



Fortress Fire

Wildfire Risk Solutions

Wildfire Disclosure Report



1482 Oak Valley Lane

Westlake Village, CA 91358

Aerial Assessment

Ground Assessment

Report Generated on: 5/2/2023

Ordered by: Ashley Simonson

Nothing herein shall be construed as providing certainty a property will survive a wildfire.

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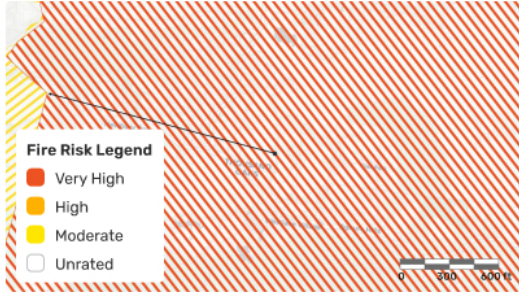
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Wildfire Disclosure Summary

CalFire Hazard Rating

Hazard Maps depict the general wildfire threat to a property. The CalFire Hazard rating indicates whether a property is subject to AB 38. The AB 38 inspection requirement is determined by whether the location of the centroid of this property falls into a High or Very High CalFire Fire Hazard Severity Zone based on 2007 CalFire SRA FHSZ. More detail on the wildfire hazard ratings for this property is available on page 6 of this report.



CalFire Rating

Very High

Subject to AB 38

Yes

AB 38 Compliance Efforts

More detail on the property compliance to AB 38 is available on pages 8 and 9.



AB 38 Compliance

Non-Compliant

In order to be compliant with AB 38, this property would require:

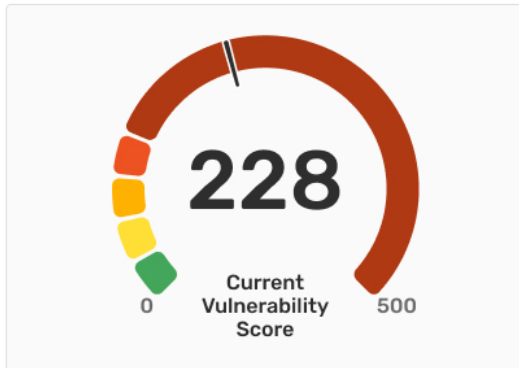
- Removal or trimming of 1 Zone 0 trees
- 13 total Zone 1 trees for which at least 1 will require trimming or thinning
- 27 total Zone 2 trees for which at least 1 will require trimming or thinning

These compliance mitigations are estimated to start from between **\$1,700 - \$5,600**.

An onsite inspection is required to determine the complete mitigations required for AB 38 Compliance.

Vulnerability Reduction Efforts

A detailed analysis of the property's wildfire Vulnerability is available on pages 10-19.



To reduce this home's vulnerability, this property would require:

- Treatment of 3 trees (removal vs trimming confirmed during onsite inspection)
- Retrofitting of all vents of **1/16th inch** mesh screening
- Active Asset Monitoring and Protection plans for the main structure and any secondary structures on the property are recommended
- Seasonal and emergency application of fire retardant to structures and surrounding landscape recommended

These vulnerability reduction mitigations are estimated to start from between **\$1,200 - \$4,200**.

Wildfire Disclosure Report Overview

This Wildfire Disclosure Report (WFDR) provides real estate agents, their clients and related partners with a detailed view of a property's wildfire risk to help facilitate real estate transactions. The report leverages aerial imagery and third-party data and analysis to establish a baseline view on the core risk indicators of the property.

The report has four primary sections:

1. Wildfire Hazard Ratings

The report includes three Hazard ratings and maps:

- CalFire Fire Hazard Severity Zone (FHSZ) rating and map
- USDA Forest Service Wildfire Hazard Potential (WHP) rating and map
- CA Public Utility Commission fire threat map

Hazard maps depict the general wildfire threat level to a property. These maps show ratings and relative distance to increased and/or decreased risk areas. They are included in this report to provide an understanding of the wildfire hazard to the property and in the general area around the property.

Additionally, California's Assembly Bill 38 (AB 38) is based on CalFire's FHSZ maps. AB 38 defines how the seller of a residential property must submit documentation of compliance with locally adopted defensible space requirements prior to the close of escrow, and in the case where documentation cannot be obtained by the close of escrow, terms for how the buyer is required to obtain documentation of compliance within one year of closing escrow. Generally, properties in High or Very High CalFire Hazard Zones are subject to AB 38.

2. AB 38 and IBHS Compliance Indication

The report outlines the key components of AB 38 and IBHS (Institute of Business and Home Safety) standards and, as possible from the aerial imagery, provides insights for several of the key disclosure requirements. Aerial imagery is sufficient to frame a general understanding of a property's status against these standards, especially those requirements related to heavy fuels (structures and trees). However, an onsite inspection is required to either certify a property (by a local fire department for AB 38 Compliance or IBHS for its Wildfire Prepared Home Certification) or establish a comprehensive profile of the property.

To schedule an AB 38 inspection please visit:

<https://survey123.arcgis.com/share/e659f03a6e8447af8663e42cf48f60fd>

To learn more about AB 38 visit:

<https://storymaps.arcgis.com/stories/b2fc79e82aec4ecab4250987db7312cb>

To learn more about the IBHS Wildfire Prepared Home certification, please visit:

<https://wildfireprepared.org/>

3. Wildfire Vulnerability Analysis

The report analyzes and assesses a property's Vulnerability in the event of a wildfire. In order to conservatively inform the wildfire threat, the analysis begins with the assumption that a major wildfire is on the property and our Property Ignition Model (PIM) calculates points of potential ignition risk based on the specific characteristics of the property. In addition, the report outlines recommended actions for reducing the property's risk. The Vulnerability analysis incorporates satellite imagery, specific property data, machine learning and integrates a physics-based ignition model developed on the latest fire science to estimate the heat energy projected on structures and any resulting ignition failures.

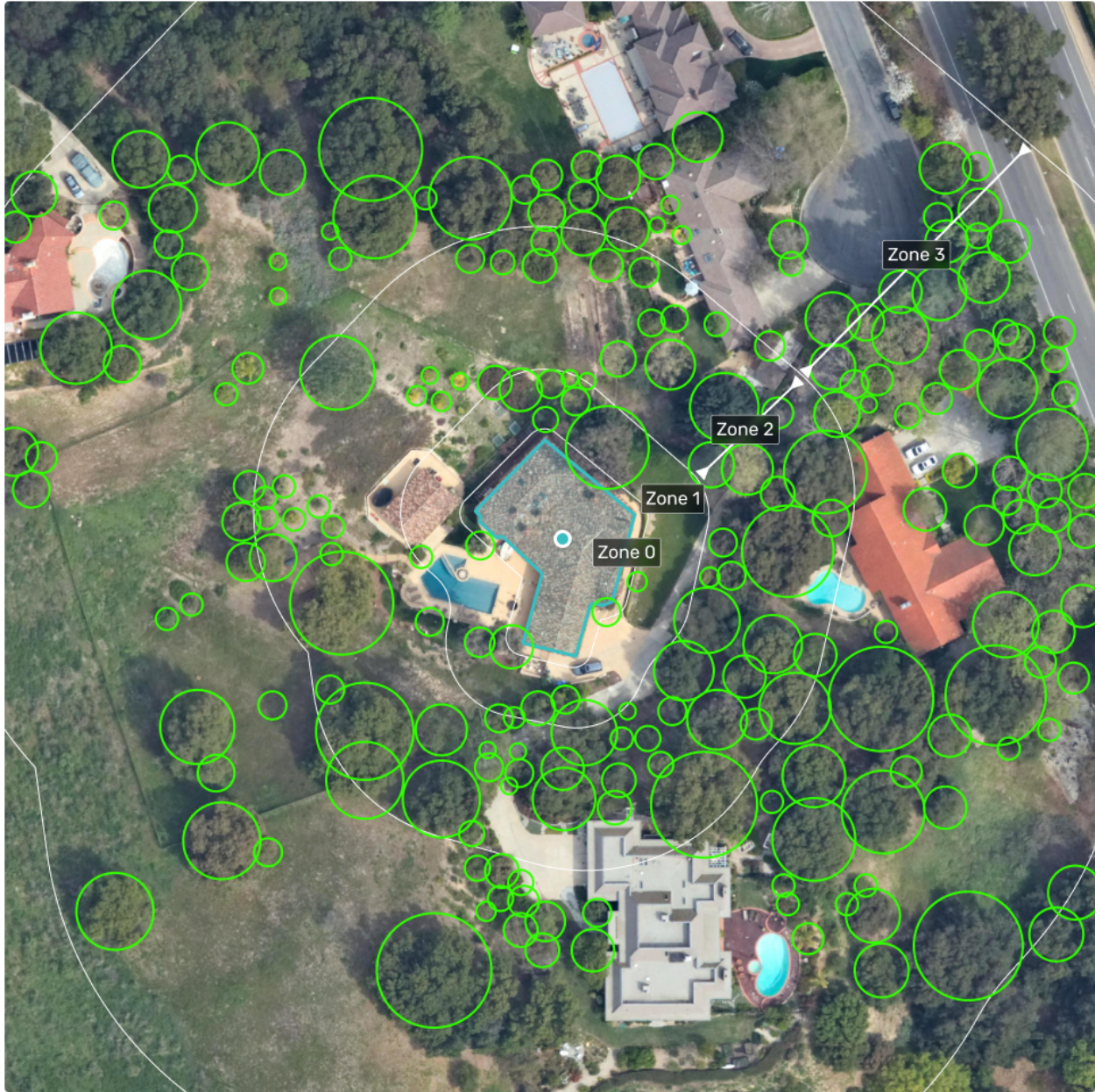
Vulnerability and Hazard ratings in combination provide data that insurers use to assess and price homeowner insurance. Reducing property Vulnerability to wildfire can help lower the cost of insurance and / or provide access to better coverage.

