

You can reduce the chance of your home burning



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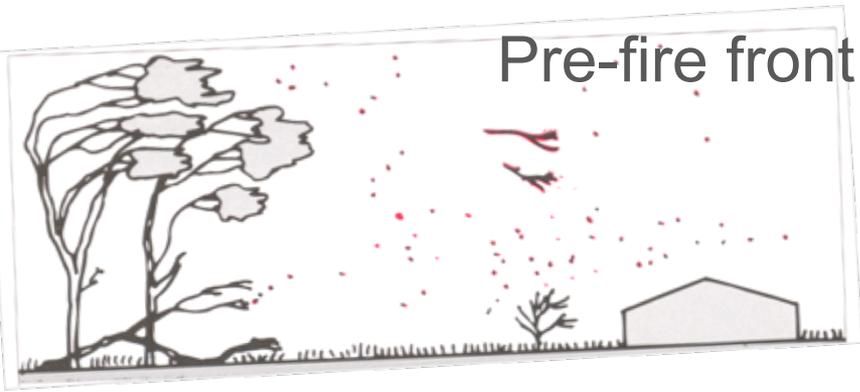


Agenda

- Why buildings burn
- Fire resistant buildings
- Defensible Space

Stages of wildfire

From Ramsay and Rudolph, CSIRO



1/2

1

2

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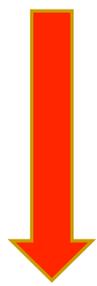
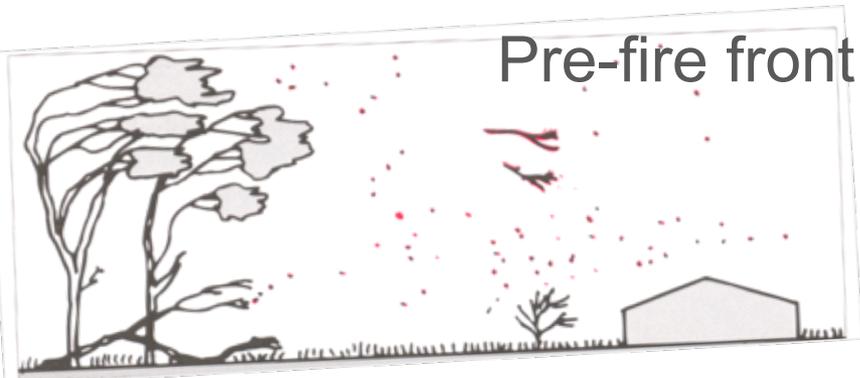
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5

Hours

Stages of wildfire

From Ramsay and Rudolph, CSIRO



1/2

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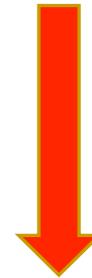
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Stages of wildfire

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1/2

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How a home burns from wildfire



