

Humboldt County Fire Safe Council

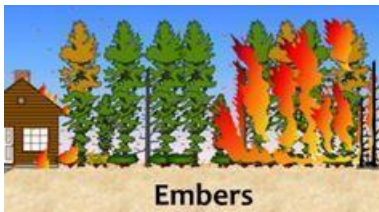
HOME RISK ASSESSMENT

While wildfire is a natural component of the California landscape, the recent increases in wildfire severity and the loss of homes and lives underscore how important it is for you to prepare your home and property to reduce the risk of wildfire damage and loss. **Understanding your wildfire risk is the first step to reducing it.**

This Home Risk Assessment focuses on two important risk-reducing factors: home hardening and defensible space. The Assessment will help you identify vulnerabilities around the structures on your property and recommend improvements based on the best available science. As you complete the assessment, keep in mind that maintenance is an essential part of your wildfire resilience.

In a wildfire situation, home ignitions can occur in multiple ways including:

- 1) **Embers** – This is the most common way that homes ignite during a wildfire. Wind-driven wildfires can pick up and move firebrands up to a mile ahead of a fire creating new spot fires ahead of the flaming front. Embers can be deposited onto or into a building. Embers can ignite combustible materials such as leaves, mulch, stored materials, or wooden decks. Embers can also enter through open windows; attic, under-eave, and foundation vents; or other openings.
- 2) **Radiant heat** – Radiant heat is the heat from burning materials that is transferred through the air, resulting in heating of a nearby surface. If the radiant exposure is high enough, and/or long enough, ignition of the material can occur even without direct flame contact. A radiant heat exposure to a home can occur from the burning of nearby buildings (e.g., sheds, garages , or a neighbor’s home or out-buildings), vehicles and RVs, nearby firewood piles, uncovered recycling bins, or surrounding vegetation.
- 3) **Direct flame contact** – Where flames can touch the home, siding, combustible materials in the under-eave area, and decking can ignite and window glass can break, increasing the likelihood that the home will be destroyed or sustain major damage.









Homes have a better chance of surviving wildfire through a combination of adequate **defensible space** and **wildfire-resistant construction**. Defensible space is created through 1) careful landscape selection, placement, and maintenance and 2) awareness and management of combustible materials on the property (e.g., leaf litter or lawn furniture) during your fire season. Defensible space provides firefighters and equipment a safer environment with more room to work and a better chance at being successful. It can also help you save your home from a wildfire when firefighting resources are stretched thin. Wildfire-resistant construction materials should be paired with regular home and property maintenance. Seemingly small actions can greatly improve your home’s chances of survival.

HOME RISK ASSESSMENT

QUICK START GUIDE

IMPROVEMENTS TO THESE FEATURES WILL HAVE THE GREATEST IMPACT

HIGH PRIORITIES	ROOF (PG 2) 	VENTS (PG 3) 	DEFENSIBLE SPACE Particularly Zone 0 (PG 6) 
MEDIUM PRIORITIES	DECKS (PG 5) 	WINDOWS (PG 4) 	SIDING (PG 4) 

CONSIDER:



PROXIMITY: Increase the fire-resistance of the outer wall and intensify vegetation management.

Roof	Structure Why does this matter?	What can be done?
<p>Roof type: Metal Asphalt/composition shingles Other noncombustible material Wood shingle</p> <p>Complex rooves with roof to wall intersections or dormers: Yes / No</p> <p>Debris present: Yes / No</p>	<p>The roof is most vulnerable because it has the largest surface area for leaves, needles, and embers to accumulate.</p> <p>Complex roofs (e.g., rooves that intersect with walls and rooves with dormers) present tend to be more vulnerable than simple roofs. The various corners and gullies of complex roofs can accumulate leaf and needle debris and provide a fuel-bed for windblown embers that can cause extended flame exposure on unprotected siding.</p>	<p>Maintain your roof and replace, when necessary, with a Class A-rated roofing material. Wood shake roofs offer no fire protection. Carefully follow the manufacturer's installation instructions because some roof coverings need additional protection to meet the Class A requirements. Common Class A fire-rated materials include asphalt composition shingles, tile, and steel.</p> <p>Where walls intersect with roofing, install metal step flashing from under the roof covering and up the exposed wall, a minimum of 6 inches.</p> <p>Remove tree branches overhanging or within ten feet of the roof to reduce accumulation of needles or leaves and damage to the roof.</p> <p>Keep the roof, valleys, and gutters clean, especially during wildfire season.</p>
<p>Condition: Good / Poor Age: _____</p>	<p>Embers can also enter small gaps and cracks in the roof assembly and the roof edge.</p>	<p>Repair any damage, replace missing shingles, and seal all gaps or cracks larger than 1/8 inch.</p>

