

CHOICE OF METALS

Aluminum vs. Steel:

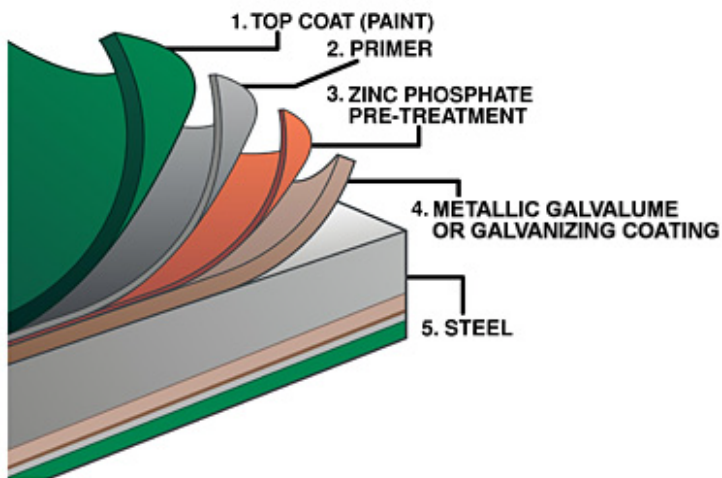
Residential metal roofing is primarily made of steel or aluminum. Copper, zinc and titanium are also used in specialized architectural applications for homes. The major advantage of Aluminum over Steel is that it can be used for roofing purposes near the coastal areas where heightened concentration of salt in the environment can make galvanized steel used in metal roofing panels susceptible to corrosion over time. The flip side is that G 90 steel based roofing panels may cost less compared to the aluminum. Thus, it may be more economical to use steel as a material of choice. Steel roofing for residential and business applications is very lightweight with the heaviest product weighing about 1.5 pounds per square foot when installed. Empire Construction offers steel roofing panels and shingles with interlocking, and standing seam designs as an alternative to our aluminum roof product line.

What is G 90, this refers to the amount of zinc galvanizing used during the galvanizing process.

Under ASTM standards G 90 = .90 ounces of zinc plating per square foot of panel meaning both sides are counted to each square foot. (top and bottom) At this point the type of finish coat becomes much more important. (UV, durability, heat retention, reflective qualities etc. Buyer beware is a good rule of thumb when it comes to finishes.)

CHOICE OF FINISHES

Metallic Coatings:



All Steel Roofing has a protective barrier on both sides of the sheet called a metallic coating, which protects against rusting. This is underneath and separates from any paint which imparts color to the product.

Galvanized: This is 100% Zinc in various thicknesses depending upon the product usage.

Galvalume or Zinalume: A mixture of aluminum and zinc. (55 percent by volume aluminum)

Different Levels of Protection

There are differing amounts of metallic coating used on sheet steel depending upon its final product application. For agricultural applications, galvanizing levels called G-40 or G-60 may be used quite successfully. For houses, the MRA recommends a minimum of G-90 be used. This is in accordance with the *Guidelines for Residential Metal Roofing* published by the Metal Construction Association. The greater the number, the longer the protection against rust will last.

The numbers G-40; G-60; and G-90 refer to the ounces of zinc per 100 square feet of sheet steel coated (top and bottom). G-90 will have 90 ounces of Zinc- 45 ounces on each side per 100 square feet of roofing sheet steel.

Galvalume has a designation AZ-50 or AZ-55. These are equivalent levels to G-90 galvanized product. However, in many years of exposure testing Galvalume has proven to be up to three times more effective in preventing rust from appearing on the sheet steel.

Aluminum sheet does not require a separate metallic coating barrier since aluminum oxide, when it forms is not noticeable in most cases.

Paint Systems:

Most residential metal roofing has a paint coating applied to the outside of either the aluminum or steel plus metallic coating.

The paint finishes provide the aesthetic qualities that consumers want to see on their roofs. They can also provide specific energy saving qualities.

Metal roofs that are **painted** use very sophisticated paint technology. The roofing material is painted when it is in flat sheet form in giant coils. Yet, the paint is flexible enough to be later stamped or roll formed into the final roof shape-long panels, shingles, shakes, tiles or slate forms. There are differing levels of paint quality for metal roofing-all affecting the price of the finished product. The principal attribute that consumers are concerned about is fading of the original color. When exposed to sunlight (ultra-violet light) paints fade over time, some more than others. Generally, in this situation you get what you pay for.

PVDF (Kynar 500® Generally used in higher end residential and commercial applications)

This paint system combines ceramic pigmentation with polyvinylidene fluoride for a superior, long-lasting performance. The PVDF system is respected for its durability, resistance to chalking and fading, chemical resistance, and color retention. Please note: the PVDF system meets both Kynar 500/Hylar 5000 specifications and contains 70% Kynar 500® or Hylar 5000 resins. Kynar 500® and Hylar 5000 are produced under license from Atofina and Ausimont, respectively. See Color Guide for available colors.

MS Colorfast45®

This is a thermoset paint system composed of polyester resin which has been modified with a silicone resin. The MS Colorfast45® system offers good protection to the elements with special consideration to chalk and fade resistance, durability, and chemical resistance. See Color Guide for available colors.

Re-Roofing (roof-over) With Metal Roofing:

We get asked this question all the time: Can metal roofing be installed over old fiberglass or asphalt shingles?

The answer is: “Yes it can.” And by doing so, you save in the labor and cost of tearing off the old roof and disposal but remember there will also be a cost associated with furring out with 1xs over the existing roof system. Other benefits may include you won’t be contributing to filling our landfills and that the layers of your old roof will further insulate your home. Metal is the best choice due to its very low weight per square foot and its unique design. Residential Metal roofing generally weighs less than one pound per square foot. Asphalt shingles can weigh up to four pounds per square foot depending on the brand.

In some areas building officials only allow a re-roof over one layer of shingles. Other areas will allow you to re-roof over two layers. In most cases it’s not even an issue if you are only going over one layer of shingles and are not in a very high wind area.

Referencing Section R907.3 of the 2006 International Residential Code Book® best answers this question, it reads as follows:

“Complete and separate roofing systems, such as standing seam metal roof systems, that are designed to transmit the roof loads directly over the buildings structural systems and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.”

****Tearing off the shingles allows for inspection of the roof deck at which time any rotten sheathing can be addressed. Also, it's tough to find any future leaks should you have this occur since water that gets by the metal can run for a while on the shingles 'til it finds a hole.***

Laying metal directly over existing shingles:

Installing metal directly over shingles is not a good idea. The metal will move some from expansion and contraction and can rub the finish off of the back from grating against the shingle aggregate. Also if there are any existing roof leaks, you need to address them and replace any rotten sheathing or rafters. If there are any signs of problems caused from the previous roofing weighing too much, they must also be addressed. This could include things like sagging decking or buckling trusses. A layer of underlayment installed on top of the existing shingles will help keep the granules of the old shingles from rubbing against the back of the metal and causing possible corrosion. The industry standard for underlayment is often thought of as felt paper (tar paper) but there are also many newer synthetic underlayment's that are designed to work well with metal roofing. Standard tar paper has a tendency to stick to the back of metal roofing. This can cause the paper to tear when the metal roofing expands or contracts as it is designed to do. The new synthetic underlayment's do not have this problem as their design far exceeds the felt paper standards.