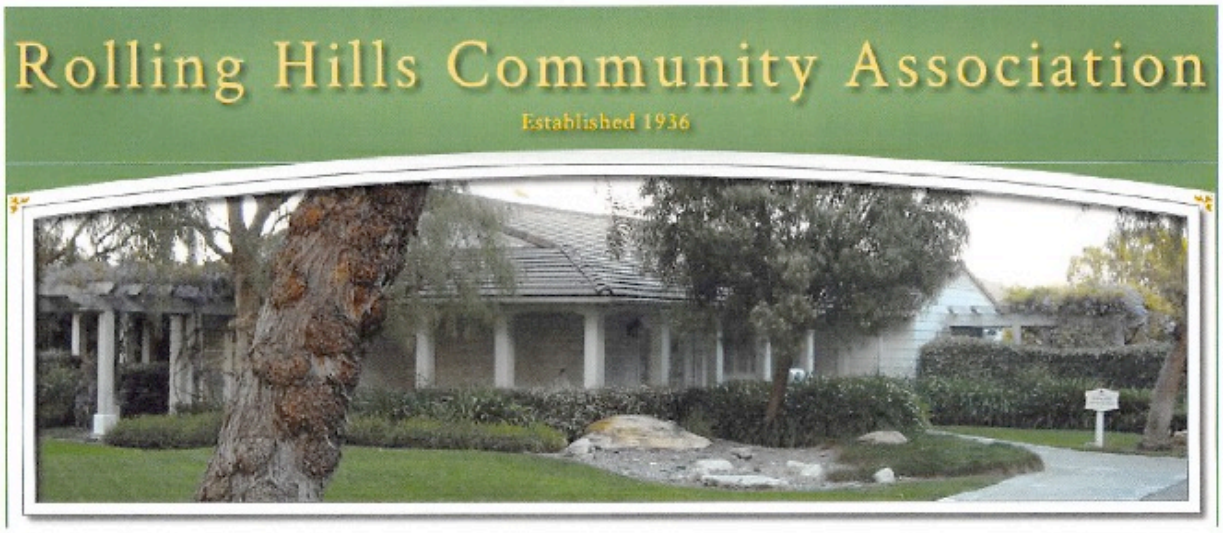
“Home Ignition Prevention”



Home

Rolling Hills Community Association

Welcome

Rolling Hills Community Association

Rolling Hills is a gated, residential community on the Palos Verdes Peninsula in Southern California. The Rolling Hills Community Association (RHCA) is the homeowners association for the City of Rolling Hills and shares the same boundaries as the City.

The community has just under 700 homes and covers an area of three square miles. Homes are single-family residences on lots of at least one acre. All homes are ranch-style in design and all lots are zoned for keeping horses.

Clifford F. Hunter, Wildfire Information Consulting

"Home Ignition Prevention"

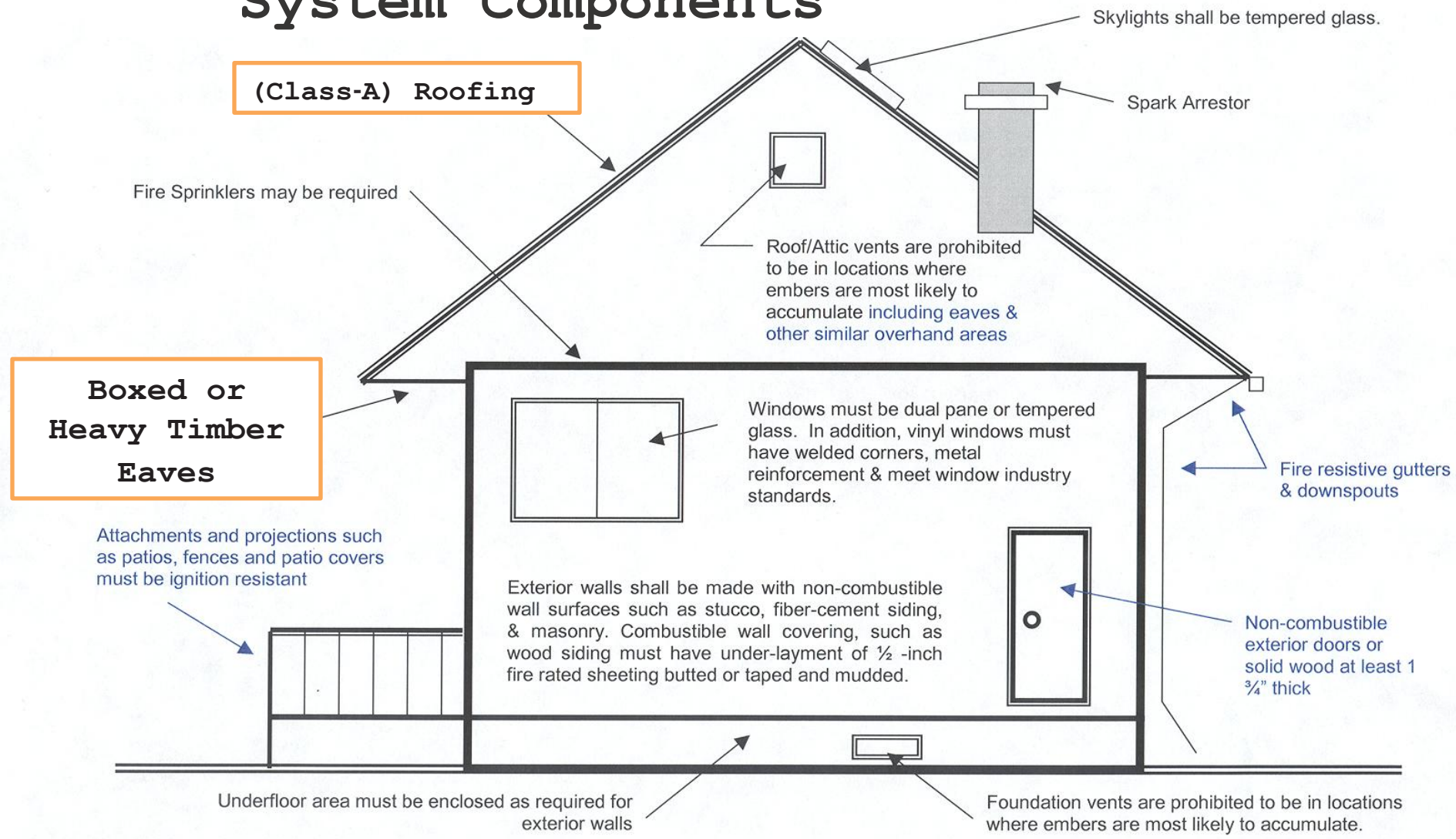
What to know and what you can do to prepare prior to a Wildland Fire!

