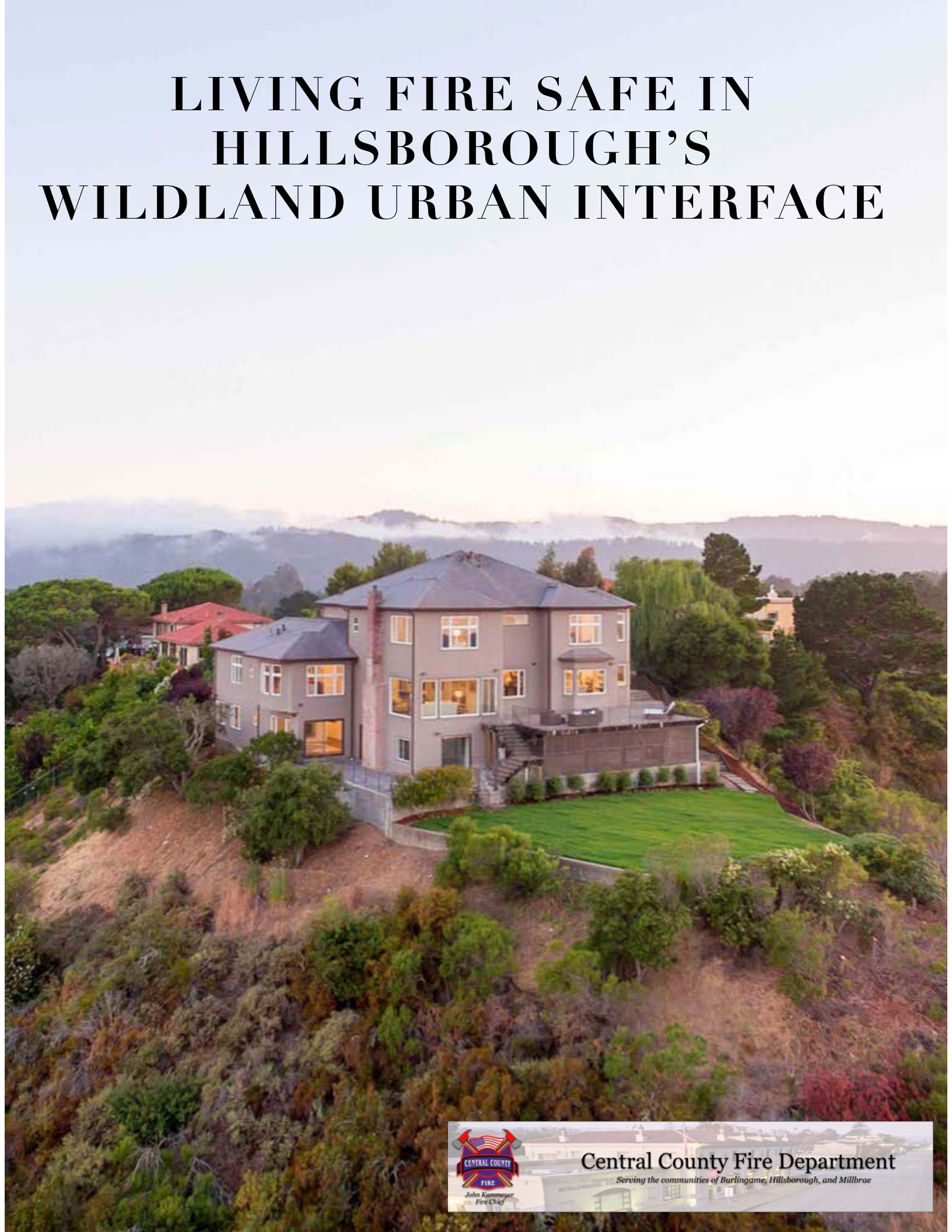


LIVING FIRE SAFE IN HILLSBOROUGH'S WILDLAND URBAN INTERFACE



Central County Fire Department

Serving the communities of Burlingame, Hillsborough, and Millbrae

LIVING FIRE SAFE IN HILLSBOROUGH'S WILDLAND URBAN INTERFACE

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WILDLAND URBAN INTERFACE

Many properties and homes in the Town of Hillsborough are within the **Wildland Urban Interface (WUI)** area. WUI is the transition between wildland (unoccupied land) and human development. Communities like Hillsborough are at a greater risk for wildfire and must take preventative action to eliminate hazards and reduce risks. The following pages contain best-practice actions all residents can take to reduce the risk of wildfire to their home and our community. It will also help homeowners understand and implement the requirements for homes and properties within the designated WUI area. The Central County Fire Department is committed to working with residents to ensure Hillsborough is properly prepared and protected against wildfires.

PLANNING AND PREPARATION PROTECTS LIVES AND PROPERTY

Where are we at risk?

Over the last ten years there has been a significant increase in devastating wildfires throughout California. Though the Town of Hillsborough is an incredibly safe and beautiful place to live, its natural surroundings need to be maintained in a manner that provides for safety and reduces wildfire risk.

