FIREWISE CONSTRUCTION TIPS

CREATING DEFENSIBLE STRUCTURES

The building materials, design and location, and the fuels within the area will all contribute to the ability or inability of the structure to survive a wildland fire situation. By considering the following structural hazards, new developments can be built with an increased chance of surviving a wildland/urban fire. Existing structures can be retrofitted to reduce fire risk. Some improvements may carry financial incentives like insurance premium reduction, energy savings, as well as improved property values and resale potential.

An excellent reference is *FIREWISE Construction: Design and Materials*, as noted in the bibliography.

DEMONSTRATION SITES

- Encourage a local building supply company to offer discounts for home improvement materials that offer improved fire safety.
- Encourage them to conduct homeowner classes in FIREWISE materials and installation.
- Arrange for donations of enough materials to assemble a display for fairs and presentations.
- Develop plans for a small demonstration house that incorporates these materials.

Location

- Build in a location that will minimize exposure of vulnerable design features (like decks and overhangs) and maximize survivability.
- Structures should be set back at least 30 feet from property lines to help ensure control of the adjacent areas.
- Build away from dangerous features like the op of slopes or next to steep canyons.

Roof

- Inappropriate roofing causes the most damage to houses. Firebrands or embers light on roofs or enter at vulnerable points near the roof (e.g., gables, soffits, vents).
- Cover with non-flammable materials (asphalt, concrete, tile, metal, etc.)
- Inspect for gaps, which can expose ignit-able sub-roofing or roof supports.

Walls

- Walls are most susceptible to ignition by radiation and convection, particularly trim materials.
- Sidings that resist heat and flames, include cement, plaster, stucco and concrete masonry such as stone, brick or block.
- Some materials, such as vinyl, will not burn, but when exposed to high temperatures will fall away or melt. This may not present another fire problem as long as the sub-material is sealed and no hidden spaces exist.

Eaves and Overhangs

- Eaves and overhangs - room pushouts, bay windows, extensions over slopes - are very vulnerable to heat.
- Eliminate contact with fuels.
- Box or enclose with metal screens or other non-flammable materials to reduce surface area and eliminate edges that can trap firebrands.

Windows

- Exposure to heat can cause windows to fracture and collapse leaving an opening for flames to enter a structure.
- Use glass products that withstand radiant and convective heat to reduce this risk like thermal windows.
- Tempered glass will withstand much higher temperatures than plate glass and should be used for larger windows and those overlooking

Materials and Design

- Should a building come in contact with heat, flames, or firebrands, the building materials and design should prevent or retard the penetration of the fire beyond the exterior of the structure.

Vents

- Openings should be screened to prevent firebrands from entering structures.
- Screens should prevent passage of objects larger than ¼ inch.
- Vents and screens should be constructed of materials that will not burn or melt when exposed to heat or firebrands.
- Install spark arrestors over chimneys.
- Install metal screening over sub-floor and attic vents.

Attachments

- Attachments include any structures connected to a structure such as decks, porches, and fences. To make attachments more defensible, enclose.
- Construct decks out of fire resistant materials like heavy timber, plastic wood, stone, or cement fiber panels.
- If the ignition potential of the attachment is high, the ignition potential of the entire structure is considered high.