

Fire in Utah's Wildland/Urban Interface

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Wildland/Urban Interface

- Between core urban and rural areas; also includes developed rural areas
- Popular for housing and recreation
- Increased pressure throughout the West
- Problems with wildlife, water quality, fire
- 374,000 acres in Utah



Popularity Leads to Problems

- Attractive natural vegetation
- Fire often natural part of landscape
- Access and infrastructure problems
- Minor fires become major disasters
- Fires cost 8-10x more to fight in WUI



Spokane Area Fires

- Spokane County Washington
- October 16-22, 1991
- 92 wildfires kill one person and burn 114 homes





Spokane area



Spokane area

Oakland/Berkeley Hills Fire

- Berkeley Hills area in Oakland, California
- October 20-23, 1991
- 25 people killed, 3,354 homes and 456 apartments destroyed
- 790 homes in first hour
- Damages in excess of \$1,000,000,000
- Also 1923 – 584 homes & \$10M, 1970 – 38 homes & \$3.5M





Berkeley Hills before



Berkeley Hills after



Berkeley Hills rebuilding, 2/93



Berkeley Hills rebuilding, 2/93

Los Alamos (Cerro Grande) Fire

- Prescribed fire in Bandelier NM
- May 2000
- 220 structures & 43,000 acres burned
- \$100 million to \$800 million in losses





Rick Wilking/Reuters

Los Alamos, Cerro Grande fire



Los Alamos; Cerro Grande fire

Utah WUI Fires

- 1990-1992
 - 153 interface fires
 - 24 counties
 - \$1.6 million property damage
 - \$31.4 million threatened property
- 2001 – At least 823 WUI fires
- Over 400 communities “at risk”



Wasatch Mountain Fire

- Wasatch County, Midway area
- August 1990
- Two firefighters killed
- \$1.2 million property damage
- Twenty homes burned





Wasatch Mountain area; oak-maple



Wasatch Mountain area; oak-maple



Wasatch Mountain fire



Wasatch Mountain fire

Utah WUI At-risk Areas

- Wasatch Front
- Wasatch Back
- Southwest Utah
- Moab Face
- Others





Wasatch Front; Salt Lake City



Wasatch Front; Bountiful



Wasatch Front; Uintah, Ogden



Wasatch Front; Uintah, Ogden



Wasatch Back; Park City



Wasatch Back; Sundance



Wasatch Back; Logan



Southwest Utah; Cedar Highlands



Southwest Utah; Duck Creek



Castle Valley; P-J, oak



Castle Valley



Castle Valley, P-J



Castle Valley, P-J



Castle Valley; oak, P-J



Moab Face; oak, conifers



Moab Face; oak, P-J, ponderosa pine



Moab Face

Solutions

- Community level
- Development level
- Individual level



Community Level

- Planning and zoning
- Infrastructure requirements
 - Fire department
 - Road widths, grades, curves, etc.
 - Water supply
- Demonstration homes, landscapes
- Ordinances





Planning (SE of Cedar City, UT)

MAPLE HILLS SUBDIVISION NO. 4

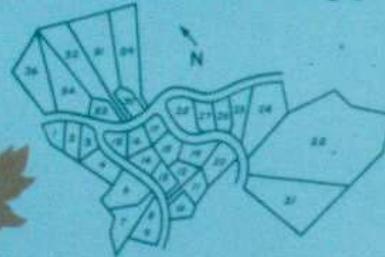
Final Phase !
FROM 1/2 to 8 ACRES

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RONN MARSHALL 573-1178 • GREG CALL 298-6387



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Planning (Bountiful, UT)



Fire station (Sundance, UT)

Castle Valley Ordinance 99-4

“WHEREAS, fire fighting assistance from Moab or Grand County would take at least forty-five (45) minutes to get from Moab to Castle Valley...”





Steep, poor road (Cedar Highlands, UT)



Dead-end street (Uintah, UT)



Water supply (Uintah, UT)



Hydrant (buried; Uintah, UT)

Utah County Ordinance #1993-07

- Building permit tied to fire safety permit
- Sets standards for roads, premises identification, water supplies, fire hydrants
- Requirements for sprinklers, maximum slopes, chimneys, driveways, roofs, landscaping



Development Level

- Development location, layout
- Fuel breaks
- Water supplies
- Buried utilities
- Street, home signs
- Covenants that help
- Education, awareness



GLADE HOLLOW

PLANNED UNIT DEVELOPMENT



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GREGG
REVELL

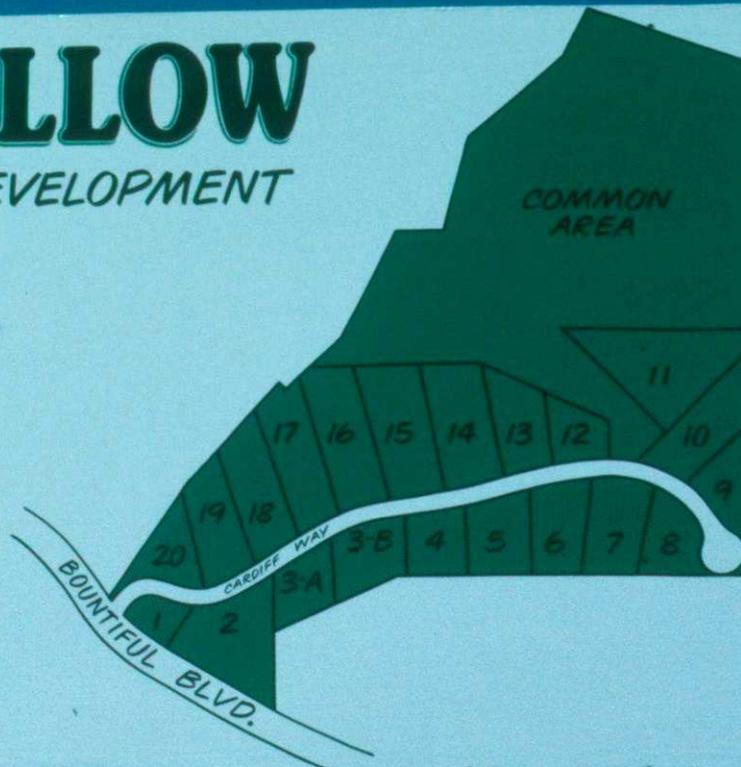
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RONN'
MARSHALL

573-1178

DEVELOPED BY:

WOOD DEVELOPMENT 298-2240



Single road access (Bountiful, UT)



Possible water source (Uintah, UT)



Buried utilities (Uintah, UT)



Powerlines (Bountiful, UT)



Road sign (Cedar Highlands, UT)



No road signs (Midway, UT)



Wood roof, oak brush (Uintah, UT)

Individual Level

- Building design
- Building placement, access
- Landscaping, maintenance
- Water supply
- Readiness



Building Design

- Non-flammable roof
- Non-flammable siding
- Short, boxed eaves
- Decks
- Screened openings, chimneys
- Down-slope windows
- Sprinkler systems in and out





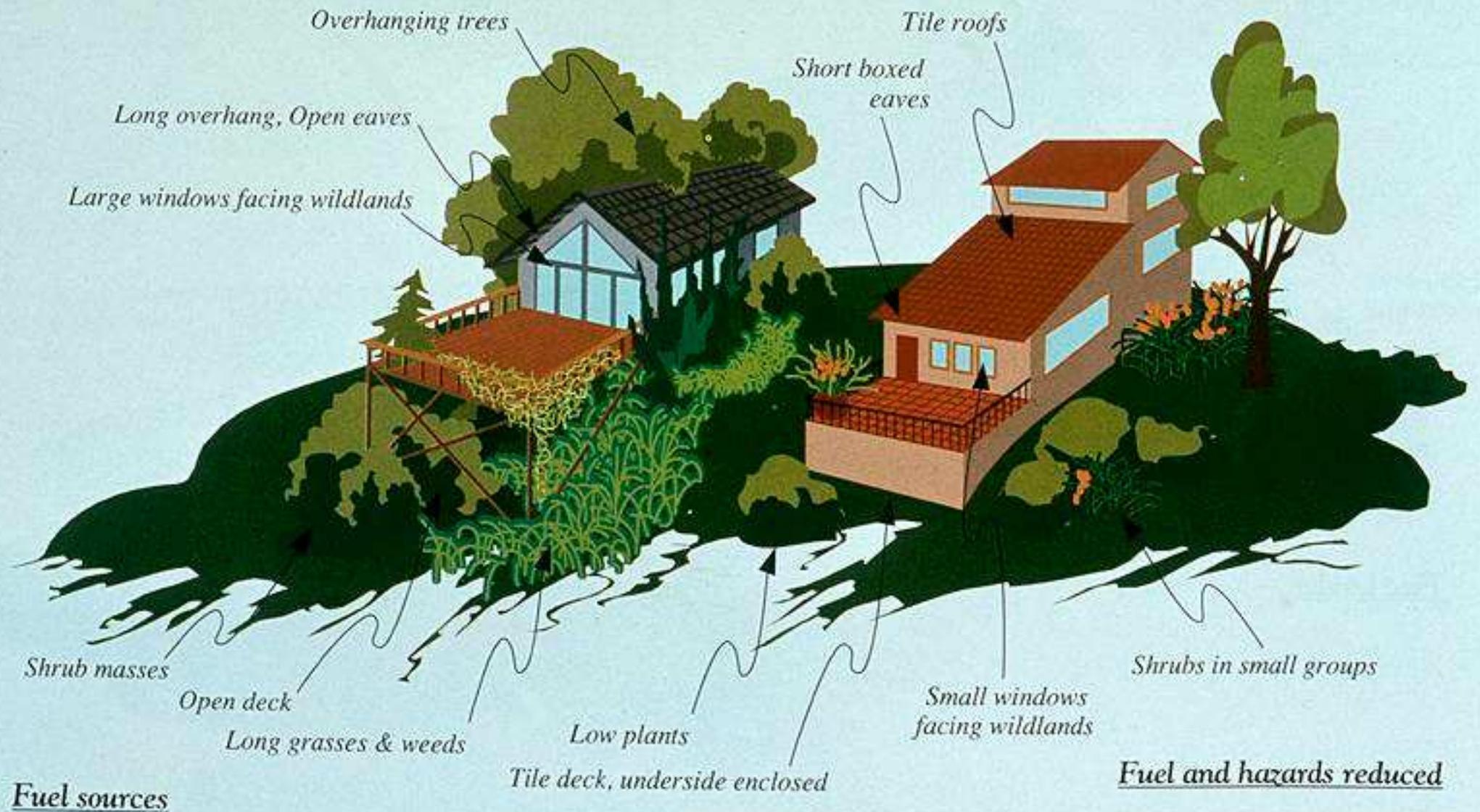
Wood roof (Uintah, UT)



Class A roof, boxed eaves (Uintah, UT)



Wood decks (Boulder, CO)



Building & landscape maintenance & design

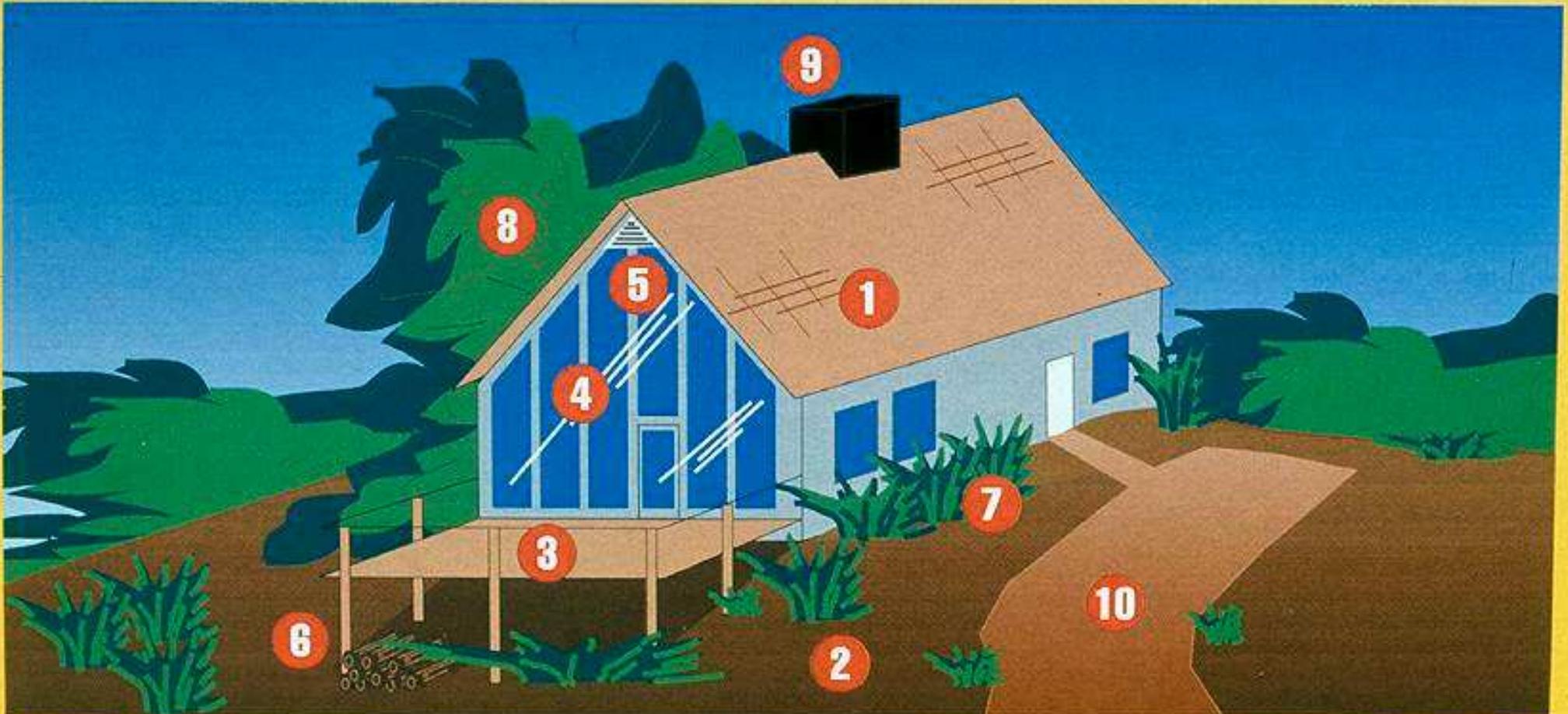


Screened chimney (Uintah, UT)