Specific parts of Hillsborough have been assessed as Very High Fire Severity Zone (VHFSZ) by the State of California. The Town of Hillsborough adopted this assessment in 2010 along with other identified areas of Hillsborough through an independent assessment. These areas have been identified as WUI areas. These assessments are based on many elements, including historic wildfire occurrence, parcel fuel density, slope, weather patterns, distance to contiguous hazards, and other elements.



Additionally, the assessment incorporates Foehn wind adjustments (we know them as Diablo or Santa Ana winds), and evaluates areas that are susceptible to embers and smoke and may pose evacuation complications. Proper home maintenance, landscaping, fuel modification, and preservation of natural growth and human-planted vegetation can make a difference in the size of a fire and how far it will spread.

Homes and parcels in the WUI area are required to meet established fuel modification and defensible space standards stated within the Town of Hillsborough Municipal **Code Chapter 15.21**. The aim is to increase your home's safety and survivability to wildfire by reducing elements that contribute to the risk of fire.



This guide provides information on how to improve your home's resistance to wildfires and meet your requirements for Hillsborough's WUI Program. Please contact us at 650-558-7600 for more information; resources can also be found on our website at www.ccfdonline.org/wui.



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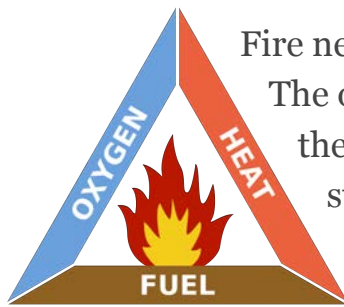
WHAT IS DEFENSIBLE SPACE AND FUEL MODIFICATION?

The term “defensible space” indicates an area between a structure and an approaching wildfire in which vegetation, debris, and other types of combustible fuels have been modified or reduced. The concept is to provide an area free from fuels that allows for firefighters to properly defend your home.

“Fuel modification” includes reducing, modifying, or replacing combustible vegetation or materials to reduce fire spread and structure ignition. Fuel is a broadly used term

for identifying vegetation and materials that could burn. Natural elements like local vegetation, weather, and topography are used to determine the fire severity risk in an area. This aids in determining the most effective design of defensible space and methods for fuel modification.

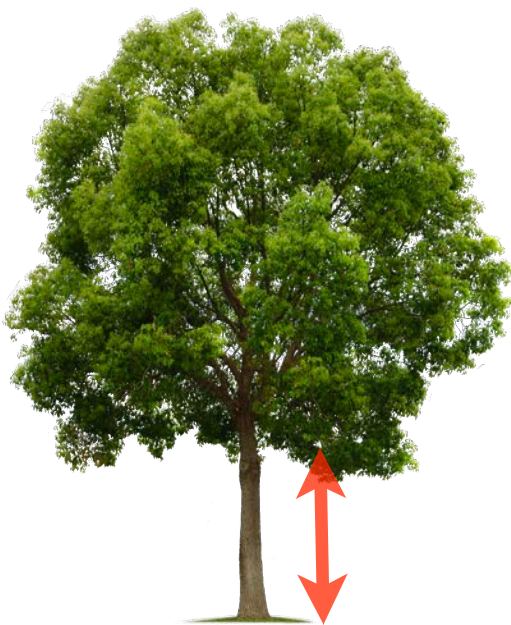
Defensible space is one of the most effective ways to protect a building from a wildfire, and fuel modification can often be easily performed by the resident. Understanding how wildfire spreads is essential to a proper fuel modification strategy.



Fire needs three elements to exist and grow; **oxygen, heat and fuel.**

The objective of fire suppression is to remove or reduce one or more of these elements. In a wildfire setting the most effective method of stopping or extinguishing a fire is to reduce the available fuel, especially before a wildfire starts. Fuel in a wildfire consists of anything outside of the home that can burn.

Fuel modification begins with the reduction of flammable vegetation around your home. This could be removing **dead or dry grass greater than 4 inches** in height, dead or dry shrubs, or **low tree branches** less than 6 feet from the ground for trees greater than 18 feet, or 1/3 the height of the tree for trees under 18 feet. These types of fuels that vary in height create what is called a **Fuel Ladder**.



Trees spaced and limbed up to 6 feet from the ground or 1/3 the height of the tree for trees <18 feet. All dead trees should be removed.