How a home burns from wildfire



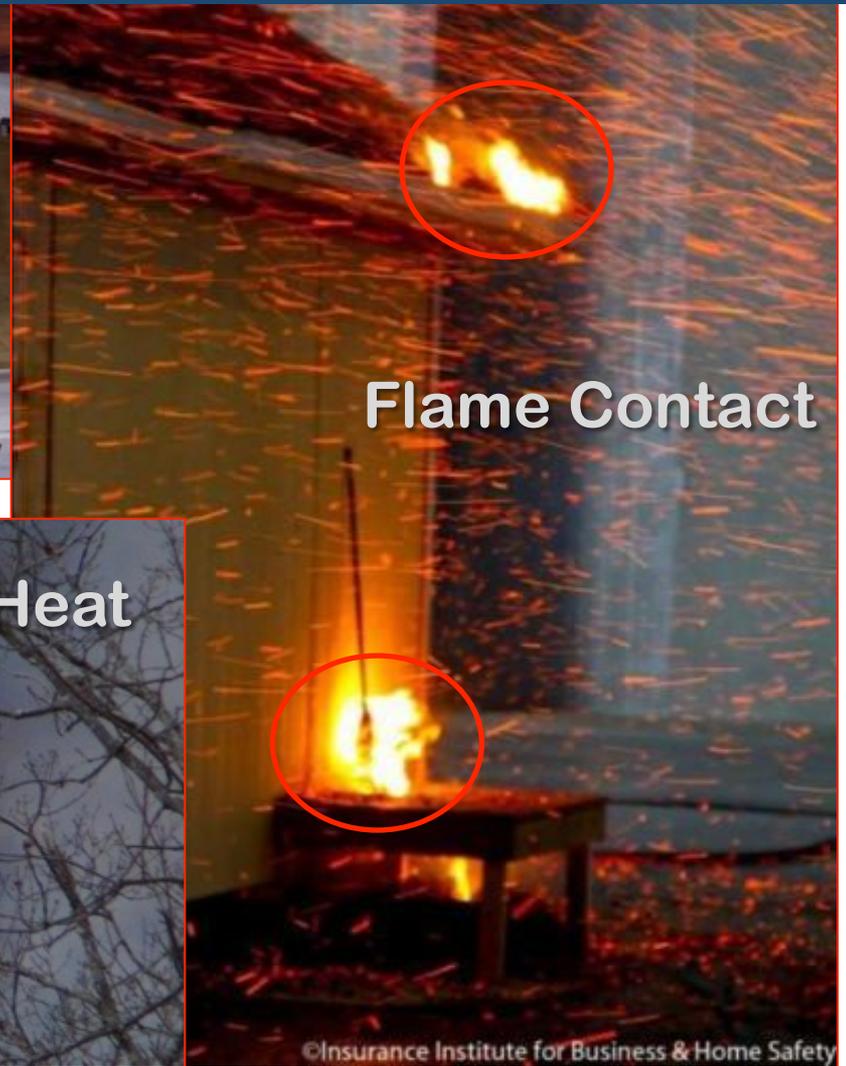
Flame Contact



Radiant Heat

Tennessee Division of Forestry

How a home burns from wildfire



Home Survival: A Coupled Approach

Fire Resistant Building + Defensible Space

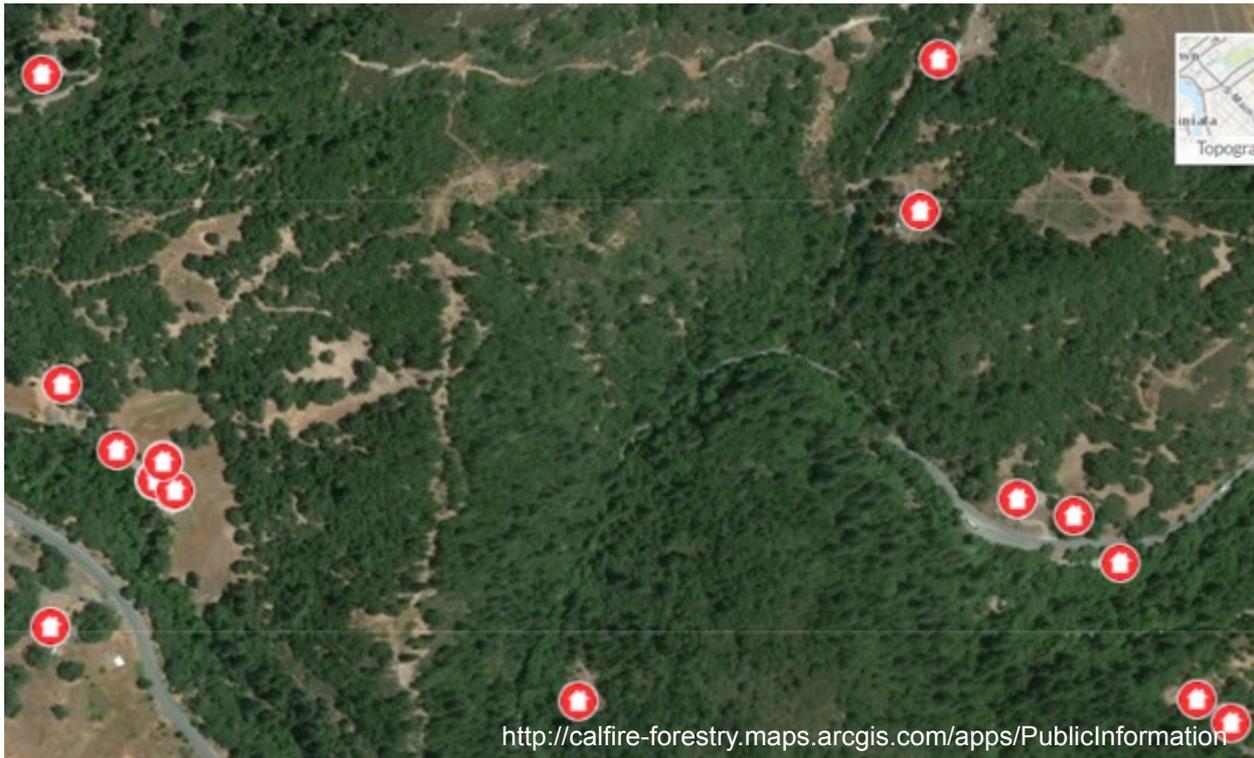


Stephen Quarles

Fire resistant building strategies



Home-to-Home Spacing Wide



- ✓ Create and **MAINTAIN** Defensible Space
- ✓ Create Fire Resistant Home design and **MAINTAIN**
 - ✓ Ember-resistant materials

Home-to-Home Spacing Narrow



- ✓ Create and maintain Defensible Space
- ✓ Create Fire Resistant Home design and maintain
 - ✓ Ember-resistant materials
 - ✓ Noncombustible & Ignition Resistant Materials
 - ✓ Multi-pane / Tempered Glass windows

