



RESOURCE GUIDE #3

Home Hardening and Defensible Space Resources for Residents

In recent years, homeowner wildfire guidance has improved drastically. Quality websites, videos, and print material are readily available. Below is a set of resources that are user friendly and up to date. The guide includes three sections: (1) comprehensive websites that include preparedness, home hardening and defensible space guidance, (2) home hardening specific guides, (3) defensible space and landscaping guides, (4) ember storm resources, (5) video, and (6) diagrams and illustrations. For each section, we've identified a resource that we feel is the best off-the-shelf resource for a community.

SECTION 1: Comprehensive Websites

Ready for Wildfire website (CAL FIRE)

RECOMMENDED – *Comprehensive Website*

<https://www.readyforwildfire.org/>

The website has comprehensive public information on wildfire covering the topics of defensible space, home hardening, and evacuation. The website can be shared directly with residents and also includes public information campaign materials for use by local governments and other educators and organizers. For an example of integrating the information into a city website, see [City of Oakland](#).

For use by the public – For Bay Area homeowners, the PREPARE page of the website is a great place to start. Even more directly the PREPARE/GET READY section has good resources (videos, website content, and links to documents) on home hardening, defensible space, and fire-resistant landscaping. The resources on defensible space (espacio defendible) and home hardening (fortalece tu hogar) are available in Spanish. The website also includes a 1-page “[Low Cost Retrofit List](#)” for quick to do list items, a form-based prompt to build a personalized [Wildfire Preparedness Plan](#) and CAL FIRE’s [Defensible Space Self-Assessment](#). [<https://www.readyforwildfire.org/prepare-for-wildfire/get-ready/>]

For use by organizations – For city/county/district/NGO staff, the TOOLKITS page has English and Spanish language multi-media (print, web, video, and social media) campaign resources that can be downloaded and used. [<https://www.readyforwildfire.org/campaign-toolkits/>]

Preparing Your Home & Landscaping (U. California)

<https://ucanr.edu/sites/fire/Prepare/Building/>

<https://ucanr.edu/sites/fire/Prepare/Landscaping/>

The webpages provide more information in a webpage format compared to the Ready for Wildfire website. Each webpage lays out guidance for homeowners and includes links to research literature that informs the guidance. The *Preparing Your Home* section includes priority actions for homeowners.

Fire Safe Marin website (Fire Safe Marin)

<https://firesafemarin.org/>

The website has webpages for key topics like home hardening, fire-smart yards, evacuation and other preparedness tips. The website communicates information directly on the web and also has embedded videos with links out to key documents.

Ready, Set, Go! (Woodside Fire Protection District)

<https://www.woodsidefire.org/ready-set-go>

The website organizes materials into ready (home hardening and defensible space), set and go (evacuation). The website includes short videos from Orange County Fire Authority and Woodside developed one-page briefers on all topics.



Property Owner Resource Library (Santa Rosa)

<https://srcity.org/3560/Property-Owner-Resource-Library>

The webpage links to key city resources like the WUI map, as well as resident specific guidance on steps they can take to prepare for wildfire. Resources address defensible space, home hardening, notification, evacuation, and more nuanced information around property disclosures at point of sale (AB 38).

Living With Fire Document & Prepare Yourself Webpage (Fire Safe Marin)

<https://firesafemarin.org/prepare-yourself/>

This webpage is a one-stop shop for everything a resident needs to prepare themselves and their home.

SECTION 2: Home Hardening – Document Guides

Wildfire Home Retrofit Guide

RECOMMENDED – Home hardening guide

(partner effort U. Nevada, U. California, Lake Tahoe)

http://www.readyforwildfire.org/wp-content/uploads/Wildfire_Home_Retrofit_Guide-1.26.21.pdf

The document incorporates the latest guidance on defensible space and home hardening in a 20-page guide. In addition to having high quality graphics and clear guidance, it is also able to provide some helpful nuance for site specific situations (e.g. areas with smaller lots). The guide is written for direct use by the public.

Research Fact Sheet Series (IBHS, NFPA)

<https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA/Firewise-USA-Resources/Research-Fact-Sheet-Series>

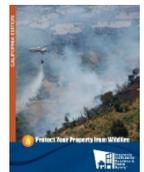
The website has ten, one-page fact sheets on key home hardening topics: roofing materials, under-eave construction, skylights, decks, fencing, coatings, vents, and more. The one-pagers include background on the research and recommendations for homeowners. Each fact sheet is available as a pdf or InDesign file that can be edited to include local information.

- [Attic and crawl space vents](#) (PDF) [customizable version](#) (PDF)
- [Coatings](#) (PDF) [customizable version](#) (PDF)
- [Decks](#) (PDF) [customizable version](#) (PDF)
- [Exterior sprinkler systems](#) (PDF) [customizable version](#) (PDF)
- [Fencing](#) (PDF) [customizable version](#) (PDF)
- [Fire spread on ember-ignited decks](#) (PDF) [customizable version](#) (PDF)
- [Immediate \(noncombustible\) zone](#) (PDF) [customizable version](#) (PDF)
- [Roofing materials](#) (PDF) [customizable version](#) (PDF)
- [Skylights](#) (PDF) [customizable version](#) (PDF)
- [Under-Eave Construction](#) (PDF) [customizable version](#) (PDF)

Protect Your Property from Wildfire (IBHS)

https://disastersafety.org/wp-content/uploads/2019/03/Wildfire-Retrofit-Guide-California_IBHS.pdf

Similar to the Wildfire Home Retrofit Guide above, this document has more information (resulting in a denser 40-page product). It may be helpful for the homeowner that wants to know more.



