

The role of Zone 0 in reducing the vulnerability of buildings to wildfire

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Photo: Yana Valachovic

A burned home in Altadena following the Eaton Fire, 2025.



CALIFORNIA
FIRE SCIENCE
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2015-2025 Wildfire Trends in California

In the last 10 years

- 1 of every 7 acres has burned (14 million acres)
- 188 lives have been lost
- Over 57,502 structures have been destroyed
- Embers contribute to building ignition



Photo: Yana Valachovic

2025 Palisades Fire burns to the beach

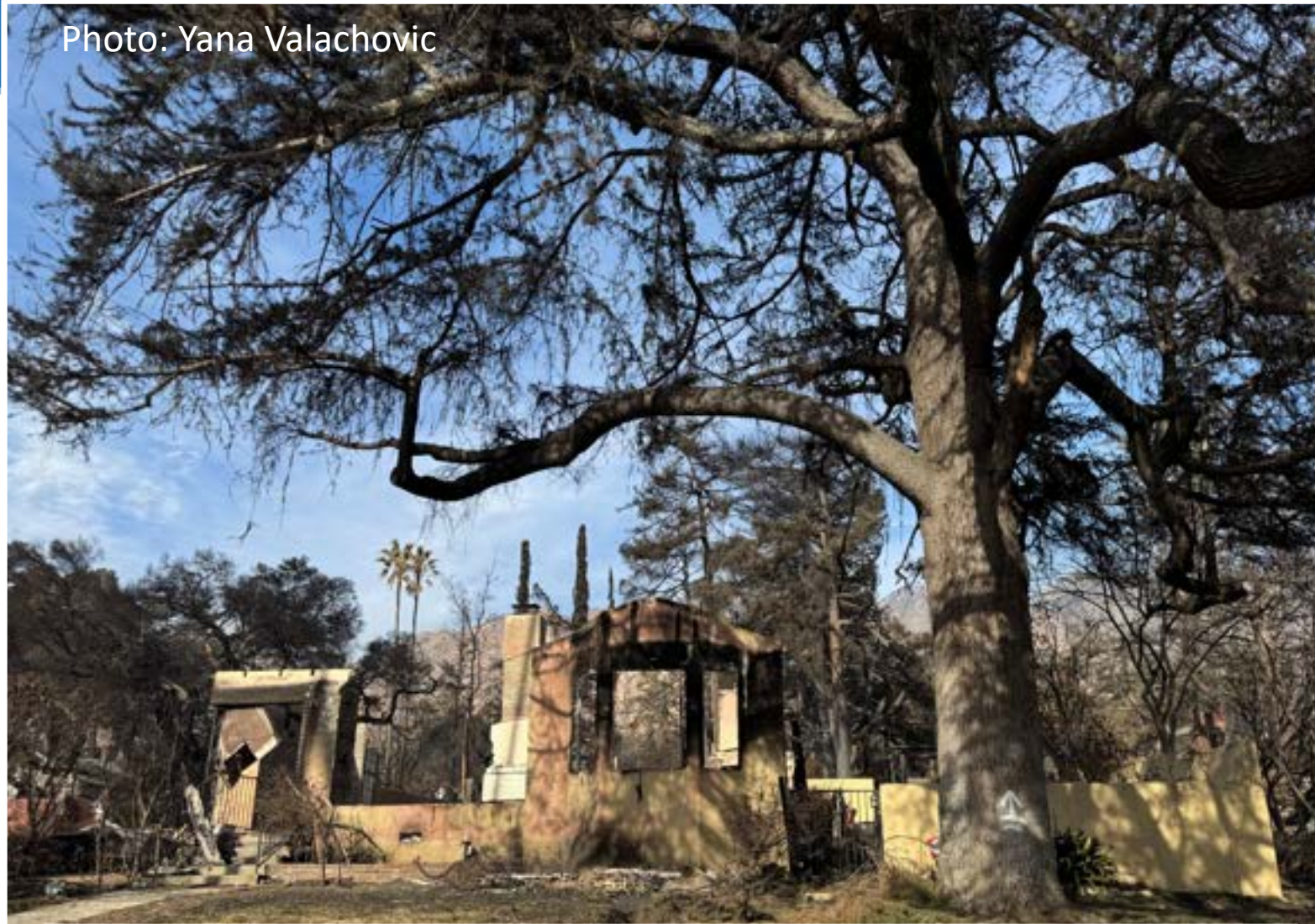
Trees are allowed in Zone 0

Source: Reddit



Tree is allowed, bushes within 5 feet of the house need to be addressed

Photo: Yana Valachovic



Post-fire image from Altadena.
Tree was not a factor, but burned vegetation in Zone 0 is evident