You can reduce the chance of your home burning



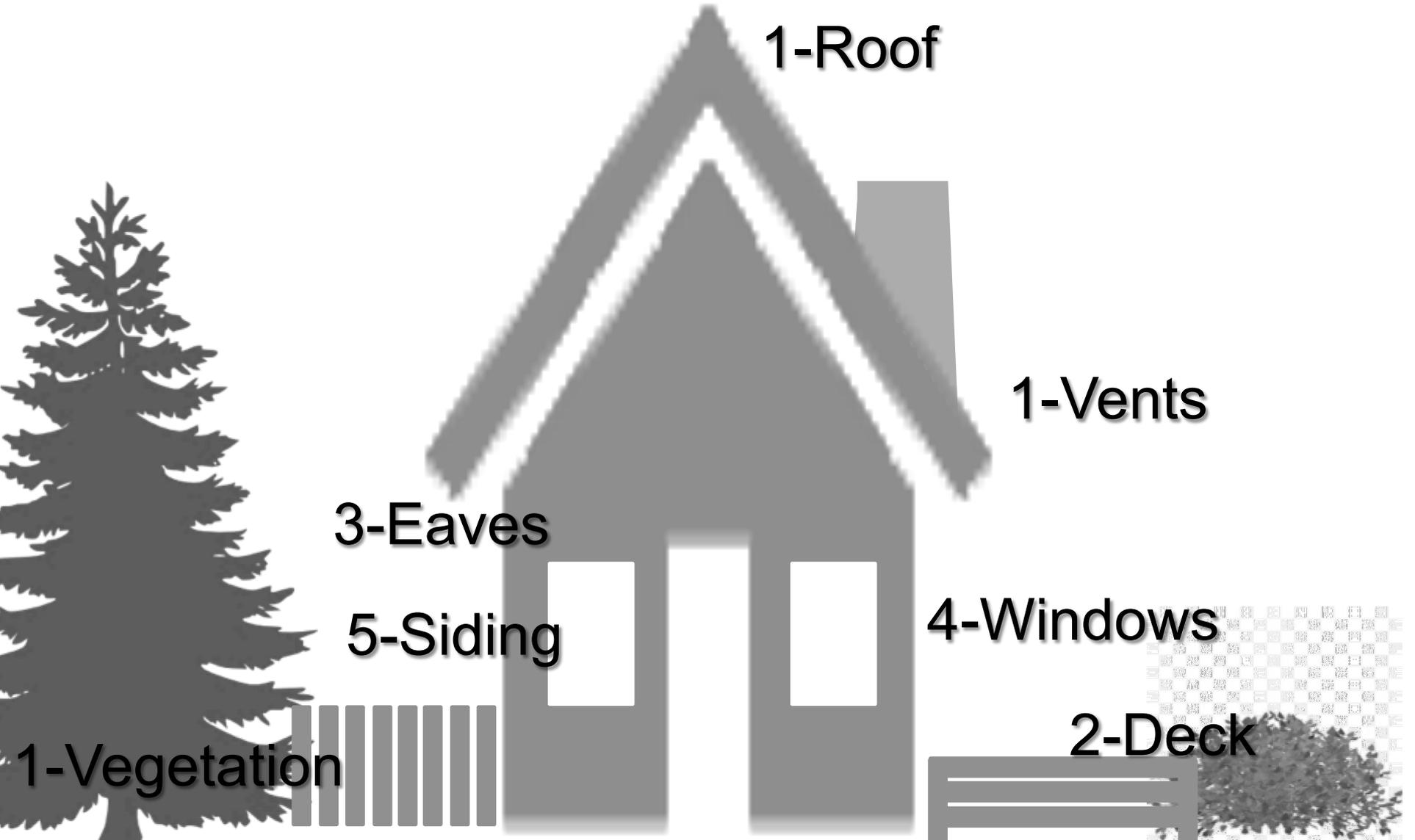
Agenda

- Why buildings burn
- **Fire resistant buildings**
- Defensible Space

How to reduce the chance of your home burning

- Create and maintain **fire resistant structures** by using fire resistant designs and materials.
- Create and maintain **defensible space**
 - **5 ft. no fuel zone** around your home and deck.
 - **30 ft.** is lean, clean, and green
 - **100 ft.** has **reduced fuels**, and up to 200 ft. has reduced fuels if on steep slope with a lot of vegetation.
- Create and maintain **signage and access for fire fighters and for your evacuation.**
- Create and maintain **water source for fire fighters.***
- Promote **community-wide fuel breaks** and **landscape-wide fuel treatments**, and other policies.

Home vulnerabilities



Materials Versus Maintenance

“... the resistance to (wild)fire is determined more by the details of construction than by the materials used in the walls.”