Gaps in roof covering: Yes / No		
Roof edge includes a metal drip edge: Yes / No	Without a metal drip edge, a fire in the gutter will expose the roof edge to direct flames.	Protect openings at the roof edge by installing a metal drip edge.
Skylights: None Plastic Glass	Flammable debris can accumulate on or around skylights.	Replace plastic or dome skylights with flat, tempered-glass skylights. Close skylights when wildfire threatens. Remove accumulated debris next to and on the skylight especially during wildfire season.

Chimney	Why does this matter?	What can be done?
Present: Yes / No Spark Arrestor 3/8"-1/2" mesh: Yes / No Chimney Design: Straight Offset (angles/bends) Vegetation nearby: > 10ft < 10ft	Spark arrestors are required to prevent large embers from escaping through your chimney and igniting the roof or surrounding vegetation. Flues with multiple bends and non-vertical runs accumulate soot and creosote faster, reducing draft function and increasing chance of a chimney fire.	Install a spark arrestor that has between 3/8" and 1/2" mesh. These are available at lumberyards, hardware stores, or fireplace specialty stores. Flues with multiple bends should be cleaned more often. Always avoid burning wet wood. Remove all branches and trees within 10 feet of any chimney or stovepipe outlet.

Vent Mesh Screen	Why does this matter?	What can be done?
Vents for the attic, eaves, soffit, roof turbine, crawl space/foundation, etc.: Mesh screen type: All Noncombustible Some Noncombustible All Combustible None Mesh screen size: ≤ 1/8" > 1/8" Mesh screen condition: Good Poor	Vents allow for air circulation to reduce the heat in your attic and allow moisture to escape which can lead to moisture degradation issues over time. In the event of a wildfire, embers can enter small spaces and ignite combustible materials inside the building. Post-fire surveys have found that embers large enough to cause ignitions can pass through 1/4-inch mesh screening.	Move combustible items away from vents both inside and outside the house. Replace 1/4" mesh with 1/8" mesh (use noncombustible corrosion resistant metal mesh screen; commonly referred as hardware cloth). Alternatively, install vents that meet new wildfire-resistant requirements. Regularly check vents and remove materials that may plug vent openings. If the vents cannot be upgraded, prepare temporary vent covers of plywood, metal, or metal tape to install as part of a pre-evacuation preparedness plan. Install a flapper vent that stays closed unless the dryer is operating.