4. Mitigation Cost Estimate

Finally, based on the analysis, the report outlines the potential actions to be taken and related costs to mitigate the ignition risks and / or property characteristics observed from the aerial imagery.

Please note, this report is intended to provide an initial broad-based indication of the ignition risk and compliance of the property. We recommend an onsite inspection to develop a comprehensive analysis of a property's wildfire risk and more detailed quote inclusive of all the services necessary to remediate a property.

Subject Property Details



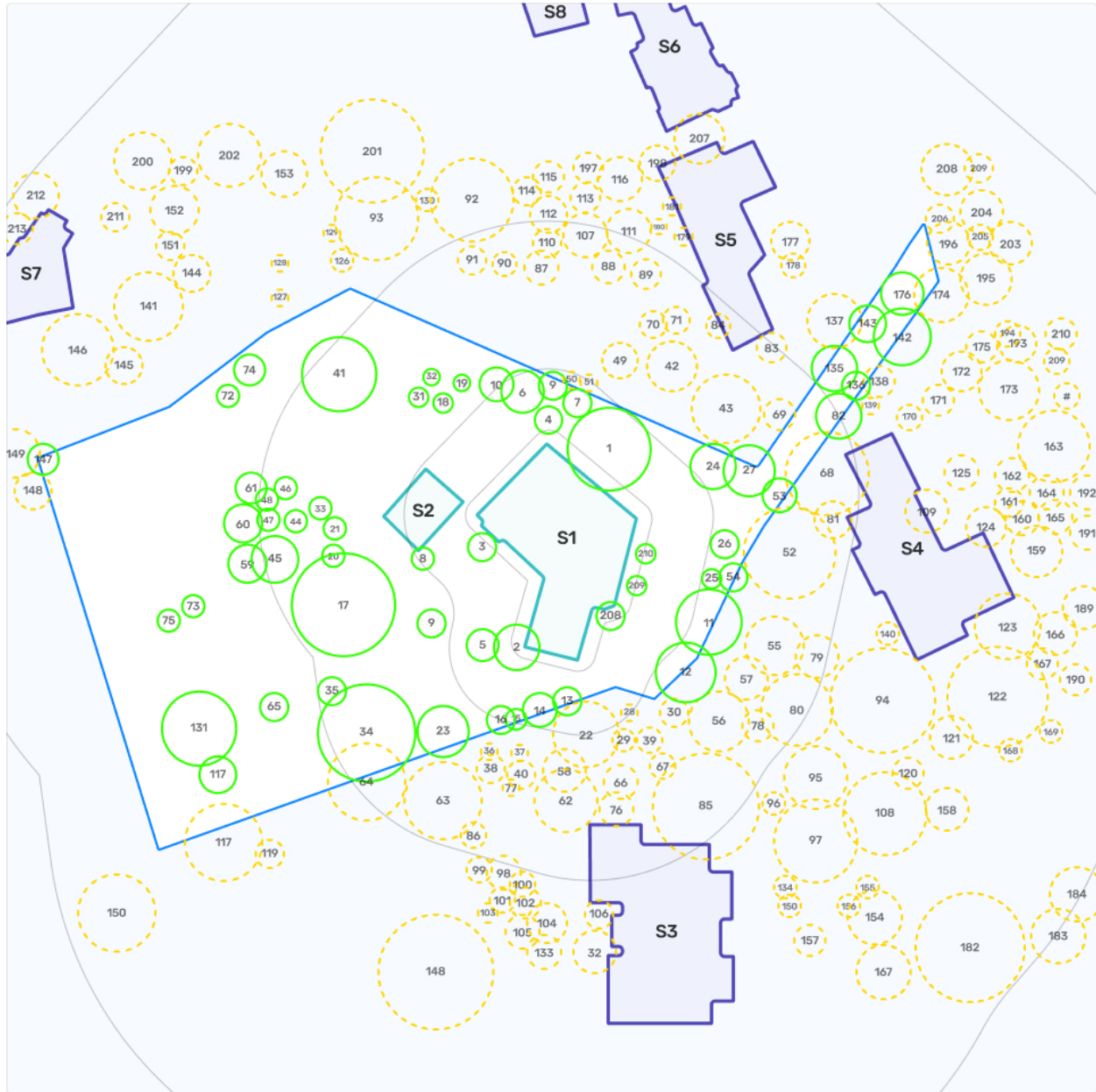
Aerial Image provided by Vexcel on 9/2/2022

Address	1482 Oak Valley Lane Westlake Village, CA 91358
Structure Analyzed	Primary Structure
County	Ventura
APN	690-004-0115
Lat/Long	42.861741 / -116.141823
Property Type	Residential

Year Built	1978
Stories/Levels	2
Roof Perimeter / Roof Area	416 ft / 4,256 sqft
Lot Size	1.23 acres
Roof Material	Tile Client
Exterior Wall Material	Stucco Client

Property Schematic: Trees & Structures

The property schematic represents the inventory of fuel sources, structures, and property footprint representing the inputs to PIM. The schematic is combined with building materials data to perform our analysis. Parcel data is sourced from public records and plotted while the model identifies, numbers, and labels the fuel sources along with the sides of the structure. Generally speaking, the closer trees or other fuel sources are to a structure the higher the risk of their contributing to ignition risk. Tree canopy analysis can isolate the trees that add the most to wildfire risk. The table at the bottom of the page indicates the sum of specific fuel sources.



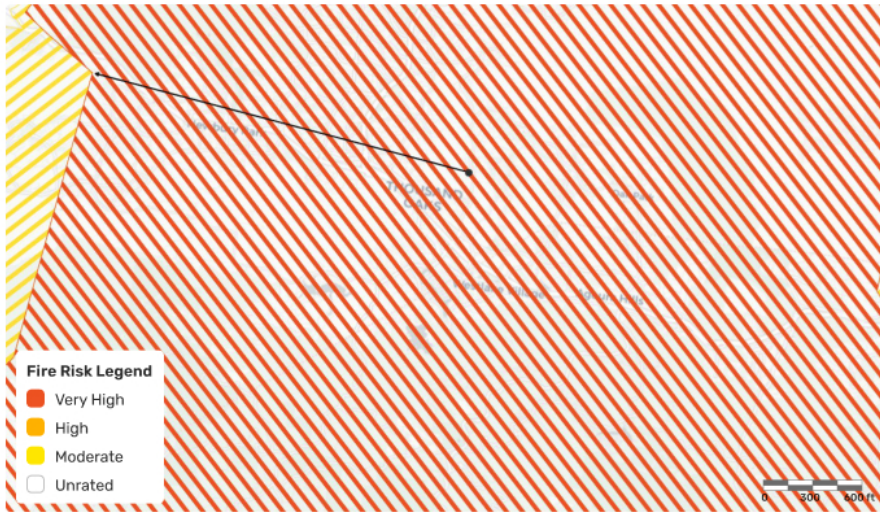
Trees in Zones 0-2
110

Trees on Parcel
56

Structures in Zones 0-2
2

Wildfire Hazard Rating

Wildfire hazard scores are probabilistic models that rely on historical fire information, topography, weather patterns, and vegetation to rank the likelihood that a wildfire will impact a given area. The most accurate assessment of wildfire risk combines hazard modeling with specific property vulnerability assessments. Examples of current hazard rates include CalFire, USDA and CPUC.



CalFire Rating

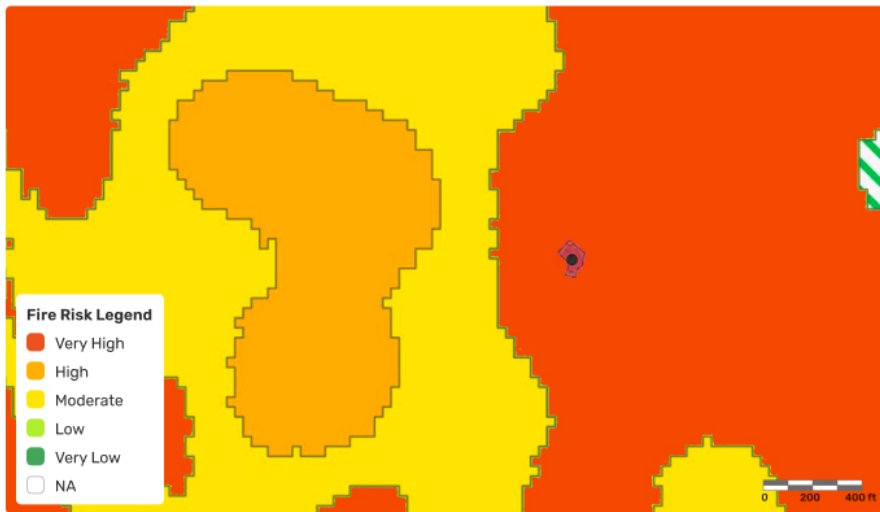
Very High

Distance to Closest Neighboring Zone

0.28 miles

The Fire Hazard Severity Zone maps are developed by CalFire using a science-based and field-tested model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior. Many factors are considered such as fire history, existing and potential fuel (vegetation), predicted flame length, blowing embers, terrain, and fire weather for the area.

