FIRESCAPING

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CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

About

B&W by: Frederic Larson, The San Francisco Chronicle

HISTORY

CURRENTLY

Photo by the *Press Democrat*, Oct. 2017

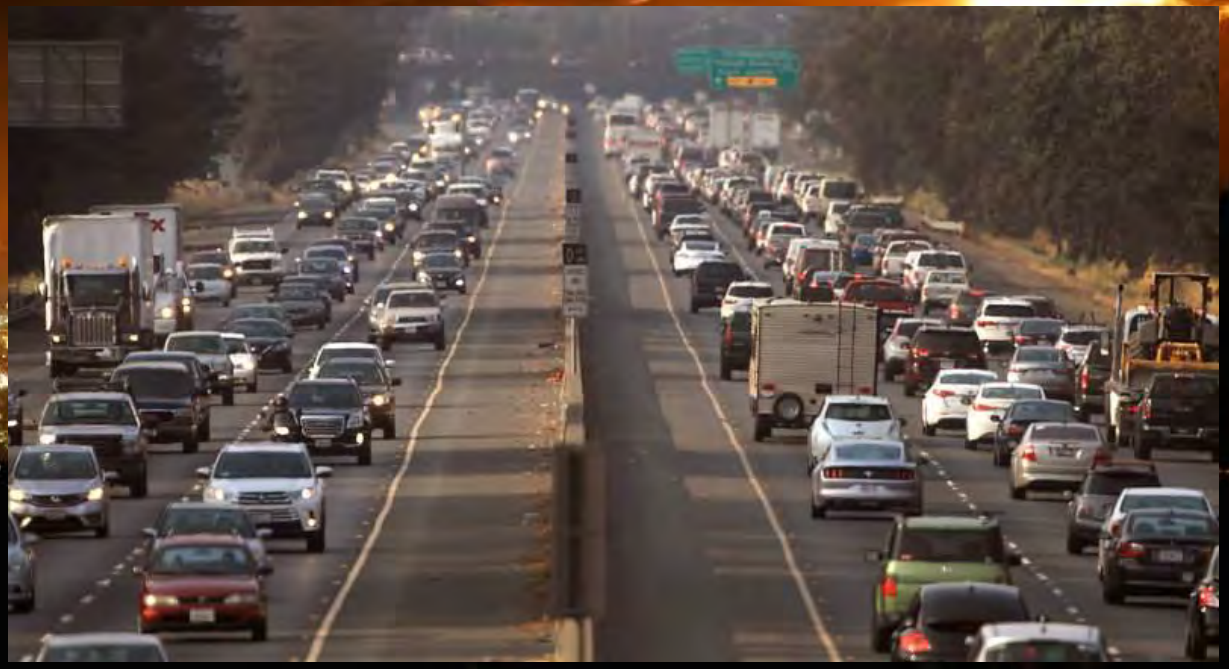
The Problem

- **M**egafires, firestorms and fire tornados are now more common.
- **S**cientists, fire professionals and ecologists believe the worst is still ahead.
- **T**he two primary reasons driving the increase in frequency and ferocity are well known:

The Problem

1. Warming Planet

Warmer temperatures create drier and more ignitable landscapes. Warming also increases the likelihood of fire weather—those exceptionally hot, low humidity and windy days.



The Problem

2. More Structures in Fire Country

Rural used to mean a few hundred people living in the hills, now it means a few thousand. According to fire experts, there are over 46 million homes representing a population of over 100 million living in high fire hazard areas within the U.S. Sixty percent of all new homes are being built in fire country.

Twenty-five percent of California's population are at risk of losing their homes—almost 10 million people.

The Problem

But, warming and growth are not all:

Air Pollution: Both gaseous and particulate pollution impact native soils and plants and favor invasive plants that have changed historic patterns of fire.

Altered Hydrology: Drawing down aquifers and dry season runoff have a profound impact in the foothills and riparian corridors.

Suppression: Wildfires used to roam landscapes for weeks, if not months. Fires nowadays are immediately extinguished—and only get a foothold during severe fire weather.

Inaction: Rates of compliance with local fire codes range from 3% to 25% across California.

