



Wildfire Home Ignition Risk Score

A science-based evaluation of your home and landscape
vulnerabilities with prioritized mitigation strategies

Prepared For:

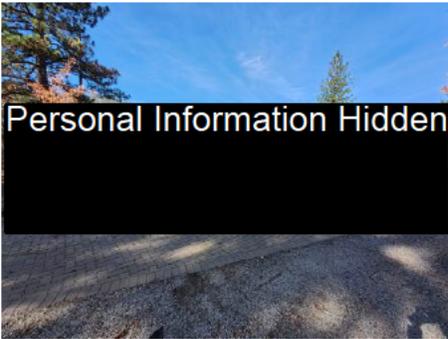
Property Address: Personal Information Hidden

City, State, Zip Code: Personal Information Hidden

Date of Assessment: Personal Information Hidden

Assessor: Olivia Anderson

NFPA Credentials: NFPA Certified Wildfire Mitigation Specialist #1143430



Prepared and Signed by:

Olivia Anderson, CWMS

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Introduction:

This report provides a professional, science-based evaluation of your home and property's vulnerability to wildfire. It is designed to help you understand both the factors you can directly control and the external influences that may affect your level of risk. The goal is to give you clear, actionable steps to improve safety and resilience while also providing a structured record that can be used for insurance, compliance, or community planning purposes.

How to Read This Report

- Risk Scores (p. 2-4): Controllable Property-level Factors
- Action List (p. 5-9): Ranked Recommendations
- Appendix (optional) (p. 10-28): Full Assessment & more

Higher scores = stronger resilience.

Use this as a roadmap, not a guarantee.

How to Navigate This Report:

Parcel-Level Wildfire Home Ignition Risk Scores (Page 2): Your overall score based on controllable factors within the Home Ignition Zone, such as roofing, siding, vents, defensible space, and residential fuels.

External Exposure Factors (Page 3): A separate set of scores representing conditions outside your immediate control, including neighboring structures, ember accumulation patterns, and access for evacuation or suppression. These highlight community-level risks and opportunities for collaboration.

Wildfire Risk Score Totals (Page 4): Total weighted scores with exposure adjustments.

Prioritized Action List (Page 5-9): A custom set of recommendations, ranked by their ability to reduce risk and improve your score. Each action is framed by cost and effort, allowing you to make informed decisions.

Appendix (Page 10): Detailed scoring tables, checklists, and photographs that document current conditions and provide transparency into how your score was determined.

What the Risk Score Represents:

Your Wildfire Home Ignition Risk Score reflects a weighted combination of factors that influence how embers, heat, and flames may affect your home. Higher scores indicate stronger resilience, while lower scores indicate vulnerabilities that could be reduced through mitigation. These scores are not guarantees of survivability, but tools to guide improvements and track progress over time.

The Science Behind the Assessment:

This assessment draws from nationally recognized research and best practices, including the National Fire Protection Association (NFPA), the Insurance Institute for Business & Home Safety (IBHS), the National Institute of Standards and Technology (NIST), and CAL FIRE. Decades of post-fire studies show that most homes are lost to ember intrusion, structure-to-structure ignitions, or radiant heat exposure, not direct flame contact. By focusing on the factors most strongly correlated with home ignition, this report provides a reliable framework for prioritizing mitigation.

Professional Judgement: Qualitative and Quantitative Data:

This report combines quantitative scoring (weighted values derived from research and modeling) with qualitative professional judgment (observations of site conditions, maintenance, and unique vulnerabilities). While numbers provide structure and comparability, wildfire behavior is dynamic and no assessment can capture every variable. Our role as Certified Wildfire Mitigation Specialists is to interpret the science and apply it thoughtfully to your property.

Parcel-Level Wildfire Home Ignition Risk Score:

This section evaluates parcel level conditions that influence how embers, heat, and flames could ignite your home. The analysis considers both within parcel and between parcel exposure, for example neighboring structures, shared fencing, or continuous fuels that cross boundaries.

Each category produces a 0 to 100 score, higher is safer. Some baselines adjust based on related categories to capture real world interactions, for example combustible built materials on a home will increase the influence of nearby fuels. The weighted results roll up into your parcel level wildfire home ignition risk score.

Category: Structural Components (Home Hardening)	Weighted Score:
Roof Materials and Construction	87 %
Roof Elements (Gutters, Skylights, Solar Panels)	100 %
Siding Materials and Construction	83 %
Eaves (Roof Overhang)	29 %
Exterior Doors and Entryways	87 %
Windows	97 %
Exterior Vents and Openings	100 %

Structural Components Weighted Total Score: 86.44 %

To improve this score: focus on home hardening retrofits and creating a non-combustible 5 ft. zone around your home.

Category: Residential Fuels	Weighted Score:
Attached Decks, Patios etc.	5 %
Attached Fencing	100 %
Attached Stairways	0 %
Attached Accessories (Shade Structures, Trash Bins, Firewood etc.)	100 %
Detached Fencing & Sheds/Outbuildings	100 %
Detached Vehicle, Wood, and Yard Storage	91 %
Detached furniture & Accessories (Playsets, Privacy Screens etc.)	24 %

Residential Fuels Weighted Total Score: 62.61 %

To improve this score: reduce combustible materials around your home and garden, pair with defensible space.