1. Untreated wood shake roof
2. Home located on a slope
3. Wood deck facing slope
4. Large glass windows facing slope

5. Unprotected louvres in front
6. Firewood stored too close to home
7. Inadequate weed clearance

8. Tree limbs overhanging roof
9. Chimney spark arrestor missing
10. No access for emergency vehicles



Fire trouble spots

Building Placement, Access

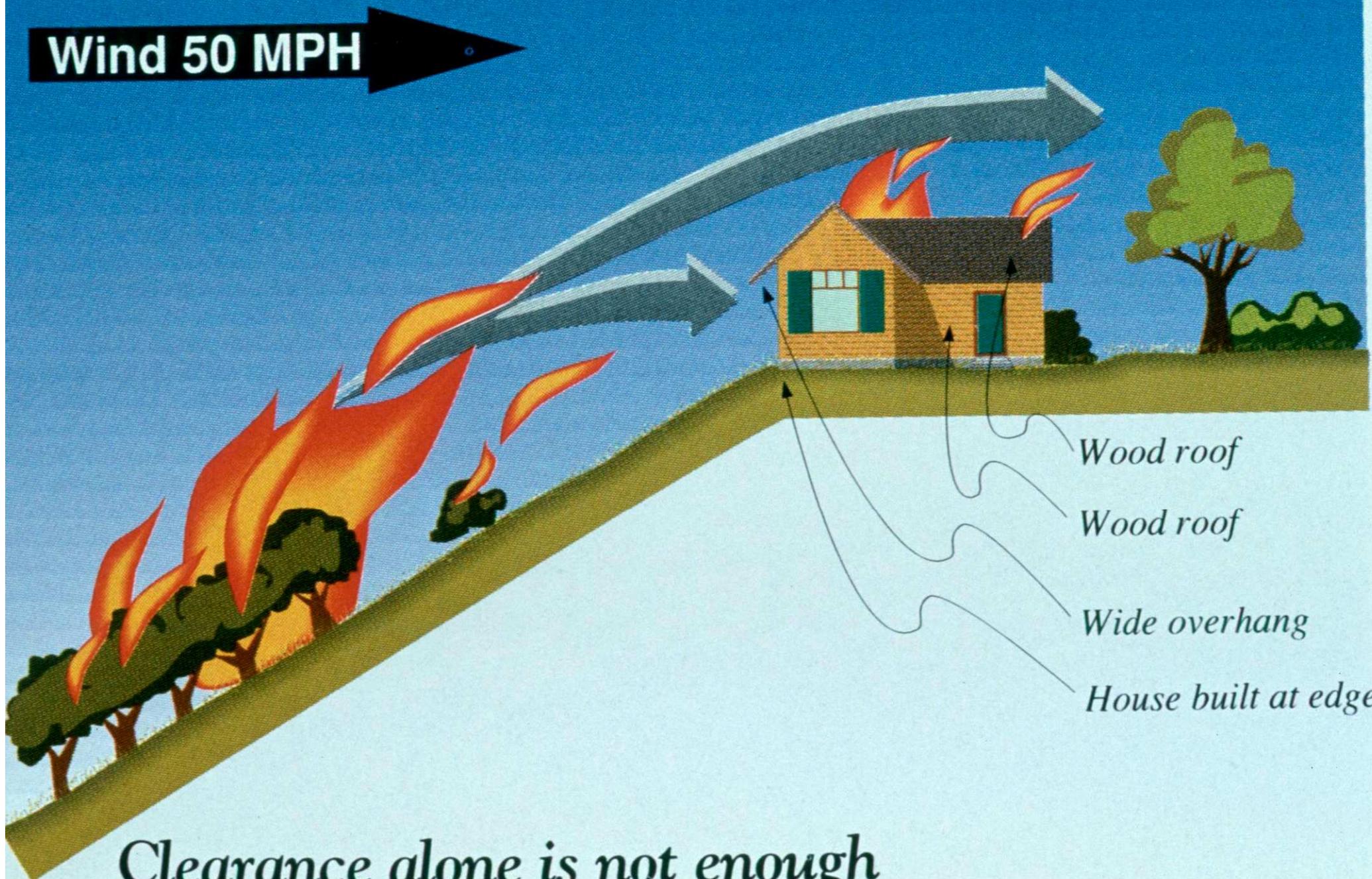
- Slope location, steepness
- Driveway design
- Fire department access to all parts of property





Homes on steep slope, oak (Midway, UT)