RRWA

RUSSIAN RIVER WATERSHED ASSOCIATION

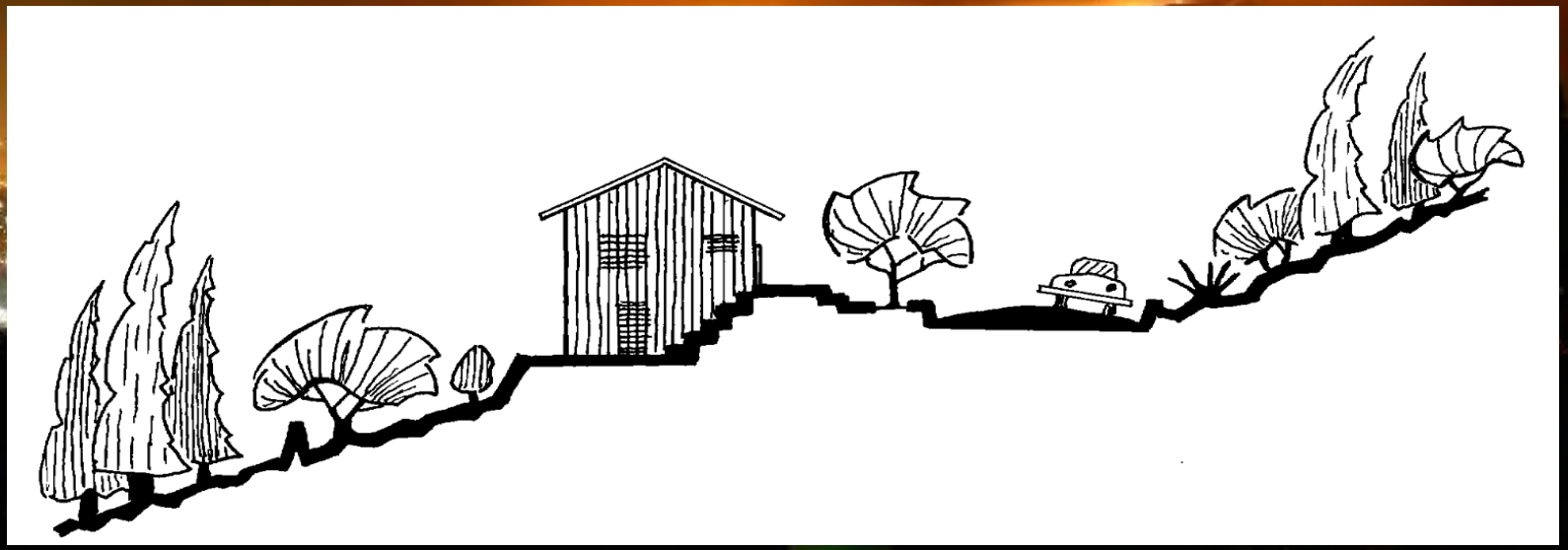
California's 20 Most Destructive Fires

NAME	DATE	AREA	STRUCTURES	LIVES
CAMP	November 2018	Butte	18,804	86
TUBBS	October 2017	Napa/Sonoma	5,643	22
TUNNEL	October 1991	Alameda	2,900	25
CEDAR	October 2003	San Diego	2,820	15
VALLEY	September 2015	Lake, Napa, Sonoma	1,995	4
WITCH	October 2007	San Diego	1,650	2
WOOLSEY	November 2018	Ventura	1,643	3
CARR	July 2018	Shasta/Trinity	1,604	7
NUNS	October 2017	Sonoma	1,200	6
THOMAS	December 2017	Ventura	1,063	2
OLD	October 2003	San Bernardino	1,003	6
JONES	October 1999	Shasta	954	1
BUTTE	September 2015	Amador/Calveras	921	2
ATLAS	October 2017	Napa/Solano	785	6
PAINT	June 1990	Santa Barbara	641	1
FOUNTAIN	August 1992	Shasta	636	
SAYRE	November 2008	Los Angeles	634	
BERKELEY	September 1923	Alameda	584	
HARRIS	October 2007	San Diego	548	6
REDWOOD	October 2017	Mendocino	545	9

What is an Effective Defense?

FIRESCAPING: The Bare Essentials

- Roads
- Structures
- Defensible Space
- Small Properties
- Conclusion



ROADS

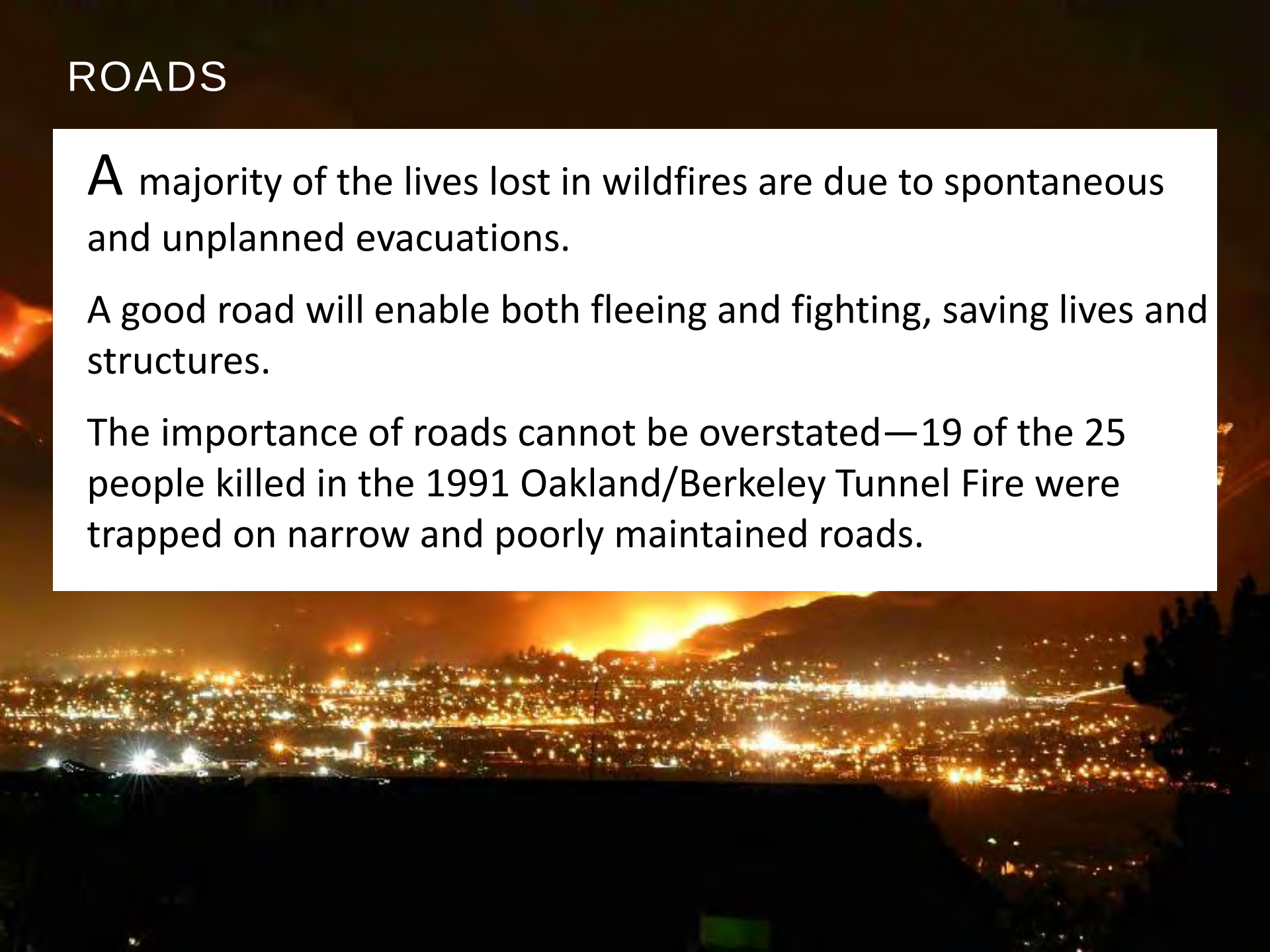
CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