**A firefighter works to put out
spot fires from embers**

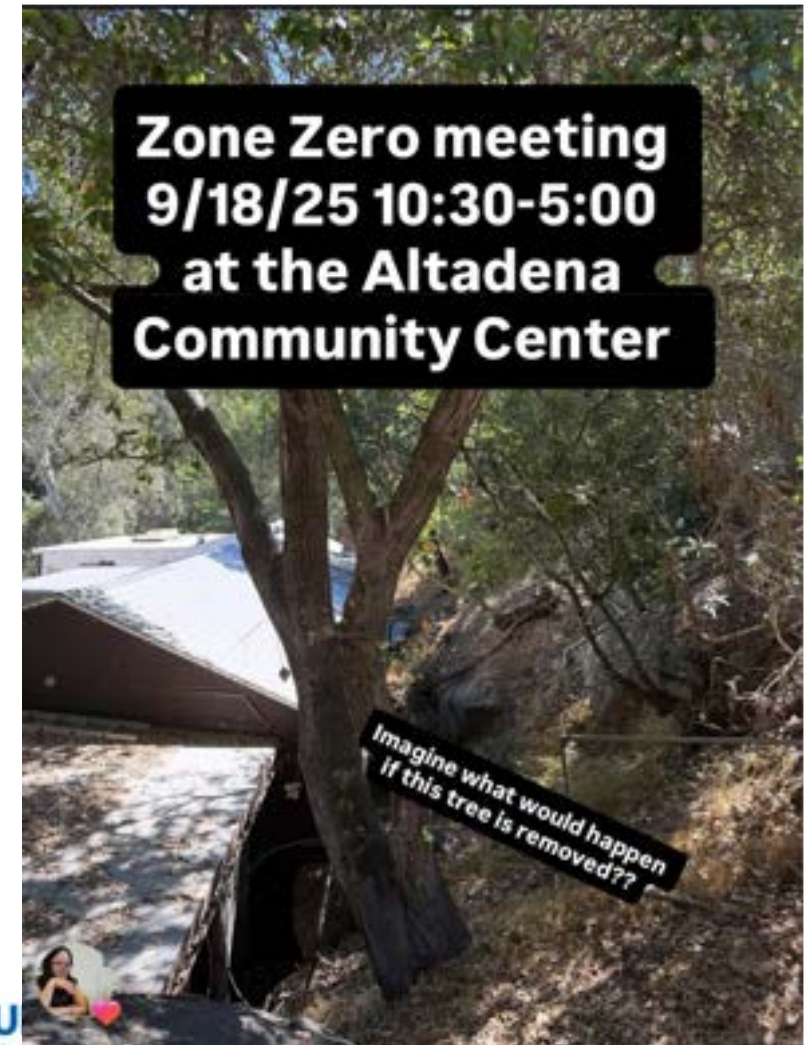
Source: LA Times

Fire adaptation takes many forms

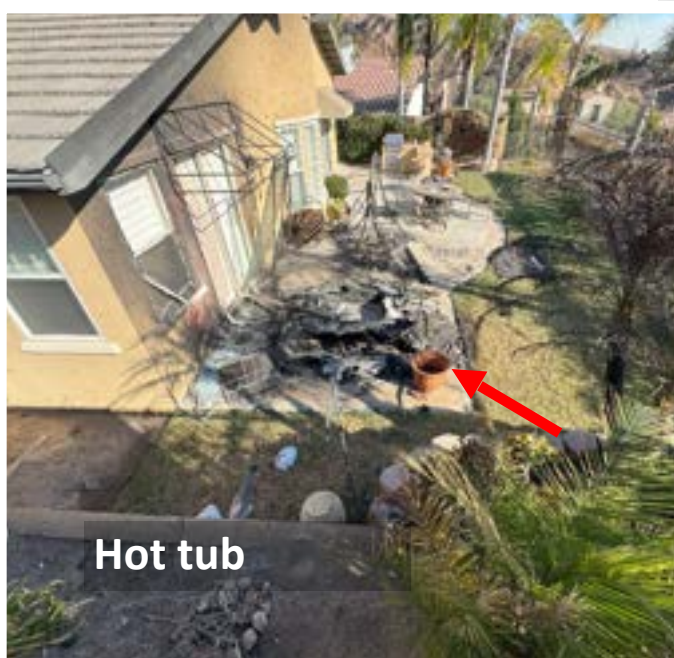


Vegetation and other combustibles on the property: selection, location, and **maintenance**

Home: Construction materials, design features, and **maintenance**. No single building product is effective

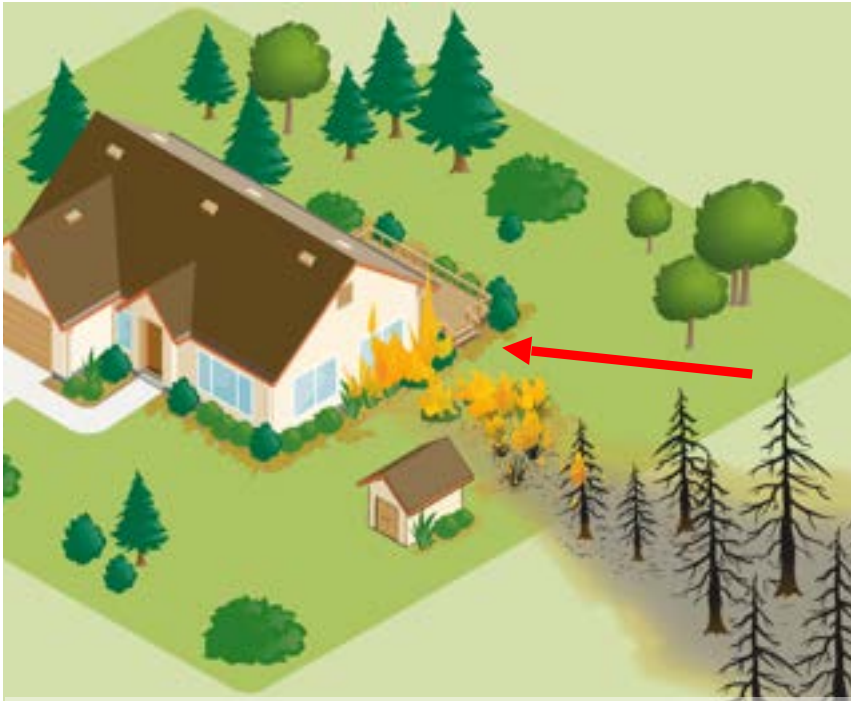


What is fuel? (Answer: Anything that is combustile)