Wind 50 MPH



Wood roof

Wood roof

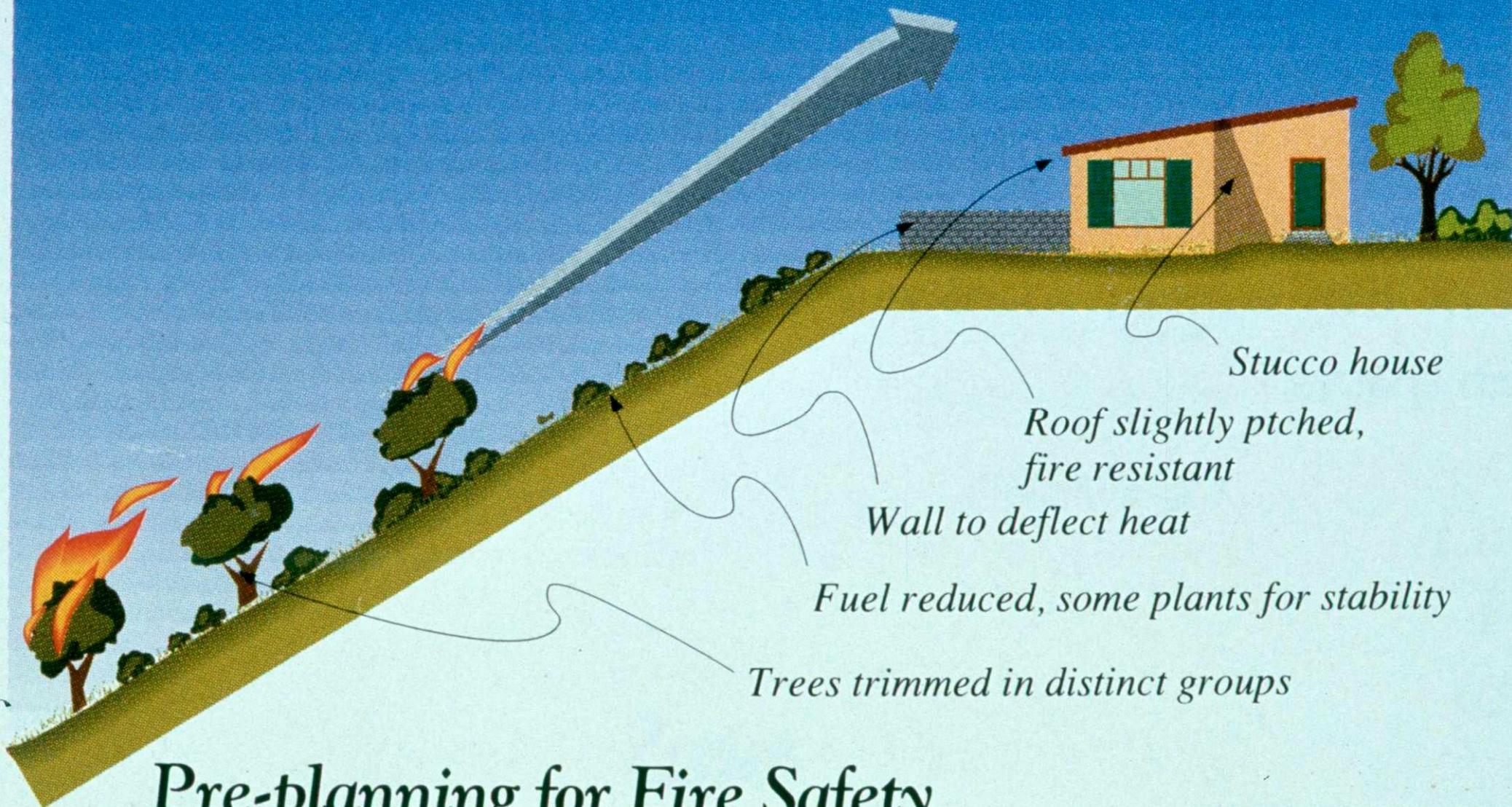
Wide overhang

House built at edge

Clearance alone is not enough

Fire burns uphill faster than downhill

Wind 50 MPH



Stucco house

*Roof slightly pitched,
fire resistant*

Wall to deflect heat

Fuel reduced, some plants for stability

Trees trimmed in distinct groups

Pre-planning for Fire Safety

Set-back from top of hill

Wind 50 MPH



Modifications for Fire Safety

Structure to deflect fire



Long driveway (Utah, UT)



Driveway & vegetation (Uintah, UT)



Access gate (key?)

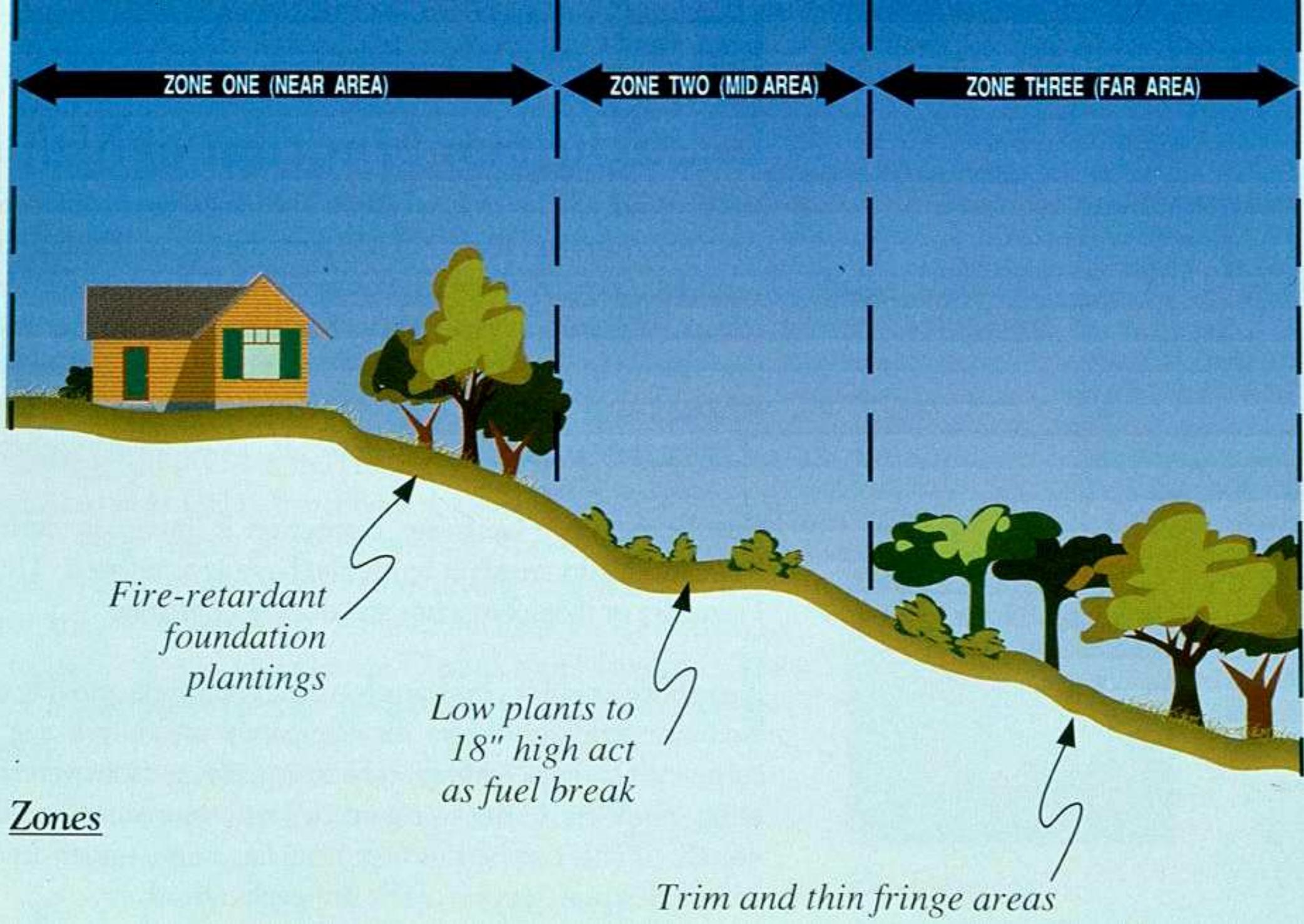


Propane tank away from house

Landscaping, Maintenance

- Defensible space
- Pruning, thinning
- Mowing
- Firewood storage
- Debris disposal
- Monthly check
- Fire-resistant (firewise) plants