Category: Landscape Analysis (Defensible Space)	Weighted Score:
Zone 0 Structure Considerations	30 %
Zone 0 Roof Considerations	52 %
Zone 1 Defensible Space	24 %
Zone 2 Defensible Space	34 %

Landscape (Defensible Space) Weighted Total Score: 32.94 %

To improve this score: Manage vegetation around your property in accordance to defensible space guidelines.

External Exposure Factors:

This section scores context around the parcel that you cannot fully control but that still shapes wildfire exposure. It covers four areas, urban conflagration, WUI ignition probability, predictive ember conditions, suppression and evacuation access, and . Each area is shown as a 0 to 100 score, higher is safer, and many improvements require coordination with neighbors or local agencies.

Category: Urban Conflagration Analysis

Weighted Score:

Nearest Neighboring Structures and Adjacent Fuels

91 %

Urban-Conflagration Weighted Total Score:

91 %

This score reflects the risk of structure-to-structure fire spread in your neighborhood, which often occurs when homes are close together or share combustible features such as fencing or vegetation.

To reduce this risk, prioritize:

Coordinating with neighbors on defensible space and home hardening.

Category: Predictive Ignition Risk & Ember Accumulation Analysis

Weighted Score:

WUI Ignition Safety Score:

0 %

WUI Ignition Safety Score:

0 %

Home Ignition Zone Ember Accumulation ; Building Geometry and Adjacent Fuels

53 %

Wildland Urban Interface Fuels; Ember Brand and Density

0 %

Predictive Ember Accumulation Weighted Total Score:

39.34 %

These factors identify where ignitions are likely to occur. And in the event of an ignition, where wind-driven embers are most likely to land and collect around your home. Score based on land-use, weather patterns, and site layout.

To reduce this risk, prioritize:

Ember hardening actions, like vent screening and defensible space, along the windward aspects of your home.

Category: Evacuation and Suppression:

Weighted Score:

Ingress/Egress & Evacuation Analysis

48 %

Suppression Analysis; Ability to Defend a Home

65 %

Ingress/Egress, Evacuation & Suppression Weighted Score:

56.5 %

This factor considers how easily residents can evacuate and how well firefighters can access and defend your property during a wildfire. Overgrown driveways, locked gates, or dead-end roads increase this risk.

To reduce this risk, prioritize:

Sound and tested evacuation plans, clearing vegetation along access points, and maintaining visible signage.

Wildfire Risk Score Totals:

This page brings your results together on a 0 to 100 scale, higher is safer.

Parcel level score

Your base result from structure, residential fuels, and defensible space. Work on your home and landscape drives this number the most.

External exposure effect

Urban conflagration, predictive ember, suppression and evacuation, and WUI ignition probability are shown separately, then apply small capped deductions to reflect setting you cannot fully control. Many improvements require coordination with neighbors or local agencies.

Final adjusted score; Wildfire Risk Score Total

Your parcel level score after the external exposure deductions. Use this as the simple number to track over time. As on site work improves and as neighborhood conditions improve, this total rises.

Parcel Level Risk Score:

Weighted Score:

Individual Home Score Without External Risk Factor Adjustments:

62 %

External Exposure Adjustment:

Exposure Adjustment:

Urban-Conflagration Adjustment:

-0.89 %

Predictive Ember Loading Potential Adjustment:

-3.02 %

WUI Ignition Opportunity Adjustment:

-6 %

Suppression Potential Adjustment:

1.5 %

Distance from WUI Adjustment:

0 %

Wildfire Risk Score Total:

53.59 %

>0% to 15%	16% to 40%	41% to 75%	76% to 90%	91% to 100+%
Very High Risk	High Risk	Moderate Risk	Low Risk	Very Low Risk
Immediate action needed. Major vulnerabilities make the home highly susceptible to wildfire.	Some risk remains. Progress made, but key vulnerabilities still need addressing.	Some risk remains. Progress made, but key vulnerabilities still need addressing.	Well-prepared overall. Minor improvements and regular upkeep will strengthen resilience.	Excellent condition. Strong mitigation in place. Maintain efforts over time.

Prioritized Action List:

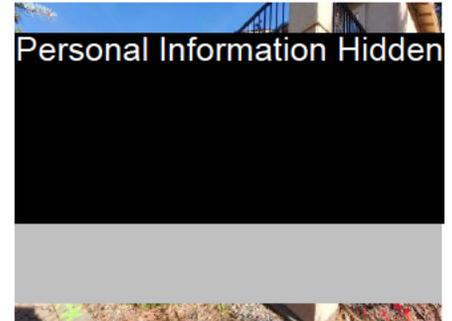
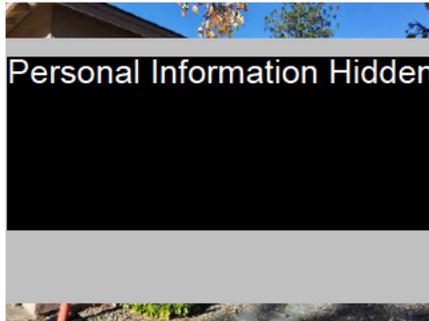
Based on your wildfire risk score, the following list highlights the five most impactful mitigation actions for your property. These items are ranked by their potential to significantly reduce risk and improve defensibility. Prioritizing these efforts will offer the greatest return in terms of safety, resilience, and overall score improvement.

1 Remove high-risk combustible vegetation within 0–5 ft. of structures (Zone 0)

Category:

Landscape hardening (vegetative/residential fuel) retrofit

Photos representing the mitigation action:



Reason for Importance:

The first 5 ft. around the home is the most critical ignition zone. Removing combustible mulch, woody shrubs, and ground litter eliminates direct flame contact and radiant heat exposure to walls and decks. This creates a true non-combustible buffer that significantly reduces structure ignition likelihood.