There are three levels of hazard in the CalFire ratings: Moderate, High and Very High.



USDA Rating

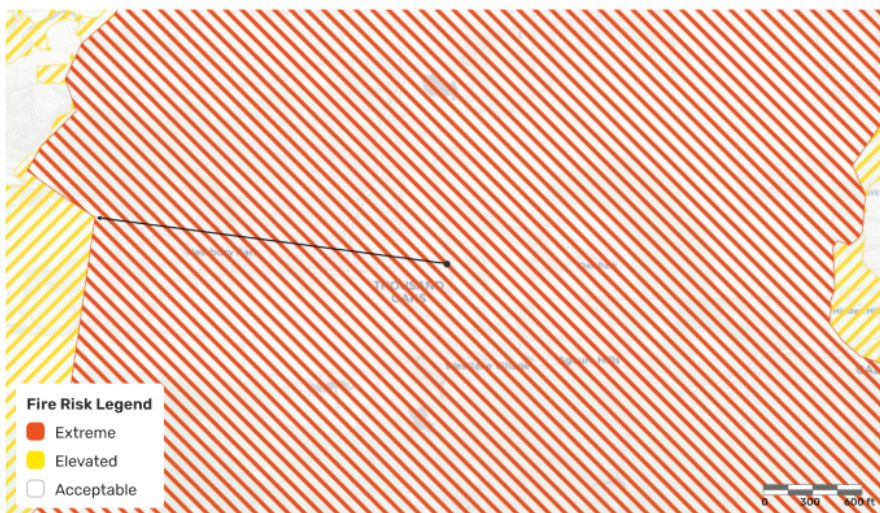
Very High

Distance to Closest Neighboring Zone

0.27 miles

The Wildfire Hazard Potential (WHP) map is produced by the USDA Forest Service, Fire Modeling Institute to help inform evaluations of wildfire hazard or prioritization of fuels management needs across very large landscapes. The specific objective with the WHP map is to depict the relative potential for wildfire that would be difficult for suppression resources to contain.

The map identifies five tiers: Very Low, Low, Moderate, High and Very High.



CPUC Rating

Extreme

Distance to Closest Neighboring Zone

0.32 miles

California Public Utility Commission (CPUC) adopted a fire threat map to identify areas of heightened fire risk for use by utilities in planning risk reduction activities. The map was developed in collaboration with CalFire, the Office of Emergency Services and utilities.

The map defines three tiers: Tier 1 have an Acceptable level of wildfire risk, Tier 2 areas have Elevated risk and Tier 3 areas have an Extreme risk.

Regulatory Compliance Indication

AB 38 & IBHS Wildfire Protected Home Summary

The following represents the disclosure standards for AB 38 and certification standards for IBHS Wildfire Prepared Home. The full list of standards can be found on the next page. This is a partial analysis based on aerial imagery that is meant to provide an initial view of the property. **An onsite inspection by a qualified provider is required to provide a complete view of the property's compliance status.**



Structure Standards Not required for AB 38 compliance until 2025 | Required for IBHS Wildfire Prepared Home Certification

Roof must be Class A – non-combustible material (roofing composition must be confirmed during an onsite inspection) | Tile | Client – **Compliant**
 Bird stops and/or roof flashing must be sealed

ZONE 0 (0-5 ft) Fuel Management Recommended but not required for AB 38 compliance | Required for IBHS Wildfire Prepared Home Certification

Remove all trees, branches and vegetative debris (debris confirmed during an onsite inspection) | **7 Non-Compliant Tree(s)**

ZONE 1 (5-30 ft from Structure) Fuel Management Required for AB 38 compliance | Required for IBHS Wildfire Prepared Home Certification

Remove all tree branches overhanging structures | **3 Non-Compliant Tree(s)**

Trim trees regularly to separate canopies by 10 feet | **15 Total Zone 1 Tree(s)**

ZONE 2 (30-100 ft or to property line) Fuel Management Required for AB 38 compliance | Required for IBHS Wildfire Prepared Home Certification

Remove fuels in accordance with the Zone 2 Fuel Separation or Continuous Tree Canopy guidelines | **22 Total Zone 2 Tree(s)**

Outbuildings and propane tanks have no flammable vegetation for 10 feet around exterior | **1 Secondary Structure(s) on Property**

Please find a more complete list of standards and requirements for AB 38 and IBHS Wildfire Prepared Home on the next page.

AB 38 & IBHS Wildfire Protected Home Standards

The following represents the disclosure standards for AB 38 and certification standards for IBHS Wildfire Prepared Home. Some of the requirements have been summarized or consolidated to facilitate review.

Recommended
 Required
 * Not required for AB 38 until 2025

Standard	Associated Standards	
	IBHS	AB 38
Structures		
Class A – non-combustible roof material (AB 38 accepts a treated wood shingle roof)	<input checked="" type="radio"/>	<input type="radio"/> *
Bird stops and/or roof flashing are sealed	<input checked="" type="radio"/>	<input type="radio"/> *
Vents are flame and ember resistant or 1/8 inch or finer mesh screens	<input checked="" type="radio"/>	<input type="radio"/> *
Windows are multi-pane, tempered glass (IBHS Prepared Plus standard)	<input checked="" type="radio"/>	<input type="radio"/> *
Gutters and downspouts are made of a non-combustible material	<input checked="" type="radio"/>	
Non-combustible gutter covers installed	<input checked="" type="radio"/>	<input type="radio"/> *
Roof and gutters must be clear of leaves, branches or other combustible debris	<input checked="" type="radio"/>	<input type="radio"/> *
All exterior walls must have a minimum of 6 vertical inches of non-combustible material	<input checked="" type="radio"/>	
Equip chimney or stovepipe openings with a metal screen having openings between 3/8 - 1/2 inch	<input checked="" type="radio"/>	
Zone 0 (0-5 ft from the structure)		
Remove all trees, branches and vegetative debris	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Remove all tree branches within 10 feet of any chimney or stovepipe outlet	<input checked="" type="radio"/>	
Remove and/or replace combustible bark or mulch	<input checked="" type="radio"/>	<input type="radio"/>
Replace combustible fencing, gates, and arbors attached to the home with non-combustible alternatives	<input checked="" type="radio"/>	<input type="radio"/>
Clear vegetative debris from decks, porches, stairways, etc.	<input checked="" type="radio"/>	<input type="radio"/>
Limit combustible items (outdoor furniture, planters, etc.) on top of decks	<input checked="" type="radio"/>	<input type="radio"/>
Relocate firewood and lumber to Zone 2	<input checked="" type="radio"/>	<input type="radio"/>
Relocate garbage and recycling containers, boats, RVs and vehicles outside of Zone 0	<input checked="" type="radio"/>	<input type="radio"/>
Zone 1 (5-30 ft from the structure)		
Remove all dead or dying branches and shrubs or other plants adjacent to or overhanging buildings	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Trim trees regularly to separate canopies by 10 feet and remove all dead or dying, plants, trees, branches, leaves, etc	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Remove or separate live flammable ground cover and shrubs in both Zone 1 and 2	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Remove combustible vegetation and items adjacent to or below combustible decks, balconies and stairs	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Remove leaves, needles or other vegetative debris on decks, porches, stairways, etc	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Relocate exposed wood piles outside of Zone 1 unless completely covered in a fire resistive material	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Zone 2 (30-100 ft from the structure or to the property line)		
Remove fuels in accordance with the Zone 2 Fuel Separation or Continuous Tree Canopy guidelines	<input checked="" type="radio"/>	<input checked="" type="radio"/>
All exposed woodpiles must have a minimum of 10 feet clearance, down to bare mineral soil, in all directions	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Remove all dead or dying woody surface fuels/vegetative debris and cut annual grasses/forbs to a maximum of 4 inches in height	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Other		
"Outbuildings" and Liquid Propane Gas (LPG) storage tanks shall have 10 feet of clearance to bare mineral soil and no flammable vegetation for an additional 10 feet around their exterior		<input type="radio"/>
Logs or stumps embedded in the soil within 100 ft of any structure must be removed or isolated from other vegetation	<input type="radio"/>	<input type="radio"/>
Annual inspection to review landscape and confirm maintenance necessary to keep property in compliance	<input type="radio"/>	

Wildfire Vulnerability Analysis

This report breaks down the property by zones, in order to better assess the risk of wildfire and follow the industry accepted best practices for wildfire risk management. There are four distinct zones recognized for ignition threats:

- Zone 0 (zero) – often referred to as the home ignition zone, the immediate 5 feet from the structure
- Zone 1 – 5 to 30 feet from the structure
- Zone 2 – 30 to 100 feet from the structure, and
- Zone 3 – 100 to 300 feet from the structure.