Windows	Why does this matter?	What can be done?
<p>Type of windows: Single-paned Double-paned Tempered glass</p>	<p>Single-pane windows may break after 1 to 3 minutes of exposure to intense heat or flame, subsequently exposing window coverings and home interior to embers and firebrands.</p> <p>Single-pane windows are more vulnerable than dual-paned or tempered glass windows.</p> <p>Larger windows are more vulnerable to breaking than smaller windows.</p>	<p>Replace windows with double-paned glass and where radiant heat exposures are likely, with tempered glass.</p> <p>Consider installation of deployable metal shutters for use during wildfire.</p> <p>At a minimum, close all windows and skylights upon evacuation.</p> <p>Keep vegetation at least 5 feet from windows to avoid glass failure caused by heat exposure from burning plants.</p> <p>Replace plastic window screens with metal screens.</p>
Eaves	Why does this matter?	What can be done?
<p>Type: Boxed-in (soffited) Open-eave</p>	<p>The eave overhang protects your home from rain and sun. With open-eave construction, gaps between the rafter tails and the blocking can be vulnerable to ember entry. Soffited eaves (boxed-in) are more robust to embers.</p>	<p>Inspect open-eave construction for gaps around rafter roof tails and blocking. Plug or caulk gaps.</p> <p>If possible, create a soffited eave where an open-eave design exists. Make sure vents under eaves are fire-resistant and that there are no combustible materials below eaves.</p>
Gutters	Why does this matter?	What can be done?
<p>Type: None Metal Wood Plastic or vinyl</p> <p>Clear of litter: Yes / No</p> <p>Gutter Cover: Noncombustible / Combustible None / Not Applicable</p>	<p>Gutters accumulate leaves and needles that can be ignited by embers. A fire in the gutter exposes the roof edge to flames.</p> <p>Fire in plastic or vinyl gutters will likely lead to the gutter melting and falling to the ground. This may ignite combustible materials below.</p> <p>Gutters do protect the siding from water damage.</p>	<p>Replace wooden, plastic or vinyl gutters with metal gutters.</p> <p>Develop a regular gutter cleaning cycle. Install noncombustible gutter covers.</p>
Siding	Why does this matter?	What can be done?
<p>Siding material: Metal Fiber Cement (i.e., Hardie plank, lap or panel) Stucco TI-II or other wood panel Log or heavy timber Wood vertical and horizontal Wood shake Vinyl</p>	<p>Where buildings are within 30 feet of each other, a radiant heat exposure is likely. Some siding materials are more resistant to radiant heat and direct flame impingement than others.</p> <p>Radiant heat can preheat wood siding that may ignite later with direct flame contact.</p> <p>If siding is too close to ground (<2-inches) ground fuels or embers may ignite the siding.</p> <p>Exposed foundations will allow embers to travel underneath the home and</p>	<p>Maintain a 5-foot noncombustible horizontal zone around the perimeter of the home and remove combustible vegetation that may ignite and be in direct contact with the siding. In addition, maintain a 6-inch noncombustible vertical zone between the ground (and other horizontal surfaces) and the start of the siding.</p> <p>Where radiant heat exposures are likely (i.e., when other buildings are within 30-feet of the home), replace wood siding with noncombustible materials or upgrade the fire rating of the wall by including a gypsum board beneath siding.</p>

Condition: Good / Poor At least 6” vertical clearance: Yes / No Skirting: Noncombustible / Combustible None / Not Applicable	possibly ignite flammable material, if there is no noncombustible skirting.	Caulk and seal any gaps in the siding and where the siding meets the trim. Enclose foundations with noncombustible skirting.
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Decks and Other Attached Structures	Why does this matter?	What can be done?
Decks (and stairs): Decks / Stairs / Patio Covers Porches / Garage Not applicable Receptive fuels around attached structures: Below / Adjacent / All Clear Enclosures around posts and piers, decks, porches: Noncombustible / Combustible Not applicable / None Enclosures Vented: Yes / No	<p>Combustibles on or around attached structures can ignite and expose other attached structures or the home itself to direct flame contact. This is of particular concern with wood decks; if the deck ignites, it will provide a flame exposure to the exterior wall and/or under-eave area.</p> <p>Decks extending out over slopes may preheat during a wildfire. Extra vegetation management is required for these situations.</p>	<p>Treat the deck or steps as a part of the house. Implement Zone 0 standards under and in the first five feet surrounding these parts of the building.</p> <p>Remove debris that can accumulate on the deck and in the between deck board gaps. For added protection, install a noncombustible deck board immediately adjacent to the home.</p> <p>When replacing decks, follow new installation standards in Insurance Institute for Business & Home Safety recommendations.</p> <p>Keep areas around structures clean and clear of debris/vegetation.</p> <p>Never store combustible materials under or on top of decks or porches attached to your home.</p> <p>Replace any rotten wood.</p> <p>Install a metal flashing strip to separate attachment from the home.</p> <p>Before evacuating, bring combustible door mats, brooms, and furniture cushions inside. Move deck furniture off the deck. Move barbeque propane tanks away from the house.</p>