Best Paired With:

- Replacement with non-combustible ground cover (rock, pavers)
- Extended defensible space treatment into Zone 1

Estimated Level of Investment (Cost):

\$150 – \$4,200 depending on materials, design and area size

DIY or Professional:

DIY feasible for light vegetation removal and mulch replacement. Professional recommended for larger projects or designs

Recommended Providers/Products:

- Decomposed granite (DG) or similar rock mulch, ignition resistant succulents and bulbs
- Local landscaping contractors familiar with WUI codes and guidelines

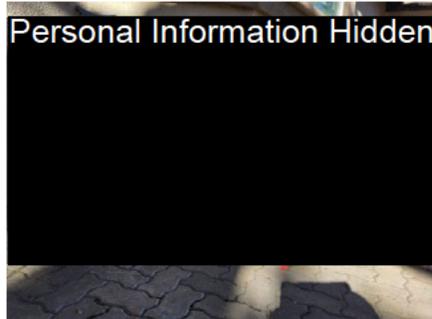
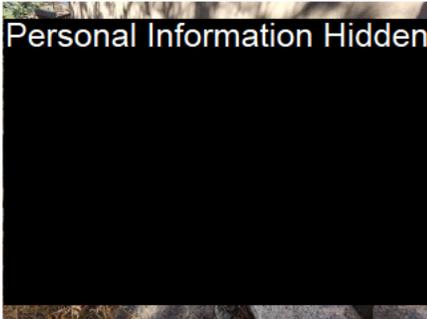
Field Notes (if applicable):

2 Install non-combustible flashing along the base of the home and at roof-to-wall intersections

Category:

Home hardening (structural) retrofit

Photos representing the mitigation action:



Reason for Importance:

The junctions where siding meets the foundation or roof are highly vulnerable to ember loading with high heat intensity. Installing metal flashing at these intersections blocks embers from entering gaps, protects combustible siding from radiant heat, and prevents ignition from debris accumulation along the base of walls.

Best Paired With:

- Maintaining a fully non-combustible Zone 0 and low-radiant heat potential Zone 1
- Replacement of combustible siding or trim with ignition-resistant materials (higher cost option)

Estimated Level of Investment (Cost):

\$1,200 – \$8,000 depending on linear footage and complexity of intersections.

DIY or Professional:

DIY feasible for accessible single-story homes using pre-bent metal flashing. Professional installation recommended for multi-story structures or more complex projects.

Recommended Providers/Products:

- Galvanized or aluminum Z-flashing and drip edge flashing (available at Home Depot / Lowe's)
- Local exterior contractors familiar with WUI retrofits (Reno/Tahoe area; Truckee/Tahoe Contractors CA-TT.com)

Field Notes (if applicable):

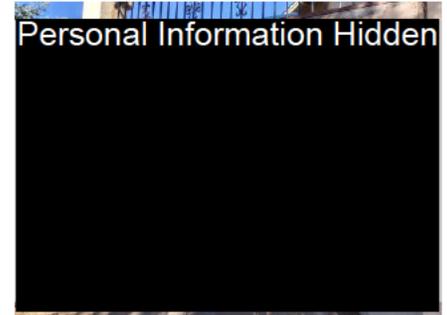
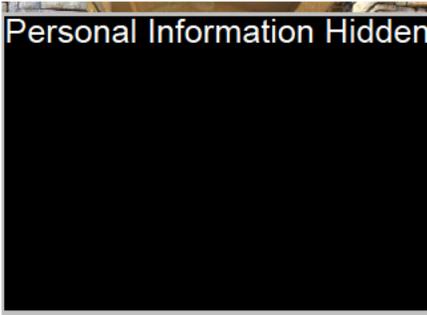
Only two sections of the home need this retrofit. Both are windward facing and highly vulnerable to embers

3 Seal gaps between roof-wall intersections, eaves, fascia boards, doors & windows

Category:

Home hardening (structural) retrofit

Photos representing the mitigation action:



Reason for Importance:

Small cracks and gaps around roof-wall joints, eaves, fascia boards, doors and windows are common ember entry points. During wildfire exposure, embers accumulate in these recesses and ignite underlying wood materials. Sealing these joints with high-temperature caulk or fire-rated sealant prevents ember entry and reduces heat transfer.

Best Paired With:

- Maintaining a non-combustible Zone 0.
- Replacing vent or deck screening or other vulnerable ember entry points

Estimated Level of Investment (Cost):

\$50 – \$500 for DIY projects.

DIY or Professional:

DIY friendly for ground-level applications. Professional recommended for high eaves, ladders, or integration with roof elements.

