

**Q With the recent upsurge of wildfires, should we be worried about putting asphalt shingles on homes in vulnerable areas?**

**A** Steve Quarles, advisor emeritus at the University of California Cooperative Extension, responds: You should not be worried about putting asphalt shingles on a roof located in a wildfire-prone area if those shingles have a Class A fire rating. Asphalt shingles can have different compositions, and when installed properly, fiberglass composition shingle roof coverings comply with the provisions required for a Class A roof covering.

The Class A rating is specified in the ASTM Standard Test Method E-108, which evaluates the fire rating of a roof covering and has three parts. The first part evaluates flame spread over the roofing material (1). The second part evaluates the ability of a roof covering to resist flames on top of the covering from burning through it and other components (such as sheathing and underlayment) in the roof assembly and entering into what would

be your attic or ceiling space (2). The final part of the test evaluates the roof covering's ability to resist generating embers, also known as firebrands, that can become airborne and spread a fire. With asphalt shingles, there are combustible components (namely the asphalt), but the noncombustible components (fiberglass and granules) provide the performance sufficient to comply with the provisions of the test (3).

It is important to point out that this test specifically evaluates the roofing material and does not evaluate the vulnerability of the roof where it intersects with other surfaces or materials, such as where a roof plane meets a wall above, or at the eaves where the roof meets the gutter. In these cases, the adjoining surface could be the vulnerable component of the roof system.

Class A asphalt shingles are available in most parts of the country, and prices vary depending on the type you choose. Regardless of the type of roof you install, it must be kept in good condition and free of combustible debris (4). For a closer look at the interaction between buildings and wildfires, see *Home Survival in Wildfire-Prone Areas: Building Materials and Design Considerations* (University of California Davis, Agriculture and Natural Resources), <https://anrcatalog.ucanr.edu/pdf/8393.pdf>.



The first two parts of the ASTM test of roofing evaluate flame spread (1) and penetration of the roofing assembly (2). These roofing remains are from a home destroyed in the Camp Fire (3). Debris piled up where combustible siding meets a roof can make a home vulnerable to wildfires (4).

Photos by Steve Quarles

**I've seen can lights installed in the ceilings of covered porches, but does the code let us install them in the 12-inch soffit in the eaves of a house?**

**A** Glenn Mathewson, a code educator and consultant from Colorado ([buildingcodecollege.com](http://buildingcodecollege.com)), responds: The International Code Council (ICC) publishes the IRC, but it doesn't manage the development of the electrical provisions. Those provisions are republished with permission of the National Fire Protection Association from its document, the National Electrical Code, or NFPA 70.

The eaves of a house would be considered a wet location, and sections 4003.9 and 4003.10 require luminaries (lighting fixtures) that are installed in wet locations to be listed and labeled for use in wet locations.

Those fixtures must be installed in a manner so that water cannot enter the wiring compartment. (A can light in a shower is a good example of a wet-location luminary.) If the correctly rated can light is selected for a location beneath a soffit, these sections of the electrical code should be easily satisfied.

But let's consider what else might be going on at the soffits. In many cases, the soffits might have ventilation openings for ventilating the attic space, and there may be baffles or blocking hiding in the soffit spaces. Or there might not be either of those situations, and the soffit may simply be filled with stray attic insulation. Using an IC (insulation contact) rated can light will eliminate any issues with clearances to combustible materials and insulation. If the can light is not IC-rated, then a 1/2-inch clearance to combustibles and a 3-inch clearance to insulation must be maintained.

As a further note, if you are looking to replace a wall-mounted light next to an exterior door with a down-casting can light in

the soffit above the door, be sure to consider any nearby stairs that lead from the entry landing or from the deck or patio at the entry. The wall-mounted light might have been providing the required illumination for the stairs as well as for the door.

An electrical code provision in Chapter 39 requires an exterior light with an interior wall-mounted switch at every exterior door with access to grade (such as the stairs from a deck to the yard). And in Chapter 3, there is a requirement that the top landing of all exterior stairways be provided with an artificial light source. Sometimes one light can serve both functions. There are no required illumination levels for either of these lights.

For doorways, the light provides security and sanity to the occupant opening the door to an unexpected visitor. This explains why a light is not required when there's no grade access. A light at the top of a stairway helps to alert occupants not seeking the stairs that there is a fall hazard.