Clifford F. Hunter, Wildfire Information Consulting
A Retired Fire Marshal's Perspective
Wildfire Information Consulting
Email – cfhunter@att.net or wild-fire@att.net
February 28, 2018 760-703-4497 cell phone

Insurance Institute for Business & Home Safety (IBHS)
State Farm Insurance

"Wildfire Home Assessment"

System Components



Ember Intrusion is the main cause of structure loss in wildland fires!

“Home Ignition Prevention”

Insurance Institute for Business & Home Safety (IBHS)

“Home Ignition Prevention”

Wildfire Home Assessment

The ability of a structure to withstand ignition is essential to its survival in a wildfire event.

- Your home assessment of your structure determines its ability to survive a wildfire event.
    1. Roofs –design, skylights, vents
    2. Under-eave construction
    3. Walls and siding
    4. Door assemblies
    5. Windows
    6. Decks, balconies, fences, other attached structures
    7. Ignition-resistant materials
    8. Residential fire sprinklers

“Home Ignition Prevention”

Wildfire Home Assessment Checklist

Outside conditions that influence the home survival in a wildfire event.

1. Fuel Treatment (100 feet)
2. Fencing material and maintenance (keep 5 feet from home)
3. Decking material and storage. (In, around or under)
4. Out buildings location to your home (30 foot apart)
5. Attic and crawl space (No storage and replace paper backed insulation in attic)
6. Outside patio furniture (Type of material and location to home)
7. Mulch too close to walls of your home
8. Trash can locations (5 feet away from home)
9. Ornamental landscaping too close to home. Within 16 feet to 58 feet is the most important fuel treatment zone

“Home Ignition Prevention”

Wildfire Home Assessment Checklist

Home construction that influences the home survival in a wildfire event.

1. Homes ignite in one of three ways:
    - Embers and/or firebrands
    - Radiant heat exposure
    - Direct flame contact

“Home Ignition Prevention”

Actions or Retrofit Options

1. **Fuel Treatment Vegetation Management** – treat 100 feet from home!
   - ❖ Slope – Fire travels uphill faster than downhill
   - ❖ Maintain mulch at least 12 inches from the foundation with noncombustible material, such as, concrete, rock, pavers
   - ❖ Keep lawn well irrigated, plant non-woody plants
   - ❖ Keep tree’s drip line at least 10 feet from home
   - ❖ Prune limbs and branches at least 6-10 feet above the ground
   - ❖ Form a discontinuous path of vegetation to reduce wicking
   - ❖ Remove dead plant material and tree branches
   - ❖ Relocate propane tanks at least 10-25 feet from home
   - ❖ Fasten propane tanks to the ground when located on hill side
   - ❖ Locate tool shed, detached garage, play set or other structures at least 30 feet from you home
   - ❖ Do not use combustible wood/bark or rubber mulch around play area or next to house foundation

"Home Ignition Prevention"

Actions or Retrofit Options

2. Roof Covering

- Class "A" – Fire Rate offers best protection
- Mission type tile roofs should have bird stops installed to protect roof edges
- Clean out rain gutters and roof valleys of leaf litter

Vents

- If there is no screening or there is damaged screening replace with dual chamber vents and/or 1/8 inch screening.
- Turbine vents should only move in one direction.
- Replace vents that have close up vents which were designed to resist the entry of embers and flames.

Skylights

- Skylights installed on a flat or low sloped roof – remove accumulated debris next to and on the skylights
- Replace plastic skylights with tempered glass skylights
- Keep operable skylights closed when a wildfire threatens

“Home Ignition Prevention”

Actions or Retrofit Options

3. Exterior Walls

- Foundation Vents – Post and beam style foundation – enclosed with noncombustible material – this process is sometimes called skirting. Areas must be ventilated with ember resistant vents and 1/8 screening.
- Remove combustible materials stored in crawl space, or from under the building if you have a no-skirted post beam foundation.

- Some foundation vents on the exterior walls are closeable – close them when a wildfire threatens.
- Install vents that resist the entry of embers and flames
- Do you have covers for foundation and/or gable end vents.
- Dryer vents and wall vents should be screened with 1/8 inch screen or replaced with ember resistant vents.