Recommended Providers/Products:

- 3M Fire Barrier Sealant CP 25WB+ (or similar fire-rated caulk & weatherstripping products)
- Local handyman or WUI retrofit service

Field Notes (if applicable):

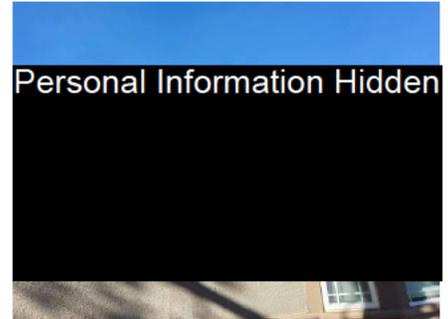
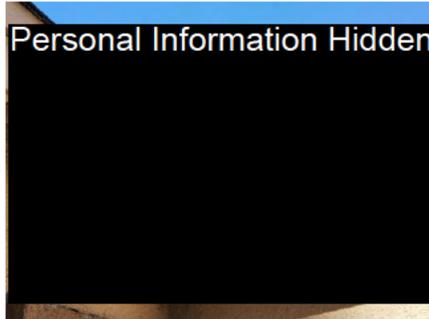
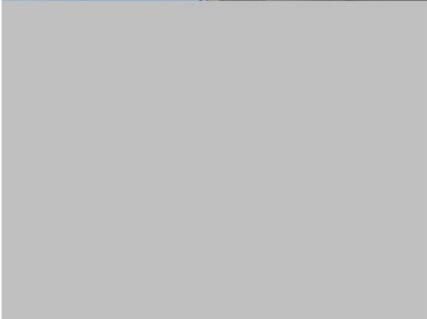
All softwood that is exposed should be painted or stained. Weather-stripping and caulk should be re-applied around windows, doors, and garage door. Prioritize windward facing areas.

4 Enclose open eaves with Soffited eaves using non-combustible or ignition-resistant materials

Category:

Home hardening (structural) retrofit

Photos representing the mitigation action:



Reason for Importance:

Open eaves allow embers and heat to penetrate attic spaces, particularly when combined with vent openings, accumulated debris, or combustible materials underneath. Enclosing eaves with soffits made from fiber cement, metal, or stucco panels greatly reduces ember intrusion and radiant heat exposure to structural components.

Best Paired With:

- . Maintaining a non-combustible Zone 0.
- . Fascia board replacement, joint sealing and gutter cleaning or removal.

Estimated Level of Investment (Cost):

\$2,500 – \$7,000 depending on home size and material

DIY or Professional:

Professional installation recommended due to carpentry and ventilation integration requirements.

Recommended Providers/Products:

- . James Hardie fiber cement soffit panels
- . Local exterior or roofing contractors experienced in WUI retrofits (Truckee/Tahoe Contractors CA-TT.com)

Field Notes (if applicable):

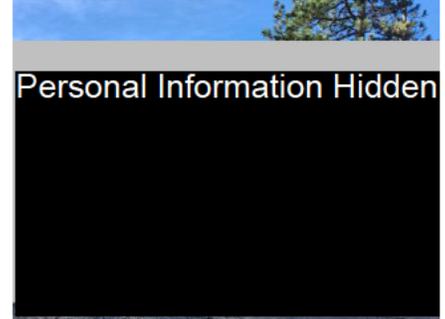
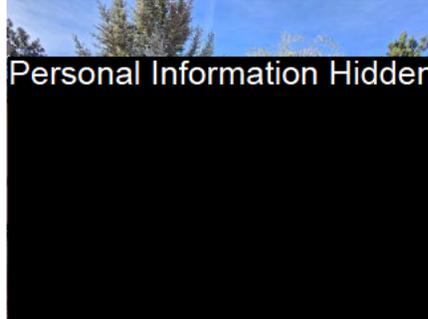
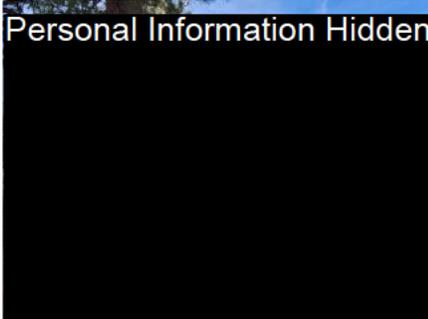
Enclosing eaves, particularly along windward facing elements would reduce ember eddy potential and hide the softwood combustible trim.

5 Improve Upon Zone 1 Defensible Space (5–30 Feet from Structures)

Category:

Landscape hardening (vegetative/residential fuel) retrofit

Photos representing the mitigation action:



Reason for Importance:

Zone 1 serves as a transition between the immediate home ignition zone (Zone 0) and the outer defensible space (Zone 2). The goal in this zone is to prevent flames from reaching the home or other vulnerable structures by reducing fuel continuity.

Best Paired With:

- Regular surface fuel removal (pine needles, small woody debris)
- Zone 0 fuel elimination (mulch replacement, non-combustible buffer)

Estimated Level of Investment (Cost):

\$500 – \$4,200 depending on materials, density, design and area size

DIY or Professional:

DIY friendly for routine thinning and cleanup. Professional recommended for detailed pruning or design that maintains plant health and landscape balance.

Recommended Providers/Products:

- Local landscape contractor familiar with fire ecology, plant health and proper pruning
- Local Nursery or Native Plant Source (low-flammability species for replanting)

Field Notes (if applicable):

Prioritize mitigating around the propane tank. Keep that area clear at all times with a 10 ft. non or low-combustible bubble. Regularly mow down cheatgrass, and remove any new scotch broom sprouts. Prioritize keeping native vegetation whenever possible. Rake pine needles once or twice a year. Remove any juniper within the first 30 ft of the home. Limb conifers up at least 6 ft. and ensure that no flammable fuels exist directly below the canopy drip line.

Appendix:

Note: The main report concludes on the previous page. The appendix provides supplemental documentation and technical references. Further reading is not necessary to understand your overall wildfire risk score or the prioritized action list.

This appendix contains supplemental information that supports the findings in this report. The materials included here are primarily intended for documentation and transparency. They may add value for readers who want a deeper look at the assessment process, but they are not required to understand the key findings or recommendations.