ROADS

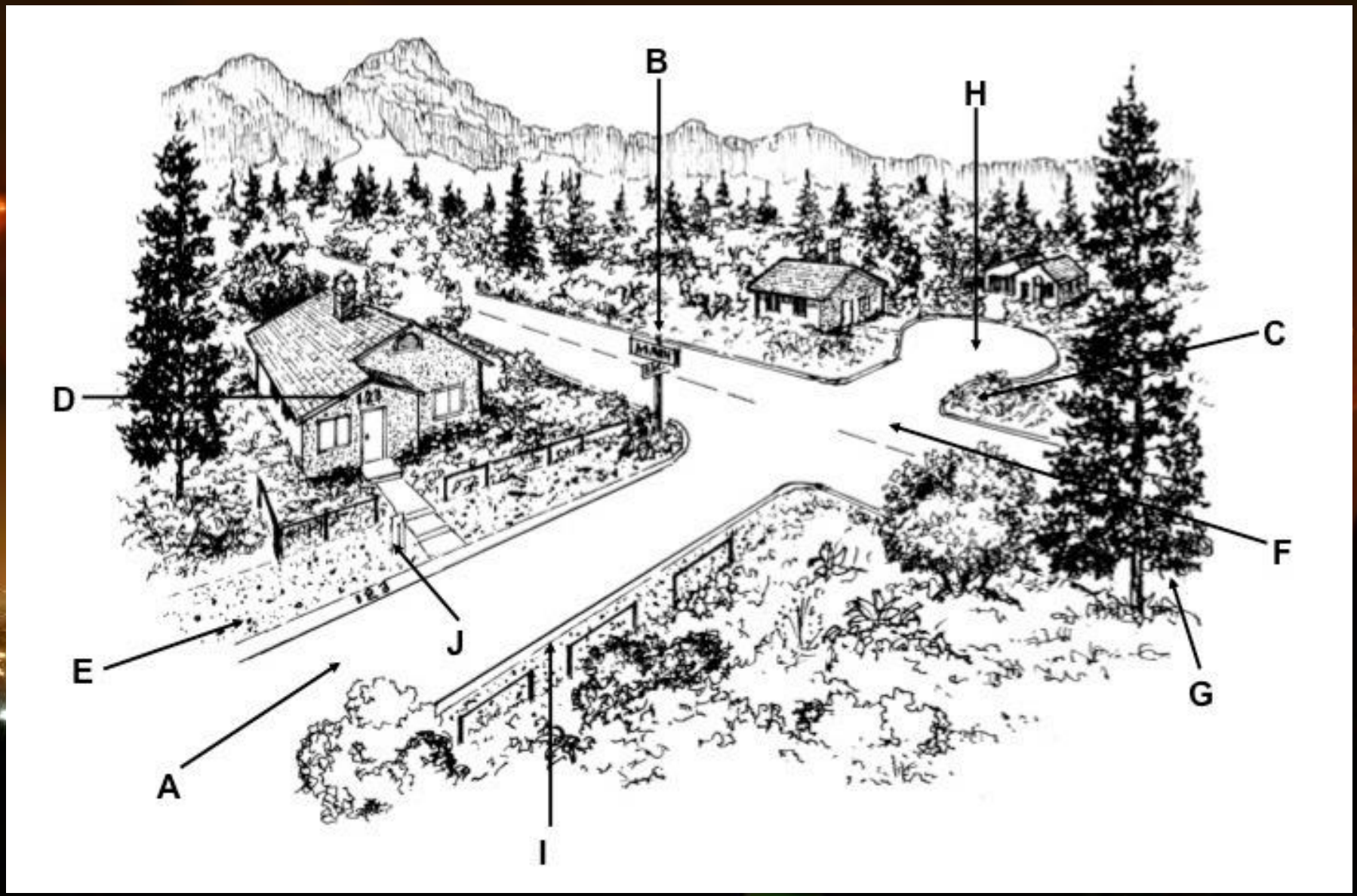
A majority of the lives lost in wildfires are due to spontaneous and unplanned evacuations.

A good road will enable both fleeing and fighting, saving lives and structures.

The importance of roads cannot be overstated—19 of the 25 people killed in the 1991 Oakland/Berkeley Tunnel Fire were trapped on narrow and poorly maintained roads.