Fuel Ladder

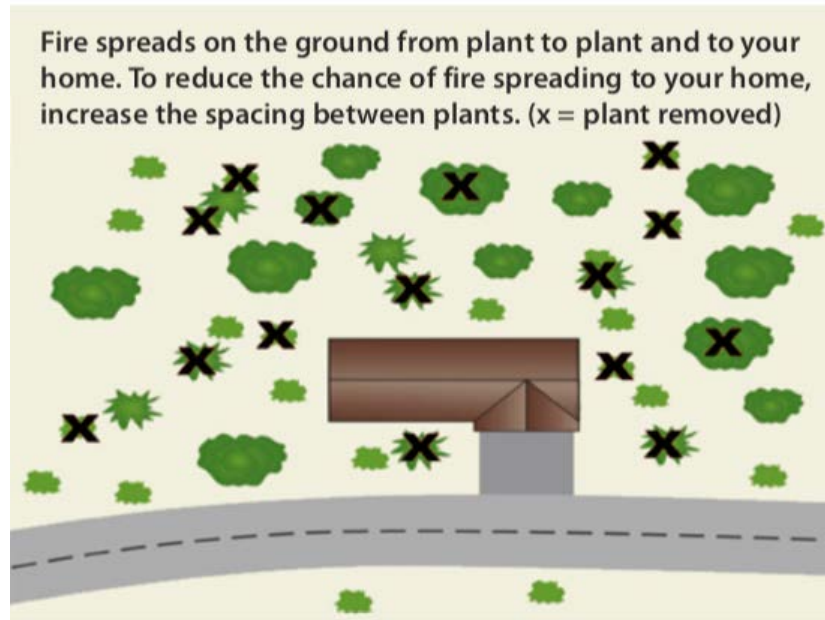


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FUEL LADDER

Hot winds can drive a wildfire; fuel ladders allow the wind to spread fire quickly and limit the ability of firefighters to stop or contain it. An arrangement of fuel that can carry a fire burning in low-growing vegetation to taller vegetation is called ladder fuel. Begin fuel modification on your property by removing ladder fuels and the lowest level, starting with dry surface vegetation, to shrubs near trees, and low-lying tree branches. In areas prone to wildfire, removing fuel ladders by creating a separation in vegetation is an important task.

When fire reaches a tree crown, the heat intensity, flame length and energy released are increased as vegetation burns; combined with hot wind this can preheat and dry surrounding vegetation causing it to quickly ignite. Therefore, it is important to prune taller trees by removing branches that are close to the ground.



The same is true with horizontal fuels which can spread rapidly. Breaking up the horizontal fuel continuity through wider spacing of vegetation can greatly reduce the fire intensity. The wider the spacing between plants, the greater the wind velocity must be to spread the fire.

Ultimately, choices regarding horizontal arrangement of vegetation selection, placement, and maintenance of near-home vegetation will determine a home's level of fire resistiveness. The objectives of the fuel modification near your home include the following:

- Maintain high moisture content in the vegetation.
- Decrease plant fuel density by increasing space between them.
- Tree limbs removed to 6 feet for trees >18 feet, 1/3 the height <18 feet.
- Maintain proper spacing between plants, trees and the home.
- Remove combustible materials such as firewood, twigs, pine needles and leaves, dry or cured grasses, woodpiles, building materials, and cardboard boxes.



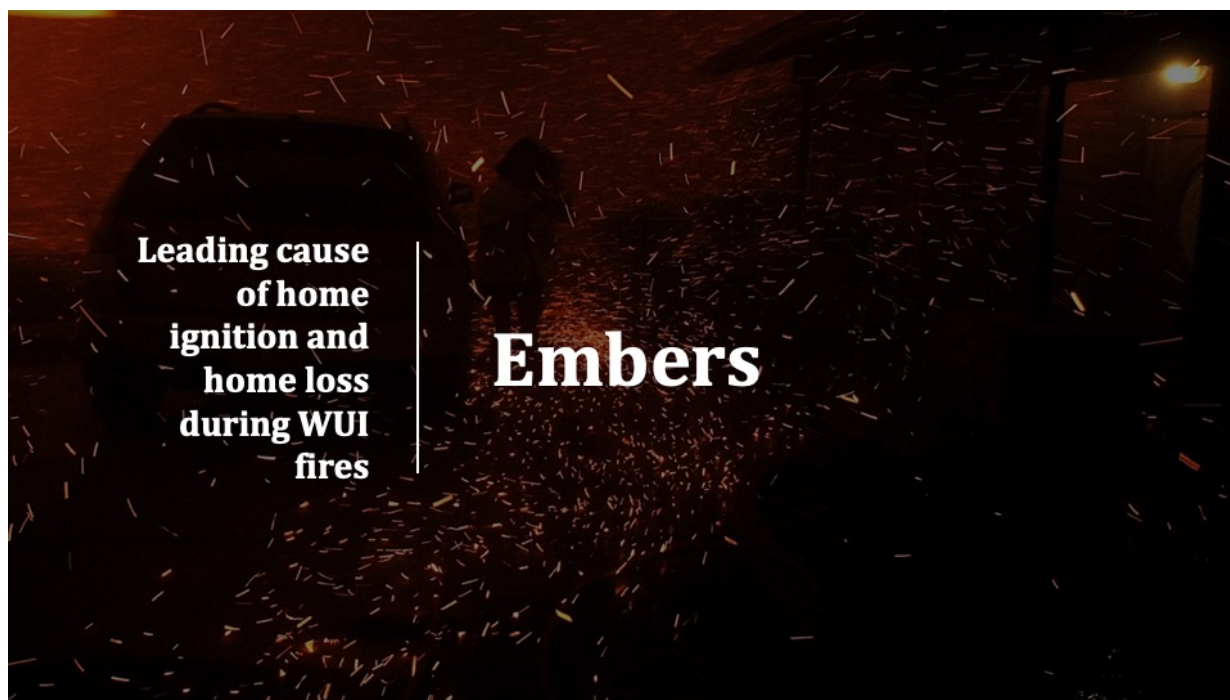
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WHAT DRIVES A WILDFIRE?