“Home Ignition Prevention”
Hardie Board - Cement Fiber

"Home Ignition Prevention"

Actions or Retrofit Options

3. Exterior Walls - continued

Siding- Should be located at least 6 inches from the ground

- Examine your siding for location where embers could accumulate or lodge
- Apply water base caulk at trim-to-siding locations where it is missing or has failed
- If you re-side your house use a non-combustible or ignition resistant material for siding or corner trim. (Hardie board, FRX treated wood, Timbersil, stucco)

Stucco

- 7/8 inch thick stucco is fire resistant, except the ground level, why? The Weep Screed, a metal trim at the bottom of the stucco, has ½ inch holes every foot or so
- Mulch next to stucco will have a flame length of about 12 inches and the flames will enter through the holes into the interior of the wall

“Home Ignition Prevention”

Actions or Retrofit Options

3. Exterior Walls - continued

Eaves

- Open–eave framing, should be heavy timber, boxed-in or soffited-eave design
- Apply water base caulk where there is cracks or open space next to rafters and blocking
- Three hole vent blocking at eaves should be retrofitted with ember resistant vents(Brandguard, Vulcan, Securo)

Windows

- Single pane windows should be replaced with dual pane windows with the exterior pane to be tempered glass
- Screens- Both plastic-clad fiberglass and metal screening will fail against flames


Melody Lane Fire
July 27, 2004

"Home Ignition Prevention"

Actions or Retrofit Options

4. Garage(Detached or Attached)

- Weather seal the perimeter of the garage doors.
- No doors? Add doors to protect combustible materials
- Replace low garage vents with ember resistant vents

5. Decks

- Cliff hangers and steep slopes, need more defensible space.
- Or, consider building a non-combustible wall across the slope
- No storage under the decks
- Deck boards are combustible, including, wood, plastic, and wood plastic composites
- Chose a product that complies with the California Office of the State Fire Marshal Wildland Urban Interface or meets Chapter 7A of the California Building Code

"Home Ignition Prevention"

Actions or Retrofit Options

5. Decks - continued

- Clean out debris from between deck joints and other areas where debris has accumulated
- When wildfire threatens, move combustible deck furniture and cushions inside or move as far away from house as possible.
- LPG tanks should be removed from BBQ off deck and as far away from house as possible

6. Fencing

- Replace any combustible fencing that attaches to your home directly with a noncombustible section at least 5 feet long
- Chain link gate or fence, a wood frame fence with metal mesh infill, or other noncombustible material (Hardie board dog eared fencing)
- Keep climbing vegetation 5 feet away from home

"Home Ignition Prevention"

Actions or Retrofit Options

Decks and Other Projections

- Decking surfaces, stair treads, risers, and landings of decks, porches & balconies shall be constructed of:
  - Non-combustible construction
  - Exterior fire-retardant-treaded wood
  - Modified heavy timber construction
  - One-hour fire-resistive construction
  - Decking that passes performance testing requirements

“Home Ignition Prevention”

Fire ratings for roofs – two ways to have a Class A rating :
- Covering alone (‘stand alone Class A’)
- Covering and underlying materials (‘assembly rated Class A’)

Asphalt Comp (‘three-tab’ shingles)
- ‘stand alone’ Class A. It doesn’t matter what kind of materials are used under the roofing material (the part of the roof you can see).

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704A.1.2 ‘Where roof profile allows for a space between roof covering and deck, the spaces shall … prevent the intrusion of flames and embers.’

Bird-stopped (Fire-stopped)

If new installation, cement fill or other methods could also be used at these locations.

“Home Ignition Prevention”

Post-fire investigations have shown that ¼” mesh may not prevent the entry of embers that can result in ignition and loss of the building. They definitely cannot protect against the entry of flames.

Attic Vents

Flame entry through screened vent opening, into what would be the attic.

“Home Ignition Prevention”

“Saving Homes With Flame And Ember Resitant Vents”

Available for New and Retrofit purposes

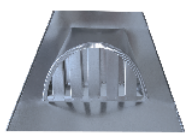
Residential and Commercial ▪ Custom sizes available upon request

We are Proud To Introduce

Brandguard Vents™

Saving Homes with Flame and Ember Resistant Vents™

Brandguard Vents,™ are the new generation of patent pending venting products that address the newly passed Chapter 7a provisions, (Section 704.2 Attic Ventilation Codes) and resists the intrusion of flames and embers into the home.

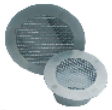


Dormers
DV2011 – 9” x 18” Flat Back Dormer
DV2021 – 12” x 24” Flat Back Dormer
DV2031 – 9” x 18” Flat Back Dormer w/ Flashing
DV2041 –12” x 24” Flat Back Dormer w/ Flashing
DV2051 – 19” x 3” Eyebrow Dormer
DV2061 – 19”x3” Eyebrow Dormer w/ Flashing

Gable End Vents
GV2011 – 12” x 12” Gable Vent
GV2021 – 12” x 18” Gable Vent
GV2021 – 14” x 12” Gable Vent
GV2041 – 14” x 18” Gable Vent
GV2051 – 14” x 24” Gable Vent
GV2061 – 18” x 20” Gable Vent
GV2071 – 18” x 24” Gable Vent
GV2081 – 22”x 30” Gable Vent
RV2011 – 18” Round Gable Vent

Foundation Vents
FV02011 – 6” x 14” Foundation Vent

Eave and Soffit Vents
UE2011 – 3.5” x 22” Under Eave Vent
UE2021 – 3.5” x 14” Under Eave Vent
UE2031 – 14” x 5” Under Eave Vent
UE2041 – 22” x 3” Under Eave Vent
FP2011 – 2” Fireplug Under Eave Block Hole Vent
FP2021 – 3” Fireplug Under Eave Block Hole Vent
FP2031 – 4” Fireplug Under Eave Block Hole Vent



Retrofit Fireplugs
Our line of Retrofit products easily insert over most existing mesh vents and adhere with silicone.

UE2111 – 3.5” x 22” RETROFIT Fireplug Eave Vent
UE2121 – 3.5” x 14” RETROFIT Fireplug Eave Vent
FP2111 – 2” Fireplug Under Eave Block Hole Vent
FP2121 – 3” Fireplug Under Eave Block Hole Vent
FP2131 – 4” Fireplug Under Eave Block Hole Vent
FV2111 – 6” x 14” Retrofit Foundation Vent

Contact us for pricing and availability. (949) 481-5300 www.brandguardvents.com

O’HAGIN’S, INC.

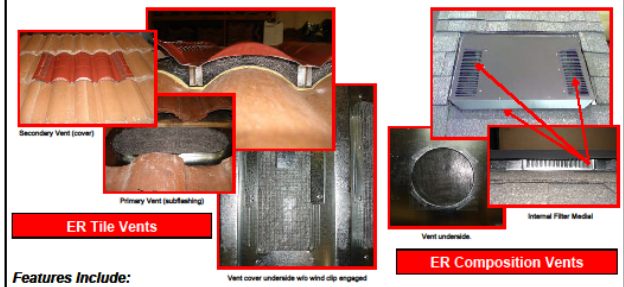
America’s Leading Attic Ventilation Company

Ember-Resistant Vents

- **Clay and Concrete Tile**
- **Composition Shingle and Slate**

America’s Leading Attic Ventilation Company is proud to announce a new line of Ember-Resistant vents – O’Hagin’s ER Vent – for clay and concrete tile, as well as for composition shingle and slate roofs.

O’Hagin’s industry-leading technical design team has developed an ember-resistant vent to meet the requirements of 2007 California Building Code, Chapters 15 and 7A for resistance of flame and ember intrusion.



ER Tile Vents

ER Composition Vents

Features Include:

- Class A fire rated vent
- Patent-pending, ember-resistant, ventilation system for clay/concrete tile and for composition shingle and slate applications
- Patent-pending internal stainless steel ember-resistant filter media system
  - provides filter media to “trap” and resist ember intrusion into sub-tile and attic areas
  - allows superior airflow for net free ventilation area (NFVA) requirements
  - filter media withstands sustained temperatures of 1292° F and peak temperatures of 1472° F, exhaust acids and high vibration
- Easy retrofit for existing O’Hagin’s or other field vent installations
- Optional 1/8-inch mesh throughout vent
- Installation does not require tile cutting like dormer-style vents
- Installation does not require use of lead flashings or other hazardous materials like dormer-style vents
- O’Hagin’s vent system requires no under-eave or soffit vents to provide code-required amount of NFVA

In addition to following all Installation Instructions and Installation Bulletins for O’Hagin’s patent-pending ember-resistant vents, we recommend using additional best practices in building design and construction as set forth by local ordinance, code and/or wildfire management plan. There are many causes of structural damage due to wildfire. O’Hagin’s, Inc. does not guarantee, nor warrant that its products will prevent damage from wildfire.

O’Hagin’s vents are manufactured and protected under one or more of the following patents: D456,531, D457,234, D458,391, D458,392, D469,889, D479,885, D504,172, D512,774, D549,316; 6,050,039, 6,129,628, 6,354,051, 6,390,914, 6,447,390, 6,491,579, 7,101,279. Other U.S. and foreign patents are pending.

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Midwest Manufacturing Facility • Omaha, Nebraska
www.ohaginvent.com

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Rev. 07/10/08

Vent Replacements

"Home Ignition Prevention"

Penetration into stud cavity

Concerns with exterior siding & stucco walls:

1. Flame *penetration* into stud cavity, and
2. Flame *spread* up the wall
3. Stucco - Weep screed base of wall!

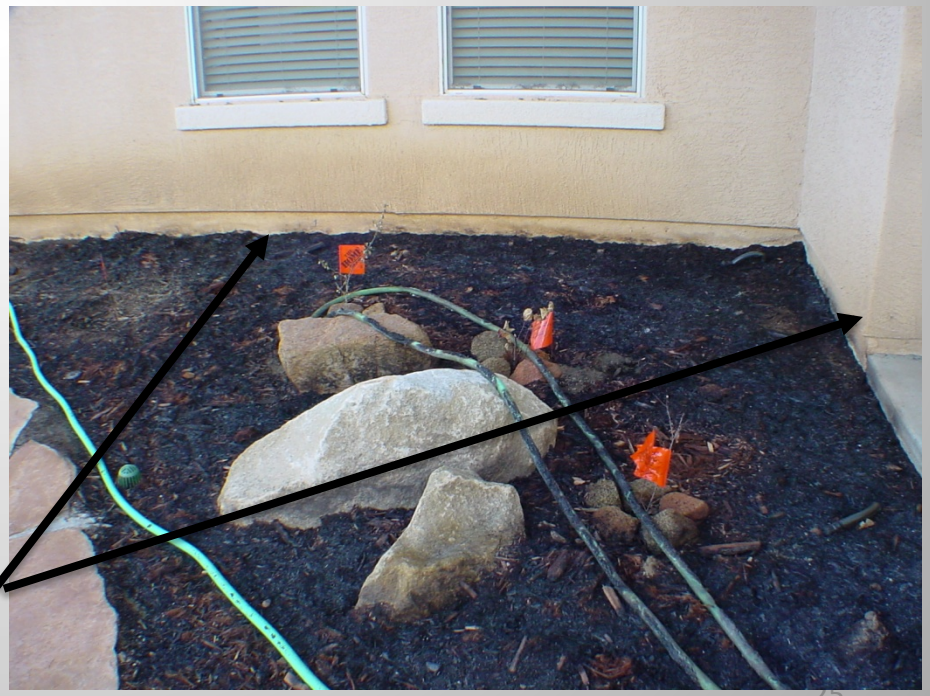
Flame spread up the wall

Walls & Siding

“Home Ignition Prevention”

Mulches & Stucco Walls a Problem?

YES!



Doors Do Burn!

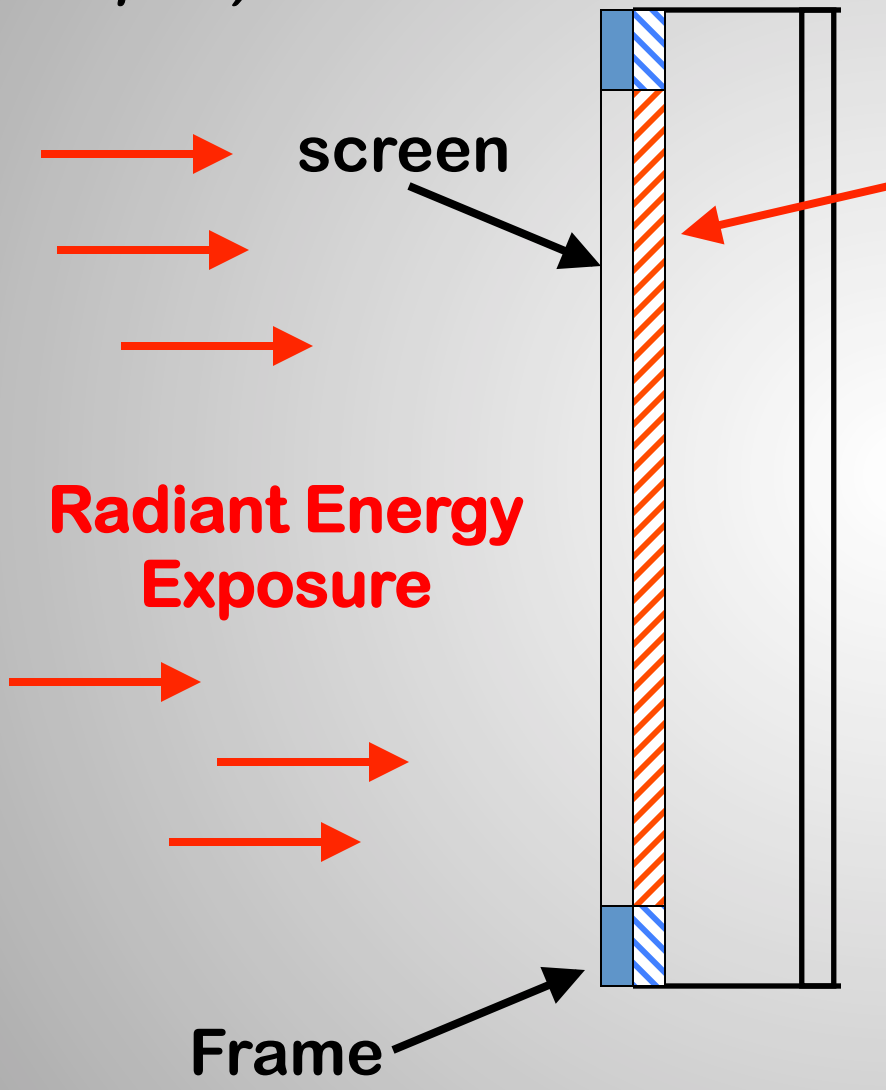
Gavilan Fire

February 10, 2002

Courtesy of Cliff Hunter, Rancho Santa Fe FPD

Dual-pane window with screen

- insulating-glass units with a minimum of one tempered pane *(either inner or outer pane)*



Metal screens absorb some of the radiant energy, resulting in smaller temperature differences between the exposed and protected glass. Provides greater protection to the glass.

A fiberglass screen will not provide as much protection as metal screens.

Screens won't provide protection against flame impingement exposure

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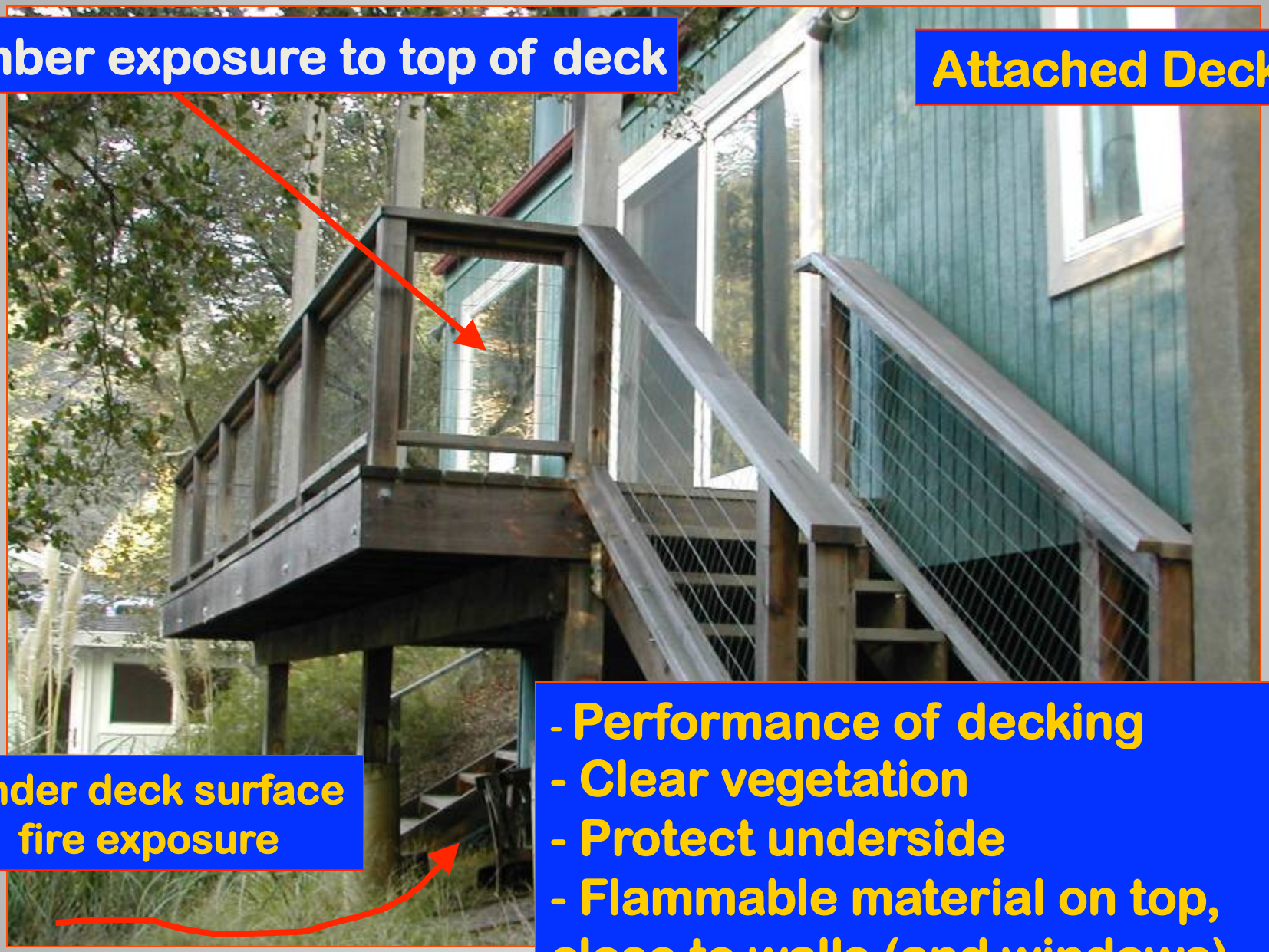
Outer pane broken, inner intact.