Defensible space; zones

Defensible Space

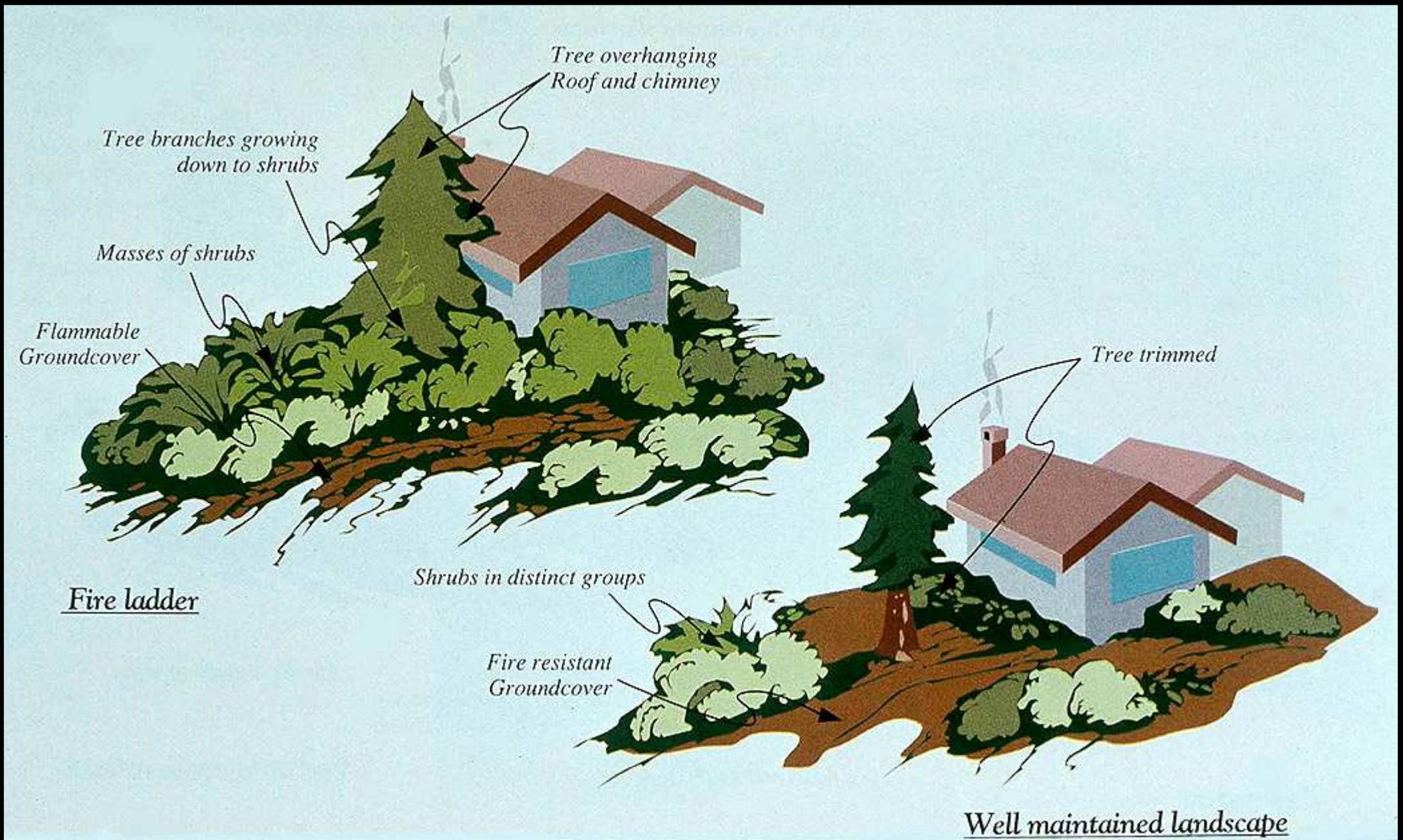
- Clearance for firefighters to stay, work safely
- Clearance in case firefighters aren't available
- Zone 1 (near) – well tended, neat, clean-up litter, firewise plants, Class A roof
- Zone 2 (mid) – low growing plants; few or no trees, shrubs; step fire down
- Zone 3 (far) – managed native vegetation, thinned, pruned, cleaned-up



Defensible Space

- As little as 60-100 feet of clearance can save a home, even with an intense crown fire
- More clearance is better
- Litter and wood roofs ignited by brands/embers burns many buildings
- www.firelab.org/fbp/fbresearch/wui/home.htm for info on fire behavior and building ignition