—G.J. Barrow, after the
1944 Beaumaris Fire in
Australia



Vents – California Building Code Chapter 7A

osfm.fire.ca.gov/licensinglistings/licenseslisting_bml_searchcotest



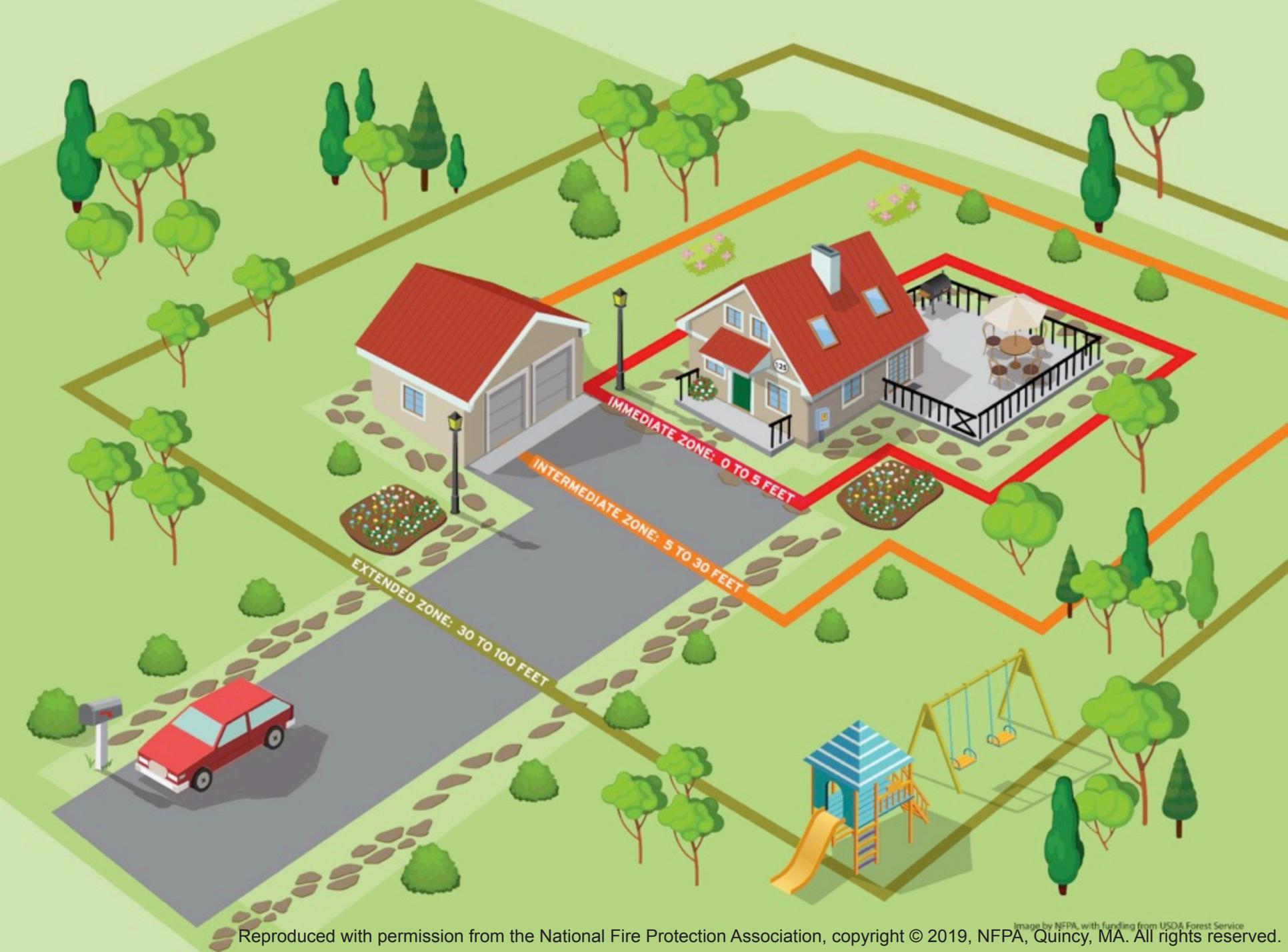
A = screening (embers) and intumescent honeycomb mesh (flame)
B = steel wool mesh (embers and flame); C = screening and baffles (embers and flame); D = screening and steel wool mesh (embers and

Vents

- Design
 - Vent-less attic or
 - Combo of closed soffit eave & ridge line vents
- Materials
 - Install vents that have 1/8" screen, and are ember and flame resistant
 - Some vents auto-close and may be worth purchasing
- Maintenance
 - Keep vents free of spider webs and spray paint
 - Don't store flammable items in attic or basement

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Carr Fire: Vegetation fire to window failure



Yana Valachovic



Wildfire Research

Near-Building Noncombustible Zone

Faraz Hedayati, Ph.D.

Carolyn Stansell

Daniel Gorham, P.E.

Stephen L. Quarles, Ph.D.

December 2018



5 ft.



Height(ft): 6.1879

Theta(deg): 45.5162



7 ft.