There are four main elements that drive a wildfire. They are wind, embers, direct flame, and radiant heat. A strong wind speeds a fire's advance not only by sending embers ahead of the main fire front and by supplying it fresh air, but also by pushing flames forward and thereby drying and “preheating” vegetation. Similarly, a fire spreads faster on a steep upslope than a level plain because on the slope flames can preheat uphill fuel. Of these four elements, there is one that stands as the predominant threat from which we should prepare: embers.

Embers

During a wildfire, thousands of embers can rain down on your roof and around your home like hail during a storm. These embers often become lodged in something easily ignited or land on nearby homes. Embers coming into contact with flammable material is the major reason why homes are destroyed during wildfire.



Common materials that become embers during wildfire include pine needles, branches, tree bark, wooden shingles, and other burning homes. Depending on fire intensity, wind speed, and the size of materials that are burning, embers can be carried more than a mile ahead of the fire. Consequently, even homes located blocks away from the actual flame front are vulnerable to ignition and complete destruction.

By taking action ahead of time to protect your property from embers, you can substantially reduce the ember threat. Using the checklist on the next page you can help your home have a higher probability to survive when the embers arrive.

WHERE IS THIS HOME VULNERABLE TO EMBER ATTACK?

EMBER AWARENESS CHECKLIST

WHAT YOU CAN DO TO PROTECT YOUR HOME:

- 1 WOOD ROOF**
Replace wood roofs with fire-resistant types such as composition, metal and tile.
- 2 ROOF OPENINGS**
Plug openings at locations between the roof covering and roof deck using a noncombustible material.
- 3 ROOF DEBRIS**
Routinely remove leaf and pine needle debris from the roof.
- 4 SKYLIGHTS**
Replace plastic skylights with double-pane tempered glass on gabled or sloped roofs.
- 5 SPARK ARRESTER**
Install an approved spark arrester on chimneys.
- 6 WINDOWS**
Use multi-pane, tempered glass windows. Close windows if wildfire is threatening.
- 7 VENTS**
Cover all exterior vents with 1/8-inch corrosion resistant wire mesh or install new vents designed to resist ember entry. Use a lowered vent for the dryer.
- 8 RAIN GUTTERS**
Use noncombustible rain gutter covers. Inspect and keep gutters free of debris.
- 9 SIDING**
Fill gaps in siding and trim with caulk. Assure at least a six-inch separation between the ground and the start of the siding.
- 10 WOODPILES**
Move woodpiles at least 30 feet from the house.
- 11 PATIO FURNITURE**
Put combustible patio furniture inside or move 30 feet from the house if wildfire is threatening.
- 12 DECK BOARDS**
Replace deck boards <1" thick, or in poor condition, with thicker higher density decking (i.e., hardwood or plastic composite). Properly install metal flashing between the deck and house.



13 DECK DEBRIS

Remove leaf and pine needle debris on top of deck and between deck board gaps.

14 PORCH & DECK ACCESSORIES

If wildfire is threatening, remove door mats and combustible materials from the porch and deck. Place BBQ propane tanks indoors.

15 UNDER THE DECK

Remove leaf and pine needle debris and other combustible materials from under decks. Enclose open sided decks with 1/8-inch corrosion resistant wire mesh.

16 FLOWERBOXES

Remove plants and combustible materials (or flowerboxes as practical) from beneath windows if wildfire is threatening.

17 EAVES

Enclose open eaves with a noncombustible material.

18 FLOWERBEDS

Should be at least five feet from the house. Use noncombustible mulch like gravel. Routinely remove dead and dry plant material. Choose plants and flowers that are deciduous, herbaceous, low resin or non-resinous, succulent and/or low growing.

19 VEHICLES

Close vehicle windows. Park in closed garage or away from the house.

20 GARAGE DOOR

Adjust garage doors to achieve a tight fit. Close the garage door if wildfire is threatening.

21 GARBAGE CANS & RECYCLING BINS

Use garbage cans with tight lids. Place recycling bins in garage or away from the house.

22 WOODEN FENCES

Use a five-foot or longer noncombustible gate or fence section next to the house. Keep base of fence free of combustible debris.