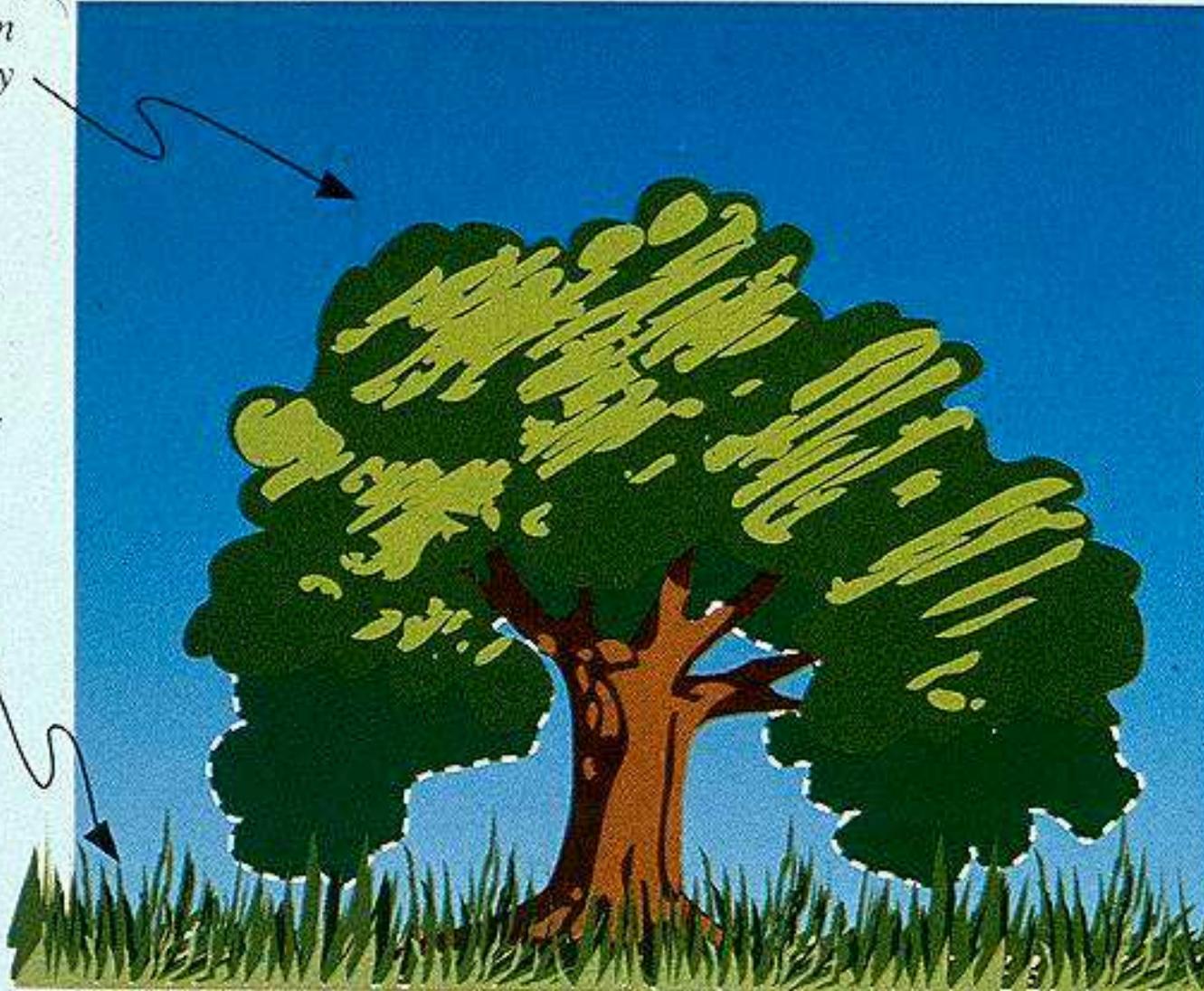




Removing ladder fuels

*Do not overthin
the upper canopy*

*Mow grasses
and weeds*



*Trim bottom
up 6 feet*

Regular maintenance to reduce fuel

Landscape maintenance, near zone



House in oak (Uintah, UT)



House in oak (Uintah, UT)



Contrasting landscapes (Utah, UT)



Good landscape; appropriate?



Debris near house (Midway, UT)



Debris along road (Uintah, UT)



Firewood under wood deck



Firewood near house



Clean litter away from structure

Home Protection Guidelines*

- Eliminate all flammable materials within 10' of house
- Consider wood roof as flammable; wet frequently
- Remove flammable materials from decks, boardwalks
- Remove pine needles from gutters and roof.
- Staple metal screen over openings or gaps
- If possible, wet around house; especially within 60'
- Reduce or eliminate surface fuel within 100' of house; prune lower limbs of trees at least 8' above ground
- Remove fuel from around propane tanks

* See www.firelab.org/fbp/fbresearch/wui/home.htm



Fire Resistant or Firewise (not Fire-proof) Plants

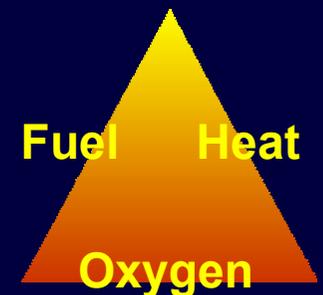
- Mowed grasses
- Clover, alfalfa
- Well-pruned shrubs like lilac, elderberry, snowberry, sand cherry
- Many broadleaved trees
- Avoid conifers



Firewise Plant Characteristics

- *No plant is fireproof. All will burn in intense fire.*
- Firewise plants have one or more of these traits:
 - contain more moisture, esp. during fire season
 - don't contain readily flammable oils, chemicals
 - low fuel -- produce less litter or stay small
 - compact or low to the ground; can be used in landscape to interrupt fire pathways.
- Firewise plants generally low to ground, compact, stay green and healthy with low maintenance and minimal water.

