

# Paint Matters - Tips for Coating Galvanized Metal

Newly galvanized metal is a difficult substrate to coat because it is shiny and smooth with virtually no anchor pattern. Attempting to coat an un-dulled and excessively smooth galvanized surface will typically result in coatings failure, especially when these surfaces are not adequately primed.

The story below highlights the consequences of using a high quality topcoat, without considering the role of priming and surface preparation.



Chipping paint reveals neither primer nor surface preparation on underlying galvanized surfaces

Galvanized steel parts were used in various places around the exterior of a shopping mall. To achieve the aesthetic vision of the project, these pieces were topcoated with a high performance latex to ensure long-lasting performance.

After 5 years of service, some wear and tear (chalking, fading) of the topcoat can be expected, however the mall owner was not prepared to witness large pieces of paint peeling off and flaking down to bare metal.

Convinced that the failure was not related to the high performance latex topcoat, an inspector was called in to determine the cause of failure.

Inspection revealed that no primer had been used before the high performance latex topcoat was applied.

Typically the primary role of a primer in an exterior metal coating system is corrosion resistance; however this is not the case for galvanized surfaces. The zinc galvanizing acts as a protective coating for the metal, so the main role of a primer in a galvanized metal coating system is to bond to the surface while promoting adhesion for the topcoat.

Although the lack of priming may have contributed to the coating failure, further analysis found that a lack of surface preparation was likely the primary cause. By examining the surface, the inspector found that the galvanized metal was still shiny and smooth, indicating that no preparation was used to roughen the surface.

This failure could have been avoided if the newly-installed galvanized structures had been washed down with an etch primer (such as those listed under [MPI# 25](#)) to roughen and dull the surface, was allowed to dry for one day, and then primed with a waterbased acrylic primer ([MPI# 134](#)) before applying the high performance latex topcoat, allowing the topcoat to fulfill its expected service life.

## Professional Tip

*A galvanized surface's appearance may be described by "spangle" size: the characteristic crystalline form exhibited by the solidified, hot-dipped zinc coating.*