ROADS

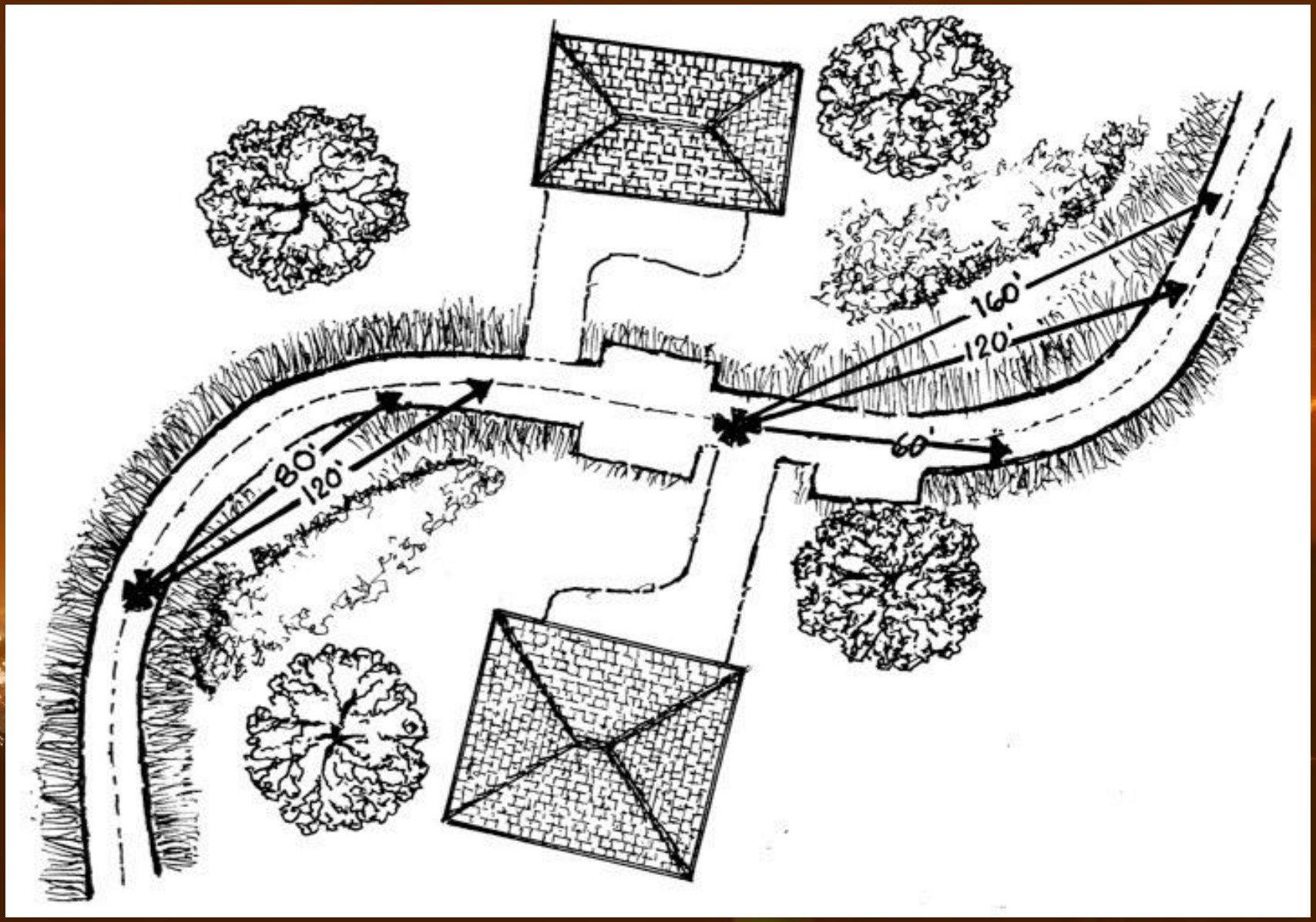


ROADS

A: Road Width: The National standard width for a two-lane road is 27 ft, although winding hillside roads might be as narrow 22 ft.
B: Road Signs: Road signs must be clearly visible in times of reduced visibility, heightened vulnerability, and traveling at a high rate of speed.
C: Vegetation: Flammable vegetation is kept at least 10 ft from both sides of the road.
D: Address: The home address is visible from the street and from as many angles as possible.
E: Pullouts: Areas for cars to pull over and/or park are critical on single lane roads.
F: Sightlines: The goal is to create no less than 155 ft of forward visibility, which is the National standard cars travelling at 25mph.
G. Large Vegetation: The trees and larger shrubs along a road are planted and managed to enhance long sightlines, create variety and interest (slowing drivers), and force views along curves.
H: Dead-Ends: Streets that dead-end must have a turnaround for large trucks and emergency responders.
I: Mountable Curbs: Rolling or mountable curbs are essential on narrow roads.
J: Emergency Water Markers: Local fire agencies may issue a blue reflective markers to people that manage enough water to assist in fire fighting.

