

The following glossary provides an overview of the common terms used to describe features of metal roofing, metal siding, painted metal finishes and the metal coating process. If you are having difficulties understanding a term not outlined in this glossary, please contact Steelscape at (888) 553-5521 or use the 'Ask Steelscape' button at Steelscape.com.

ASTM Standards - The American Society for Testing and Materials is an independent standards organization that regularly publishes testing and performance specifications for a wide variety of industrial products.

Backers – Backers provide the underside of painted metal used in metal roofs and walls with base color, some protection, and a substrate (basis) for adhesives. A backer is typically white or neutral color.

Bonderized - Bonderized refers to the thin layer of Zinc Phosphate on the surface of the sheet that is a weldable product and provides a surface to which paint will readily adhere. This is typically used in rainwater goods such as gutters and flashings for metal roofs.

Camber -The curving or deviation of sheet metal from a straight, vertical plane. Also related to sweep, the curving or deviation of sheet metal from a straight, horizontal plane

Capillary Action – The movement of water through microscopic pores or channels within metal. As water molecules are 'sticky' they can flow through narrow spaces often against external forces such as gravity. Usually created when an exposed end of bundled painted steel is in proximity to water due to improper storage, leading to water travelling through the metal, resulting in wet stack corrosion.

Chalking – Chalking is the degradation of the resin system at the surface of the finish on a metal roof or wall, due predominantly to prolonged UV ray exposure. As the resin breaks down, resin particles along with embedded pigment particles lose adhesion and take on a white appearance.

Clear Coat – A clear coat is an optional layer for metal roofs and metal walls applied over the paint top coat designed to add perceived depth to the surface, enhance gloss, or provide an additional layer of protection for extreme environments such as coastal or industrial environments.

Concealed Fastener Roofing – See Standing Seam

Cool Colors – Cool colors refer to a coating for metal roofs which utilize infrared (IR) reflective pigments that have been altered chemically and physically to reflect IR wavelengths while still absorbing the same visible light. Reflecting infrared light reduces the heat buildup in structures, thus reducing building cooling costs.

Corrugated – Corrugated is a common type of metal roof or wall panel design, which incorporates ribs of equal or similar size and shape to create aesthetically pleasing shapes and shadow lines.

Cut-To-Length – Cut-to-length is a manufacturing process in which metal products, typically metal coil, are cut to the exact specifications of an end-user or manufacturer for use in metal roof and wall products.

Delamination – Delamination is the loss of paint film adhesion to the substrate or between the primer and the topcoat. It can be visually apparent in several forms including bubbling, peeling, checking, chipping, cracking, or complete loss of the top coat on a metal roof.

Directional Paint System – Due to the unique shape of the pigments in the paint, common to metallic paints, a directional paint system catches light in a specific way that can vary between batches and orientation. This guidance is given for certain colors to avoid mixing orientation or batches to provide a clean uniform look once installed on a metal roof or wall.

Dissimilar Metals – Refers to metals that are in different positions on the galvanic scale relative to one another. Two dissimilar metals in proximity to one another in a conducive environment can lead to galvanic corrosion, in which one metal corrodes preferentially (and sometimes rapidly) compared to the other metal. This is due to the 'flow' of current from one metal to another.

Edge Corrosion (field cutting induced) – Corrosion at the exposed, thin, unpainted end of a metal panel. Often created due to field cutting of panels by heat generating devise such as a grinding disk or sawzal (compared to a manufacturers shear or shearing action used on a jobsite to cut material) which leads to an inconsistent, exposed edge which can trap water and spread corrosion more rapidly.

Edge Wave (slitter or roll former induced) – The visible, unintentional waviness, or buckling at the edge of a metal strip due to the forces imparted on the panel during the production or forming process. Often due to improper production or quality control processes.

Electrolysis – Electrolytic Corrosion created by two or more dissimilar metals in contact with each other and an electrolyte containing small amounts of acid. A common example is moisture in a coastal environment. This leads to galvanic corrosion in which one metal will corrode preferentially to the other.

Embossing – Embossing is the process of creating a raised texture to the surface of the metal. Undertaken in a continuous process for metal applications such as metal walls.

Emissivity – Emissivity is the amount of heat a surface can dissipate away from itself. This is expressed as a percentage between 0-100%. Used in the calculation of the Solar Reflectance Index for metal roofs.

Exposed Fastener or Lap Seam Panels – Exposed Fastener or Lap Seam Panels are metal roof and wall panels which are lapped with one over the other, with the fastener then attached from the outside and driven directly through the metal.

Fading – Fading occurs to metal roof and metal wall products when UV rays and substances in the environment attack the pigments in the paint and cause their color to change. Color change is typically assessed based on its variance to the base state when new, represented by Delta E (dE or ΔE).

Film Thickness - Film thickness or dry film thickness (DFT) refers to the thickness of paint film on the strip surface, once the paint has cured. Typical dry film thicknesses for painted steel for metal roof and metal products range from 0.0005" (0.5 mil) to 0.0015" (1.5 mil).

Flexographic Roll Printing – Flexographic roll printing is the process Steelscape employs to impart its distinctive colors and designs, such as rustic and aged metallics onto metal for metal roof and wall products.

Galvalume® - See ZINCALUME®

Galvanic (bi-metal) Corrosion – The preferential corrosion of one metal over another, created when two dissimilar metals are in contact with one another in a conducive environment (presence of moisture with acid). Heightened by how dissimilar the metals are on the galvanic scale and how conducive the environment is (e.g. more prominent on the coast than in the desert).

Galvanizing – Galvanizing is the process of coating a thin layer of zinc to steel to improve corrosion resistance. Referred to by Steelscape as TruZinc. For most metal roof and metal wall products that use galvanizing this is applied before the paint layer.

Gauge – Gauge refers to the thickness of metal. A smaller gauge correlates to a thicker metal. For example, 22ga is thicker metal than 29ga. 22ga-29ga are also the most common gauges for metal roof and metal wall building applications. Sometimes spelled as gage.

Gloss and Sheen - Gloss and sheen are two terms used to describe how well a surface reflects visible light. Gloss is measured at a 60° angle from the surface, while sheen is measured at 85°.

Graffiti Resistance – Graffiti resistance, for Steelscape applications, refers to a painted metal wall surface in which aerosol or marker-based graffiti can be removed from the surface.

Inert Catchment – When acidic rainwater, created by certain environmental conditions, creates corrosion in areas downstream of the water catchment surface such as gutters and downpipes. Avoided by ensuring the correct material is selected relative to its environment.

Pressure Mottling – Uneven or irregular gloss visible on painted steel (often in a splotchy or speckled pattern) due to variation in the pressure applied to the painted surface of the metal when it is stored in coil format. Typically a temporary condition that will dissipate with time.

LEED - Leadership in Energy and Environmental Design (LEED), is a green building rating system developed based on a pre-developed framework for healthy, efficient and environmentally sustainable structures.

Light Reflectance Value (LRV) – Light Reflectance Value measures the amount of visible or usable light that reflects from a surface. LRV is expressed as a percentage from 0 to 100; the higher the number the more visible light that is reflected. Used for both metal roofs and metal walls.

Mechanical Seam – Mechanical seam refers to metal roof products where the seams are mechanically attached together by 'rolling over' one seam with another by hand using special tools or with a mechanical seamer. This offers superior weather tightness and product performance in extreme environments.

Metallic Coating – Metallic coating refers to the process of applying additional metal elements, typically Zinc (galvanizing) or Aluminum and Zinc (ZINCALUME® or Galvalume®) to steel to improve corrosion performance of metal roofs and walls.

Mica – Mica is a specially formulated pigment that is added to paint for metal roofs and metal walls to create a sparkling or light-catching effect. This creates the effect of metal flakes in paint but with higher durability.

Oil Canning – Oil canning is a visual phenomenon seen as waviness or distortions in the flat surfaces of metal roofing and metal siding products. This effect is created by a range of different factors including stresses in the base material, improper fastener pressure, misaligned panels, and thermal expansion.

Pre-painted Metal – Pre-painted metal is the continuous process of coating steel rolls, called coils, with paint (also called coil coating). This type of metal is used in metal roofs and walls. The paint that is applied to the metal before it is formed into a finished product by a product manufacturer is called pre-painted metal.

Paint – Paint refers to the film applied to a surface to achieve a desired aesthetic and to protect the material underneath. Metal roof and wall paints typically consists of resins, solvents and pigments. Pigments add color, resins are the binder and add physical and chemical attributes, and solvents dissolve this combination into a liquid form.

Paint System – The paint system consists of a combination of the different painted layers, namely the pretreatment, primer and top coat to create a total finish solution. Paint systems can be modified to achieve different aesthetic or performance characteristics.

Polyester Paint – Polyester Paint is the most economical metal roof paint system and offers the lowest level of UV resistance when compared to SMP (Silicon Modified Polyester) and PVDF (Polyvinylidene fluoride) systems. Versatile and easy to form, their paint structure can be modified to suit a wide range of performance qualities and their flexibility means they can be offered in a variety of color and gloss options.

Pre-treatment – Pre-treatment refers to a coating process applied before painting in which the surface of the metal is cleaned to improve paint adhesion attributes to improve the longevity of painted metal roof and wall products.

PVDF (Polyvinylidene fluoride also known as Fluorocarbon or Kynar 500® and Hylar 5000®) - Polyvinylidene fluoride (PVDF) is the highest performing of the three common metal paint systems. It offers exceptional chemical, chalk, and fade resistance and can resist degradation when exposed to aggressive weather elements such as urban grime, air pollutants, salt, high temperatures and humidity. PVDF can be used on a wide range of preformed shapes, which is why they are often used for high-end architectural and high-profile commercial metal roof and wall projects.

Primers – Primers refers to a coating that prepares the substrate for painting by providing ‘bite’ for adhesion and directly supports topcoat color and flexibility. Primers also provide corrosion resistance for metal roof and wall products.