Since proximity to a structure is of paramount importance in evaluating fire threats, zone analysis allows PIM to determine different fuel risks within each zone in order to prioritize them.

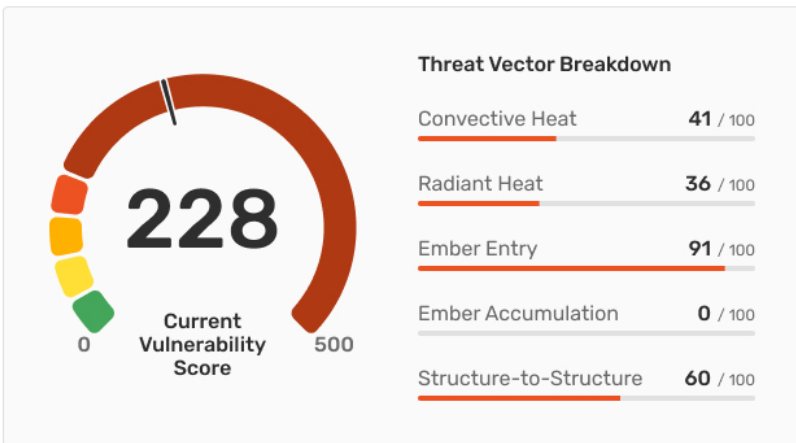
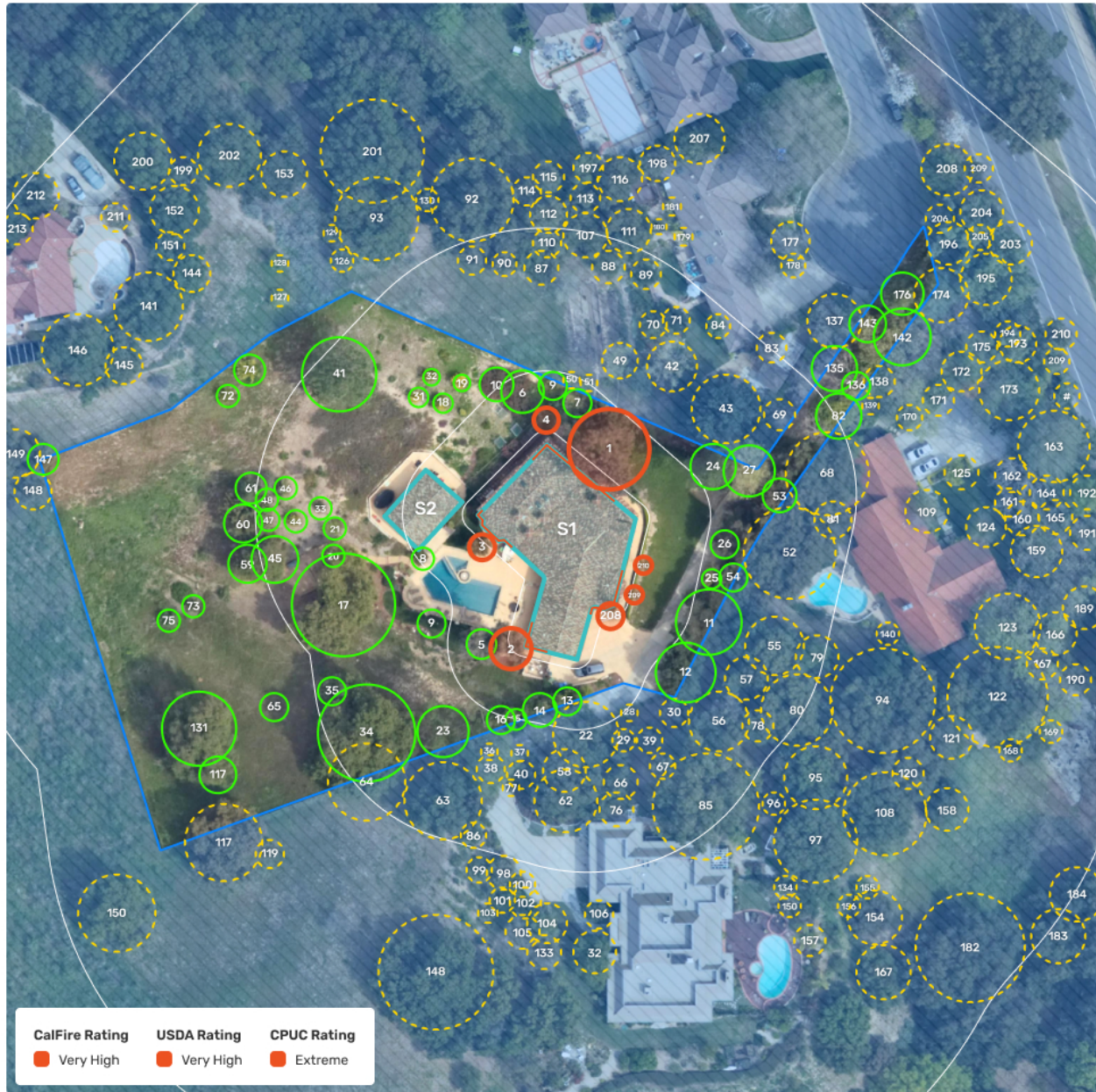
This report generates a Vulnerability Score for a property for overall risk ranging from 1 to 500 with 1 being the lowest and 500 being the highest.

The Vulnerability Score is made up of five components that represent distinct threat vectors or ignition risks to a property. They include Convective (flame touch), Radiant, Ember Accumulation, Ember Entry and Structure Risks.

Any positive score means that, in a peak fire scenario where all fuels surrounding a structure are ignited at once, the energy present is capable of causing an ignition. The larger the score, the more heat energy above the ignition point of the structure. The scores for each individual threat vector max at 100 which generally represents an excess of 3-4X the energy necessary to cause ignition.

Not all fires are peak fires, but PIM is designed to inform a worst-case scenario and promote a comprehensive understanding for the vulnerability of a structure and the required mitigations.

Wildfire Vulnerability & Ignition Risk Summary

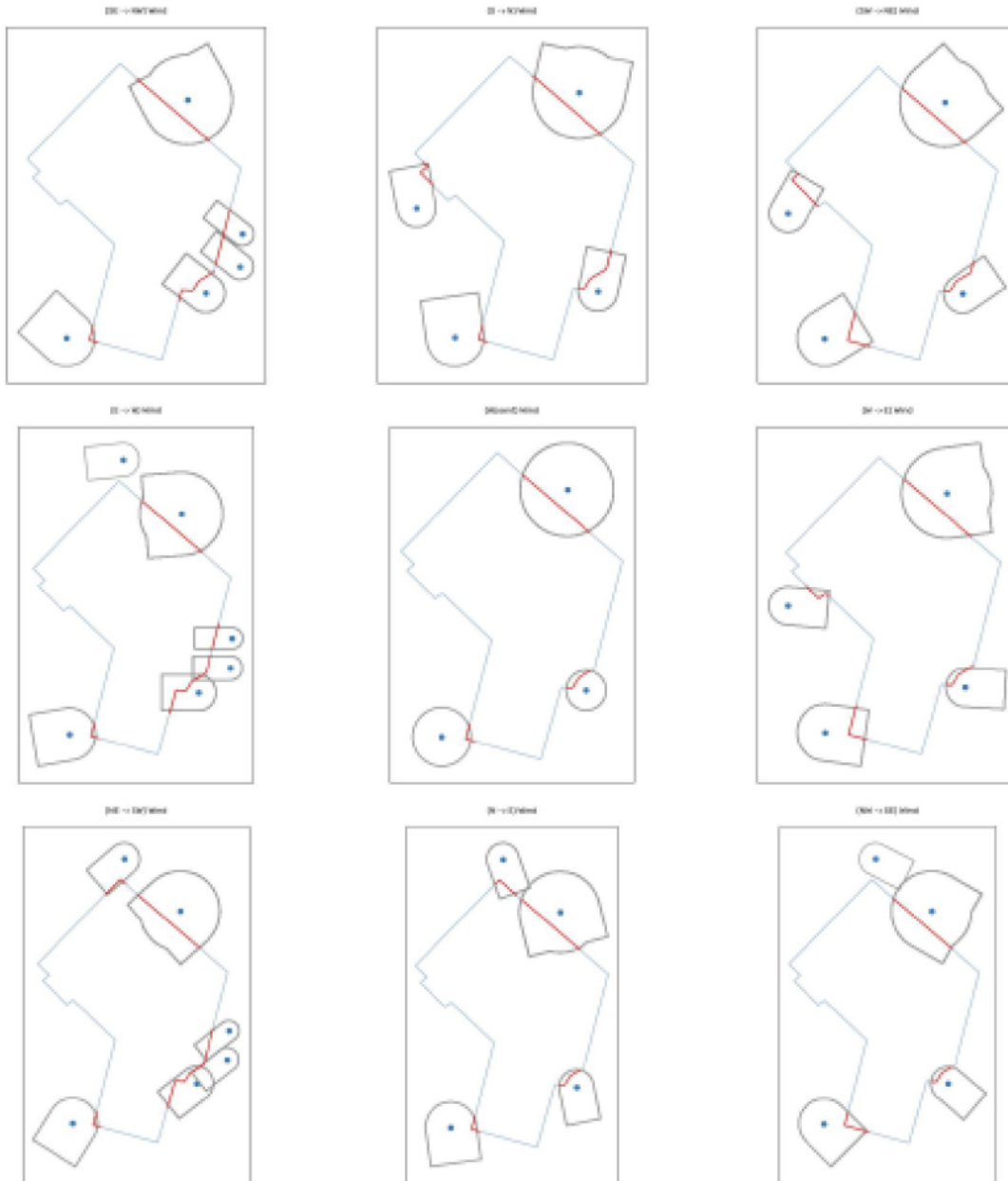


Assessment Summary

- Currently 172.7 linear ft of perimeter ignitions represent a combination of convective and radiant threats.
- The treatment of 7 trees will lower structural ignition risk.
- Trimming of limbs and other detailed mitigation services are recommended to reduce risk.
- Secondary structure(s) identified in the photo as S2 should be included in mitigation planning.
- Recommend active asset monitoring and protection plans including long-term fire retardant to maintain and protect properties once mitigations are implemented.