Wildfire Home Assessment & Checklist (IBHS)

https://www.iafc.org/docs/default-source/pdf/wildfire-checklist_ibhse1e8b15c78366c709642ff00005f0421.pdf?sfvrsn=5bdeedd0d_0

A guide to determine what parts of the home and surrounding property are most vulnerable to wildfire. Mitigation actions or retrofit actions are outlined with broad cost differentials.



SECTION 3: Defensible Space & Landscaping – Document Guides

Reducing the Vulnerability of Buildings to Wildfire:

RECOMMENDED - Website

Vegetation and Landscaping Guidance (U. California)

<https://anrcatalog.ucanr.edu/pdf/8695.pdf>

The 12-page guide focuses on defensible space guidance and landscaping approaches for a range of circumstances. It provides guidance in selecting plants, their placement, and maintenance.

The Combustibility of Landscape Mulches (University of Nevada)

<https://srcity.org/DocumentCenter/View/32305/The-Combustibility-of-Landscape-Mulches?bidId=>

A technical pamphlet that demonstrates the fire behavior of different mulch types and concludes with the recommendation to not have any mulch type adjacent the home. Some mulch types may be appropriate in moderation compared with others.

Fire-Resistant Plants for Home Landscapes (Oregon State U., Washington State U., U. Idaho)

<http://www.firefree.org/wp-content/uploads/2016/02/Fire-Resistant-Plants.pdf>

The 2006 guide is formatted like traditional landscaping guidebooks with species that do not readily ignite. No plants are “fire-safe”, but the guide offers less-ignitable options. The guide is included on CAL FIRE’s Ready for Wildfire website.

Living with Fire in Napa/Sonoma County (Napa County, Sonoma County)

<https://www.cityofnapa.org/DocumentCenter/View/1501/Living-with-Fire-Brochure-PDF?bidId=>

https://www.firesafesonoma.org/wp-content/uploads/living_with_fire.pdf

Two, nearly identical resources made for Napa and Sonoma county residents. A great example of building on existing guides. Both guides provide a list of fire-wise landscaping options for the county.

SECTION 4: Ember Storm Resources

Is Your Home Hardened to Survive a Wildfire Ember Storm? (California Fire Safe Council)

https://cafiresafecouncil.org/wp-content/uploads/2019/06/2019-CFSC_Brochure_HARDENED-HOMES.pdf

The two-page guide provides an overview of the actions a homeowner can take to reduce wildfire risk.

Be Ember Aware (University of Nevada)

<https://www.firesafesantacruz.org/images/education-outreach/ember-aware.pdf>

A six-slide document with a list of 22 places around a home that are prone to ember-driven wildfire.

Ember Ignition Test (IBHS)

<https://wildfirerisk.org/reduce-risk/home-hardening/> (half way down page)

A two-minute video that shows how embers impact a home.

SECTION 5: Videos

Fire Safe Marin – YouTube Account

<https://www.youtube.com/c/FIRESafeMARIN>

The account is organized into key themes of community education, fire-smart yards, home hardening, preparedness and others. The account has nearly 90 videos ranging from 1 minute to 1 hour, with many between 3 and 15 minutes.



SECTION 6: Diagrams and Illustrations

Key illustrations and diagrams to be used in your public information and education. Many of the above resources also have graphics you can borrow from with CAL FIRE's *Ready for Wildfire* website primed with graphics for use by organizations to promote on various media platforms.

WUI Concept for the Home

Source: Community Planning Assistance for Wildfire (CPAW)

This graphic shows mitigated actions for a home in the WUI and/or best practices to harden a home.

<https://wildfirerisk.org/reduce-risk/home-hardening/>



Defensible Space Zones - Neighborhood

Source: Fire Safe Marin

This graphic illustrates the zones for defensible space around multiple homes in a neighborhood.

<https://firesafemarin.org/create-a-fire-smart-yard/defensible-space/defensible-space-zones/>



Trees – Vertical Spacing

Source: Fire Safe Marin

To determine the proper vertical spacing between shrubs and the lowest branches of trees, use the formula below shown in the illustration.

<https://firesafemarin.org/create-a-fire-smart-yard/plant-tree-spacing/>

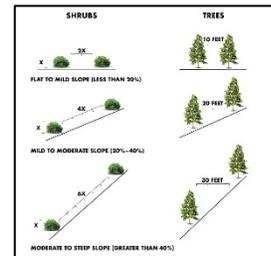


Trees – Horizontal Spacing

Source: Fire Safe Marin

Horizontal spacing depends on the slope of the land and the height of the shrubs or trees. Check the chart to determine spacing distance.

<https://firesafemarin.org/create-a-fire-smart-yard/plant-tree-spacing/>



Plant Spacing is Affected by Slope

Source: Fire Safe Marin

Clearance between shrubs should be four to 40 feet depending on the slope of the land and size and type of vegetation.

Check the chart for an estimation of clearance distance.

<https://firesafemarin.org/create-a-fire-smart-yard/topography/>



Association of Bay Area Governments: October 2021

Version 1; Draft 10/14/21 -- This Resource Guide was built from information on agencies web sites and other resources.