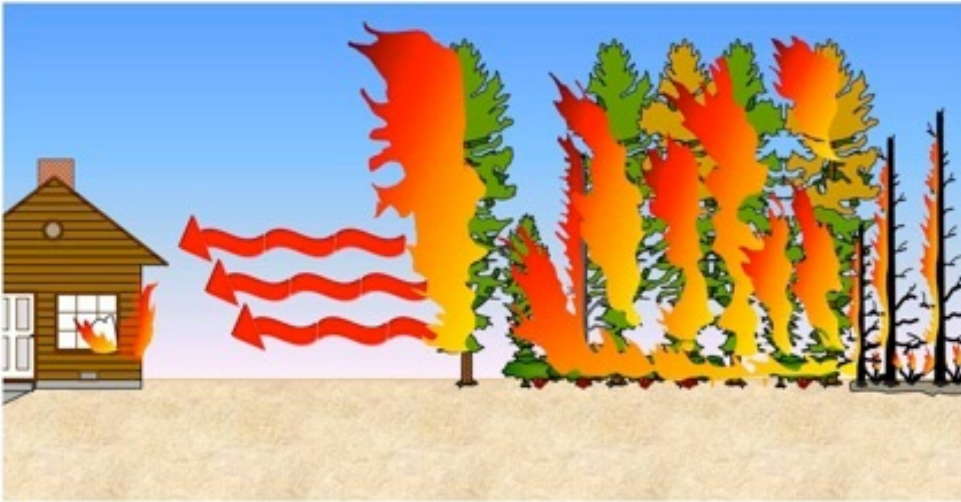


This poster was created using the Ember Aware! Will your home survive when the embers arrive? ES-99-05, produced by the University of Nevada Cooperative Extension. It was written by Ed Smith, Natural Resource Specialist, and Sonya Sitar, Living With Fire Program Coordinator. Graphic design, layout, and printing provided by the RRC Custom Publishing Group.

Radiant heat and direct flame

While embers are certainly the leading cause of home ignition during a wildfire, your home can be exposed to other elements such as **radiant heat** which can become severe enough to break window glass or ignite interior window coverings and nearby furnishings. For these reasons, dual-pane or tempered glass are good choices for

windows. Dual-pane windows have an added advantage of the outer layer of glass that provides a thermal shield for the inner pane. This heats more slowly and decreases the chance it will heat enough to break.



Direct flame contact may be an obvious hazard but must still be considered. The best method for protecting from ignition due to direct flame is to ensure such items as patio furniture, garden tools, propane tanks, and appliances are a safe distance away from structures. Additionally, the concept of **home hardening** can further increase the fire resistiveness of your home by building fire resistiveness into its construction.

Lastly is wind. **Wind** has a big impact on a wildfire's behavior and is the most unpredictable factor. Hot, dry, and high winds supply the fire with additional oxygen, further dry potential fuel and push the fire across the fuel at a faster rate. This is especially true during onshore wind events typically seen in the fall season.



Wildfire-Resistance: Make the “RIGHT” Choices

Built To Burn

EAVES

Open

SIDING

Wood Shingle

WINDOWS

Single pane
No screens

MULCH

Bark/ Wood Chips

DECK

Redwood
Standard spacing

EAVES

Closed

SIDING

Fiber Cement Board

WINDOWS

Dual-Pane Tempered
Screens

MULCH

Rock

DECK

Increased joist space
Foil-faced bitumen
tape on top of joists

Built To Resist

5

BUILD TO RESIST

A home’s vulnerability is determined by the design and exposure of external materials to flames and embers during a wildfire event. These considerations require financial and planning considerations. In California, (and as adopted by the Town of Hillsborough), the WUI Building Standard, Chapter 7A of the California Building Code, affects how new homes are built in wildfire-prone areas. The ideal time to address home ignition risk is when the structure is in the design phase. However, you can still take important steps to protect an existing home.

Roofs

The roof is the most vulnerable part of your home. Homes with wood or shingle roofs are at high risk of being destroyed during a wildfire. Build your roof or re-roof with materials such as composition, metal, or tile. Block any spaces between roof decking and covering to prevent embers from catching. Roofing material with a **Class A** rating is fire-resistant and will help keep the flame from spreading.

WHAT YOU SHOULD DO

Regularly inspect the areas around your home, paying close attention to debris accumulation on the roof and in gutters. Remove accumulated debris. It can be difficult to tell whether you have a Class A fire-rated roof. The most common example of a Class A covering is asphalt composition shingles.



If you are not sure about the fire rating of your roof covering, schedule an inspection by a professional roofer to find out. When you replace your roof, choose one that has a Class A fire rating. Regardless of the specific roofing material you choose, inspect it regularly, maintain it when necessary, and replace it when needed.

Wind-blown vegetative debris and debris from overhanging trees will result in the accumulation of leaves and needles on your roof and in your gutters. If dry, this debris can be readily ignited by wind-blown embers.

Please keep in mind, regular cleaning and maintenance of a roof is just as important as the materials used to construct it.



Even if you have a Class A fire-rated roof covering, such as tile, concrete, metal or asphalt composition shingles, the edge of the roof can be exposed to flames from ignited debris. Remove tree branches that overhang your roof and remove any dead vegetation, including fallen branches.

