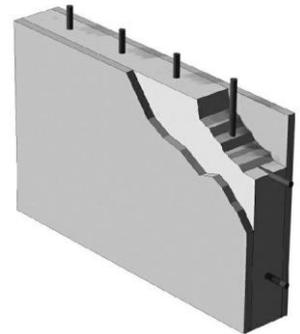




The following is a compilation of tips from numerous sources. As residential construction is pushing further into former wild land areas, more structures and lives are being lost each season due to wildfire. According to the California State Fire Marshall, most of the existing building code requirements that relate to fire danger have been derived from decades of experience in urban fires. While this experience remains valid, there is a process underway of study of the experiences of recent years from losses in wildfires in the west. Changes in the codes are being evaluated and will be forthcoming in the near future.

Current minimum building codes prescribe standards that generally prove to be less than sufficient in a wildfire scenario. There are planned changes that will stiffen requirements in the future, but there are some simple steps that can be considered now in planning new construction in an area where wildfire is a threat. These design issues and practices can make the difference between destruction and survival. And the cost differences are generally minor.

- ✓ **Exterior walls: You can build homes with essentially fireproof walls. An insulated concrete wall system such as an Amvic Insulating Concrete Form (ICF) wall provides a solid flat wall of concrete sandwiched between two layers of EPS foam. An ICF wall with a 6" core of solid concrete provides a building shell with a wall fire rating of greater than 3 hours. With a fireproof cladding such as cementitious stucco on the exterior and 5/8 sheetrock on the interior, a 5 hour fire wall is created. (A 2x4 wall with 1/2 inch sheet rock on the interior and T-111 siding is a 15-20 minute firewall by comparison).**



- ✓ **Siding or cladding:** On top of an ICF wall install a claddings made with cement or stone as the most common fireproof siding. Examples are stucco, stone, brick or fiber-cement siding (such as Hardie Plank). Stucco should be a minimum of 7/8-inches thick and a "three coat system" is preferred from a fire safe point of view.
- ✓ **Windows. Glass in exterior openings should be dual-glazed and resistant to transmission of radiant heat from direct flame.** Though there is no industry-approved uniform fire rating for dual-glazed windows, windows with an insulating-air-gap feature have proved their worth under actual fire conditions. If using vinyl or fiberglass windows, only consider windows where the window frame has a metal insert that fully wraps all 4 sides of the window such as the windows manufactured by PolyBau, Inc. (A source of entire home loss in Southern California fires has been houses that otherwise would've survived except that their window frames melted out and the glass fell in, and the houses were a total loss once the shell was penetrated.)
- ✓ **Shutters or radiant panels.** In wildfires, houses in many cases initially combust by radiant transfer of heat *through* the exterior shell of the house so that the interior furnishings combust extremely rapidly in a burst of flame that rapidly engulfs the structure. ICF walls and solid steel or heavy wood doors protect the solid walls from radiant transfer but windows remain a weak point. Exterior shutters that are closed, heavy fire resistant drapery, and Venetian blinds all can be effective in holding out radiant heat. If time permits, panels such as plywood with aluminum foil over them that have been pre-prepared can be placed against the window cavity from inside and that can be an effective barrier also.

- ✓ **Roofs:** The other most important issue of fire safe construction is using a fire-resistant roofing material. Class-A fiberglass, cement-tile or metal roof coverings should be used in designated high-hazard areas on all new construction, additions or repairs. Eave-end gaps in tile roofs should be fire-stopped with cement mortar or metal bird stops, which are available at most roofing -supply stores.
- ✓ **Eaves & Soffits:** Do not leave exposed rafter tails. Enclose eaves and rafter tails with a soffit of fireproof material. This can either be a fire resistant fiber-cement board product or stucco.
- ✓ **Vents:** Attic vents in all cases should be covered with a metal screen with a small grid size to prevent wind borne embers from penetrating into attic spaces. Required individual venting at gable ends and on roofs should not exceed 144 sq. in. and should be covered with 1/4-in. mesh screen. Venting should not be located in roof eaves or cornices or in the underside or on exposed edges of decks. Better Alternative: Build with an unvented attic design wherein there are no external vents from the attic, insulation is installed to the underside of the roof and inner face of gables, and the attic space is conditioned space and is vented to the interior of the house. This is specifically authorized in the new IRC code effective July 1, 2007.
- ✓ **Decks:** Use a fire proof or fire resistant material for decks. The best case is a concrete deck either as an ICF-formed concrete deck such as AmDeck™ or a concrete slab poured over a steel frame. Many modern synthetic materials are more resistant to fire than natural wood products.
 - Skirt decks to within 6" of the ground with solid sides such that flying embers or a grass fire can't get under the deck.
 - Wood deck and trellis members should be a minimum 2x4 dimension; wood beams, floor joists and stair stringers a minimum 4x6 dimension; and posts a minimum 6x6 dimension.
 - All such wood should be UBC-approved fire-retardant material or cement plastered.
- ✓ **All projections, such as roof overhangs, balconies, decks, exterior stairs, carports or patio covers, should be protected on their undersides and on exposed edges with cement plaster.** Or they should be protected with a continuous wall, most likely poured-in-place concrete or cinder block, around the perimeter of the projection from the underside down to the existing grade; or with UBC approved fire-retardant wood specially treated with fire-retardant chemicals.
- ✓ **Roof sprinklers:** Most experts agree these exterior sprinklers are generally ineffective in a wild fire. (Interior sprinklers are a different issue).
- ✓ **Propane tanks.** Locate at least 30 feet away from the structure.
- ✓ **Defensible space and fire resistant materials.** Follow State Fire Marshall guidelines. The same practices that apply to existing structures should be planned in for new construction.

There are numerous sources of further information on Firesafe construction tips for new construction on the web. Some useful sites include:

<http://www.firewise.org/>
<http://www.firesafecouncil.org>
<http://osfm.fire.ca.gov/firesafeplanning.html>
<http://www.firewise.org/co/construction.html>

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