Attached Fences	Why does this matter	What can be done
Fences: Wood / Metal / Other / None	<p>Wooden fences or more susceptible to catching fire if there is vegetation and/or combustible material on or near them.</p> <p>Fences may act like a wick to bring fire to a building.</p>	<p>Keep wooden fences clear of vegetation/combustible material</p> <p>Install noncombustible gates or fencing where wooden fences connect to structures within the first five feet out from the building.</p>

Structures within 30 ft of Home	Why does this matter?	What can be done?
<p>Gazebo, carport/detached garage, storage building/shed, mother-in-law unit, barn, etc.:</p> <p>Meet Home Hardening Standards?</p> <p>Yes / No / Partially Met Not applicable</p>	<p>Carports and garages may be storage for fuel, oil, or other flammable automotive liquids.</p> <p>Ignition of non-attached structures within 30 feet of the home can expose the main house to embers, radiant heat, or direct flame.</p>	<p>All structures on the property should receive the same home hardening as the main home.</p>

Defensible Space Considerations

Zone 0 (0-5 feet)	Why does this matter?	What can be done?
<p>Ember resistant zone within 5 feet of home: Yes / No</p> <p>Ground cover:</p> <p>Combustibles (i.e., wood mulch, wood chips, grass)</p> <p>Non-combustible (i.e., pavers, gravel)</p> <p>Other: _____</p> <p>Grass:</p> <p>Short/maintained</p> <p>Tall/unmaintained</p> <p>None</p> <p>Shrubs: Yes / No</p> <p>Trees: Yes / No</p> <p>Ladder fuels: Yes / No</p> <p>Zone 0 (percent complete):</p> <p>0 - 25% / 25 - 50%</p> <p>50 - 75% / 75 - 100%</p>	<p>This is the highest priority zone. Ignition of combustible vegetation, mulch, and trellises in Zone 0 can expose windows or siding to radiant or direct flame contact, leading to glass failure and/or ignition of the home.</p> <p>Embers can easily be blown across a green lawn and ignite vegetation adjacent to the house. Leaf litter and needles accumulate next to the house or in or on roofs, gutters, decks, porches.</p>	<p>Remove highly combustible mulch and vegetation in the first five feet surrounding the building and attached decks or stairs.</p> <p>Zone 0 is an excellent location for walkways, or hardscaping with pavers, rock mulch, or pea gravel.</p> <p>Remove trees located within 5 feet of the structure and any branches overhanging the roof. If removing a tree is not an option, prune lower limbs to reduce the chance of a fire spreading to the treetop then moving to the roof.</p> <p>Remove shrubs and keep grass short in this zone.</p> <p>All structures on the property (e.g., house, sheds, garages, mother-in-law units) need defensible space.</p>

Zone 1 (5-30 feet)	Why does this matter?	What can be done?
<p>Stored Items 5-30 feet from home (e.g., wood piles, cars):</p> <p>Yes / No</p> <p>Grass:</p> <p>Short/maintained</p> <p>Tall/unmaintained</p> <p>None</p> <p>Shrubs:</p> <p>Light/well maintained</p> <p>Heavy/dead material</p> <p>Separated or small islands</p> <p>Continuous</p> <p>None</p>	<p>The goal of this zone is to prevent direct flame contact to the house and to create a safe location for fire personnel to work.</p> <p>A grass fire can rapidly spread toward the home. A fire in tall grass can have flame lengths that are difficult to control. The greater the flame length and heat intensity, the harder it is to control.</p> <p>Heavy ground fuels will result in a fire with high flame length, high fire intensity and a long duration of heat.</p> <p>Ladder fuels will cause a surface fire to climb into the canopy of the trees.</p>	<p>Work to eliminate connectivity to the house in this zone by creating islands of vegetation. Increase the spacing between trees, remove lower branches of trees and shrubs, and create areas of irrigated and mowed grass or hardscape between lush vegetation islands.</p> <p>Maintain at least 10 feet of space between treetops or between small groupings of trees and/or shrubs. More space may be warranted on steep slopes.</p> <p>Prune lower limbs of trees to reduce the chance of a fire spreading to the canopy (min. 6 feet). To maintain the health of smaller trees (<15 feet), prune only the lower 1/3 of the tree's height.</p>