This should be part of a routine maintenance plan around your home. Do this at least annually at a time best suited for the health of the tree or plant.

Vents: Under-eave, attic and crawl space

Attic, roof and foundation vents are entry points for embers and flames. Embers entering the attic or crawl space can build up enough heat to ignite combustible debris and other materials stored in these spaces.

If you have vented openings to your attic or crawl space, make sure appropriately-sized, and corrosion resistant screening is present. While a finer mesh screen will offer better protection against the entry of embers, it will also require more maintenance to keep it free of debris. It is important to allow air to flow freely to help manage the moisture in your attic and crawl space.



Windows

Windows are vulnerable to radiant heat exposure from nearby burning objects (e.g., vegetation, gazebos, decks, and other structures) and direct flame contact exposure from burning vegetation or other combustible materials stored under or near the window. Window failure can occur if the glass in the window breaks or the combustible frame ignites allowing embers and flames to enter the interior of the home. Studies have shown glass to be the weakest part of the window and more likely to fail than the frame.



When it is time to replace your windows, choose new ones with tempered glass. Considering that current energy code requirements usually call for dual-pane windows, upgrading from a single-pane to a dual-pane window will improve fire resistance and energy efficiency. If replacing your windows is not an option at this time, it is even more important to carefully manage and maintain the fuels closest to your home. This includes both vegetation and combustible materials near your windows.

Decks and patios

Clean decks regularly and enclose the undersides of decks, overhangs, and balconies with noncombustible or fire-resistant materials. Items that may be combustible like patio furniture, garden equipment or tools should be kept away from the structure. Never store combustible items such as lumber or firewood on or beneath your deck.





6

CALL TO ACTION

So far we have learned about how wildfire works, where your home is most vulnerable and what may be done to build a more fire-resistant home. This chapter is about taking the next steps; determining what may be required of you, implementing best practices to protect your home and how Central County Fire Department can assist you.



Fuel modification

Fuel modification around your home doesn't require a barren landscape. Providing for fire resistiveness requires planning and effort but can result in a fire safe and beautiful surrounding.

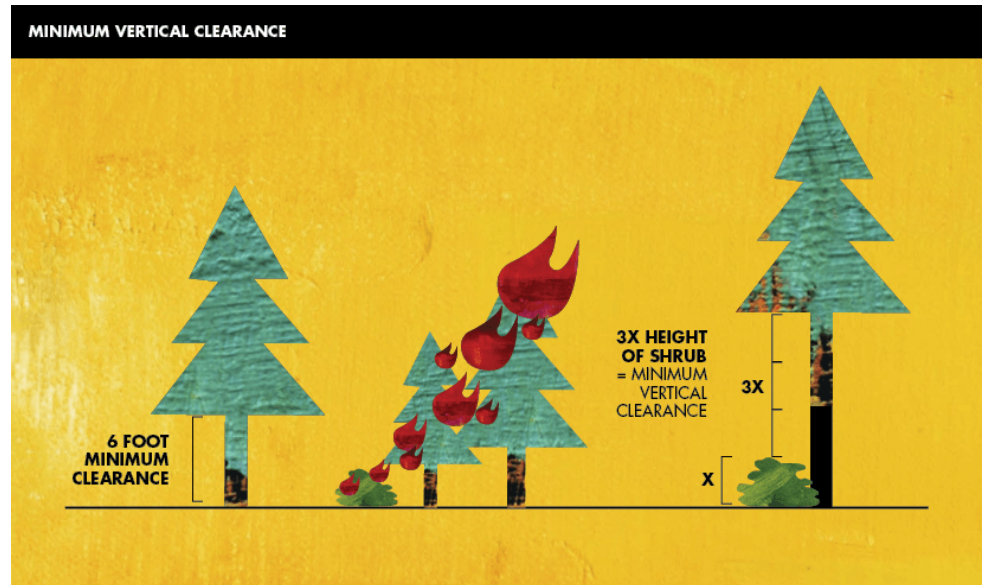


The first step is to remove all dead and dying grass to less than four inches. This includes dead vegetation, leaves, pine needles, or low-lying duff. Ensure adequate spacing between bushes and shrubs. This should be done all the way to the property line for parcels less than five acres. For parcels greater than five acres, the fuel modification requirement is 100 feet from all structures and 100 feet from the property line.



Trees

Tree limbs should be trimmed up to at least 6 feet from the ground for trees greater than 18 feet or $\frac{1}{3}$ the height of the tree for trees under 18 feet. Remember that we are limiting the effects or breaking the concept of a **Fuel Ladder**. Also keep branches away from the roof of your home and away from chimneys.



Driveways

Ensure adequate clearance for fire apparatus by clearing vegetation overhead to 13 feet, 6 inches and clearing vegetation 5-10 feet from sides of driveways, roadways and cul-de-sacs. A turnaround for fire apparatus may be required and allows fire engines to quickly assess and access your home during a wildfire.