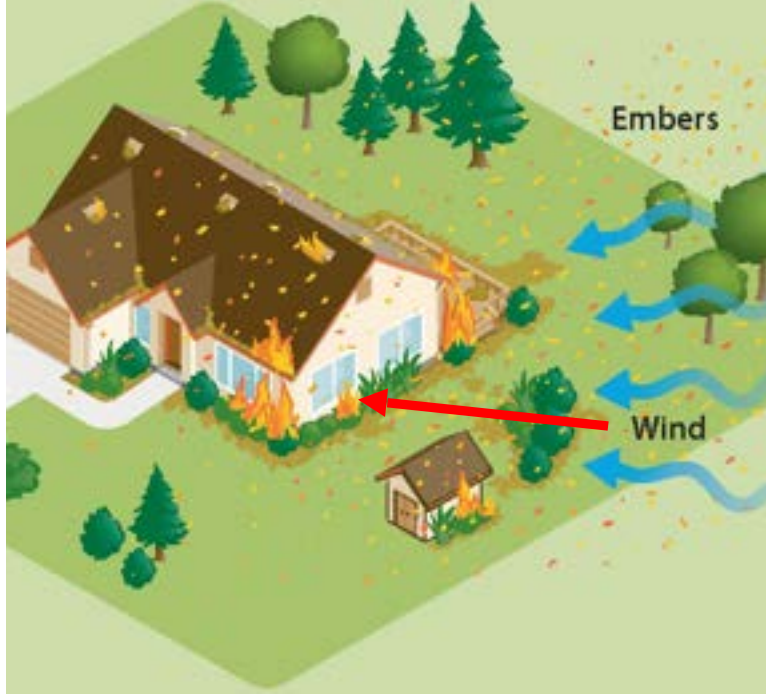
Pathways for wildfire

Direct flame contact



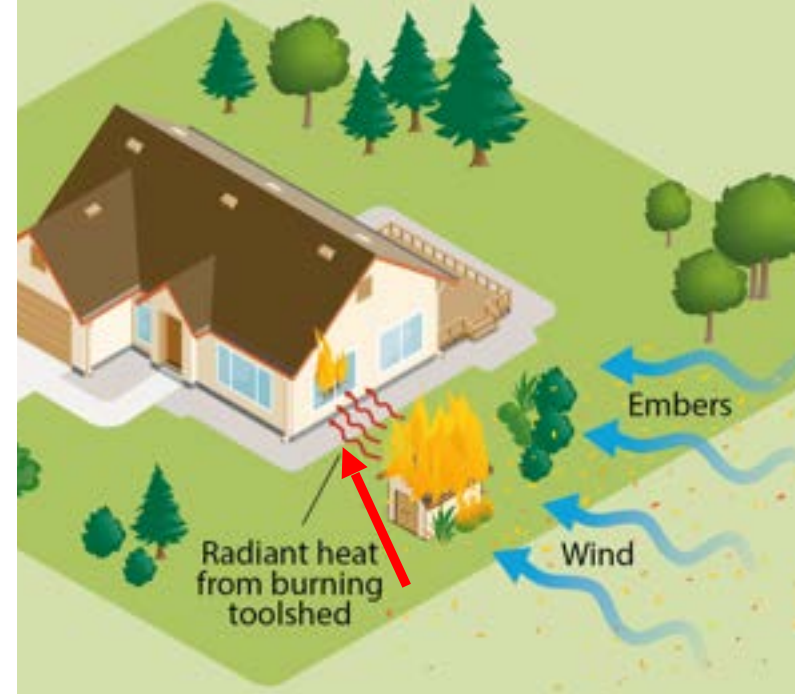
Defensible space implementation interrupts **fire pathways** and reduces the potential for direct flame contact