Trees:

Separated or small islands
Continuous
Limbs within 10 feet of the structure/overhanging roof
None

Tree canopy spacing:

< 10 feet
> 10 feet

Ladder Fuels:

Absent
Scattered
Abundant

Remove all branches within 10 feet of any portion of the structure (walls, roof, chimney, etc.)

Remove shrubs and tall grasses beneath or adjacent to trees to prevent them from spreading fire into the tree canopy.

Mow grass regularly to a maximum height of 4 inches.

Remove dead and dying trees and shrubs.

Install noncombustible walkways and paths to break up fuel continuity.

Zone 2 (30-100+ feet) Why does this matter? What can be done?

Grass:

Short/maintained
Tall/unmaintained
None

Shrubs:

Light/well maintained
Heavy/dead material
None

Trees:

Separated or small islands
Continuous
None

Tree canopy spacing:

< 10 feet
> 10 feet

Ladder Fuels:

Abundant
Scattered
Absent

Heavy fuels on the ground:

Yes / No

In this zone, the goal is to moderate potential fire behavior by reducing the density of the trees, shrubs, and herbaceous plants or grasses to slow potential fire spread and reduce flame height.

By thinning, grouping, or breaking up the continuous vegetation in this area, you can reduce vegetation that can cause radiant heat exposures or embers that can transfer to your home or other structures.

Shrubs and lower limbs are ladder fuels that cause a fire on the ground to climb into the canopies of the trees.

Isolated or small groupings of trees or shrubs are best. Treat groups as individual units in terms of spacing.

Maintain spacing between treetops or groups of trees and/or shrubs, prune lower limbs of trees, and remove vegetation from beneath trees as described above in Zone 1.

Remove dead and dying trees and remove heavy accumulations of dead vegetation.

Limit fallen leaves, needles, twigs, bark, cones, and small branches to a maximum depth of 3 inches.

Because fire can travel faster uphill, consider expanding treatment of this area beyond 100 feet if your property is situated on a slope.

Structures within 30 ft of home Why does this matter? What can be done?

Do structures within 30 ft meet defensible space standards:

Zone 0: Yes / No
Zone 1: Yes / No
Zone 2: Yes / No
Not applicable

Carports and garages may be storage for fuel, oil, or other flammable automotive liquids.

Ignition of non-attached structures can expose the main house to embers, radiant heat, or direct flame.

Keep areas around structures clean and clear of debris/vegetation.

All structures on the property should receive the same defensible space treatment as the main home.

Firewood and Propane Tanks	Why does this matter?	What can be done?
<p>Home is heated by: Wood / Propane Electricity / Natural Gas</p> <p>Wood storage: Adjacent to home Enclosed noncombustible storage < 30 feet away > 30 feet away Not applicable</p> <p>Propane tank location: Above ground with clearance Above ground no clearance On cement pad Not applicable</p>	<p>As previously mentioned, it is important that chimneys have a spark arrestor.</p> <p>Wood storage (firewood or lumber) can cause radiant heat exposures to buildings.</p> <p>Propane tanks when heated by nearby vegetation or combustible materials can explode.</p>	<p>Relocate wood storage to at least 30 feet away from buildings. Maintain 10 feet of clearance around exposed wood piles, down to bare mineral soil, in all directions. If wood piles must be stored within 30 feet, cover with a fire-resistant material tarp or noncombustible shed.</p> <p>Clear from the area around propane tanks—at least 10 feet of bare mineral soil and an additional 10 feet of no flammable vegetation. This will provide space for proper tank ventilation under high heat conditions.</p>

