

by

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Protecting your Home and Land from Wildfire Workshop
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New Construction ...



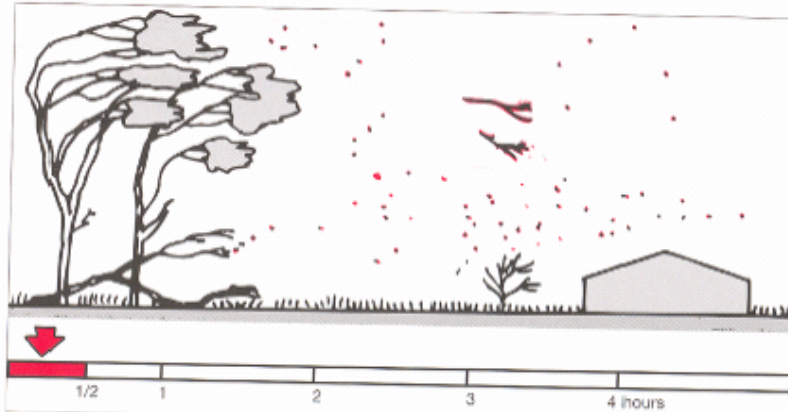
Changes to California Building Code, and local codes will address new construction in designated wildland urban interface areas

Existing Buildings ...

(No code for existing structures, but there are still things you can do to make your home more fire safe.)



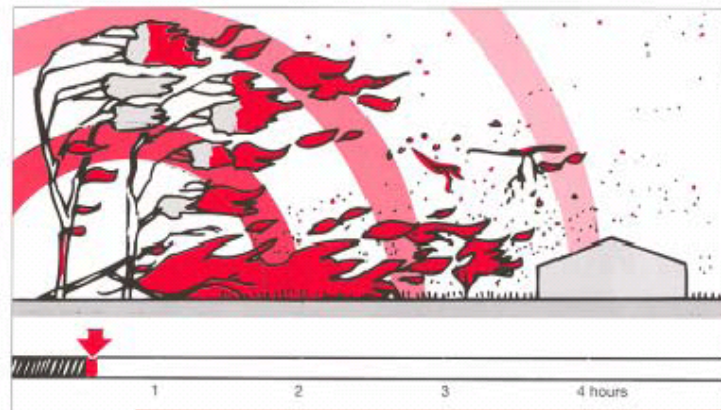
Timescale of attack:
pre fire front



Your home will be exposed to the main flame front of a wildfire for a relatively short period of time – 5 to 10 minutes at the most.

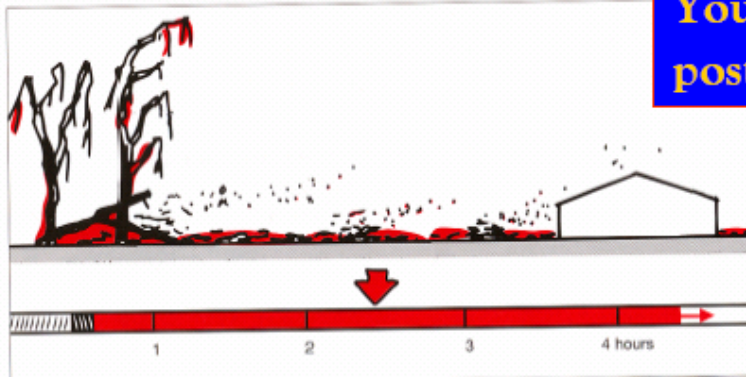
Stages of a Wildfire

Timescale of attack:
impact of the fire front



Your home will be exposed to pre- and post-fire for much longer periods.

Timescale of attack:
post fire front



From: *Landscape and Building Design for Bushfire Areas*.
Ramsay & Rudolph, CSIRO

WUI Homes must be protected from ...

✓ **Brands** (lofted embers – vegetation, construction mat'l)

✓ **Flame impingement** (near-by vegetation or debris, construction material)

✓ **Radiation** (dense vegetation, an adjacent structure/deck fire; heat up or ignition)

Brands are important – don't forget about them

Large fires usually start small, as shown in this demonstration. Structure loss occurs when small fires aren't extinguished. Fire fighters aren't available. Others have evacuated.



5-minutes after 6"x6" burning brand was placed on deck. Non-combustible material used for the siding.



30-minutes after burning brand was placed on deck. Melting plastic ignited on the ground.

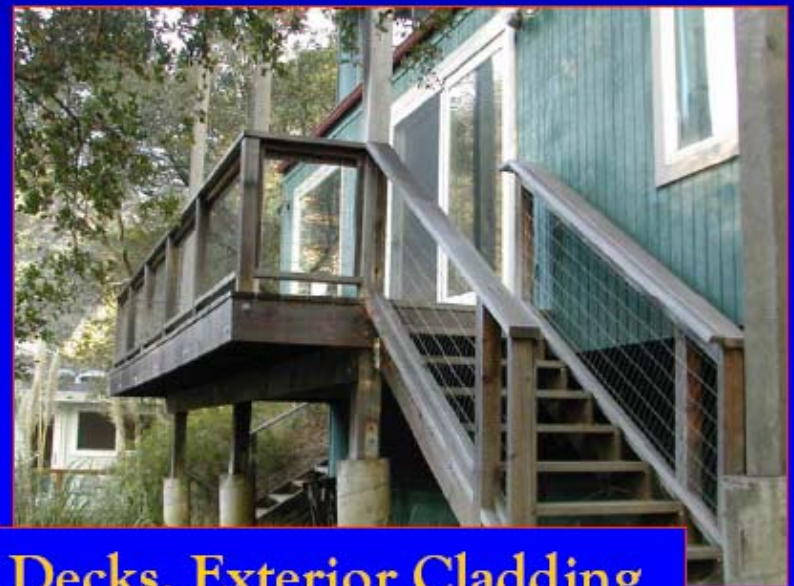
Roof Coverings



Vents, Eaves & Windows



Your home acts as a system,
but it is useful to evaluate
performance of the parts ...



Attached Decks, Exterior Cladding

Building Materials and Components

✓ Roof / Edge

✓ Eave / Vents

Exposure from embers that may have been blown a mile or more. Embers can also ignite near-home vegetation and debris.

✓ Windows

✓ Deck & Other Attachments

✓ Cladding

Ember, radiant, and/or flame impingement exposures from near-home vegetation, other structures, and wildfire

**Protecting your Home from Wildfire –
you must consider building materials /
components *and* vegetation**

Vegetation

Home



**Good performance
depends on a good a
system ...**

- **Design/Detailing**
- **Installation**
- **Product / Materials**
- **Inspection &
Maintenance**

**In the long-run, you have some control
over all of these. In the short-term, you
can inspect and maintain.**

Roof - Large, nearly horizontal area with significant exposure from sun, rain, wind, and wildfire generated embers. Performance in a wildfire will depend on a number of factors, including -

- **Material classification (covering or assembly)**
- **Condition (age)**
- **'Complexity'**
- **Edge (gutters & debris accumulation)**
- **Penetrations (vents, etc)**



**Example of a
'complex' roof ...**

Let's start with your roof ...

Fire ratings for roof coverings – either 'A', 'B', 'C' or 'unrated'

B-brand: 6"x6" three layer sandwich made from 3/4" square Douglas-fir sticks



C-brand: Small piece of Douglas-fir, about the size of an ice cube



A-brand: 12"x12" three layer sandwich made from 3/4" square Douglas-fir sticks



Fire rating for roof coverings

Burning [12" x 12"] 'A Brand' placed on roof covering. Will flame penetrate through the covering to the underside of the roof deck (into the attic), or not?



Flame penetrated through to the underside of the roof sheathing, into what would be the attic. As built, this is not a 'Class A' roof.





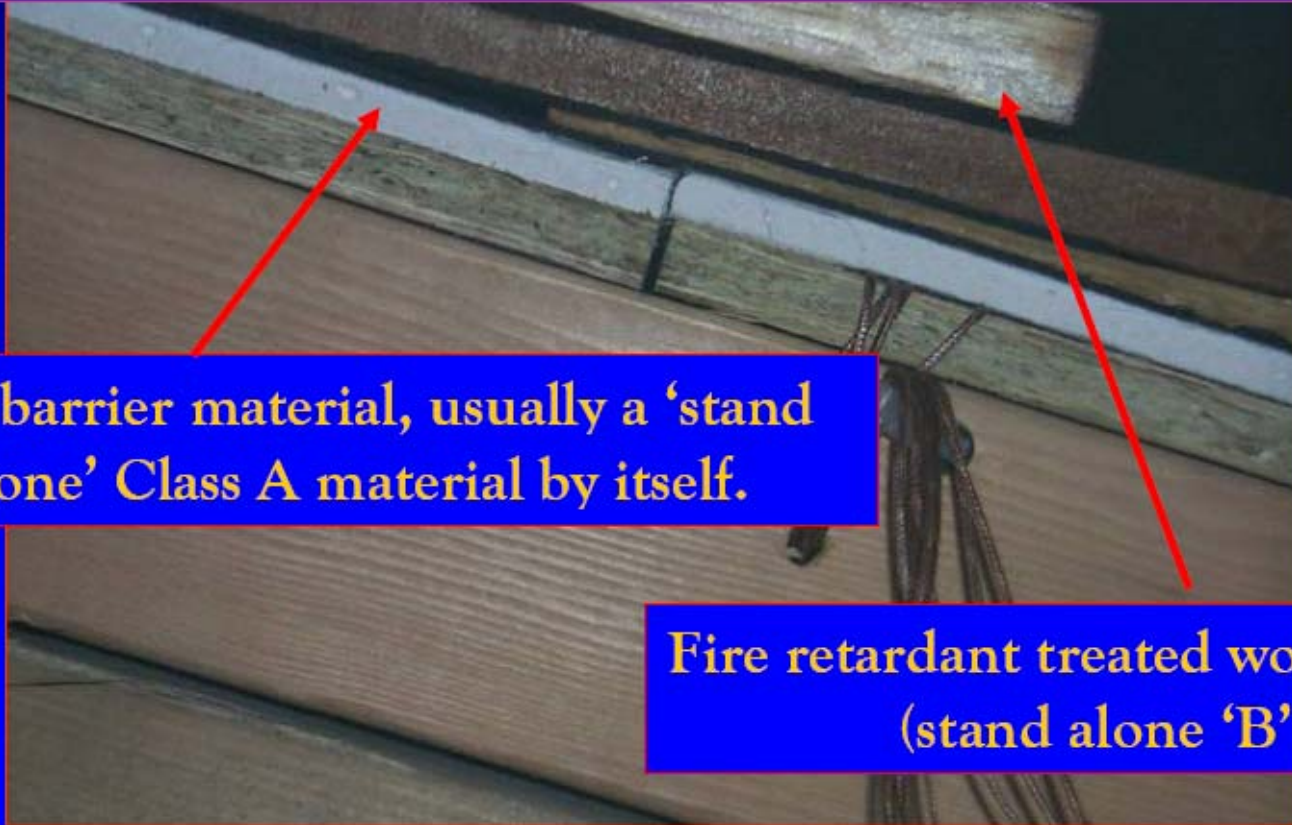
Fire ratings for roofs – two ways to have a Class A rating :