Included in this Appendix:

Section 1: Wildfire Risk Assessment Tool

These are the metrics used to create the Wildfire Home Ignition Risk Score. In the assessment, a checked box indicates that the risk exists. Many categories are then assigned a level (High Risk or Low Risk). These determinations may be influenced by additional site conditions and professional judgment, and may not solely reflect the associated check box.

Section 2: Supporting Photos of Observed Conditions

Images are organized by category (e.g., structural components, residential fuels, landscape, external exposure). They may not fully capture the associated risk.

Section 3: Science & Methodology

A summary of the wildfire science and methodologies used to evaluate home ignition risk

Section 4: Glossary of Terms

Definitions of technical terms, acronyms, and wildfire science references used throughout the report for quick reference.

Appendix Section 1: Wildfire Risk Assessment Tool

Risk Factor 1: Structural Assessment: Home Hardening

Roof

Roofs are a critical line of defense against wildfire because they are the most exposed surface and a primary entry point for wind-driven embers, which often ignite homes. Even Class A fire-rated roofs can be compromised if debris accumulates on the roof or in gutters, as embers can ignite this material and spread fire to the structure. Keeping roofs and gutters clear of leaves and needles, installing ember-resistant gutter guards, and sealing gaps at the roof-to-gutter intersection are essential steps for wildfire protection. Together, these measures significantly reduce the risk of home ignition during a wildfire.

Roof Built Materials

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Roof Material Wildfire Risk Score: 87 %

Roof Elements:

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Roof Elements Wildfire Risk Score: 100 %

Notes:

Siding & Eaves

Siding is the material covering your home's exterior walls. Eaves are the roof edges that overhang those walls. Both are exposed to embers, heat, and flames during a wildfire.

Combustible siding (wood, vinyl) can ignite and spread fire. Noncombustible siding (stucco, metal, fiber cement) resists ignition and protects vulnerable framing elements.

Eaves can trap heat and embers, especially if open or made of exposed wood. Enclosing eaves and sealing gaps keeps embers out and helps prevent fire from entering the home.

Siding Built Materials

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Siding Wildfire Risk Score: 83 %

Eaves

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Eaves Wildfire Risk Score: 29 %

Notes: Eave score heavily impacted by Zone 0 vegetation. Once removed, score will increase significantly. One part of the home has exposed combustible ground to wall intersection. This is high risk, but given that it is isolated, we classified as low risk. Would prioritize mitigating this.

Exterior Doors and Windows

Windows and doors are openings in the home's exterior that can allow fire and embers inside. This includes garage doors, which are often overlooked but highly vulnerable.

Single-pane or non-tempered windows can break quickly from heat, letting embers enter and ignite the interior. Dual-pane tempered glass is more resistant.

Wood and hollow-core doors can ignite or fail under high heat. Use solid, fire-rated doors with tight seals. Garage doors should have weather stripping to block embers and radiant heat.

Sealing gaps and upgrading materials helps prevent ember intrusion and improves wildfire resilience.

Exterior Doors

Front Door (Main Entrances)

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Side, Back, Patio etc.

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Garage Doors

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Doors Wildfire Risk Score:

87 %

Windows

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Windows Wildfire Risk Score:

97 %

Notes: Condensation build up on glass doors indicates sealing issue.

Exterior Vents & Openings

Vents are a major vulnerability during wildfires because wind-driven embers can enter through them and ignite combustible materials inside attics, crawl spaces, or walls, potentially causing a home to burn from the inside out. Proper vent screening is essential; using 1/16-inch or 1/8-inch noncombustible metal mesh or installing ember-resistant vents dramatically reduces the risk of ember intrusion while maintaining necessary airflow. Common 1/4-inch screens and plastic or fiberglass meshes are ineffective, as they allow embers to pass through or can melt and burn. Screening all vent types and maintaining them is a crucial part of any wildfire home hardening strategy.

Exterior Vents and Openings

Vents & Openings With 1/8" or Finer Metal Mesh Screens

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Vents & Openings With 1/4" or Greater Metal Mesh Screens

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Vents & Openings With No Screens or Fabric/Combustible Screens

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Exterior Vents Wildfire Risk Score: %

Risk Factor 2: Residential Fuels

Residential fuels are ignitable, manmade materials and objects—such as fences, sheds, decks, vehicles, woodpiles, and other exterior attachments—that are not wildland vegetation but can readily burn and contribute to wildfire spread. These fuels are often overlooked in wildfire mitigation, yet research from NIST’s Hazard Mitigation Methodology and IBHS shows they play a major role in home loss during wildfires, acting as pathways for flames and embers to reach the main structure. Unlike vegetation, manmade objects tend to burn hotter, longer, and can produce larger ember brands, significantly increasing the risk of ignition for nearby homes and structures. Effective wildfire protection requires identifying, reducing, or isolating these residential fuels to break the chain of fire spread and improve a property’s chance of survival.

Attached Residential Fuels

Attached Decks, Patios etc.

Proprietary Information Hidden

Attached Decking Score:

5 %

Attached Fencing

Proprietary Information Hidden

Attached Fencing Score:

100 %

Stairways

Proprietary Information Hidden

Attached Stairways Score:

0 %

Proprietary Information Hidden

Zone 0 Accessories Score: 100 %

Notes: Decking and stairway scores heavily impacted by high fire risk vegetation directly below. Removing vegetation would significantly increase these scores. Also recommend painting / staining exposed trim and wood.

