

Fire-Resistant Decks

Q We build decks in an area where wildfires are a concern. What products or strategies can we use to reduce the risk of fire?

A Steve Quarles, senior scientist with the Insurance Institute for Business & Home Safety and formerly a University of California Cooperative Extension advisor, responds: Building codes and standards—such as the International Code Council’s International Wildland-Urban Interface Code (IWUIC), NFPA 1144 (Standard for Reducing Structure Ignition Hazards from Wildland Fire), and Chapter 7A of the California Building Code (CBC)—contain provisions designed

to reduce the vulnerability of decks to wildfire, though these provisions have not been adopted statewide outside of California. And even there, CBC Chapter 7A applies only to new construction, so a new deck added to a house built before Chapter 7A was adopted (in 2008) would not have to comply with it, unless the local jurisdiction has added language regarding new decks.

The IWUIC and NFPA 1144 specify the use of decking materials that are “non-combustible,” such as steel framing and aluminum decking, or “ignition-resistant,” such as pressure-treated exterior-rated fire-retardant-treated lumber. CBC Chapter 7A also allows the use of cer-

tain “combustible” materials for a deck’s walking surface, including wood, wood-plastic, and plastic deck boards, provided that when exposed to flames or brands, they meet minimum performance requirements established by the Office of the State Fire Marshal (OSFM) and spelled out in SFM Standards 12-7A-4 and 12-7A-4A.

To simulate under-deck surface fires, test assemblies are subjected to an 80-kilowatt under-deck flame for three minutes. The heat release rate (HRR) is measured, and if it doesn’t exceed the threshold designated in the standard, the product is approved for use in wild-fire-prone areas. To simulate burning embers landing on a deck, a wood lattice of a specific size and weight (called a “brand”) is set on fire and placed on top of the decking (see photo, left).

A list of CBC-compliant products can be found at the California OSFM website (osfm.fire.ca.gov/strucfireengineer/strucfireengineer_bml.php) by clicking on “Current SFM Listings” and selecting “8110 - Decking for Wildland Urban Interface (W.U.I.)” in the “Category” drop-down menu. Included are non-fire-retardant-treated nominal 2-inch-thick redwood and cedar, a number of tropical hardwoods, and many wood- (or other fiber) plastic-composite products that have been manufactured with fire-retardant additives. In general, solid decking performs better than hollow or channeled deck boards in both the under-deck and burning-brand tests.

Decks that overhang a slope can be more vulnerable to ignition because of the increased potential for embers and flames from burning vegetation to reach the deck, particularly when vegetation downslope from the deck isn’t managed and maintained. Effective—and



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This field demonstration shows the performance of three decking products approximately 35 minutes after a standard 6-inch by 6-inch Class B burning brand was placed on the top surface of each deck. The untreated redwood (far right) and the wood-plastic composite at the center comply with California Building Code Chapter 7A requirements for “combustible” materials, while the wood-plastic composite at the far left does not. None of these products, however, meet the requirements for an “ignition-resistant material” as outlined in the IWUIC, NFPA 1144, or CBC Chapter 7A.

QUESTION & ANSWER

inexpensive—ways to make a deck less vulnerable to wildfire exposure are to remove combustible materials from under the deck and within 5 feet of the home, and to manage the vegetation on

the property leading up to the deck.

Another wildfire defense technique is to enclose the deck by attaching non-combustible fiber-cement sheathing to the bottom of the deck joists. While this

may provide protection from embers and flames, be sure to provide under-deck drainage. Without it, fungal decay may develop in the joists and metal hardware may corrode prematurely—even in dry climates, where wildfires are more common.

Additional information about ignition-resistant and noncombustible materials can be found at extension.org/pages/23748/ewin-articles-on-before-fire-building-materials-home-design and at disastersafety.org/wildfire.

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Which Comes First: Hot Tub or Deck?

Q My clients want a new deck with a hot tub in the center. They have settled on the deck design and materials but have yet to decide on a specific hot tub. Meanwhile, they're anxious to get the project underway and want me to start building the deck. Is it a bad idea to frame first and have the hot tub placed in the completed deck later on?

A Jason Russell, owner of Dr. Decks in Tacoma, Wash., responds: Because several variables need to be addressed before installing a hot tub, I strongly prefer to have it in place before I frame a deck. For example, How much clearance is needed to access the pumps and sides of the tub? How big are the access panels? How much of the tub will be above deck level? How will the electrical be hooked up if the deck is installed prior to delivery? If the tub has curved corners, what is their radius? And will there be enough clearance to remove the tub in the future if there are problems?

Unless you can answer those questions, you should wait until the hot tub is on site, hooked up, and running before you install any framing. ❖