

## Make It Cool With Metal Roofing

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Summer is upon us. Energy costs are high and increasing. The new federal Energy Policy Act of 2005 includes a tax credit for property owners who choose certain types of metal roofing. More homeowners than ever before care about the environment and are seeking ways to control their home energy costs. Perhaps you have heard the term “cool roof.” If not, you will be hearing about it soon. Homeowners will be asking you.

While creating a cool roof assembly is not rocket science, it does require forethought and there are many people who just don't understand the key points. The good news, though, is that metal roofing is indeed “cool”. And, through good product selection and application methods, you can enhance its cool factor. If you are the contractor who knows not only how to do this but also how to explain it to homeowners, then you will be the contractor who brings more value to homeowners than your competition does.

Here's a question that was recently posted on the Metal Roofing Alliance “Ask The Experts” board by a homeowner in Kentucky. It may be very typical of things you're hearing from homeowners. My answer, directed to the homeowner, immediately follows the question.

**Question:** We are preparing to replace our asphalt shingle roof with metal. We live in an area that is quite hot in the summer but we also have several months of cold weather in the winter. We want a roof that will maximize our heat/cooling savings. We are perfectly willing to go with a white or near white roof, but after looking at an online cool roof calculator we found that we might actually suffer a “heating penalty” in the winter by using a lighter color. Could you provide any input for the roofing color for our area?

**Answer:** Over the years, many folks have asked about this possibility that a roof system which keeps homes cooler in summer, reducing air conditioning costs, might also keep homes cooler in winter, increasing heating costs. Some of the online energy calculators are based on non-residential construction methods which cannot be applied to typical residential construction. When you think this all through, common sense helps you understand that this “heating penalty” cannot really be the case. Recent studies by independent laboratories corroborate this fact.

In the summer, there is a lot of radiant heat stirred up by the sun. Attics get hot and that heat increases the air conditioning load on the house. On the other hand, in the winter, there is far less radiant heat. Have you, for example, ever gone into an attic in the winter and found it to be hot? Of course not. I know that seems like a simplistic answer to this question of a wintertime “heating penalty” with metal roofing but it really is the common sense fact surrounding this issue.

In northern climates, when typical construction methods are used, good attic ventilation is important during the winter. This ventilation will include intake vents and exhaust vents.

A great way to achieve this is with eave soffit vents as intake and a ridge vent as exhaust. Most metal roof systems have options for ridge vents. The combination of soffit and ridge vents will create a situation which continually and naturally “bathes” the underside of the roof deck with fresh outside air.

This venting is important because it carries out excess moisture which tends to be generated in homes and then migrates to the attic. If this moisture is not vented outward, it will condense on cool surfaces such as the underside of the roof deck, creating an unhealthy and potentially very damaging situation. Proper venting in the winter also prevents “hot spots” on the roof which lead to melting snow and eventual ice formation and ice damming.

In the summer, this venting is also critical because it carries away excessive radiant heat which gathers in attics. The point is that, in conventional construction which requires good ventilation, there definitely will be no “heating penalty” with metal roofing because there is never opportunity for any significant amount of heat to build up in the attic during the wintertime anyway.

Now, how do you make your metal roof as “cool” as possible? There are several options. And, the good news is that, because of the many options, you have numerous ways to create a cool roof and still obtain the aesthetic “look” you desire for your home. You do not have to trade off beauty for “cool”! Metal roofs have an inherent “coolness” because of the way in which metal does not have great thermal mass and, as a result, does not gather and store up radiant heat. Whereas some roofing materials tend to gather heat and then continue to radiate it into the structure even after the sun goes down, metal roofing quickly dissipates its heat even when the sun goes behind a cloud or a gentle breeze blows.

You have already mentioned color. Yes, lighter colors are more reflective, helping to reduce summertime attic temperatures. However, many metal roofing manufacturers are now using coatings and finishes which have special reflective pigments in them. With these coatings, even in dark colors, you can obtain reflectivity rates which meet the requirements of most energy programs. Using products with these coatings will make you eligible for the new energy tax credit.

Additionally, some metal roofing products, due to their design, have an integral airspace between the back of the metal panel and the roofdeck and underlayment. This occurs most frequently with some of the more heavily formed shake, tile, and shingle metal roofing panels. This sort of airspace blocks heat transfer by conductance, again reducing the attic heat gain during hot weather.

Another great way to enhance the “cool factor” of your metal roof is with ventilation. I wrote earlier about how ventilation helps carry heat out of attics. Many metal roofing panels, though, can be installed on a gridwork of battens if desired so that additional ventilation can occur between the metal and the roof deck. This is a very good way to even further increase a metal roof’s efficiency.

Part of the beauty of metal roofing is its variety. There are, in fact, many ways to provide your home with the most energy-efficient roof system possible by using metal.

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