Non-Attached Residential Fuels Within the Home Ignition Zone (First 100 Ft.)

Proprietary Information Hidden

Fencing & Sheds/Outbuildings Score: 100 %

Proprietary Information Hidden

Proprietary Information Hidden

Vehicle, Wood & Yard Storage Score: 91 %

Proprietary Information Hidden

Furniture & Accessories Score: 24 %

Notes: Large RV stored on shared driveway with neighbor (neighbor's RV). Vegetation around propane tank needs to be mitigated.

Risk Factor 3: Landscape Vegetation Analysis (Defensible Space)

Defensible space is the managed area around a home designed to reduce wildfire risk by slowing the spread of flames, reducing ember buildup, and providing safe access for firefighters. It is a critical part of the Home Ignition Zone (HIZ), a concept developed by fire scientists to explain how homes ignite.

The goal of defensible space is not just protection, but resilience. By creating fire-resistant landscapes, homeowners can help slow fire spread or isolate ignitions before they reach structures. This is achieved through three zones: the immediate zone (0–5 feet), where noncombustible materials are essential; the intermediate zone (5–30 feet), where spacing and maintenance reduce heat and flame continuity; and the extended zone (30–100+ feet), which helps disrupt large-scale fire movement.

However, vegetation management must be done thoughtfully. Over-clearing, especially of native plants, can backfire by encouraging invasive species that are more flammable and less adapted to local conditions. A resilient defensible space balances fire safety with ecological health.

Zone 0: The Immediate 5 Feet Surrounding The Structure

Structural Considerations

Siding, Eaves, Windows, Doors, Vents & Attachments Score:

74.95 %

Proprietary Information Hidden

Zone 0 Structure Score:

30 %

Roof & Eaves Score (from Structural Assessment)

89.6 %

Proprietary Information Hidden

Zone 0 Roof Score:

52 %

Notes:

Zone 1: 5 to 30 Feet From the Structure

Zone 0 Considerations

Zone 0 Structure and Roof Score; Residential Fuels within 30 ft.

47.14 %

Proprietary Information Hidden

Zone 1 Defensible Space Score:

24 %

Notes: This score would improve significantly with Zone 0 work.

Zone 2: 30 to 100+ Feet From the Structure

Zone 1 Considerations

Zone 1 Defensible Space, HIZ Residential Fuels, WUI Ember Brands Score

28.81 %

Proprietary Information Hidden

Proprietary Information Hidden

Zone 2 Defensible Space Score: 34 %

Notes: Water feature describes wetland areas between river and structure (refugia zone). This score would benefit significantly from Zone 0 work.

Risk Factor 4: Urban-Conflagration Analysis

In wildfire-prone areas, risk doesn't stop at the edge of your property. Urban conflagration, e.g. the structure-to-structure spread of fire, has emerged as a leading cause of home loss in recent wildfires, particularly in dense neighborhoods where homes are close together.

Research has shown that small structure separation distances and shared combustible elements like fences, decks, and unmanaged vegetation between homes significantly increase the chance of ignitions. When neighboring structures ignite, radiant heat, embers, and direct flame contact can expose adjacent homes, regardless of how well the landscape is maintained.

In areas with limited defensible space or high external exposure, targeted hardening, especially of siding, eaves, vents, and windows, is essential to prevent fire from entering the structure and to interrupt the chain of ignition.

Nearest Neighboring Structure

Proprietary Information Hidden

Urban Conflagration Score: 91 %

Notes:

Risk Factor 5: WUI Ignition Risk & Predictive Ember Accumulation

Embers are the leading cause of home ignition during wildfire, often traveling miles ahead of the flame front. Recent ember risk modeling shows that embers do not scatter randomly, they tend to accumulate in predictable patterns based on local wind dynamics, topography, and built environment layout.

By analyzing these patterns, we can identify high-exposure zones around a structure where embers are most likely to land and ignite surrounding materials. These insights allow for targeted retrofits that allow for the greatest return on investment in terms of resilience from ember ignitions.

Prevailing Wind Directions (Based on Local Climate Station Data)

- North South East
 West

Secondary Wind Directions (Unique Seasonal Strong Winds)

- North South East
 West

Proprietary Information Hidden

WUI Ignition Safety Score

0 %

Proprietary Information Hidden

Proprietary Information Hidden

Home Ignition Zone Ember Risk Score: 53 %

Windward WUI Vegetation Types:

Proprietary Information Hidden

Windward Residential Vegetation Types:

Proprietary Information Hidden

WUI Fuels Ember Brand and Density Risk Score: 0 %

Notes:

Risk Factor 6: Evacuation & Suppression

Wildfire risk is not limited to a home's structure or landscape, it also depends on how easily residents can evacuate and how accessible the property is for firefighting resources. Homes located on narrow, overgrown, or dead-end roads may pose challenges for both escape and fire suppression. This section evaluates factors such as vegetation clearance along driveways, the number and quality of evacuation routes, proximity to water sources, and how firefighters might triage the property in an emergency.

Proprietary Information Hidden

Evacuation Analysis:

48 %

Proprietary Information Hidden

Suppression Score; Ability to Defend a Home:

65 %

Appendix Section 2: Supporting Photos of Observed Conditions

Roof & Roof Elements (Gutters, Skylights etc.)

Proprietary Information Hidden

Siding & Eaves

Proprietary Information Hidden

Doors & Windows

Proprietary Information Hidden

Exterior Vents

Proprietary Information Hidden

Residential Fuels: Decks, Fences, Outbuildings, Furniture etc.