Convective Heat Failure Analysis

Convective risk represents the risk of direct flame touch to the exterior of a structure. Convective Risk Analysis models a 20mph wind from 8 directions, as well as a zero-wind scenario, taking into account slope and elevation in order to determine where flame touch would produce an ignition point on the structure. It should be noted that flame length is modeled at 20 mph to represent a peak flame length for risk analysis because studies demonstrate that while higher winds increase fire spread, they do not produce longer flames.



Sum of Perimeter Ignition
172.7 linear ft.

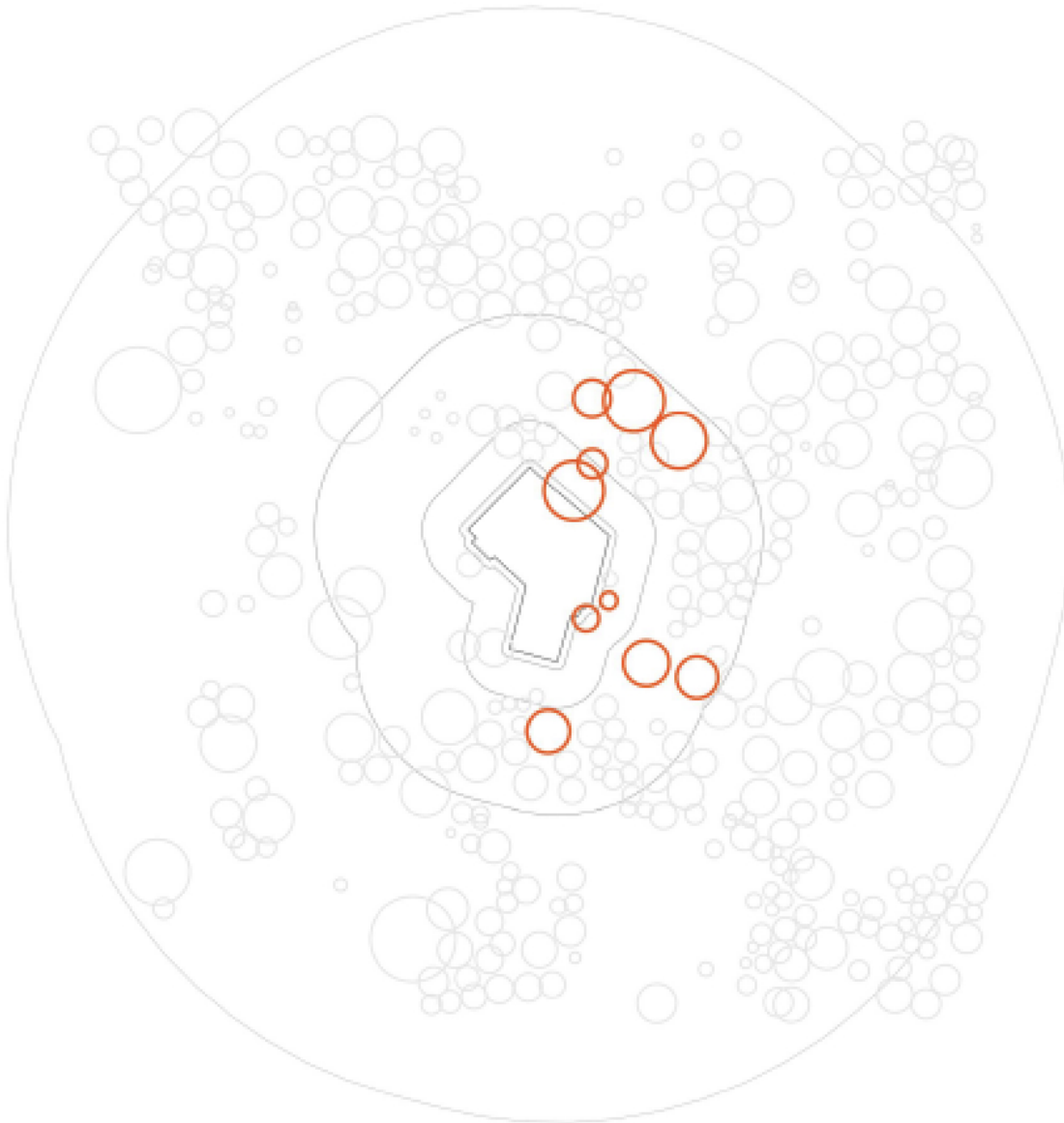
Unique Contributing Trees
7

Radiant Heat Failure Analysis

Radiant heat is heat projected from outside the flame (such as heat generated by patio heater). Radiant heat analysis illustrates the most likely area of a structural wall that will ignite from radiant heat. Those wall segments are highlighted in red in the illustration.

- The image shows which of the wall subsegments have a surplus of Heat Flux Density, causing possible material failure and ignition.
- The trees that contribute the most heat in a peak fire scenario are also shown (red circles).

While all possible fuel sources are analyzed, PIM's artificial intelligence identifies the key contributors to radiant heat. All fuel sources, including trees, are identified and inventoried as part of the analysis. This diagram focuses on top contributors to focus attention on the highest risk fuel sources.



Primary Material Considered

Stucco
Client

Window Type

Double Pane Tempered
Default

Zone 0 Tree Threat

3

Zone 1 Tree Threat

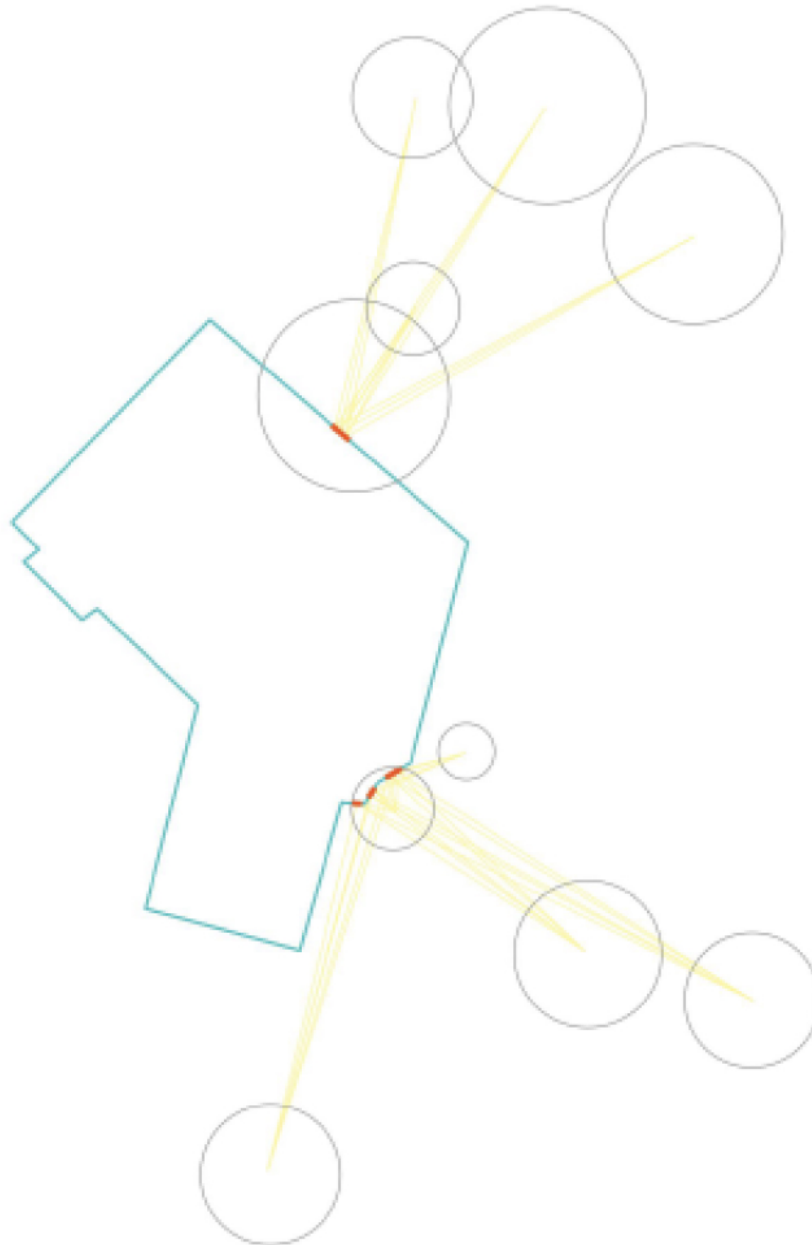
1

Zone 2 Tree Threat

6

Radiant Heat Failure Analysis (continued)

Understanding the risk contributors is key to informing the property owner and designing a mitigation plan. Each fuel source is assessed, which allows a property owner to consider many combinations of risk mitigation measures and their effectiveness in reducing ignition risk.



