vinyl windows have a vertical or horizontal reinforcement bar.
- Create a 0 to 5 ft. ember-resistant zone by removing vegetation and other combustibles by all windows.
- Install metal mesh window screens to improve the performance of windows subjected to radiant heat exposure.

Doors

Close the gap! Poorly sealed doors with gaps or penetrations provide a path for embers to enter your home or garage.

How are doors vulnerable?

- Doors that have rot or decay.
- Combustible door framing material as embers tend to accumulate at the bottom thresholds and sides.
- Doors that have gaps or penetrations greater than 1/8 inch.
- Door screens that are not made of metal mesh.
- Fuel sources stored nearby or inside a garage which increases its ignition potential.

- Garage doors that lack gasketing or have gaps that allow for the intrusion of embers.

What to do about doors

- Install or replace non-compliant wood screen or sliding doors with a non-combustible option.
- Install metal mesh screens in sliding or screen doors.
- Relocate combustibles and flammables inside your garage so they are not located next to ignition sources.
- Add metal flashing at garage door jambs and headers.
- Add gasketing (weather-stripping) to garage doors to prevent ember intrusion.

Decks

Protect your deck! Deck ignitions can start from flames underneath or embers on top.

How is a deck vulnerable?

- Combustible damaged or rotting deck boards as they are more easily ignitable.
- Deck boards made of combustible materials that are attached to the residence.
- Deck-to-wall intersections that have combustible siding and no metal flashing.
- Combustibles within the first 0 to 5 feet zone around a combustible deck (patio furniture, planter boxes, door mats, etc.)
- Combustible items stored underneath your deck that could be an ignition source for fire.
- Decks that overhang a slope that can be exposed to flames from trees or other vegetation downslope.
- Lattice or other combustible fencing options are used as a vertical enclosure under a deck, as it is readily ignitable.

What to do about decks

- Create an ember-resistant zone under the deck footprint extending five feet outward to reduce the likelihood of under-deck flame exposure. Use hardscapes like gravel, pavers, or concrete.
- Ensure sufficient defensible space if your deck is overhanging and located on a slope to minimize flame spread.
- Replace deck boards with ignition-resistant, non-combustible, fire-retardant-treated wood, or material that complies with performance testing standards (this includes steps, stairs, and railings).
- Replace any damaged or rotting deck boards as they ignite more easily.
- Install a minimum of a 6-inch metal flashing applied vertically on the exterior wall and at deck-to-wall intersections.

- If a full replacement of your deck is not possible then consider a partial replacement by replacing the walking surface boards with a noncombustible option for the first 1 ft. away from the residence.
- Remove combustible items stored under your deck.
- Regularly clear debris on top of or underneath your deck.

Fences

Break the fire pathway. Fences, especially when attached to your home can provide a direct fire pathway if ignited.

How is a fence vulnerable?

- Vegetative debris accumulates at the base of a fence, especially climbing plants that use the fence as a trellis.
- Privacy fences are vulnerable to ignition due to the horizontal to vertical intersections providing a ledge and backstop where embers can accumulate and ignite.
- Vinyl fences are not as vulnerable to embers but can ignite through direct flame exposure from vegetative debris and are vulnerable to deformation from radiant heat exposure.
- Combustible fences or gates that are attached to the residence as they can create a direct path for fire.

What to do about fences

- Replace attached combustible fencing or gates with a noncombustible option for the first 8 feet.
- Parallel combustible fences on a property should be at least 10 feet away. If they are double meaning two neighboring combustible fences these should be at least 20 feet away from the residence. If closer than the recommended distances, replace with an ignition-resistant or noncombustible fencing option.
- Clean vegetative debris and combustible materials that are next to or on the fence.
- When it comes time to replace your fence, use noncombustible or ignition-resistant materials.

Attachments

Stop fire from spreading to your home. Attachments like carports, awnings, or retaining walls are often constructed of combustible materials and can provide a direct fire pathway to your home.

How are combustible attachments vulnerable?

- Debris build up alongside or on top of combustible attachments.
- Combustible objects stored underneath, alongside, or next to combustible attachments.
- Combustible attachments that when ignited can spread to places like eaves or siding.

- Vegetation accumulation grown on attachments.

What to do about combustible attachments

- Create a noncombustible barrier or section between other attachments and structures with a minimum distance of 12 inches.
- Remove vegetation from attachment.
- Detach the attachment from the residence if possible and have a minimum of 2 feet of open space separation.
- Replace combustible attachments with a noncombustible option.

Accessory Buildings

Create an ember-resistant zone. If ignited, sheds can project embers or flames that can catch your home on fire if they are located too close.

How are accessory buildings vulnerable?

- Outbuildings when ignited can burn longer from fire exposure due to size and often what is stored inside.
- The size and distance of an accessory building if located too close to your home or neighboring residence.
- Its placement, if near other combustibles such as a combustible fence or vegetation.
- Plastic sheds as they are the most hazardous.
- Gaps or openings in the accessory building's exterior siding or underneath if it has a combustible foundation that can expose the contents inside the building to flame or embers.

What to do about accessory buildings

- Ensure the accessory building door is not facing your home.
- Create a 10 feet ember-resistant zone around the accessory building.
- Upgrade the accessory building with noncombustible and ignition-resistant materials.
- If possible, relocate your accessory building. Be sure when relocating not to move it next to other combustibles or next to a neighboring residence.
- Metal sheds or sheds designed with ignition-resistant construction are a better alternative than combustible sheds.

Recommendations for combustible sheds are:

- 50 feet away if larger than 120 ft2
- 40 feet away if between 120 to 64 ft2
- 30 feet away if smaller than 64 ft2

Miscellaneous Structures

Reduce additional fuel sources. Large often combustible items like gazebos, RV's, boats, and playground equipment are often forgotten fuel sources that may need to be hardened.

How are miscellaneous structures vulnerable?

- Arbors, pergolas, playground equipment, gazebos, chicken coops, and other structures can act as a fuel source if combustible.
- Boats, RVs, and vehicles are especially vulnerable due to them often being stored adjacent to residences.
- Small combustibles like door mats, furniture cushions and covers, and planter boxes are often places where embers can smolder.

What to do about miscellaneous structures

- Create a 0–5-foot ember-resistant zone around large combustibles miscellaneous structures.
- Upgrade miscellaneous structures by using construction materials that are noncombustible or ignition resistant.
- Relocate your miscellaneous structure. Be sure when relocating a combustible miscellaneous structure, to not move it next to other combustibles or next to a neighboring residence. The recommended distance for structures larger than 120 ft2 is 50 feet from your home.
- Remove combustible dilapidated structures or ones that are no longer in use.