ROADS

ROADS



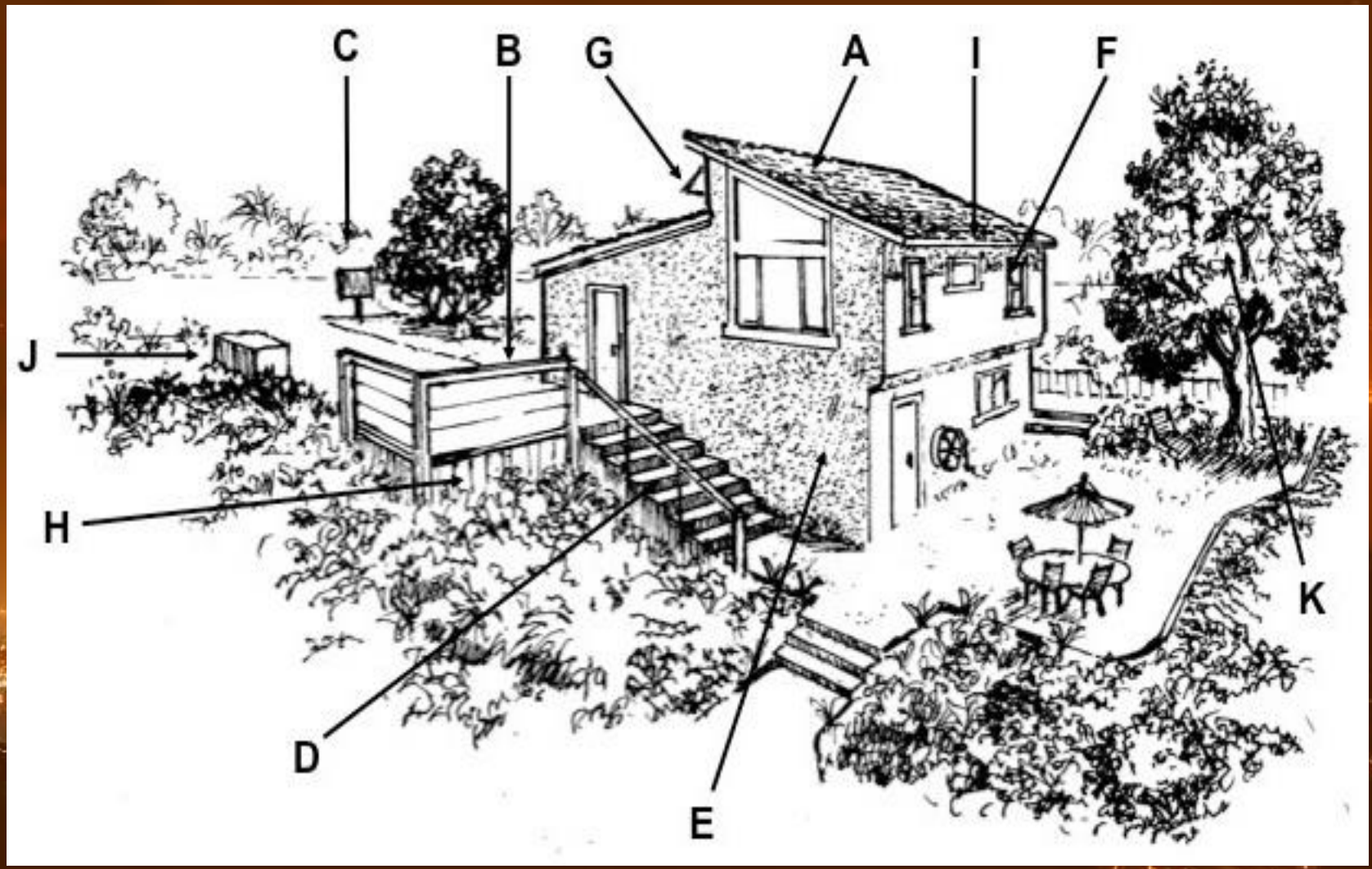
STRUCTURES

CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

STRUCTURES

Firebrands are more likely to ignite a structure than direct flame contact

STRUCTURES: Characteristics



Characteristics of a Protected House

A: The Roof: Fire resistive roof, only Class A, like metal, clay or concrete tile. The roof is only slightly slanted, not highly pitched, and follows the direction of the slope.\
B: Roof Access: Easy access to the roof must be designed.
C: Site Address: The property's address must be visible from 50 feet away and during times of reduced visibility.
D: Entrances and Exits: Swift and safe travel is crucial.
E: Siding: Non-combustible siding, such as stucco and stone.
F: Eaves: Eaves are small, coated with nonflammable material, such as stucco, or a fire resistant soffit is installed.
G: Air Vents: Air vents are designed smaller in fire country and screened with mesh that is non-combustible, non-corrosive, and no greater than 1/8 inch.
H: Underpinnings: Decks that overhang a slope are enclosed with a nonflammable skirt, such as concrete blocks, gypsum boards or metal siding.
I: Windows: All windows are made from tempered glass and are either double or thermal paned.
J: Storage: Compost, firewood, recyclables, and other flammable items are kept 30 ft away and uphill of a house.
K: Tree Limbs: Limbs of trees and large shrubs are kept 15 ft from a structure and 10 ft above its roof.

STRUCTURES

Robert Gauthier *Los Angeles Times*

STRUCTURES

DEFENSIBLE SPACE

CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

Zone 1: Defensible Space

Zone 1 The Garden Zone / Defensible Space

Distance: Extends 30 ft from house or structure.

Primary Goal: Able to withstand flying embers and intense heat. Only zone that selected plants can be dependent on imports, mainly water and fertilizers.

Secondary Goal: This area has to maintain a high recreational, functional and/or economical value.

Zone 1: Defensible Space

The first 5 feet of your home plays a pivotal role in its protection.