Reverse Impact Test – A reverse impact test is a stress test that is performed to determine if any paint adhesion is lost through a direct impact from the underside of the material. Like the T bend test, this simulates final forming into the finished metal roof and wall product.

Roll Forming – Roll forming is the process used to manufacture the majority of metal roof and wall products. A continuous production process where material is fed through a series of progressive rollers to form it into a finished state. Enables the end panels to be manufactured to desired end user’s length.

Self-Healing Properties – In metallic coatings such as ZINCALUME® or galvalume, the galvanic action causes the zinc compounds to automatically build up at cut edges and scratches by an electrolytic reaction when water or moisture is present, slowing the rate of corrosion. This effect is sometimes referred to as “self-healing”. These properties are more pronounced on a factory cut edge with a shea, in which it is smooth and consistent (compared to field cutting), as it essentially folds the Zincalume coating over the exposed raw edge of the base steel.

Silicon Modified Polyester (SMP) – Silicon Modified Polyester is a paint system with a different resin structure to improve their UV resistance qualities compared to traditional polyester systems. SMPs offer a greater resistance to chalk and fade compared to traditional polyester systems and commonly used in residential metal roof applications.

Slitting – Slitting is a manufacturing process in which the width of a metal coil is trimmed to a desired size, or in which one metal coil is slit to form multiple narrower coils for use in metal roof and wall products.

Snap Seam or Snap Lock Roofing – Snap Seam or Snap Lock Roofing is a type of standing seam metal roof profile which typically have a nailing flange to affix the profile to the roof deck and the seams snap together to form the interlock.

Solar Reflectance (SR) - Solar Reflectance refers to the amount of solar radiation reflected off a metal roof or wall surface. This is expressed as a percentage between 0-100%.

Solar Reflectance Index (SRI) – Solar Reflectance Index is the most common index used to measure the reflectivity effectiveness of a color for a metal roof or wall. The consolidated value calculated from solar reflectance and emissivity with factors such as air flow considered. The higher the value the greater the reflectance. This is expressed as a range so that a standard black surface has an initial SRI of 0, where as a standard white surface has an initial SRI of 100.

Spangle - Spangle is a term to describe the distinctive finished appearance of unpainted ZINCALUME® steel as commonly used in metal roofs and walls.

Stamped Metal Tile, Shake, or Shingles – Stamped Metal Tile, Shake, or Shingles refers to the modular metal roof products manufactured using a stamping process to take on shapes of traditional roofing materials.

Standing Seam Roofing – Standing seam roofing is a common metal roof type for both residential and commercial applications. The seam, is the vertical rib which interlocks between each profile and is raised from the flat base pan of the panel. The fasteners that attach these panels to the structure underneath are covered in the installation process, which is why these profiles are also called **concealed fastener** roofing profiles. Standing seam reflects one continuous piece from ridge to eave and are available in a variety of widths from 12” up to 20” and beyond.

Striation – Striations refers to the small ridges formed in flat areas of metal surfaces used to reduce the visual impact of oil caning in metal roof and wall products.

Swarf – Swarf refers to the small metallic filings created when metal roofing or siding products are pierced or cut with friction saws, abrasive discs, or drills. If these tiny particles are left on a metal surface, they can corrode and cause rust stains.

T Bend Test – The T Bend Test simulates forming of metal into metal roof and wall products and assesses the flexibility of painted metal. During this test, a bend is formed in the test sample and inspected for any cracking.

Tension Leveling - Tension leveling is an in-line process on both Steelscape metallic coating lines and the Kalama Pickle Line, which induces tension into the strip in excess of the yield strength. Tension leveling results in a flatter product with improved properties for subsequent forming into metal roof and wall products.

Toll Forming – Toll forming is the process of coating or painting metal in which the base metal is provided or owned by the end user.

Top Coat – The top coat refers to the top painted layer of metal which provides metal roofs and wall with the visual color, offers protection from the outside elements, in addition to durability, and weatherability.

TruZinc® - TruZinc® is the terminology used to refer to Steelscape’s computer controlled galvanizing process for metal roof and wall products.

Wet Stack Corrosion – The creation of corrosion or blistering to the surface of metal when stored in stacks and bundles. Due to trapped water between metal sheets, the capillary action of water through metal ends or other exposure to moisture due to the improper storage of the metal.

White Rust – The presence of a white, chalky substance on the surface of bare galvanized products. Typically occurs when new galvanized products are exposed to moisture or condensation before the zinc coating has stabilized.

Yield Strength - Yield strength represents the stress at which materials transition from elastic to plastic deformation. Once a material has been loaded past its yield point, it is permanently deformed making it unsuitable for use in metal roof and wall products.

ZINCALUME® (Galvalume®) - ZINCALUME® refers to a metallic coating consisting of 55% Aluminum and 44% Zinc to offer superior corrosion resistance. Coatings using the aluminum-zinc alloy offer a number of advantages to zinc alone. Aluminum is inert and provides a protective rather than sacrificial barrier compared to zinc. This combination is the common industry standard used for metal roof and wall products.