Primary Material Considered

Stucco
Client

Window Type

Double Pane Tempered
Default

Sum of Perimeter Ignition

12.8 linear ft.

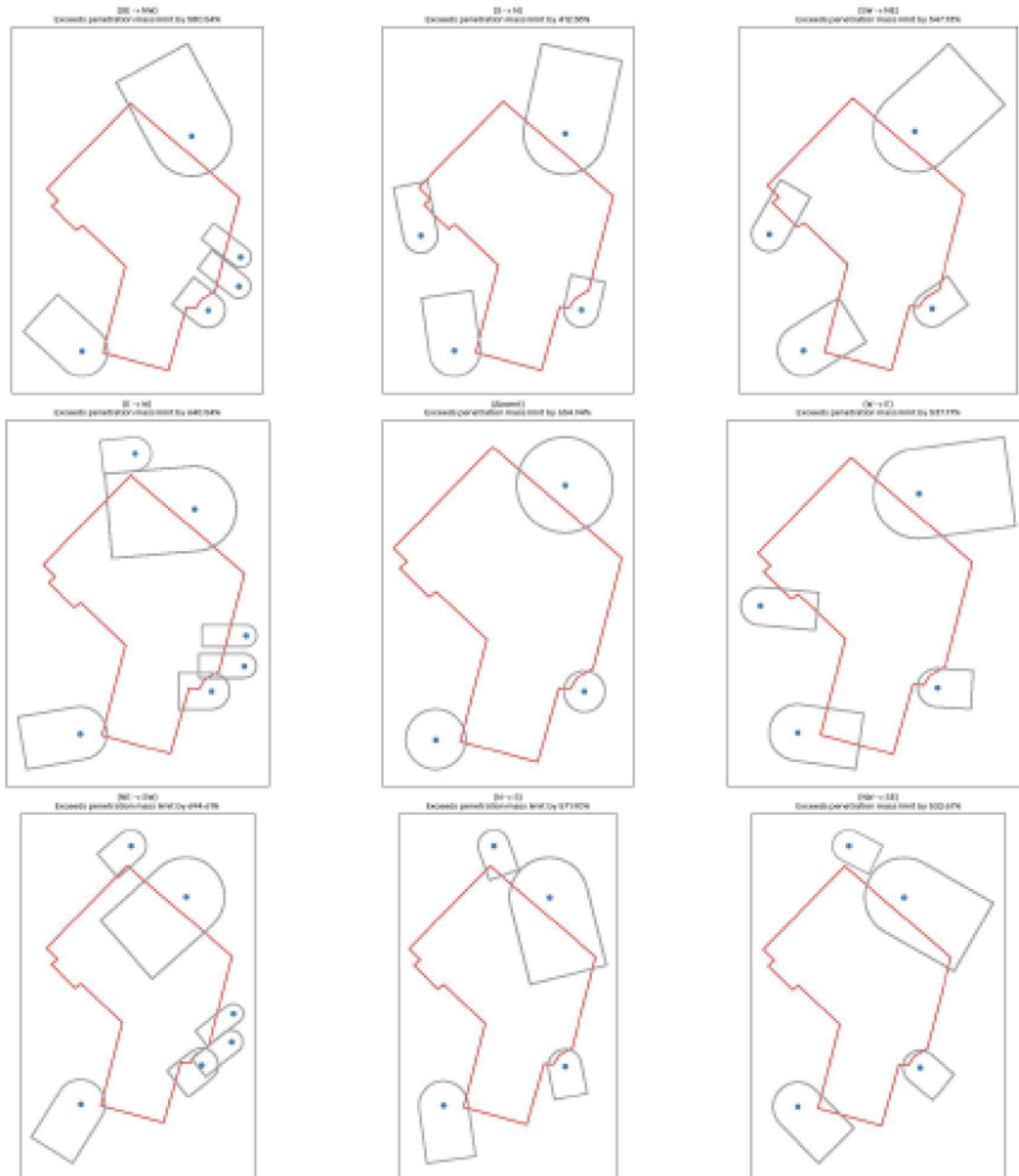
Top Contributing Trees

10

Ember Entry Surplus Analysis

Ember entry is a probability model that estimates whether embers will enter a home through a soffit, vent or other opening with enough mass to cause property ignition. Ember entry is universally cited as the leading cause of structure ignition during wildfires. PIM calculates ember penetration from all wind scenarios based on fuel mass and estimates ember penetration to exposed property features such as eaves, vents and soffits. While distance degrades the ignition potential of embers, should they gain entry into a structure they can find and ignite combustible materials causing a structure to burn inside out.

Ember cast (quantity and size) and accumulation patterns are critical in assessing wildfire risk. PIM identifies the areas of a structure most likely to encounter significant ember showers and thus the areas of the structure that must be hardened.



● Surplus Energy / Structure Ignition ● No Surplus Energy / No Structure Ignition

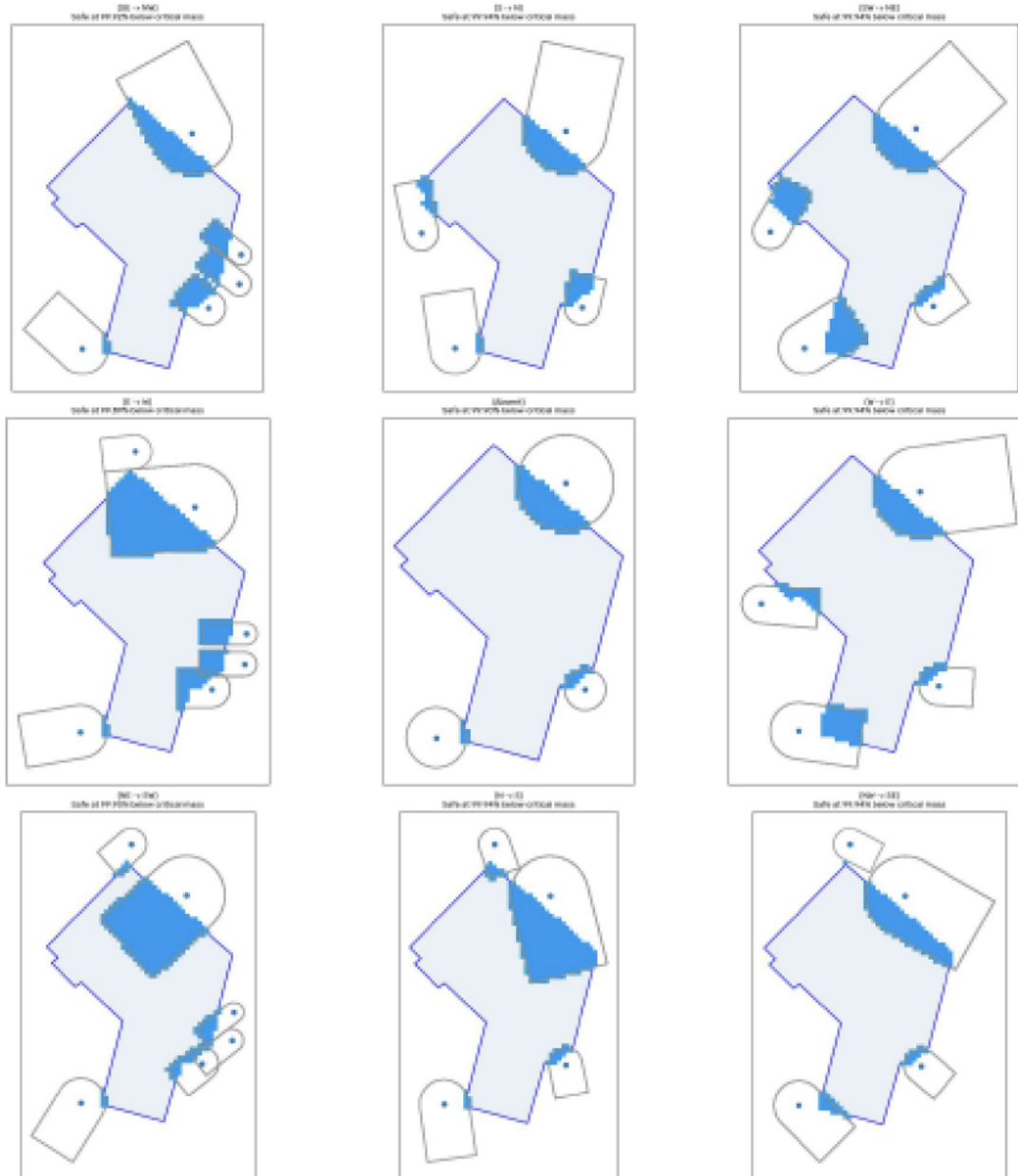
Vent Screening
1/8 in.
Default

Unique Contributing Trees
7

Ember Accumulation Analysis

Ember accumulation is the estimate of embers ejected from surrounding fuel sources that accumulate on flat surfaces of the structure, primarily the roof. PIM calculates ember projection from burning fuels based on the size and proximity of fuel sources. Then the model measures ember movement from all wind scenarios and estimates the ember accumulations on the property's roof. Debris accumulation on roofs or gutters can be ignited by embers so high-resolution images are used to confirm whether the roof is clean. In most cases, clean, asphalt shingle roofs, or other non-combustible roof materials, will not burn through as a result of ember accumulation.