Attached Decks



- Performance of decking
- Clear vegetation
- Protect underside
- Flammable material on top, close to walls (and windows).

"Home Ignition Prevention"

Types of Decking Material

Decking (Solid Wood, Plastic, or Fiber-Plastic)

- **Vinyl (PVC)**
  - 100% PVC
  - Fiber-PVC
- **Polyolefins – with fiber**
  - Polypropylene
  - Polyethylene

Formulation of Wood Plastic Composites

- Wood Flour: 45 – 70%
- Thermoplastic: 24 – 49%
  (HDPE, LDPE, PVS, PP, PS, ABS)
  - Talc: 0 – 25%
- Additives: Lubricants, Coupling Agents, other

(Source: Washington State University, Wood Materials and Engineering Laboratory, Pullman, WA)

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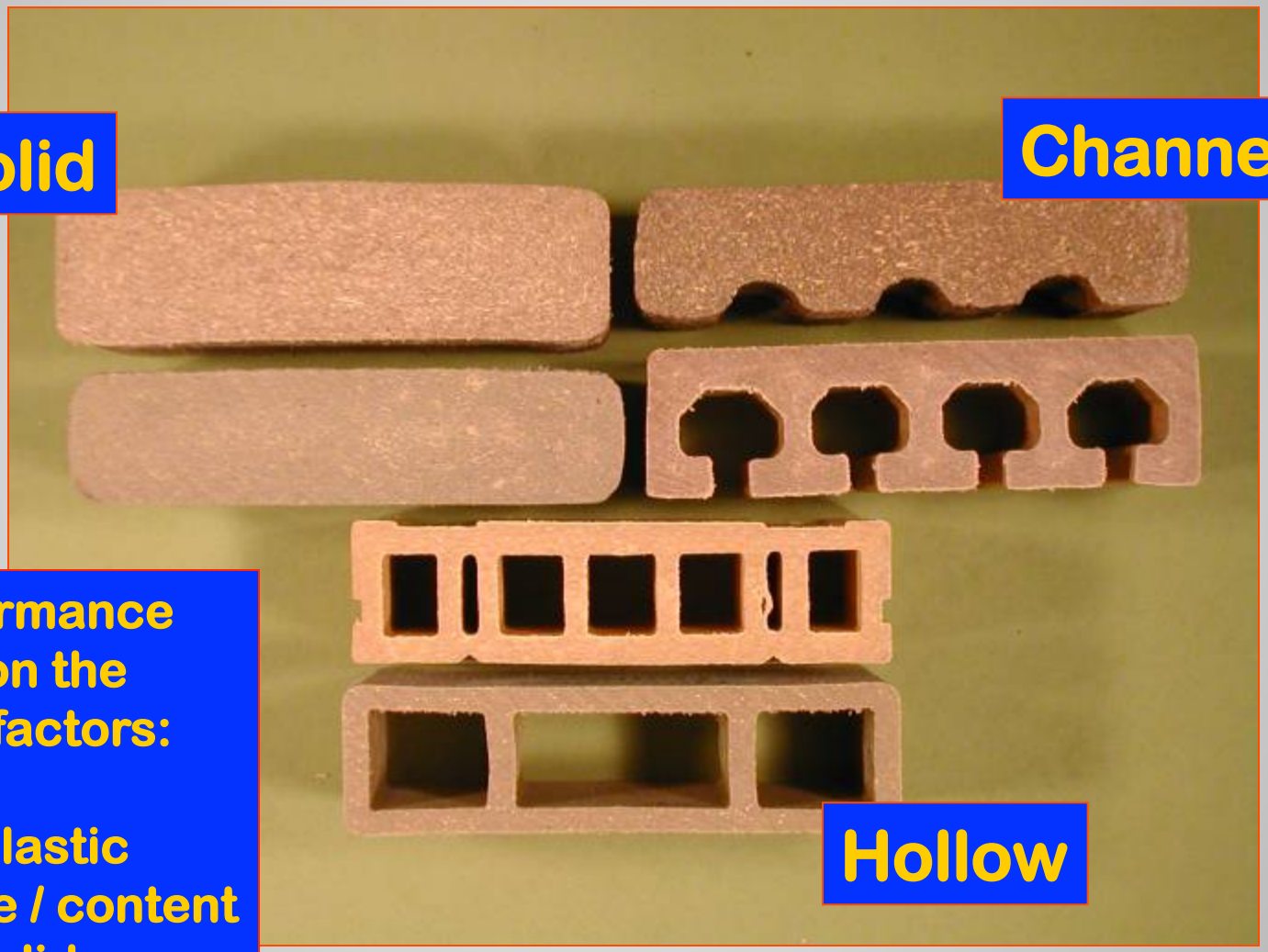
Types of Decking Material