Water Sources	Why does this matter?	What can be done?
<p>Hydrant w/n 1000 feet of home: Yes / No</p> <p>Water tank dedicated to firefighting: Yes / No (capacity: _____)</p> <p>Water tank discharge fittings: 1 ½” or 2 ½” Needs Improvement Not applicable Fire Threads: Yes / No</p> <p>Hoses reach all areas of home: Yes / No</p> <p>Water delivery: Gravity fed: Yes / No Adequate pressure: Yes / No Buried water line: Yes / No Electric pump: Yes / No Backup pump: Yes / No</p> <p>Emergency water sources: Pond, pool, creek, or river Accessible to fire engines (safe parking within 10 ft)? Yes / No</p> <p>Blue reflector dots or clear signs at driveway entrance: Yes / No</p> <p>At water source: Yes / No</p>	<p>Most wildland fire engines carry only 500 gallons of water. Having water that you, or responding fire engines, can use is critical in rural areas.</p> <p>Unreliable water sources put whoever is using them for defense at risk.</p> <p>Darkness and thick smoke make locating water sources difficult.</p>	<p>Have multiple garden hoses available to reach areas 200 feet from your home.</p> <p>Tanks or hydrants must have a discharge with a male National Hose pipe thread fitting either 1½” or 2½” in diameter. Ask your local fire department for guidance.</p> <p>If you have a pond, pool, creek, or irrigation ditch, consider having a pump and hose available. A fire engine will need to safely park within 10 feet of the water’s surface to pump from it.</p> <p>Post a blue reflector dot at the driveway’s entrance and a sign pointing firefighters to where the water supply is located.</p> <p>Consider whether water can be accessed if the electric power is turned off (e.g., generator, pump with gas motor).</p>

Access	Why does this matter?	What can be done?
<p>Address visible, reflective, and noncombustible: Yes / No</p> <p>Locked gate blocking access: Yes / No</p> <p>If yes, does fire department have access: Yes / No</p> <p>Access: Two or more roads in/out One road in/out</p> <p>Adequate turnaround: Yes / No</p> <p>Width of access road and driveways: Two lanes (18 feet +) Single lane (< 12 feet) ...with turnouts every 400 feet at least 10' W x 80' L ...other turnouts ...none or N/A</p> <p>Access road clearance: > 13 feet vertical clearance: Yes / No > 5 feet horizontal clearance: Yes / No</p> <p>Bridge weight limits: Posted / Unknown Not applicable</p>	<p>If emergency service vehicles cannot find your property, it can be difficult for them to respond quickly. In a large wildfire, firefighters from other counties may respond and will not be familiar with your neighborhood.</p> <p>Providing gate access to emergency services is important so they can respond as soon as possible.</p> <p>Having two or more evacuation routes increases the chances of a safe evacuation. Emergency vehicles, fire, or a downed tree or power line could be blocking some routes in an emergency.</p> <p>The length of your driveway, adequate turnaround space and bridge weight limits are helpful for emergency personnel to know so they can determine if it is safe for them to enter.</p>	<p>Ensure your house number is posted at the road, with reflective numbers at least 4 inches tall on noncombustible material that can be seen 100 feet away in both directions.</p> <p>Where appropriate, work with your neighbors/Road Association or notify the County if road signs are missing from intersections.</p> <p>Provide local fire department and/or emergency responders with gate access.</p> <p>Create an alternative evacuation route out of your property and/or community.</p> <p>Make sure driveway is clear of overhanging trees and vegetation (min. 13 feet vertical clearance) and has at least 5 feet cleared on each side of driveway.</p> <p>Consider creating a turnaround route for emergency vehicles. A circular driveway or large open area (40' x 40') is ideal for most engines.</p>

SPECIAL NOTE: Certain topographic features can dramatically increase fire behavior around your home. Fire moves faster upslope than across flat ground, especially when slope and wind are in alignment; canyons, chutes, chimneys, and saddles can funnel winds. Be more aggressive with fuels mitigation where these features exist, especially on south-facing slopes and on the side of prevailing winds where fuels dry out more quickly and thoroughly.

See humboldt.gov/FireSafetyResources for links to more resources.

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Top Priorities & Notes: