

Decks



General

Though no material is “fire proof,” the proper use and assembly of fire-rated building materials can reduce a fire’s spread, and lengthen the amount of time it takes for a home to ignite and burn. Structural assembly is the layering of building materials.

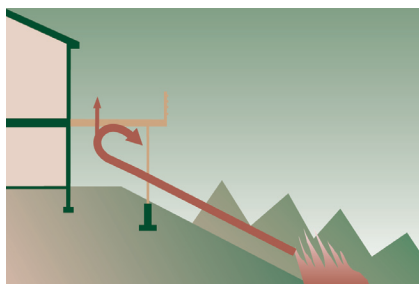
Decks are a very popular, well-used feature of many homes. However, they often face downhill towards a fire’s most likely approach – up a slope. Wood decks are also, highly combustible. Their constructional design makes them vulnerable to convective energy, wind blown embers, and trapped hot gasses. Decks are built perfectly to burn, almost as easily as wood stacked in a fireplace.

Conventional wood decks

All components of conventional wood decking are made of two inch thick wood with high surface to volume ratios – readily combustible and conducive to fire spread. Decks often ignite from radiant energy or wind-blown embers before approaching wildfire reaches the house. Use of Class A or B materials will reduce risk.

Isolate deck from fire with a patio and wall

If possible isolate the deck from fuels and fire by building a noncombustible patio and wall below it. A patio will ensure that no combustible materials are below the deck. The wall will act as a shield, deflecting both radiant heat and hot gasses from the fire.



Deck with a patio and a wall below



Heavy timber decks

The same rules for heavy timber siding applies to deck construction. A minimum thickness of six inches is required for structural members and posts, and three inches for decking and rails. The low surface-to-volume ratio of heavy timber takes longer to burn, making it a practical choice in moderate fire-hazard areas.

Composite decking

Composite decking is a mixture of recycled contents (generally wood and plastic). It’s very durable and has a high resistance to environmental weathering. It requires no sealants and is noncombustible. However, even though this material will not ignite, it will fail and melt. No known tests have been done on the toxicity of fumes released by this melted material.

Fire-resistive materials

The same structural assembly rules apply here as with home construction. The combination of noncombustible and rated materials can offer longer protection than a single material by itself. However, keep in mind, additional layering of materials will require a reinforced structural support.

Other

- Enclose decks and balconies or use fire-resistant materials on surface and exposed underside to deflect flames and embers.
- Build a noncombustible patio and wall below to help deflect heat and energy from a fire.

Ratings are based on the assembly and layering of building materials and the burn time before ignition. Ratings are divided into classes:
A (the best – 2 to 4 hrs)
B (1hr)
C (20 min)

Material Classification

Class A/B

- Heavy timber log (minimum of 6 inch diameter)
- Brick
- Stone
- Concrete
- Concrete synthetic stone
- Composition decking
- Metal/steel
- Membrane
- Fiber cement

Class C

- Wood panels and boards

Material **Class** is categorized by composition, or resistance to fire (combustible or noncombustible). Class A has the highest resistance; class C has the least resistance.

However, Class A materials generally need an underlayment of additional materials for class A *rating*. This is because Class A materials conduct heat beyond the exterior.

The combined use of fire-rated building materials, design, and assembly will give your home a chance of surviving a wildfire.

References

For additional information on protection your homesite, see:

- 6.302, *Creating Wildfire-Defensible Zones*
- 6.303, *Fire-Resistant Landscaping*
- 6.304, *Forest Home Fire Safety*
- 6.305, *FireWise Plant Materials*
- 6.306, *Grass seed Mixes to Reduce Wildfire Hazards*

For assistance, contact your local fire department, or the Colorado State Forest Service.