Fire performance depends on the following factors:

- type of plastic
- fiber type / content
- shape (solid, hollow, channeled)

"Home Ignition Prevention"

CALIFORNIA
FIRE SCIENCE
CONSORTIUM

Research Brief for Resource Managers

Release:	Contact:	Phone:	Email:
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Central and Southern California Team, USGS Sequoia and Kings Canyon Field Station, Three Rivers, CA 93271

How Much Defensible Space is Needed to Reduce Home Losses in Chaparral?

Syphard, A.D., T.J. Brennan, and J.E. Keeley. 2014. The role of defensible space for residential structure protection during wildfires. International Journal for Wildland Fire. Advance online publication. doi.org/10.1071/WF13158

In the chaparral of San Diego County, CA, about 500 homes are lost to fire each year. Overall, the rate of home loss has doubled since 2000 and it's expected to continue rising with the onset of climate change and increasing housing growth.

One of the key concerns at the wildland-urban interface is the extent of vegetation treatment needed to produce "defensible space" around homes. On these landscapes the goal is to produce cost-effective defensible space that reduces fire risks for homes and yet does not result in unnecessary habitat loss, which can increase invasive weed growth and soil erosion.

Syphard, Brennan and Keeley asked how the size of the defensible space zone affected fire outcomes using a dataset of 687,869 homes with their property boundaries. The data included 4315 homes destroyed by major fires between 2001 and 2010 in San Diego County. They randomly selected one thousand homes that were destroyed by fire and 1000 homes that survived the same fires. Using Google Earth aerial imagery, burned homes

Management Implications:

- The most effective measures to reduce structure losses are to "reduce the percentage of woody cover up to 40% immediately adjacent to the structure and to ensure that vegetation does not overhang or touch the structure."
- There is no additional structure protection provided by clearing beyond 30m (100'), even on steep slopes, and the most important treatment zone is from 5-20m (16-58').
- The amount of cover reduced is as important as the fuel modification distance; however complete removal of cover is not necessary. The term "clearance" should be replaced with "fuel modification" to emphasize this fact.
- Ornamental vegetation in wildland settings can contribute to structure loss and should be managed in the same way as native vegetation in the defensible space zone.
- This study does not address the distance necessary to protect fire fighters which should be considered as a separate problem.

"Home Ignition Prevention"

What studies have found!

The two most effective measures for protecting structures from wildfire are:

1. ***Creating and maintaining a defensible space from 50 to 100 feet wide around a structure,*** where vegetation and other flammable objects are reduced or eliminated.

2. ***Using fire-resistant roofs or vents.*** In addition to roofs and vents, other technologies – such as fire-resistant windows and building materials and landscaping

"Home Ignition Prevention"

What studies have found!

Although protective measures are available, many homeowners do not use them for a number of reasons—including:

- ✓ Time or expense involved
- ✓ Conflicting activities
- ✓ Misperceptions about how wildland fires ignite structures
- ✓ Not being aware of their shared responsibility for fire protection—but efforts to increase their use are under way.
- ✓ Fire officials and researchers have reported that some homeowners are discouraged by the time and expense of undertaking protective measures or are reluctant to do so because of concerns over aesthetics or privacy. Officials also said that some homeowners do not recognize the effectiveness of protective measures, such as creating defensible space.

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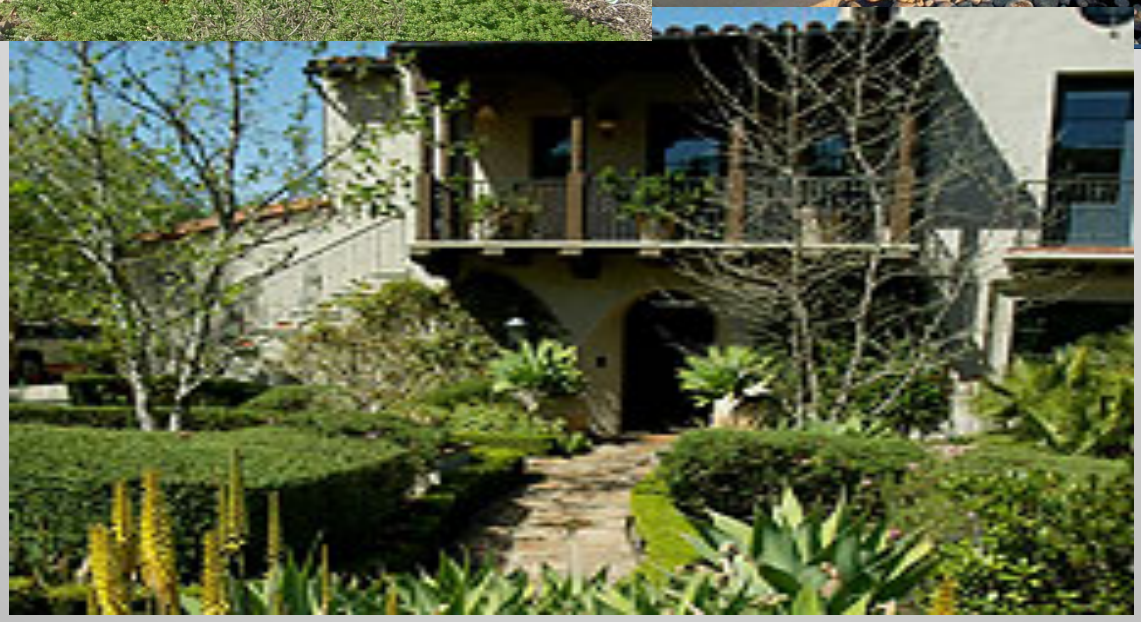
Vegetation Management

