



STANDING SEAM SPOTLIGHT

An Educational Bulletin for Metal Roofing Professionals

Choosing Between Metals

By Mike Huber, PE

Architects, engineers, and specifiers have never had such a wide array of metal options, and aesthetic concerns are the driving factor when choosing one substrate over another. The other major factor to consider is longevity, which tends to proportionally increase with a material's cost.

Steel roofs, which are almost always treated with a metallic coating to protect against oxidation and corrosion, can generally be expected to last 30 years or longer with traditional metallic coatings (e.g. galvanized). Manufacturers sometimes offer proprietary metallic coatings for steel systems that can further extend their anticipated life span.



Aluminum roofs are more corrosion-resistant than their steel counterparts, and can be expected to last from 50 to 100 years, depending on environmental considerations, such as weather and corrosives. Other premium metal substrates, such as copper, stainless steel, zinc, and titanium, can be expected to last centuries.

Within the wide realm of metal roofing solutions, there are three basic sub-categories:

Structural Systems

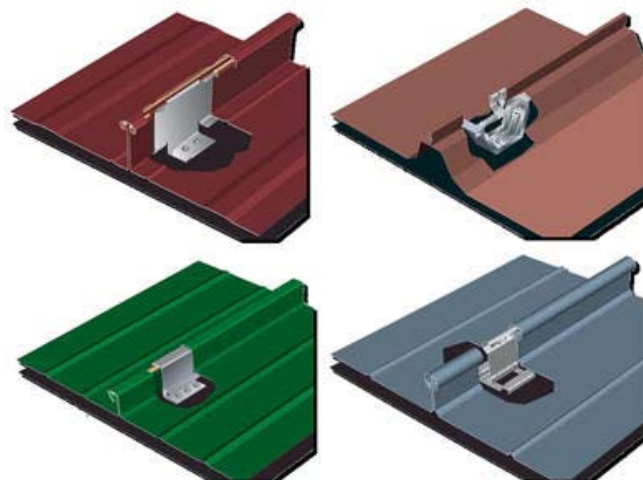
The most capable of withstanding wind uplift pressures, structural systems are designed for watertight rooftop performance

Architectural Systems

The least capable of sustaining wind uplift pressures, architectural systems are primarily a decorative covering (they typically require an underlying waterproofing membrane)

Hybrid systems

Share characteristics of both structural and architectural assemblies



Metals at a Glance

Aluminum

- Exceptional corrosion resistance
- Used commonly for resistance to marine environments
- .032 and .040 most common thicknesses for standing seam roofs

Steel

- Most common for standing seam roofs
- High strength, excellent structural value
- 22 and 24 gauge most common thicknesses for standing seam roofs

Exotic Metals

- Zinc, Titanium, Terne

Stainless Steel

- Excellent corrosion resistance
- Comprised of a variety of alloys
- More difficult to form into roofing panels

Copper

- Longevity - life expectancy measured in centuries
- Extremely corrosion resistant
- High architectural appeal
- 16, 20, and 24 oz. are most common thicknesses for standing seam roofs

Systems are also classified by the way in which they are anchored to the substrate. They fall into one of two categories, as described below.

Through-fastened Systems

These assemblies use screw fasteners drilled through the metal roof panels into the deck. They are more economical and fairly strong, but typically considered less aesthetically pleasing and more susceptible to leaks since the fasteners are exposed to the elements.

Standing Seam Systems

These systems employ clips located within the metal seam, concealed from the roof's exterior surface. The clips that hold the adjoining roof panels together are then fastened to the substrate. (Such clips are not exposed to the elements.) It is generally considered to be easier to make a standing seam system weathertight, due to the configuration of the panel that places the seam above the roof surface and, therefore, above the path water takes when flowing off the roof.

When a specifier is choosing among standing seam systems, another important consideration is the height of the seam leg. Generally speaking, the higher the leg height, the stronger the system. To understand this concept, it might be helpful to imagine the seams as I-shaped beams: the taller the I-beam, the stronger the member.

Clip designs for standing seam metal panels also distinguish metal roofing systems from each other. In evaluating clip designs, one must prioritize the building owner's performance requirements. The material thickness of the clip helps determine its inherent strength, which in turn helps determine the minimum wind uplift resistance requirements for a particular roof.

For help determining the right kind of system for your project, contact your IMETCO representative.