Embers produced by wildfires are one of the greatest threats to wildfire spread. Embers can travel for miles but lose mass and thus ability to ignite structures over distance. Understanding a property's roof status is critical to determining overall wildfire risk.



■ Surplus Energy / Structure Ignition
 ■ No Surplus Energy / No Structure Ignition

Primary Material Considered

Tile Roof
Client

Roof Condition Assumed

Clean
Default

Unique Contributing Trees

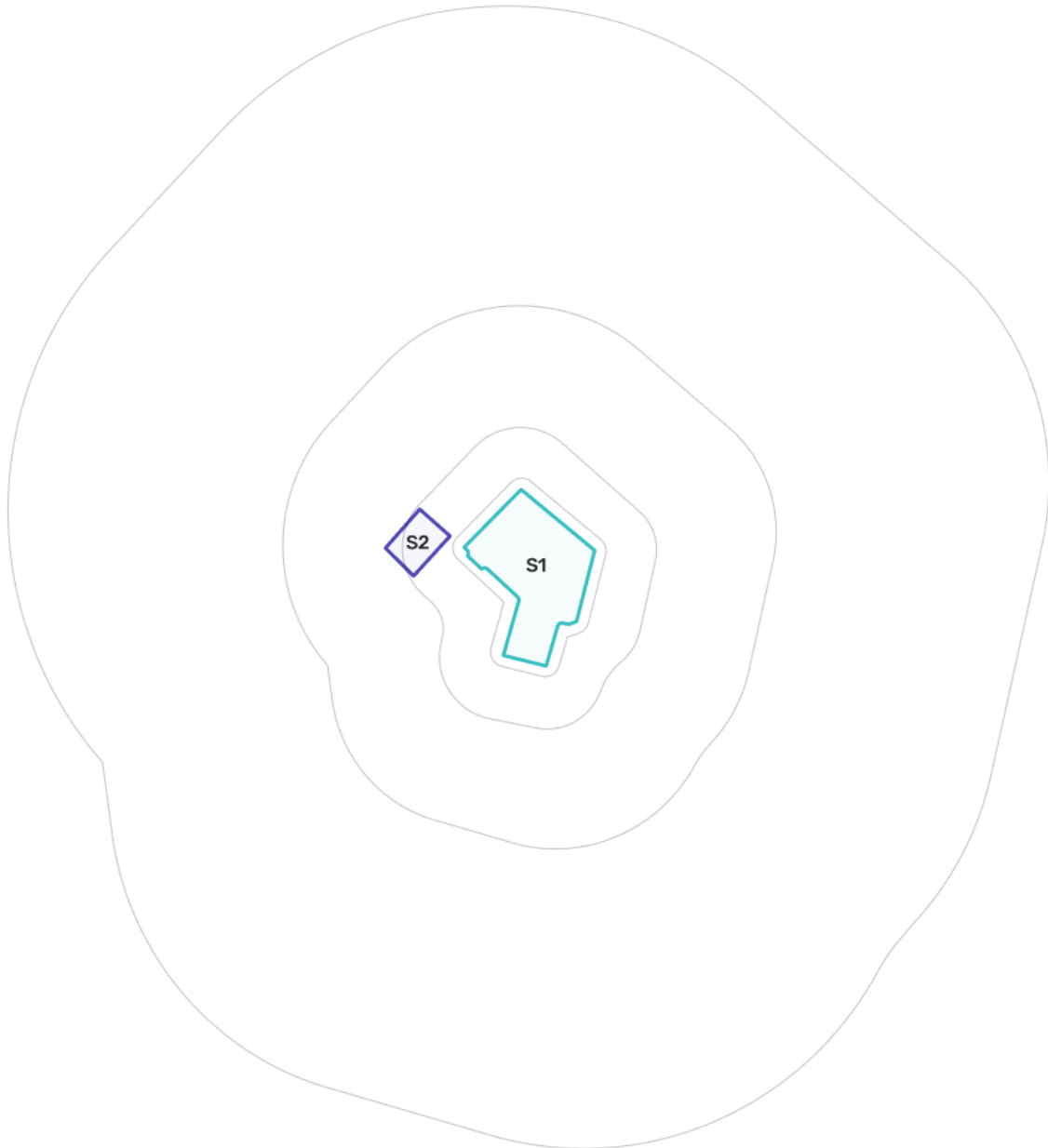
7

Critical Structure-to-Structure Failure Analysis

Structures are treated separately because they represent a larger potential fuel source, which projects more energy for a longer period of time as compared to vegetation fuels.

All structures within 30 feet of the primary structure are risks as fuel source risks and are shown below.

Secondary structures need to be part of the primary assessment as they present a risk of ignition. A comprehensive structure hardening plan will include measures to address the risk presented by both the primary and secondary structures.

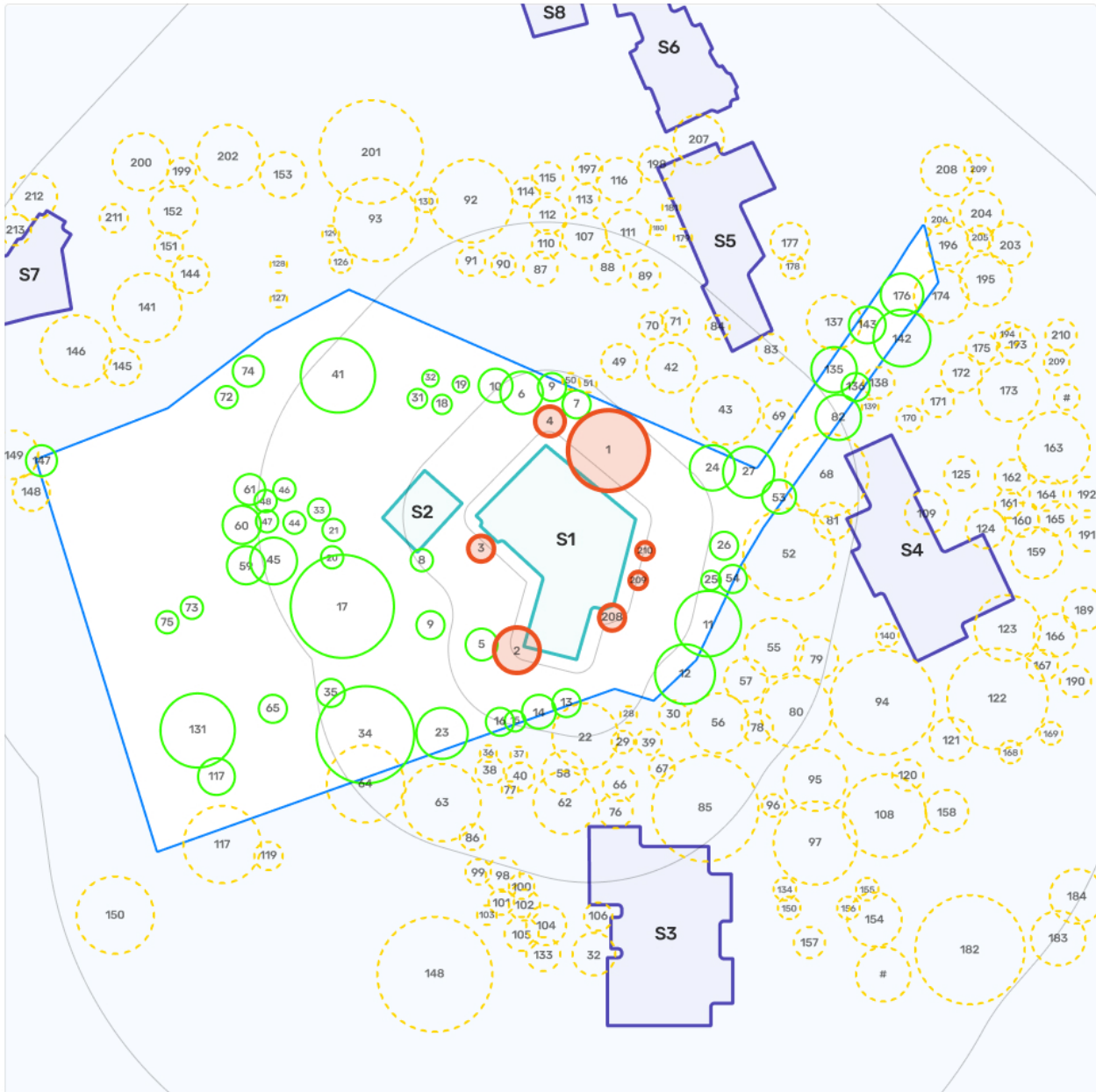
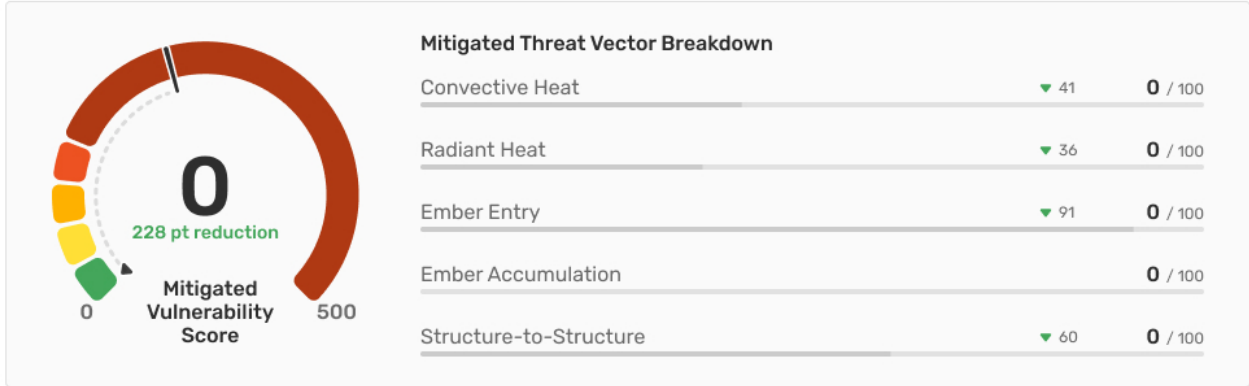