Spot > 660 °C



660



40.8

Ext. t. 20
Ext. tr. 100%

Camp Fire: Ember damage



Fire resistant plant lists

~~Fire resistant plant lists~~

~~note~~

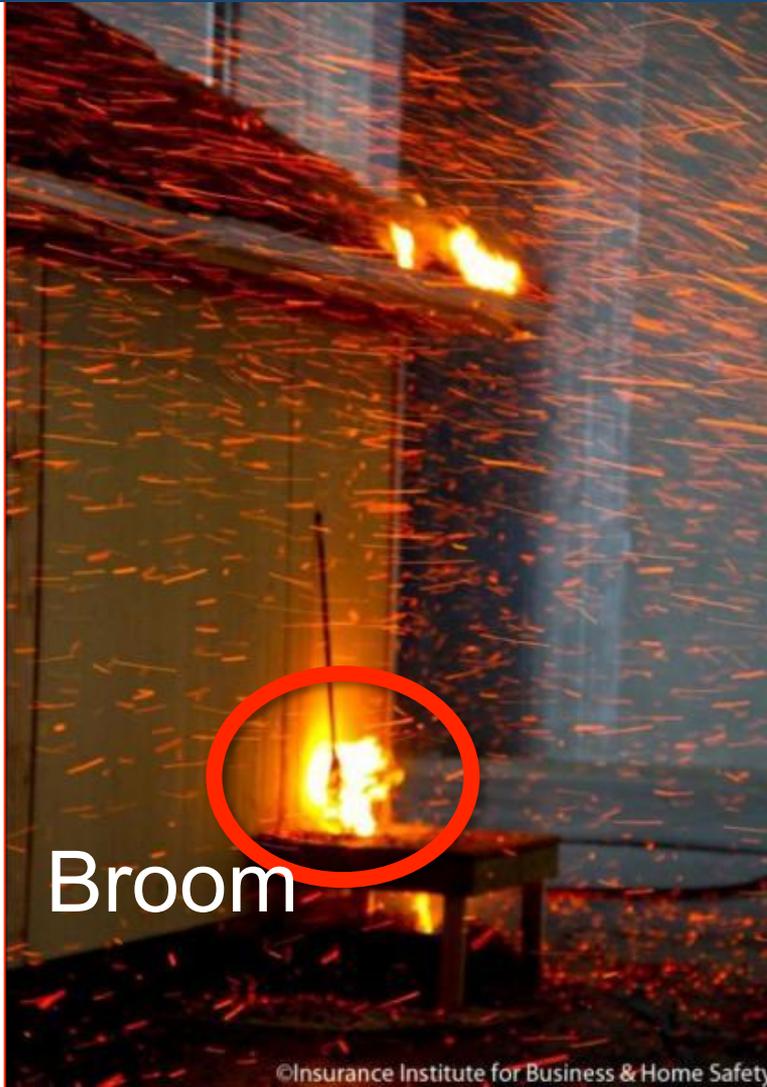
~~Fire resistant plant lists~~

NOTES

- All plants can burn
- The selection, placement, and maintenance of plants is key
- Maintain: prune, irrigate, & clean-up
- Select low growing, open structured, less resinous, higher moisture content plants
- Native and drought tolerant can be options, with good spacing and maintenance



Storage



5 ft. No Fuel Zone

Design:

- Hardscape within 5 ft. of a building and deck
- Don't plant under eaves or vents, or adjacent to siding

Materials:

- Low to no combustible materials
- No plants and mulch
- Ok, maybe VERY well maintained irrigated lawn or herbs

Maintenance:

- Do not store flammable items (trash cans, wood, and brooms)
- Irrigate and prune plants regularly

Sprinklers?



Sperry Chalet. Glacier National Park

- Noncombustible cladding
- Foil-faced glass / windows
- Exterior sprinkler system
- Fire fighters on site
- Timber /wood in under-eave area (detailing at eave-to-wall connection?)
- Wood deck
- Wood shingle roof covering

Fire Resistant Home Summary

- Coupled Approach:
 - Fire Resistant Home
 - Roof, vents, deck, eaves, siding, & windows
 - Defensible Space
 - 0-5 ft. No fuel zone
 - 5-30 ft. Lean, Clean, Green
 - 30-100 ft. Reduced Fuel
- Wildland fire-to-home V home-to-home

