

Metal Roofing Reduces Costs, Increases Comfort



Each large metal roofing panel covers a large area of the roof for simpler installation

Photos courtesy of McElroy Metal



This simulated tile roof is made from painted steel. Many stock colors are available.



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Q. *It is replacement time for my old dark shingle roof. What type of roof do you recommend?*

A. A dark colored roof absorbs much of the sun's heat. This heat not only makes your house hotter and drives up air-conditioning costs, but it hastens the degradation of the shingle material itself.

A dark shingle can easily reach 150 F in the hot afternoon sun. If you have ever tried to lift a square of shingles, you know how heavy they are. When this thermal mass gets hot, it stores the heat and radiates it down into your house well into the evening.

Even if you have adequate attic insulation on the attic floor, the radiant heat from the hot roof easily passes through it to the room ceilings. Standard thermal insulation, such as batts and blown-in fiberglass, rock wool and cellulose, are most effective for blocking conductive heat transfer, but less so for radiant heat from a hot roof.

The two most common roofing materials for houses are asphalt/fiberglass shingles and metal. White shingles can be fairly energy efficient and effective for reflecting much of the sun's heat. Some white shingles even qualified for the former federal energy tax credit. It takes very little color tint, however, for shingles to get hot and absorb heat.

Metal roofing can cost as much as double that of low-end shingles, but many types have lifetime warranties. Kynar 500 or Hylar 5000 PVDF resin-based finishes are durable and reflect most of the sun's heat for savings on cooling costs.

Aluminum and steel are the two most common materials for residential use. Copper is attractive and durable, but expensive. The natural aged patina color is beautiful, but it does not reflect the sun's heat well. Be sure the roofing has passed UL580 uplift and UL2218 Class IV impact resistance tests.

I installed an aluminum roof on my house five years ago. It consists of 1-foot-by-2-foot interlocking panels with a heat-reflecting paint coating. The panels are

made of recycled aluminum from soda cans and are formed to look like individual cedar shakes.

Aluminum is a particularly efficient roofing material because the underside surface of the roofing panels are bare and never rust. Bare aluminum has a low emissivity rating. It blocks heat from the hot metal top surface from radiating downward through the roofing lumber and attic insulation to the rooms below.

When selecting an aluminum roof, choose one with a contour that provides at least a 1-inch air gap over the sheathing or old roofing for its low-emissivity properties to be effective. After my simulated shake roof was installed, the second-floor bedrooms stayed much cooler on summer afternoons. A simulated clay tile aluminum roof is also effective with the many deep air gaps under it.

The only drawback to an aluminum roof is you must be careful not to step on the high shakes edges because you may dent it. In areas where you walk often, such as to clean a skylight, have molded foam inserts installed under those panels.

During winter, snow sometimes slides off in big sheets. In snowy climates, have small snow stops glued to the roof to hold the snow in place as it melts.

Painted steel roofs are available in many colors and simulated contours. The steel is treated with many layers of corrosion-resistant coatings, so rust is not a problem. Shingles with aluminum-alloy coating are particularly durable. Steel is very strong, so there are fewer issues when walking on it.

Most metal roofs can be installed over existing shingles, no matter what their condition. This saves the cost—often about \$1,000—for removing old shingles.

Whether you choose white shingles or a metal roof with heat-reflecting paint, install an attic ridge vent. While doing a reroof job, adding a ridge vent is a minor additional expense. Also make sure the soffit vents are not blocked with attic insulation. Even with the metal roof, adequate attic ventilation is needed for both summer and winter energy efficiency. ■