SCOTT PAINT SOLUTIONS

PAINTING NEW GALVANIZED METAL

Protecting raw steel by dipping it in a hot solution of zinc metal, “galvanizing”, was a major advance in preventing rust and corrosion from attacking the steel prematurely. However, the protective zinc layer in galvanizing can be difficult to prime and paint because of the extreme reactivity of zinc metal. This Solutions sheet will guide you in painting the most common forms of galvanized metal that you will encounter in Florida’s architectural marketplace, but is not to be considered a complete guide as to the more heavy duty uses of industrial galvanized painting.

A successful finished paint system starts with knowing what type of “galvanized” metal treatment you are painting. The four types most commonly used are: Molten Zinc, Galvanneal, Bonderite G90 and Galvalume. Acryzinc and Acrylume, Molten Zinc, and Galvanneal, respectively, are coated on both sides with a thin film (0.3-0.5 mils dry) of a hard water-based acrylic clear that contains corrosion inhibitors and provides lubricity for rollforming.

Good surface preparation is essential for coating applications over molten zinc galvanized surfaces. Within days after production, powdery films of oxides and hydroxides begin to form on the surface, causing the galvanized surface to be extremely reactive and very difficult to paint. The powdery films can be removed by sweep blasting, solvent or alkaline detergent wiping, or chemical cleaners on the market specifically formulated for preparing galvanized surfaces. Sweep blasting, when done correctly, is one of the best methods of preparing zinc galvanized metal for painting. Major drawbacks are its cost, and it requires a good deal of expertise to do a good job. Excessive blasting can result in too much zinc being removed, exposing steel, and too little blasting will not remove the oxide film. Chemical etching by weak acids or other chemicals should not be used because the etching cannot be controlled, and will often remove excessive thickness of the galvanized coating.

For the best results, all zinc galvanized metal should be exposed to weather for at least 60 days. During the weathering, a film of zinc carbonates forms, which is essentially inert, slightly water soluble, and highly adherent. The only surface preparation needed is a warm water power wash (less than 1450 psi) to remove loose particles and dirt.

There are two galvanized products that are designed to be painted directly, “Galvanneal” and “Bonderized G90”. Galvanneal is a zinc-iron alloy and has a dull matte appearance that accepts paint very well without pretreatment. The zinc coating weight is about 1/3 of the Bonderite G90 treatment, and is usually used in interior applications. Bonderite G90 is treated with zinc phosphate at the galvanizing line and is used in exterior applications. Neither of the above need to be exposed or treated before coating, but do need all oil, grease and/or dirt to be removed before painting.

Galvalume has a zinc-aluminum coating on the steel that provides better corrosion resistance and longer durability than zinc galvanized steel. The pretreatment for painting Galvalume is the same as painting zinc galvanized steel.

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There are basically three Scott primers that can be utilized to successfully prime galvanized metal, in a light architectural setting or in heavy duty industrial areas. They are Scott Aquaseal Latex Surface Conditioner #692 White, Scott Hydron Industrial Acrylic Metal Protective Primer #4000, and Scott Encapsulon™ Surface Tolerant Epoxy Mastic Primer #931 White. Use Scott Aquaseal #692 White or Hydron #4000 on your typical architectural galvanized areas such as ceilings, drip stops, trim strips, down spouts, and duct work. Use Scott Encapsulon™ Epoxy Mastic #931 over heavy duty applications such as storage tanks, structural members, and galvanized parts that are exposed to heavy weathering, and caustic or acidic chemicals. #931 Encapsulon™ should be used over aged, rusted galvanized metal. Applied at 6-8 mils dry, Encapsulon™ has the adhesion and rust inhibition properties to protect rusty, weathered galvanized metal.

On architectural buildings, the Scott Aquaseal Latex Surface Conditioner #692 White or Scott Hydron Industrial Acrylic Metal Protective Primer #4000 may be topcoated with virtually any 100% acrylic topcoat such as Scott Ultra 100% Acrylic Velvet Supercoat #420, Semi-Gloss #430, or Gloss #440. Scott Allgrip Semi-Gloss #435 or Gloss #445 are also excellent. Over Encapsulon™ #931 in heavier duty atmospheres, Scott-Thane #7500 Two Component Aliphatic Acrylic Urethane Gloss Enamel is recommended as the most durable, gloss retentive paint available, but the Ultra or Allgrip lines are also excellent.

Warning:
Under no circumstances should galvanized metal, primed or not, be coated with any alkyds or alkyd polyurethanes. For most general uses Scott Aquaseal Latex Surface Conditioner #692 White and Scott Hydron #4000 are the primers of choice to ensure good adhesion and durability of the top coat on most Florida buildings. Scott Encapsulon™ Epoxy Mastic Primer #931 will provide a base for all other heavy duty, chemically exposed, or rusted weathered galvanized metal.

For painting old, rusty galvanized metal, see the Solutions sheet on How To Resist Steel Rusting. For further information contact your nearest Scott Paint store to discuss your particular situations and needs.

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