Ornamental Landscape



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Vegetation Management

“Home Ignition Prevention”

Vegetation Management

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Vegetation Management

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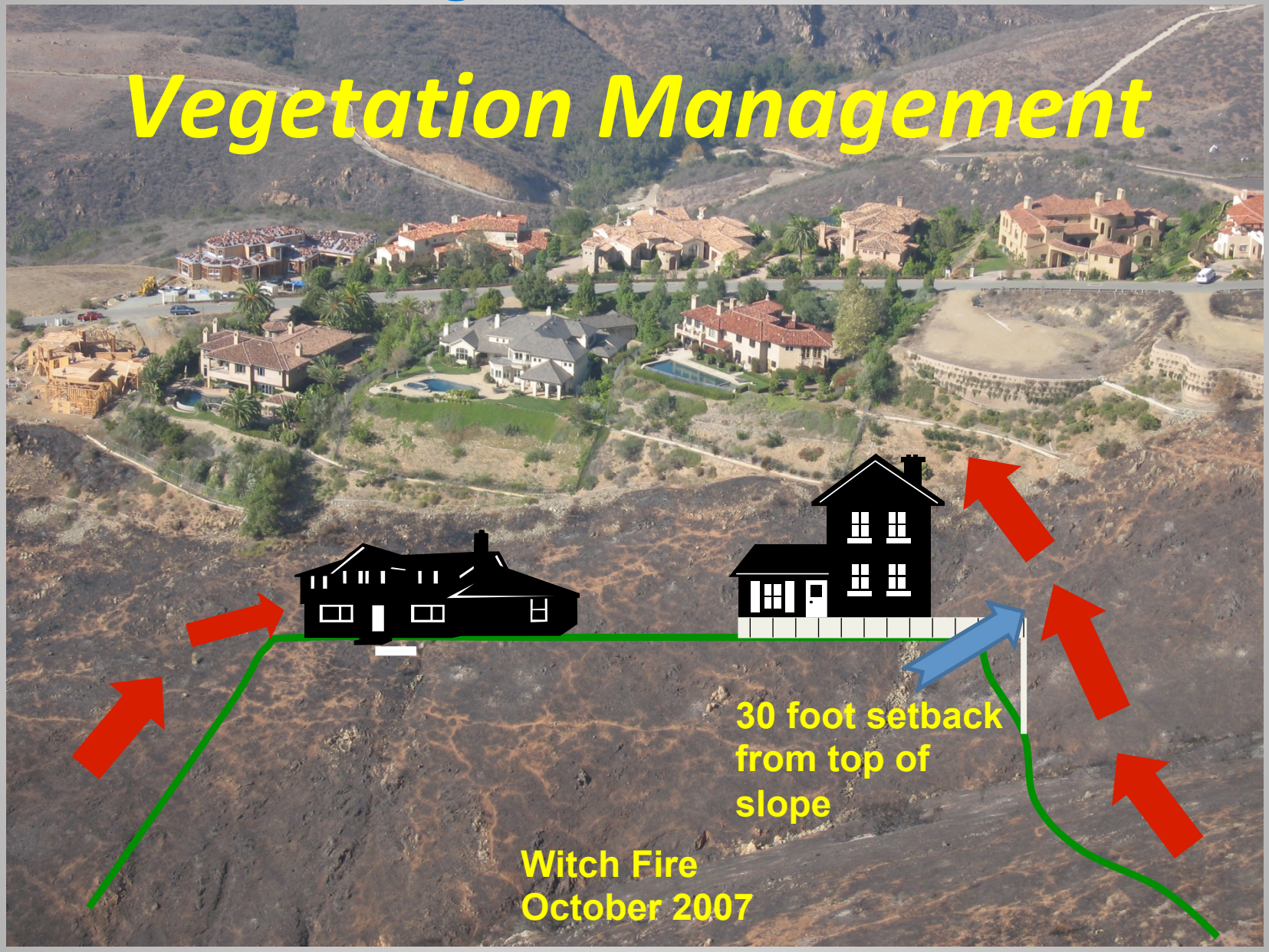

"Home Ignition Prevention"

Vegetation Management

Groupings, not lines…

“Home Ignition Prevention”
Closing Comments

- History repeats itself
- Fire burned areas will re-vegetate with annual grass. Light flashy fuels
- Defensible space around structures is necessary for adequate structure protection
- Evacuate when requested, Early rather than Later

YOU CAN MAKE A DIFFERENCE !

Don’t think if won’t happen to you, it can!

Special Thanks to the following people and resources!

Insurance Institute for Business & Home Safety
Steve Quarles, Insurance Institute for Business & Home Safety
FireWise and NFPA
Tony Michel, Fire Chief, Rancho Santa Fe Fire Protection District
The County of San Diego – Clay Westling

Cliff Hunter
Wildfire Information Consulting
Email: wild-fire@att.net
Work Phone: 760-703-4497

Thank You

Questions

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Work Phone: 760-703-4497

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Thank You