Embers



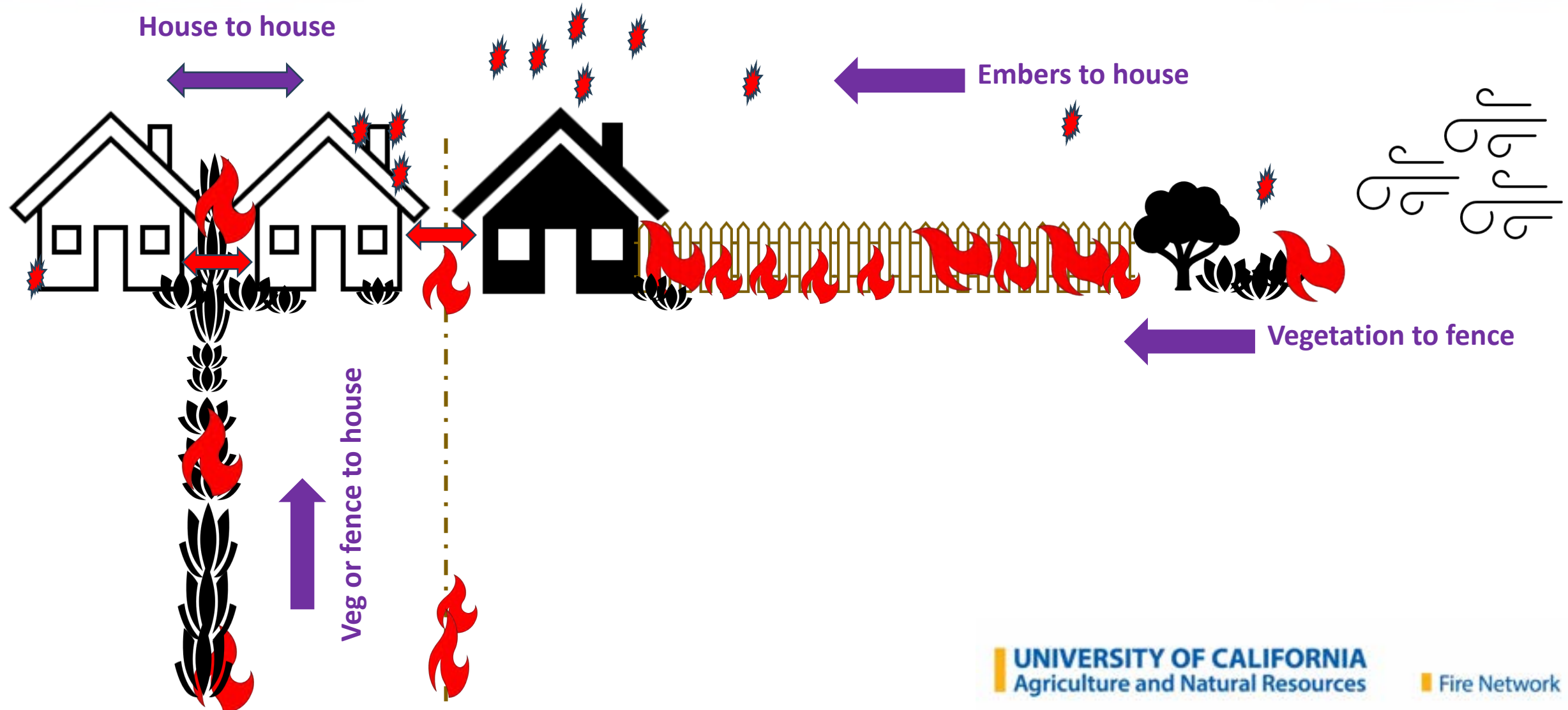
Home hardening with defensible space can help mitigate ember exposure

Radiant heat



Home hardening and fuel reduction can address potential radiant heat exposure

Fire pathways and transitions



Eaton and Palisades examples- firefighter intervention saved these homes from ember ignition of vegetation



