Wildfire-Safe New Construction Tips

- ✓ **Roofs**: The single 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.
- ✓ **Exterior walls**: The best case is a concrete wall system such as an Insulating Concrete Form (ICF) wall, where a solid flat wall of concrete is sandwiched between two layers of EPS foam. A 6" layer of concrete provides a building shell with a wall fire rating of greater than 3 hours. (A 2x4 wall is a matter of a few minutes by comparison).
- ✓ **Siding or cladding**: Claddings made with cement or stone are the most common fireproof siding. Examples are stucco, stone, brick or fiber-cement siding (such as Hardie Plank). These claddings can be applied over either a wood frame or over a concrete ICF wall system. Stucco should be a minimum of 7/8-inches thick and a "three coat system" is preferred from a fire safe point of view.
    - If wood, vinyl or fiber exterior siding is used, it should be applied directly over standard 5/8-in. type-X gypsum wallboard, a gypsum-core panel laced with chemical additives and glass fibers that are commonly used in one-hour fire-rated walls that are between attached garages and living areas.
- ✓ **Soffits**: Enclose eves and rafter tails with a soffit of fireproof material. This can either be a 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.
- ✓ **Decks**:
    - Use a fire proof or fire resistant material for decks. Best case is a concrete deck over a steel frame. Many modern synthetic materials are more resistant to fire than natural wood products.
    - Skirt decks 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 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 *(such as Dricon by the Hickson Corporation www.dricon.com; 404-801-6600).*
- ✓ **Roof sprinklers**: Most experts agree these exterior sprinklers are ineffective in a wild fire and a waste of money. Don't bother with them. (Interior sprinklers are a different issue).
- ✓ **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. The task force also recommends certain newly developed heat-reflective single-pane windows, which actually reflect heat back to the source at the same time that they keep the inside cool, such as the windows that are sold by O'Keefe Inc. *(75 Williams Ave., San Francisco, Calif. 94124-0443; 800-227-3305)*. The windows are of a calcium silica-based float glass with a lab-tested 60-minute fire-resistance rating. The glass is also stronger than normal glass.
- ✓ **Propane tanks.** Locate at least 30 feet away from the structure.
- ✓ **Defensible space and fire resistant materials.** 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://www.firewise.org/co/construction.html

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