- **Avoid storage**. Compost bins, toy boxes, coat and shoe cupboards, and recycle and trash cans should be placed outside of this area.
- **Absolutely no flammable plants are allowed**. The most flammable include buckwheat, cypress, eucalyptus, juniper, and any other plant with a brittle nature and fragrance.
- **Absolutely no woody dry organic mulches**. Inorganic mulches, like river rock, are preferred. If organic mulch is needed, then use only humus, the most decomposed.
- **Avoid the use of fabrics**, which includes awnings, cushions and umbrellas.
- **Avoid erecting shading devices with the first 5 feet**. Not only will this help stop a fire from connecting to a structure, it also gives the wind and firebrands an easy exit, instead of trapping them.

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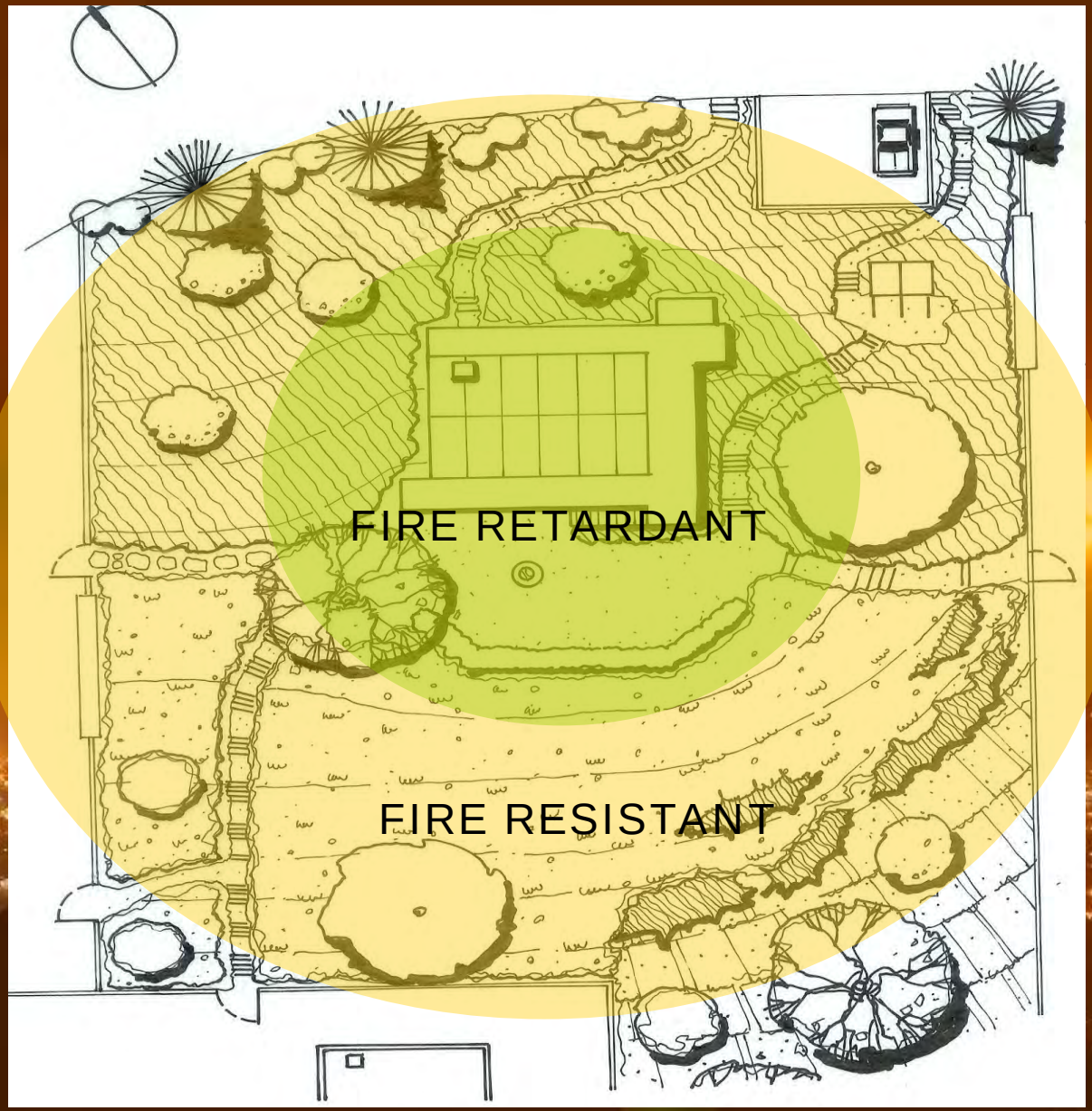
Defensible Space: Plants



Defensible Space: Plants

FIRE RETARDANT

Agapanthus
Cercis – Redbud
Crape Myrtle
Fescue
Flax
Gazania
Grape
Liquidambar
Philodendron
Photinia
Succulents