Address

Address numbers must be visible to firefighters day and night with a 4 inch minimum height and a $\frac{1}{2}$ inch width lettering on a contrasting background. Use reflective numbers if possible. We want to be able to find you in an emergency!



Decks and patios

Decks should be cleaned regularly, both the undersides and surface should be cleared of combustible materials. Use 1/8-inch fire resistive wire screen to keep embers out of any enclosed areas. Decks and patios should be ideally built from noncombustible material such as stone, or composite. Never store combustible items such as lumber or firewood on or beneath your deck. All vegetation should be trimmed away from the deck as well.



How to get the work done

Some of the work that may be required around your home can be performed over a weekend. However, there may also be a need to call a vegetation management professional. Central County Fire Department is developing a contractor list that you can refer to. Often a landscape specialist can handle most of the work. When it involves tree work we recommend a licensed arborist.





For large parcels, options for fuel modification can include brush clearing by goats, which is done in many areas in San Mateo County.



You can always contact the Central County Fire Department for questions or an onsite consult by calling 650-558-7600.

You can also reach out to your neighbors and coordinate a group effort in working towards a fire safe community. A collaborative effort can be cost effective, bring neighborhoods together, and create a more resilient strategy.

This can be informal or for a collaborative effort neighborhoods can become Firewise communities (see next page). You can also reach out to your Hillsborough Neighborhood Network and see what others are doing in your neighborhood.

<https://www.hillsborough.net/288/Hillsborough-Neighborhood-Network>



Firewise

What is Firewise?

The Firewise USA Program encourages local solutions for safety by involving homeowners in taking individual responsibility for protecting their homes from the risk of wildfire. The program provides resources to help homeowners learn how to adapt to living with wildfire while encouraging and empowering neighbors to work together to reduce their wildfire risk and prevent losses.

The six steps of Firewise recognition:

1. Form a Firewise board or committee.
2. Obtain a wildfire risk assessment for your neighborhood or community.
3. Create an Action Plan.
4. Conduct educational outreach in your neighborhood.
5. Invest a minimum of \$25 per home in local wildfire risk-reduction actions for the year. The time spent conducting fuel modification and clean-up on your property will often times exceed the minimum investment.
6. Submit an application to your state Firewise liaison - CCFD will help!



The wildfire risk assessment is a written document outlining hazards and risk related to wildfires where you live. This will be prepared by your Firewise committee in cooperation with the Central County Fire Department. You will create an action plan based on the assessment.

The Firewise USA program is co-sponsored by the National Fire Protection Association (NFPA), USDA Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters.

For more information: <https://www.nfpa.org/Public-Education/By-topic/Wildfire/Firewise-USA>

Ready, Set , Go

After you have protected your home, it's time to prepare your family. **Use the Ready, Set, Go!** Your Personal Wildland Fire Action Guide and prepare with all members of your household well in advance of a fire. To obtain a copy of the guide, please contact CCFD @ 650-558-7600 or **CCFD.org**. Use the checklists to help you gain a situational awareness of the threat and to prepare your family disaster plan.

- Ready – Preparing for the Fire Threat
- Set – Situation Awareness
When a Fire Starts
- Go! – Act Early

Create your family disaster plan.
Practice it with your family and keep it accessible so all family members can see it.