How to reduce the chance of your home burning

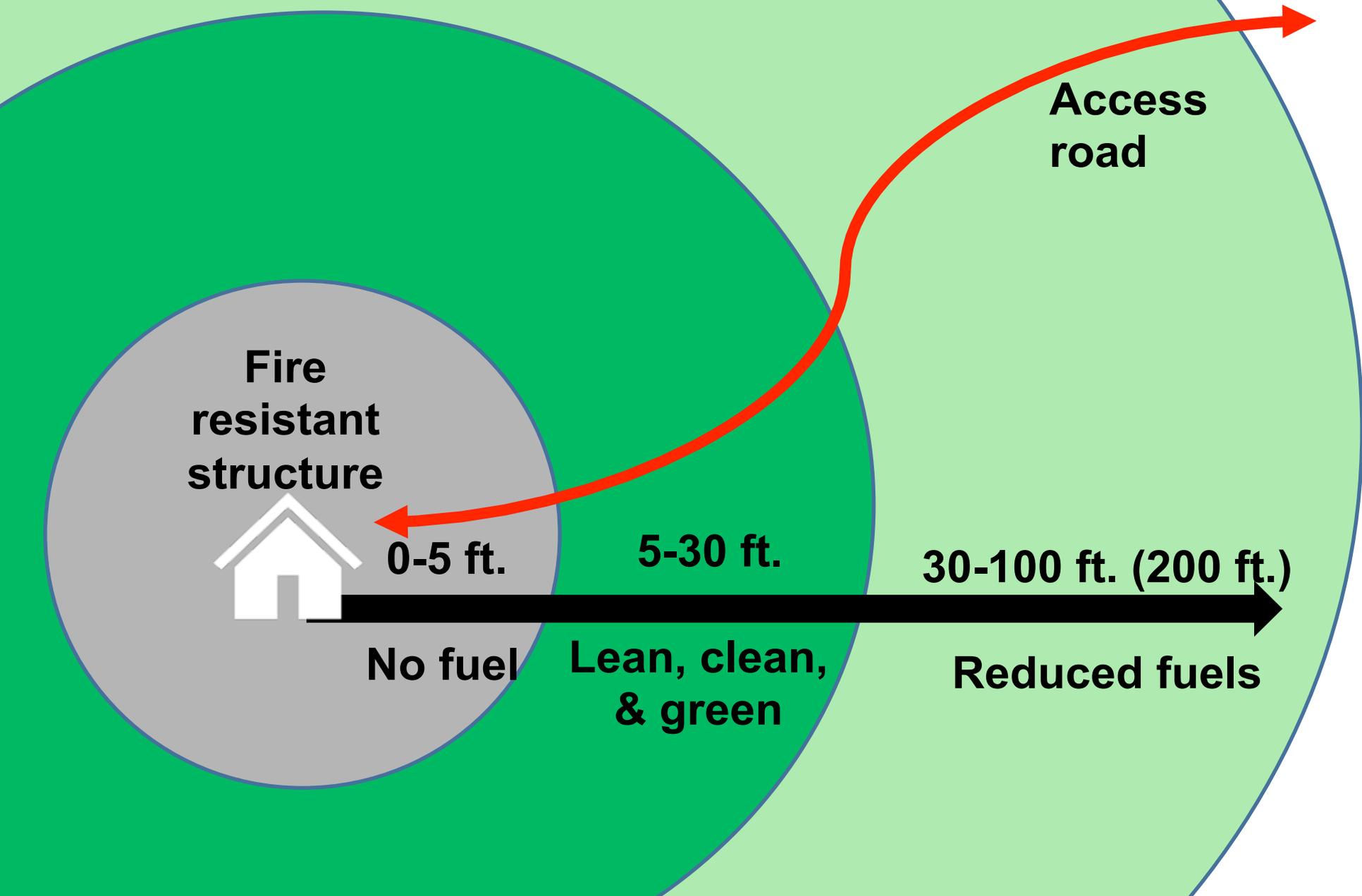
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Chief Scientists

Work from the house out



Embers

Wind-blown embers are responsible for the many of building ignitions



Angora Fire – South Lake Tahoe