Proprietary Information Hidden

Defensible Space: Zone 0

Proprietary Information Hidden

Proprietary Information Hidden

Appendix Section 3: Science & Methodology

Introduction:

As wildfires become more frequent and severe, especially in wildland-urban interface (WUI) areas, proactive measures like defensible space creation and home hardening are essential for protecting lives, properties, and communities.

Defensible Space & Home Hardening:

Defensible Space involves managing vegetation and combustible materials around a property to reduce fire intensity and provide a buffer zone for firefighting efforts. **Home Hardening** refers to using fire-resistant building materials and techniques to make structures more resistant to ignition.

Research has demonstrated the effectiveness of these strategies. For instance, structural modifications alone can reduce wildfire risk by up to 40%, and when combined with vegetation management, the risk reduction can reach up to 75%. Investing in wildfire mitigation also offers significant economic benefits. According to the National Institute of Building Sciences' 2018 Interim Report, every \$1 spent on wildfire mitigation saves an average of \$3 in future disaster costs.

Beyond safety and cost savings, these mitigation efforts can enhance insurance eligibility, as insurers increasingly recognize and reward proactive risk reduction measures. In the real estate market, properties with verified wildfire resilience features may have a competitive edge, appealing to safety-conscious buyers. Moreover, when individual homeowners take steps to mitigate wildfire risks, they contribute to the broader safety and resilience of their communities.

Science and Research Utilized:

Our wildfire risk assessments are grounded in current research from the Insurance Institute for Business & Home Safety (IBHS), Cal Poly Wildland-Urban Interface (WUI) Institute, and NFPA, with a focus on the Home Ignition Zone (HIZ) and structure survival under extreme conditions. This assessment is modeled after the Hazard Mitigation Methodology developed by the National Institute of Standards and Technology (NIST).

Up to 90% of structure loss in wildfires is caused by wind-driven embers, not direct flame contact. Just 2.7% of wildfires account for 89% of structure loss, most within the first 12 hours of ignition, when fire behavior is extreme and firefighting support is often unavailable. These destructive events are driven more by wind and structural vulnerability than by surrounding vegetation alone.

Our assessments reflect this science; prioritizing ember resistance, defensible space, and site-specific strategies based on the latest data with the goal of reducing pathways to structure ignitions.

Proprietary Information Hidden

Methodology Overview: Wildfire Risk Score

This risk assessment methodology provides a structured framework for evaluating the relative risk of structure ignition in wildfire-prone environments, based on observable building and landscape features. The intent is to help homeowners, communities, and professionals prioritize risk reduction actions based on the best available understanding of wildfire dynamics, structure vulnerability, and ember-driven ignition pathways.

Scientific Basis and Framework Limitations:

This assessment is informed by a synthesis of:

- Published research in fire behavior, structure ignition, and WUI dynamics
- Laboratory testing data, including flame spread and ember intrusion tests
- Post-fire analyses, including case studies, loss investigations, and aerial imagery review from recent wildfire events
- Field observations and practitioner experience, particularly in WUI zones of the western U.S.

However, it is important to note that wildfire behavior is highly variable and influenced by numerous factors beyond the scope of site-level analysis. While this framework draws from science, it does not represent an exact predictive model. There is currently insufficient empirical data to precisely quantify the risk contribution of each individual factor in all contexts.

Scoring Approach and Weighting Logic:

The risk assessment applies weighted scoring to a series of home and landscape features. Each element is evaluated based on:

- Relative contribution to structure ignition as supported in the literature
- Susceptibility to ember intrusion, radiant heat, or direct flame contact
- Interaction with nearby fuels, especially where building design elements intersect with landscape conditions

For example:

- Roofing systems and vent vulnerabilities, consistently identified as major ignition pathways, are heavily weighted in the scoring framework.
- Features like exposed eaves, while lower-risk in isolation, are scored more aggressively when adjacent to hazardous vegetation or located in re-entrant corners, where embers are likely to accumulate.
- The weighting is context-sensitive, recognizing that the risk contribution of one component may increase when combined with other vulnerabilities.

Proprietary Considerations:

While this assessment is grounded in public-domain science and hazard mitigation principles, the specific weighting values, algorithms, and scoring thresholds used to generate risk ratings are proprietary. This is an original framework developed for use by MO's Defensible Space, LLC, and detailed scoring logic is withheld as part of the commercial product offering.

Appendix Section 4: Glossary

Assessment & Scoring Terms

Wildfire Home Ignition Risk Score

A weighted score based on home and landscape factors within the Home Ignition Zone (HIZ). Higher scores indicate stronger resilience.

External Exposure Factors

Risks beyond the immediate home environment, including urban conflagration, ember accumulation, and access/suppression.

High Risk / Low Risk Categories

Designations in the assessment tool showing relative vulnerability. A “High Risk” box checked reflects greater ignition potential, while “Low Risk” reflects reduced vulnerability.

Qualitative Data

Observations and professional judgment applied to site-specific conditions that cannot be fully captured by checkboxes or formulas.

Quantitative Data

Numerical scoring values and weighted metrics derived from research and used in the tool to calculate the overall risk score.

Weighted Score

A numerical value that reflects the relative importance of each category or subcategory in determining overall risk.

Prioritized Action List

Recommendations ranked by their ability to reduce risk, considering cost, effort, and score improvement.

Zones of Defensible Space

Home Ignition Zone (HIZ)

The area within 100 feet of a structure where fuels and materials strongly influence wildfire survivability.