- 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).

A pressure impregnated fire retardant treated wood shake roof has a 'stand alone' Class B rating. With an underlying fire-barrier material, it can attain a Class A rating based on the 'assembly' [the Class B shake, plus the underlying fire barrier material]

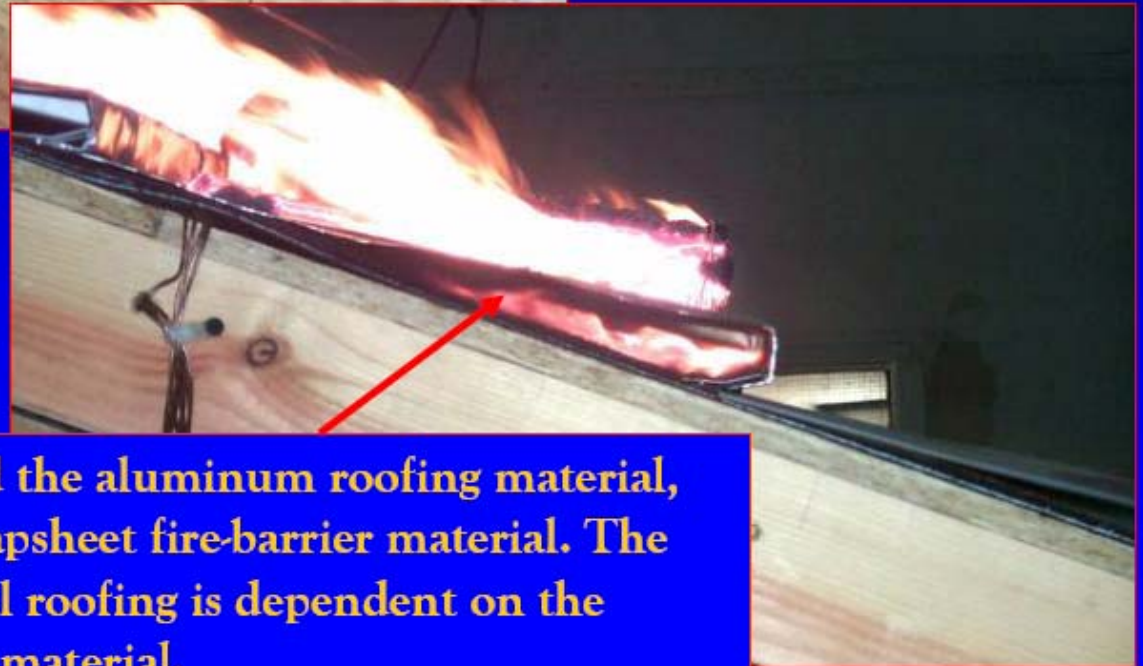


Fire barrier material, usually a 'stand alone' Class A material by itself.

Fire retardant treated woods shake
(stand alone 'B')

An aluminum roof covering also has a Class A 'assembly' rating. It is a non-combustible material, but has a low melting point.

Fire barrier material (in this case a *fire-rated* Type 72 capsheet material (roll roofing))



The burning A-brand melted the aluminum roofing material, and is sitting on top of the capsheet fire-barrier material. The fire performance of the metal roofing is dependent on the performance of the capsheet material.

Older, well used asphalt comp roof. Can it still be considered a 'Class A' covering? Maybe, but maybe not. Inspect your roof, and replace when needed.





Complex roof designs - typically more debris accumulation

- Increases maintenance requirement for your home

- Fire will also expose components other than the covering

(In this case, the cladding and the underside of the roof - will these provide the same protection as the Class A roof? It will depend on their fire rating.)