Interrupt at least one leg of the fire triangle.



Firewise Plant Characteristics & Management

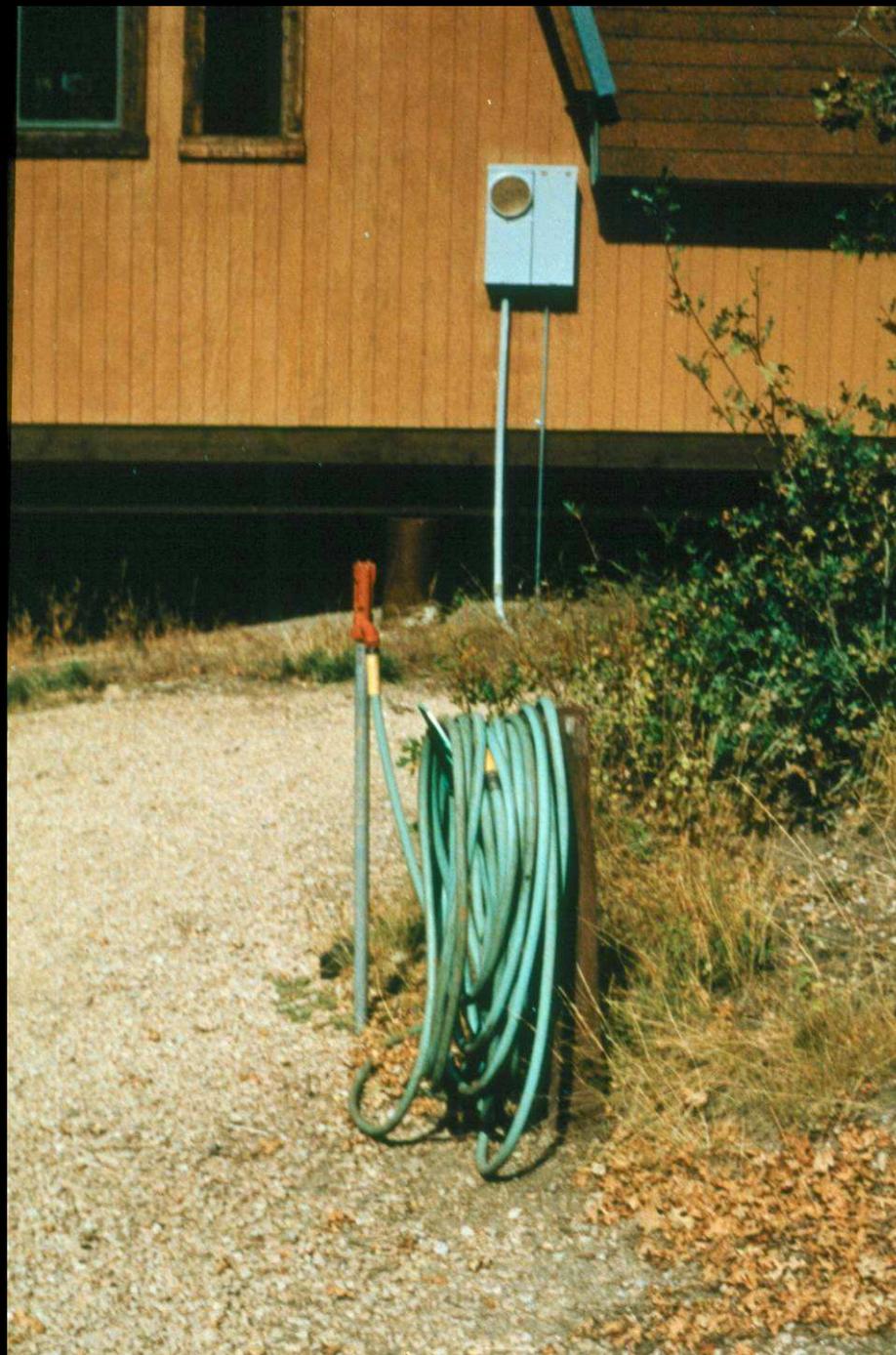
- Trees provide large amounts of fuel; carefully place and maintain.
- Broadleaved trees generally less flammable than conifers (pines, firs, spruces, junipers).
- Most do well in sunny areas typical of some fire-prone sites.
- Some need minimal or no irrigation; over-irrigation can harm or cause fast growth. Some require irrigation.
- Some can be weedy in certain circumstances.
- Consider plant availability and cold-hardiness.



Water Supply

- Supplemental water supply – pool, stream, lake
- Stand-pipe away from building
- Is supplemental power needed?





Water supply

Readiness

- Affected by attitude, awareness
- Need for education
- Escape plan
- Tools, equipment
- Communication with neighbors



Sources of Assistance

- Local fire department
- County Fire Marshal
- Utah Division of Forestry, Fire & State Lands
- State Fire Marshal
- USU Cooperative Extension
 - extension.usu.edu/forestry
- USDA Forest Service; BLM
- www.firewise.org
- www.firelab.org/fbp/fbresearch/wui/home.htm