Zone 0 (Immediate Zone)

The first 0–5 feet from a structure. Should be entirely non-combustible to prevent ember ignitions.

Zone 1 (Intermediate Zone)

The area 5–30 feet from a structure. Vegetation should be thinned, spaced, and maintained to reduce flame contact and radiant heat.

Zone 2 (Extended Zone)

The area 30–100+ feet from a structure. Treatments here reduce large-scale fire spread, ember production, and overall exposure.

Structural Components

Roof Materials

The surface covering of the roof (e.g., metal, tile, asphalt shingle, wood shake). Roofs are the most exposed surface and a primary ember ignition pathway.

Roof Elements

Additional features such as gutters, skylights, and solar panels that influence ignition risk.

Eaves

The roof edges that overhang exterior walls. Open or unenclosed eaves can trap heat and embers.

Siding

Exterior wall materials (e.g., stucco, fiber cement, vinyl, or wood). Combustible siding increases ignition potential.

Exterior Vents

Openings that allow airflow into attics, crawlspaces, or walls. Without ember-resistant screening, vents are major ignition pathways.

Windows

Glass openings vulnerable to heat and ember intrusion. Single-pane or non-tempered windows fail quickly under heat; dual-pane tempered glass is more resistant.

Doors

Exterior and garage doors that provide access into the home. Materials, seals, and adjacent combustible items influence risk.

Skylights

Roof windows that may be tempered (resistant) or non-tempered (vulnerable). Ember intrusion is possible if gaps or screens are inadequate.

Garage Doors

Large openings often overlooked in mitigation. Proper weather stripping reduces ember entry.

Residential Fuels**Attached Decking**

Decks, patios, or balconies connected to the structure. Combustible decks are a common ignition pathway.

Attached Stairways

Exterior stairs attached to structures. Combustible framing or lack of screening beneath stairs increases ignition risk.

Attached Accessories

Items like pergolas, trellises, awnings, or planter boxes attached to a home. Combustible materials act as ember pathways.

Attached Fencing

Fences that connect directly to the home. Wooden fences within 5 feet of a structure are high-risk ignition sources.

Detached Residential Fuels

Combustible items such as sheds, outbuildings, vehicles, RVs, boats, or woodpiles within 30 feet of a home.

Furniture & Accessories

Outdoor furniture, cushions, rugs, or playsets within 30 feet of a home. Combustible items can ignite and transfer fire.

Woodpiles

Stored firewood near the home. Large piles are prolonged heat sources if ignited.

Landscape Vegetation**High-Risk Vegetation**

Species or arrangements prone to ignition, such as juniper, unmanaged conifers, or dense shrubs under eaves.

Low-Risk Vegetation

Species or conditions less prone to ignition, such as deciduous shrubs, irrigated lawns, or well-maintained native plants.

Ladder Fuels

Vertical continuity of vegetation (grasses to shrubs to trees) that allows fire to climb into tree canopies.

Surface Fuels

Ground-level combustible materials like mulch, pine needles, or leaf litter.

Mulch Types

Combustible mulch (e.g., bark, shredded wood) increases ignition risk near structures; non-combustible mulch (rock, gravel) reduces risk.

Hardscape

Non-combustible surfaces like gravel, stone, or concrete that interrupt fire spread.

Invasive Species

Non-native grasses or plants (e.g., cheatgrass) that ignite easily and spread fire rapidly.

Ember Catchers

Vegetation or site features (such as roof valleys or junipers) where embers accumulate and ignite.

External Exposure Factors**Urban Conflagration**

Fire spread between neighboring structures due to proximity, shared combustible features, or unmanaged vegetation.

Structure Separation Distance (SSD)

The distance between structures. Small SSD increases the chance of radiant heat and direct flame contact.

Predictive Ember Accumulation

Analysis of where embers are likely to land and ignite materials based on wind, topography, and site layout.

Ingress/Egress

The routes residents can use to evacuate. Narrow, locked, or overgrown driveways increase risk.

Suppression Analysis

Evaluation of firefighting challenges, such as hydrant distance, dead-end roads, or access for fire engines.

Hydrant Distance

Proximity to fire hydrants (<200 ft., <1,000 ft., >1,000 ft.). Closer hydrants improve suppression potential.

Structural Triage

The process firefighters use to evaluate whether a home can be defended during a wildfire event.

Key Wildfire Science Terms**Embers**

Burning particles carried by wind that can ignite homes miles ahead of a wildfire front.

Radiant Heat

Heat energy that can ignite materials without direct flame contact.

Convection

Upward movement of hot gases that can preheat and ignite surfaces.

Combustible

Materials capable of igniting and burning (e.g., wood, vinyl).

Non-Combustible

Materials that do not ignite (e.g., stone, brick, stucco, metal).

Ignition-Resistant Materials

Products designed to withstand moderate heat and flame exposure, though not entirely non-combustible.

Agencies & Standards**NFPA (National Fire Protection Association)**

Publishes fire codes and standards, including guidance on home ignition zones.

IBHS (Insurance Institute for Business & Home Safety)

Researches building and landscape performance under wildfire conditions.

NIST (National Institute of Standards and Technology)

Conducts research on ember behavior, fire spread, and hazard mitigation methodologies.

CAL FIRE

California Department of Forestry and Fire Protection, which sets defensible space and home-hardening standards.

Firewise USA

A national program encouraging neighborhoods to work together to reduce wildfire risk.