Marshall Fire, Colorado January 2022

Front of house



Back of house



A closer look at this house Marshall Fire January 2022



Embers to vegetation to vent

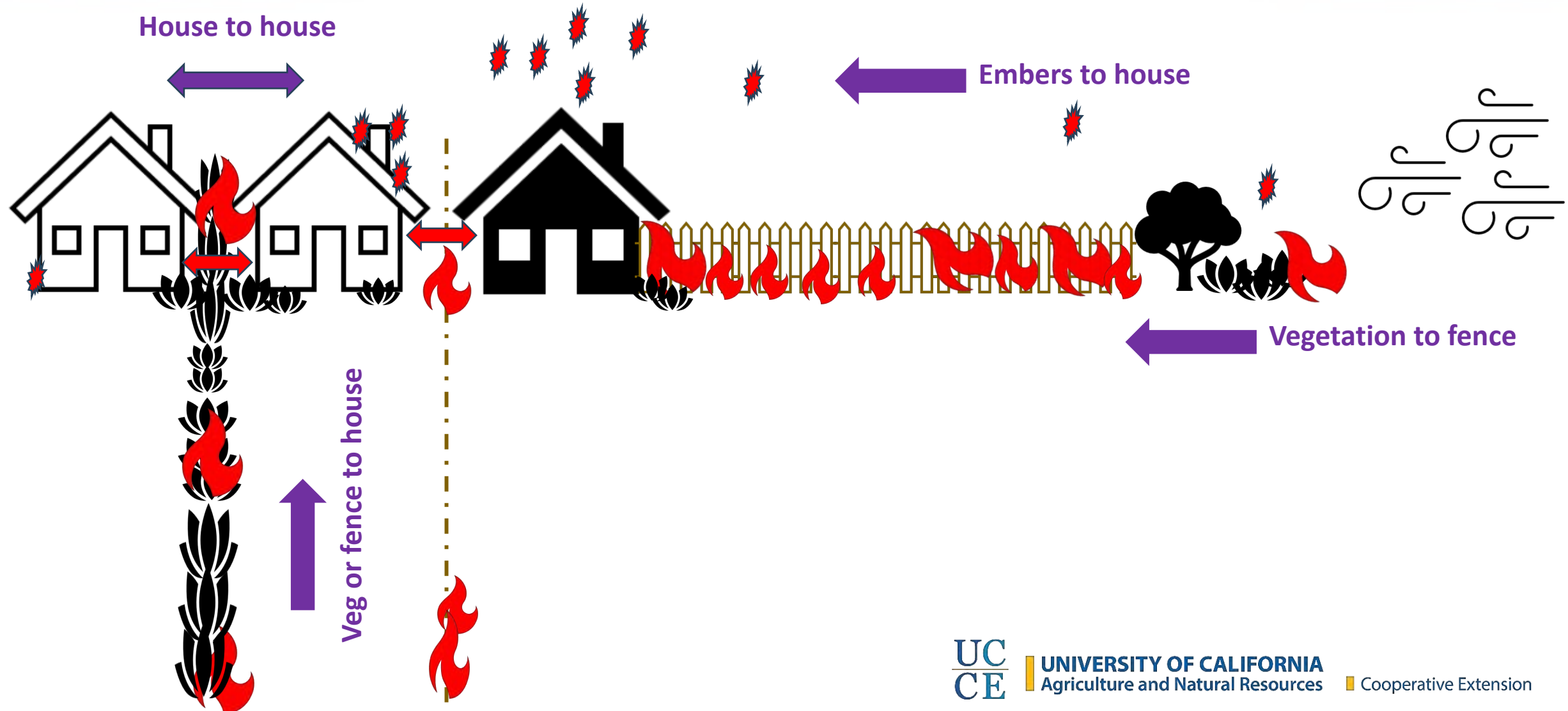


Embers to plant to soffit

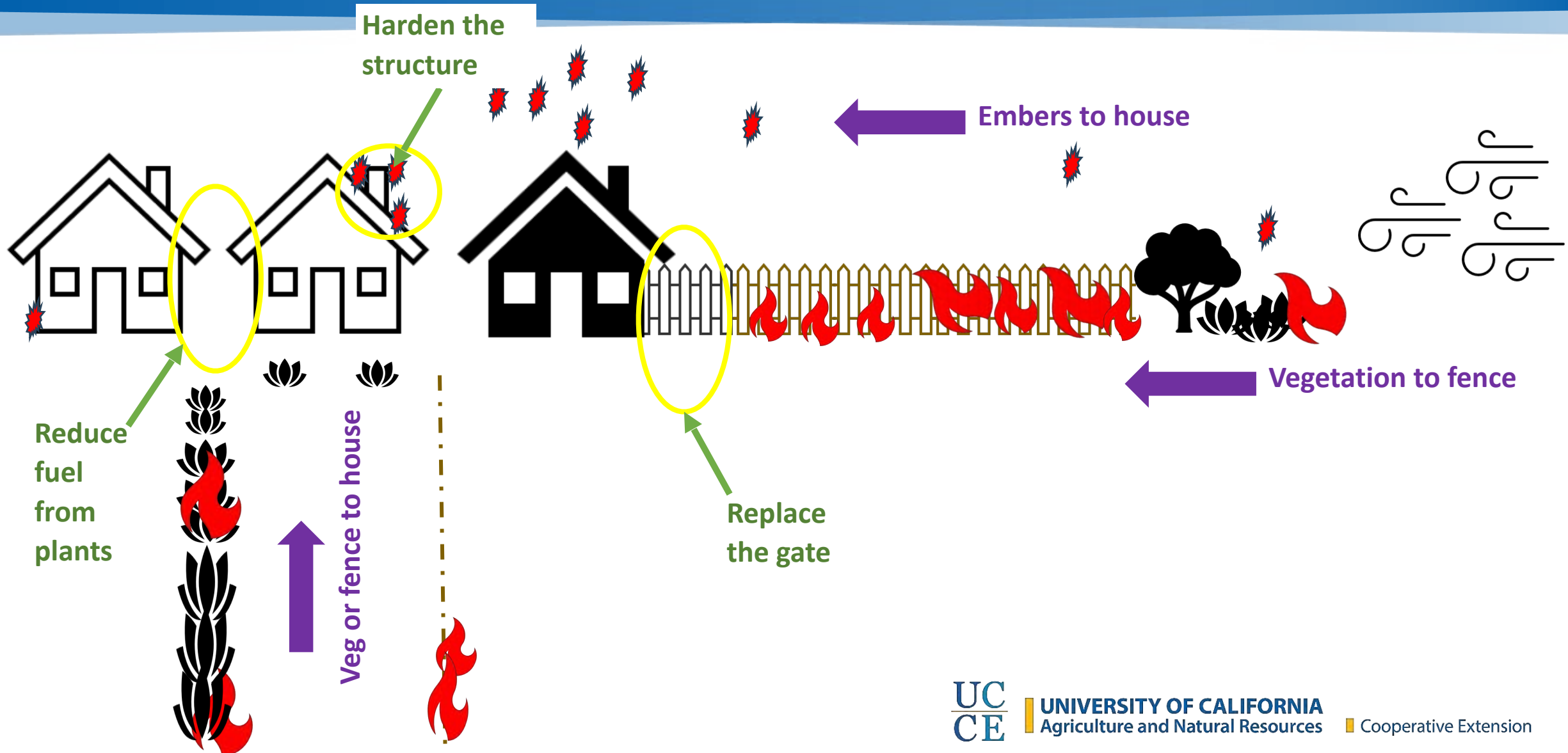
Marshall Fire May 2025- same house rebuild



Fire pathways and transitions



Fire pathways and transitions- breaking the wick



There is reason for hope

See the fuel pathways, break the wick

- Install metal gates
- Remove fuels adjacent to the house
- Garden in disconnected islands



Image: Nicolas Lira/Ann Niubo
CSAA/IBHS Design Competition

Zone 0 ideas



Source: Marin Master Gardeners



Source: Michael Brown



Zone 0 (0-5ft): Ideas

Source: Mendocino FSC



Competing goals and challenges

Homes built prior to building codes

Warming conditions

Conditions that exceed fire personnel capacity and availability

Connected fuels

Drought

Fire
adaptation

Community protection

Safe evacuation and refuge areas

Economic stabilization

House affordability and availability

Water conservation targets

Ladder fuels

