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New Colorado Homes Can Be Built to Better Resist Wildfire Embers for About 1% More in Construction Costs, Study Finds

CU Boulder research helps homeowners and builders plan for wildfire protection from the start, with choices that consider both risk and budget

BOULDER, CO, and RICHBURG, SC, October 20, 2026 – Building key protections against wildfire into new Colorado homes added about 1% to modeled direct construction costs, according to a new study from the University of Colorado Boulder's Earth Lab. Across seven counties with a common construction-code baseline, the study reported median added construction costs of approximately \$2,200, or 0.6%, for Colorado Wildfire Resiliency Code Class 1 and \$4,300, or 1.1%, for IBHS Wildfire Prepared Home Essential. Both pathways focus primarily on reducing vulnerability to wind-blown embers.

For Colorado families planning a new home, wildfire protection is a concern in both mountain communities and suburban neighborhoods, as the East Troublesome and Marshall fires demonstrated. The study gives homeowners and their builders a clearer picture of what it costs to address that risk before construction begins, when design and material choices are still open.

"This analysis provides the evidence needed to understand the cost implications of wildfire-resilient construction in the varied communities and landscapes of Colorado," said Virginia Iglesias, Ph.D., director of Earth Lab and integration lead for the NSF ASCEND Engine at the University of Colorado Boulder. "The costs associated with these pathways are concentrated in a limited number of exterior components, rather than distributed across an entire home. That distinction matters for practical decisions about construction, affordability and wildfire risk reduction."

Earth Lab examined representative new single-family homes in Boulder, Jefferson, El Paso, Summit, Grand, Delta, La Plata and Las Animas counties. Because Boulder County has additional local wildland-



urban interface requirements, it was evaluated separately from the seven counties used in the statewide baseline comparison.

Using home characteristics drawn from county property records and standardized construction-cost data, researchers compared local construction baselines with two tiers of the Colorado Wildfire Resiliency Code (CWRC) and two pathways in the Insurance Institute for Business & Home Safety (IBHS) Wildfire Prepared Home program. IBHS and the National Science Foundation ASCEND Engine supported the research.

“For families building a home, every dollar matters. So do the choices that help protect it,” said Mark Novak, senior wildfire fellow of IBHS. “This study shows that key ember protections can be built into new Colorado homes at a modest additional construction cost. Wildfire protection belongs in the plans, not on the wish list.”

The study also examined CWRC Class 2 and IBHS Wildfire Prepared Home Enhanced, which address radiant heat and direct flame contact in addition to embers. Deck requirements accounted for most of the cost difference between CWRC Class 1 and Class 2 as well as Wildfire Prepared Home Essential and Enhanced.

Each modeled home included an attached deck sized at 15% of the home’s floor area. Wildfire Prepared Home Enhanced required a noncombustible deck assembly in the study’s compliance model. When researchers excluded decks from the cost calculations, Wildfire Prepared Home Enhanced added only 1.8% to the total cost. That comparison isolates the contribution of decks to modeled costs; it does not change either pathway’s requirements.

Material selection also affected costs. Compliant products varied substantially in price, finish and grade, giving builders opportunities to compare costs while meeting the applicable requirements. The findings underscore the value of evaluating deck designs and compliant materials early, before plans and product selections are final.

“Cost is an important consideration for homeowners investing in safer wildfire resistant construction,” said Carole Walker, executive director of the Rocky Mountain Insurance Association. “This study provides Colorado homeowners, builders and local governments with a clearer picture of what foundational protections cost, so they can make informed choices as new homes are planned—balancing a relatively small financial investment in science-based mitigation standards with the development of more resilient and insurable communities.”



Boulder County was evaluated separately from the seven counties cited in the opening cost finding because it operates under additional local wildland-urban interface requirements in Chapter R390 of the Boulder County Building Code. The study found that those requirements fell within the modeled cost range of the statewide wildfire-resilience pathways.

The report estimates direct construction costs at the time of building, using the lowest-cost compliant materials modeled for each pathway. It does not calculate lifecycle costs or potential benefits, including avoided damage and displacement, possible insurance savings, or improvements in thermal performance and smoke resistance. Wildfire-resilient construction can reduce a home's vulnerability to ignition, though it cannot guarantee survival during a wildfire. Incorporating resilience measures during new construction is generally more cost effective than adding them later through retrofits.

Read the full report, [*The Cost of Wildfire-Resilient Construction in Colorado*](#), for detailed findings.

About the Insurance Institute for Business & Home Safety (IBHS)

The IBHS mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses and communities against natural disasters and other causes of loss. Learn more about IBHS at ibhs.org.

About Wildfire Prepared Home

Wildfire Prepared Home is a science-based wildfire mitigation designation program. Based on the latest wildfire research conducted by the Insurance Institute for Business & Home Safety (IBHS), it offers Colorado homeowners a path to take the system of science-based actions shown to meaningfully reduce a home's wildfire risk. Learn more at wildfireprepared.org.

About Earth Lab at the University of Colorado Boulder

Earth Lab is a data synthesis lab within the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder. Earth Lab's mission is to harness the big data revolution through education, advanced analytics and domain expertise to help society better understand and adapt to environmental change.

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