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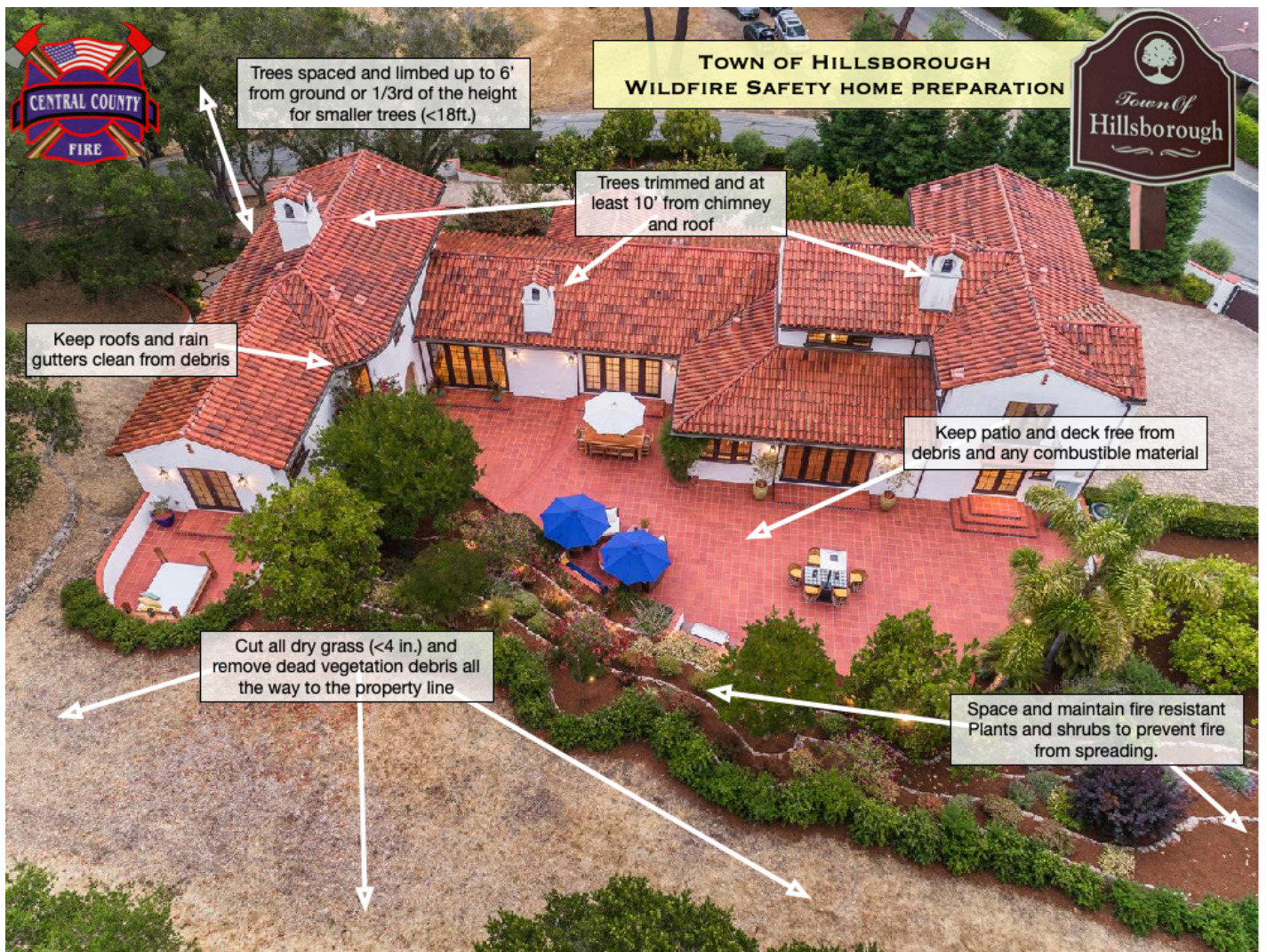
CHECKLIST

All community members are encouraged to take actions which will make their home more fire resistive. Central County Fire Department has prepared a checklist and visual guide for residents of items they are required to account for if living in the WUI designated areas. If you are not sure if you live in the WUI designated area please contact our offices at 650-558-7600 and ask for the Fire Prevention division. We make addresses of homes in the WUI available only on request for privacy reasons.



Central County Fire Department would like to encourage residents to create a wildfire resistive community by taking actions to reduce any hazards that may be present on their property. Use the following guidelines to survey your property and take steps to make improvements where needed to modify fuel and reduce the risk of fire on your property.

- ☐ **MODIFY FUEL to CREATE DEFENSIBLE SPACE** on your property. Remove dry grass, brush and other flammable materials around all structures and on your property. Replace where needed with well-maintained and watered, drought-tolerant, fire resistive plants. All vegetation should be maintained to create proper spacing between plants, shrubs, trees and tree canopies.
- ☐ **ALL DEAD, DYING or DISEASED TREES AND SHRUBS MUST BE REMOVED:** Dead vegetation does not hold moisture and becomes extremely flammable after a few days of dry weather. Remove all dead and diseased vegetation on your property.
- ☐ Keep your **RAIN GUTTER** and **ROOF** clean of all combustible debris, such as leaves and pine needles.
- ☐ **TREE BRANCHES** must be limbed/trimmed up **6 feet** from the ground or 1/3 of the tree height for trees under 18 feet.
- ☐ **TREE BRANCHES** must be trimmed back **10 feet** from rooftops and fireplace chimneys.
- ☐ Remove **fallen leaves, branches** and other **vegetative debris** within **10 feet** of **power poles and lines** and **10 feet** of each side of driveway and private roads.
- ☐ Dispose of yard clippings, plant waste, trash, debris and other combustible materials in an appropriate manner. This pertains to disposing of vegetative waste in canyons and or open space.
- ☐ **PROPANE TANKS** need **10 feet** of clearance from combustible materials and vegetation.
- ☐ **CHIMNEYS** serving fireplaces, barbecues or decorative heating appliances shall have spark arresters with openings no larger than **½ inch**.
- ☐ **COMBUSTIBLE MATERIALS** woodpiles, paper products, building materials etc. shall be **20 feet** from any structure and require separation of **40 feet** between piles.
- ☐ Maintain **30 feet** between ignition sources such as permanent barbecue, portable barbecue, outdoor fireplace or grills. All shall be in good repair and safe condition with an approved spark arrestor, screen or door.
- ☐ Do not store combustible materials **ON OR UNDER DECKS**.
- ☐ Your check list is completed when you have done fuel modification all the way to the property line for parcels less than 5 acres. For parcels greater than 5 acres the fuel modification is 100' from all structures and 100' from the property line.



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