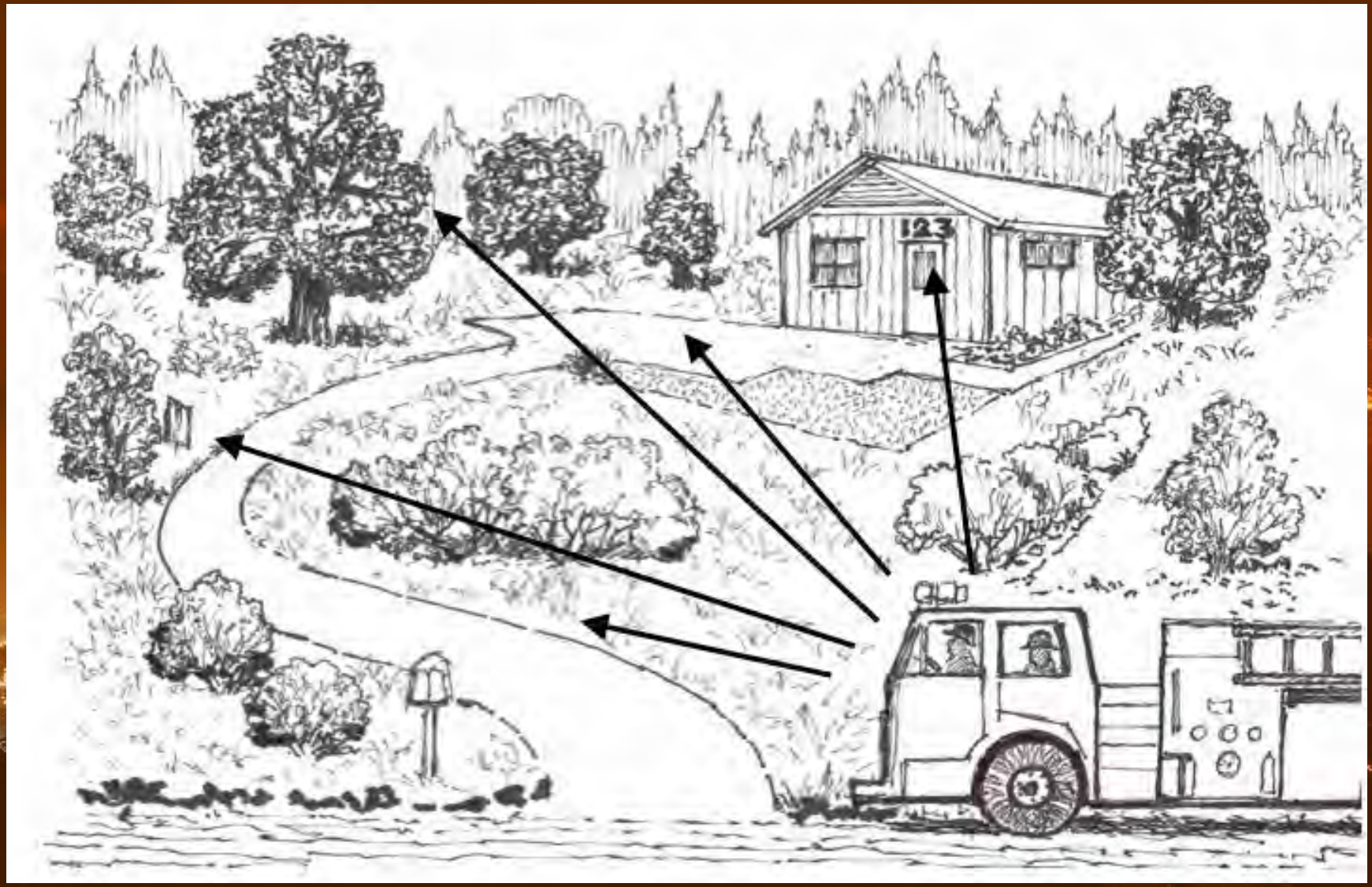
FIRE RESISTANT

Artemisia 'Silver King'
Ceanothus
Cistus – Rockrose
Coast Live Oak
Cotoneaster
Lemonade Berry
Mallow
Native Verbena
Toyon
Yarrow
Yucca

The Problem with Lists

- **Too Old**
- **Diseased**
- **Severely Injured**
- **Pest Infested**
- **Not Healthy**