Structures within 30 ft of Main Structure

1

Vulnerability Mitigation Summary

A Mitigated Vulnerability Score is generated after analysis of the five threat vectors, and the Mitigation Vulnerability Score is compared to the Vulnerability Score provided earlier in this report.



Vulnerability Mitigation Actions

Solution: On-parcel Off-parcel No parcel available

Schematic ID	Primary Threat	Treatment
Tree ID - 1	Convective	Remove
Tree ID - 2	Convective	Remove
Tree ID - 3	Convective	Remove
Tree ID - 4	Convective	Remove
Tree ID - 208	Convective	Remove
Tree ID - 209	Convective	Remove
Tree ID - 210	Convective	Remove
Structure ID - S1	Ember Entry	Installation or retrofit of 1/16th in. screening for all vents
Structure ID - S2	Critical Structure-to-Structure	Remediate

Mitigation & Protection Plan Estimate

Based on the property's aerial imagery and wildfire vulnerability analysis, the following mitigation services and related costs indications are estimates to meet AB 38 requirements and remediate the property vulnerabilities. Additional services will be identified and may be required based upon onsite inspection.

An inspection is required to review the structure and Zone 0 components for IBHS certification and determine whether trees may be trimmed or require removal.

Service estimates are presented to indicate the potential costs for AB38 compliance and remediation of the identified Vulnerabilities separately. In some cases, certain services may be presented in both estimates.

AB 38 Compliance

Zone 0 Tree Removals	7 Total Tree(s)	\$2,800 - \$9,800
Zone 1 Tree Trimming	15 Total Tree(s) Typically 10% of trees need to be trimmed.	\$800 - \$2,800
Zone 2 Tree Trimming	22 Total Tree(s) Typically 5% of trees need to be trimmed.	\$800 - \$2,800
Outbuilding / Propane Tank Mitigations	2 Total - Structure IDs S1, S2	TBD pending inspection
TOTAL		\$4,400 - \$15,400

Vulnerability Mitigation Services

The Property Ignition Model identifies the optimal fuel reduction by tree removal and tree trimming to reduce radiant energy below the structure material ignition threshold and removes tree fuel so as to minimize the risk of ignition. Trees significantly taller than the structure roofline may be eligible to be trimmed to meet energy and flame reduction requirements. Tree removals and tree trimming solution work is performed by licensed and certified tree contractors with arborists on staff.

Convective Solution Trees	7 Total Tree(s) - Tree IDs 1,2,3, 4, 208, 209, 210	\$2,800 - \$9,800
Radiant Solution Trees	0 Total Tree(s)	\$0
Structure to Structure	1 Total - Structure IDs S2	TBD pending inspection
Vents	Structures built before 2010 will most likely require vent replacements	TBD pending inspection
Vegetation Management	Additional vegetative mitigations may be required after inspection	TBD pending inspection
TOTAL		\$2,800 - \$9,800

Wildfire Protection Plans

FortressFire Wildfire Protection Plans feature monitoring capabilities that track wildfire conditions at the property, provide communications and alerts to the property owner and includes annual inspection and maintenance services to keep the property compliant to IBHS, AB 38 and insurance carriers underwriting standards.

Residential Protection Plan		
<ul style="list-style-type: none"> Wildfire threat monitoring, alerts and communications Annual inspection and property maintenance Asset protection services and onsite proprietary retardant 	2 Structure(s)	\$1,200

Contact Us

For questions regarding the contents of this report or if interested in scheduling an onsite ground inspection for a ground validated ignition vulnerability report, please reference **a47h92s** when contacting us.

Email
questions@FortressFire.com

Glossary & Explanations

Subject Property Details (ref. page 4)

A recent aerial image of the subject property is sourced along with standard property identifiers and additional related specifics. This report utilizes a proprietary Property Ignition Model ("PIM"). The PIM is designed to provide a comprehensive measurement of the possible wildfire threat to your property based on a composite score that includes a wide range of inputs that contribute to wildfire ignitions. Machine learning and high-capacity computing power enable precise and accurate evaluation of wildfire risk.

Zone Analysis

This report breaks down the subject property by zones. There are four distinct zones recognized for ignition threat with Zone 0 (zero) being the closest and Zone 3 being with widest measured.

Why is this important?

Zone analysis allows PIM to determine different risks based on each zone. For instance, trees in Zone 0 will result in different scores than trees in Zone 3 due to proximity. As well, recommended mitigation efforts are also zone based.

Zones 0-3

Our model uses exact distances and energies, and data is presented in a zone model to help align with industry standard approaches to home ignition risk modelling and present actionable mitigation recommendations and associated costs. For our model the zones are defined as:

Zone (0) Zero – (0-5ft) from home – Non-Ignition Zone. This is a critical area where the goal is to eliminate all ignition threats.

Zone (1) One – (5-30ft) – Goal is to optimize tree spacing further apart.

Zone (2) Two – (30-100ft) – reduced tree spacing to zone one.

Zone (3) Three – (100-300ft) – reduced tree spacing to zone two.

Wildfire Vulnerability & Ignition Risk Summary (ref. page 11)

This report is intended to provide an understanding of a structure's ignition risk in the event of a wildfire. Additionally, an estimation of the effort to remediate a property to reduce or prevent ignition is also provided. The Property Ignition Model (PIM) utilizes high resolution imagery, property data, machine learning and a proprietary physics-based ignition model to arrive at a risk score and to identify mitigations that can reduce the risk of property ignition under peak wildfire conditions. PIM can be supplemented using a proprietary mobile phone app with a structured onsite inspection which will trigger an automatically updated report.

Vulnerability Score

The vulnerability of a property is measured in an overall risk score, ranging from 1-500. This score consists of five components that represent distinct ignition risks to a property. Each ignition risk is scored on a weighted 0-100 scale. Any positive result means that in a peak fire scenario the energy present is predicted to cause an ignition. The larger the score, the more energy in excess of the amount that will cause ignition is present. Of course, not all fires are peak, and this model is intended to present scoring and a protection plan against a peak fire scenario. Depending on goals, smaller excess energy may be acceptable.

Threat Vector Breakdown

There are five separate ignition models that are analyzed in this assessment. They include Convective, Radiant, Ember Accumulation, Ember Entry, and Structure Risks. Below is a brief explanation of those risks:

Convective – Convective risk represents the risk of direct flame touch to the exterior of a home. Convective touch is measured across nine different wind scenarios and touch locations on the home are identified.

Radiant – Radiant heat is heat projected from fire as opposed to the flame. Radiant energy transmission is not impacted by wind. We analyze all potential fuel sources and look at the aggregate energy load on the home to see if enough energy is present to create ignition.

Ember Entry – Ember Entry is a model of the probability of an ember (based on ember load on the home) entering through a soffit or vent. Based on total ember load, and entry points, an ignition model is calculated.

Ember Accumulation – Ember accumulation is the estimate of embers ejected from surrounding fuel sources that accumulate on flat surfaces of the structure, primarily the roof. PIM calculates ember projection from burning fuels based on the size and proximity of fuel sources. Then the model measures ember movement from all wind scenarios and estimates the ember accumulations on the property's roof. Debris accumulation on roofs or gutters can be ignited by embers so high-resolution images are used to confirm whether the roof is clean. In most cases, clean, asphalt shingle roofs, or other non-combustible roof materials, will not burn through as a result of ember accumulation.

Structure-to-Structure – Structures are treated separately because they are a larger potential fuel source, which project more energy onto a building for a longer period of time as compared to vegetation fuels.

Why is this important?

Vulnerability scoring breaks down key threat vectors which ultimately feed into the property's overall risk score. The higher the Vulnerability Score as a total of its threat vector scores, the higher risk the property has of being consumed by a wildfire.