Defensible Space: Driveway



SMALL LOTS

CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

Small Properties

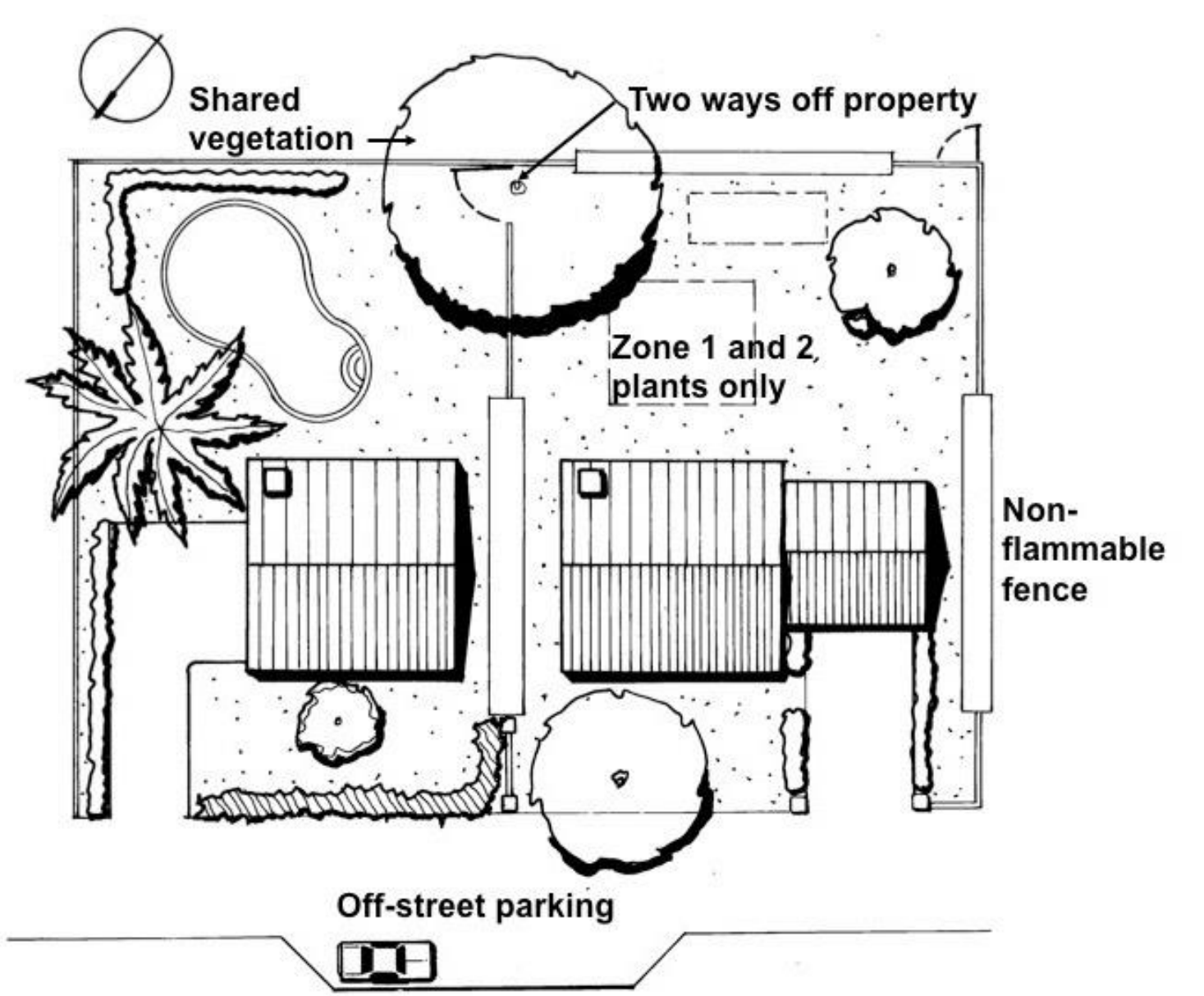
Small Properties

Don Kelsen *Los Angeles Times*

Small Properties

Photo: DigitalGlobe, a Maxar Company

Small Properties



Small Properties

Small Properties

THE JINX

CREATING FIRE-RESISTANT PROPERTIES AND PROPERTIES

WHY?

Why is compliance with code 3% to 25%?

Photo: *Press Democrat*

Here's Why

Emotionally Expensive: Emotional resolve is needed to remove oak and toyon saplings, to weed whack quail habitat, and to remove a mass of shrubs sheltering a mass of wrens. People in fire country tend to appreciate nature and the outdoors and intentionally harming habitat often goes against their personality.

Financially Expensive: Clearing land of unwanted fuels is labor and machine intense. Weed-whackers, chainsaws, chippers and massive trucks are needed to cut and haul thousands of pounds of debris. Costs to clear can exceed $3,000 an acre.

Socially Expensive: Along with personal obstacles, there are social consequences of clearing. By degrees every neighborhood has an eco-conscience. Removing a strand of shrubs can be viewed as an insult to eco-sensibility and as I can attest, can lead to drive-by fingers and face-to-face confrontations. Conforming to the norms of the community can increase the accumulation of fuels.

Process Risk: Humans have evolved to address the greatest danger first. Fire is an ever present risk, but not one that prevents people responding to other emergencies. Fire protection is often shelved for more pressing demands, such as paying bills and growing healthy kids.

CONCLUSION

CREATING FIRE-RESISTANT PROPERTIES AND COMMUNITIES

We Have To Be Fire

We are the agents of renewal

Renewal: We are Terrible at it

We need to embrace the tragedy

Our Harvestable Future

Tangible

Health
Dye
Craft
Energy
Fiber
Food
Medicine
Textiles
Timber

Less Tangible

Biological Diversity
Pollution Mitigation
Property Value
Public Health
Public Safety
Recreation
Sequestration
Urban Cooling
Waterbody Protection

Measureable

Meaningful

Russian River Watershed

The communities of the Russian River Watershed can lead California—must lead California.

You already celebrate *Harvest*:

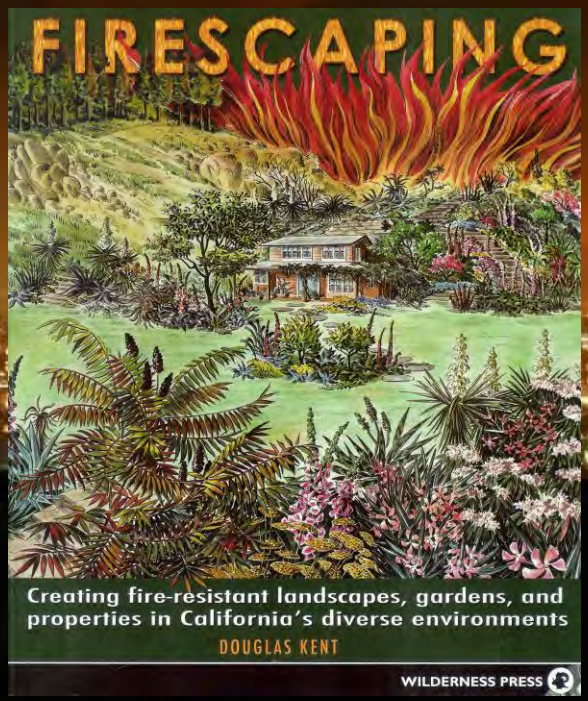
- Farm to Fork
- Incredible blending of habitat restoration, agriculture and urban land uses
- Your land/gardening ethic is strong

Harvest and Renew

Appreciation, Endeavor, Value

Photo: Pepperwood Preserve

END

THANK YOU!

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