

4. Prepainted Metallic-Coated Steel Sheet

GalvInfoNote

4.3

Repair Painting of Prepainted Metallic-Coated Steel Sheet

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Introduction

Prepainted Steel Sheet

Prepainted galvanized steel sheet products are made using the coil-coating process to apply a heat-cured paint to a metallic-coated steel sheet substrate. The two most common types of metallic coated steel sheet substrates used worldwide today are hot-dip galvanized sheet and hot-dip coated Galvalume® steel sheet. Refer to GalvInfoNote 4.1 for an introduction to prepainted sheet, and to GalvInfoNote 4.2 for recommendations on maximizing performance.

Coil-coated paint finishes on metallic-coated steel sheet building panels are designed to provide many years of problem-free service, with a minimum of maintenance. These paint systems are resistant to change and in most instances will not require touch-up or repair painting for a long period of time. While these prepainted finishes are much more durable and long-lasting than ordinary field applied paints, they will eventually change in appearance, perhaps by losing gloss or becoming discolored. If the service environment is more harsh and aggressive than the coating was designed to withstand, deterioration of the paint coating may occur sooner than might normally be expected.

The degree to which the paint has changed in appearance, and the requirements of the owner of the building, will determine when repainting is required. This GalvInfoNote provides suggested guidelines and practices to be followed when it has been decided that prepainted building panels are

to be repainted. It is also recommended that the services of a qualified painting contractor be engaged.

The information in this GalvInfoNote does not apply to new or insufficiently weathered coil-coated paint finishes. These surfaces do not easily accept field painting. Paint manufacturers should be contacted for advice on repainting new or insufficiently weathered prepainted steel sheets.

Touch-up repair painting may sometimes be required to restore small areas of paint damage. **This GalvInfoNote does not apply to touch-up repair.** What looks like a good color match when freshly painted, may turn into a very poor match after weathering. Consult a paint manufacturer for advice on touch-up repair painting of prepainted steel sheet. Another information source for information on touch-up painting is the Metal Construction Association website page on this topic. The link is:

<http://www.metalconstruction.org/Tech-Resources#air-dry-touch-up-paint>

Surface Preparation

Cleaning

In order to assist with good paint adherence, it is necessary to thoroughly clean prepainted metallic-coated sheet building panels prior to repainting. In fact, it is recommended that coil-coated finishes on buildings be cleaned routinely using the procedures outlined on page 7 in GalvInfoNote 4.2. By doing so, surface dirt is not allowed to build up, which helps to prolong the life of the finish. **Sometimes a thorough cleaning of building panels thought to require repainting will restore panel finish to the point that repainting is not required.**

Any mildew present on the panels can be cleaned using the procedures in GalvInfoNote 4.2. After cleaning it is important to **thoroughly** rinse the panels with clear water to remove any cleaner residue that may be present. These residues will interfere with proper adhesion of field applied paints.

Surface Imperfections

Minor scratches that have not exposed the metal substrate should be lightly sanded to provide a smoother surface for repainting. It is important to not to expose any of the substrate. Exposed substrate

will require application of a primer as described in the next section. Deep scratches and other major imperfections that have exposed large areas of bare metal, or are badly corroded, should be replaced.

Bare Metal and Rusting

Bare metal must be treated prior to repainting to improve corrosion resistance. If the mill hot-dip metallic coating is not present or is badly corroded, serious consideration should be given to replacing the panels with new material. If it is decided to paint over rusted panels, remove all traces of corrosion products (red, white or black rust) by vigorous wire brushing, taking care to not to remove any of the hot-dip metallic coating. Clean and remove all loose debris. Lightly sand all edges of the areas to be repainted. All exposed metal should be painted with a high quality bare metal primer¹. Be certain to follow all instructions offered by the manufacturer of any bare metal primer that is used.

Intercoat Adhesion - Testing

It is important to achieve good intercoat adhesion between the coil coated finish and the new finish coat or peeling may occur. Before proceeding with the repainting work it is strongly advised to perform an intercoat adhesion test. Below are two test procedures that can be followed, depending on the topcoat.

1. Enamel finish coat – Clean a small area representative of the surface to be repainted. Apply a coat of the field repaint enamel according to the manufacturer's instructions. Allow the test area to thoroughly dry – at least overnight. When dry, firmly apply about 8 inches of gray "duct" tape onto the repainted area while firmly holding the free end of the tape. Rapidly pull and remove the tape from the test area. Examine the underside of the tape. If any paint adheres to the tape then additional surface preparation is necessary.
2. Latex finish coat – Clean a small area representative of the surface to be repainted. Apply a coat of the field repaint latex according to the manufacturer's instructions. Allow the test area to thoroughly dry – at least overnight. Use a utility knife to cut a 2-inch "X" into the repainted test area. Place a 3-inch strip of "Scotch" tape over the "X" and rub 10 times with heavy pressure. Leave one-half inch of tape free for easy removal. Pull the tape back over itself at a 180° angle. Examine the tape and the panel for any signs of latex paint removal. If the tape removes more than 1/16" of the repaint latex from the "X" cut, or if any paint is removed from the test area, then additional preparation is necessary. (This test procedure is based on ASTM A3359 – Method A)

Additional Surface Preparation

If recleaning the surface does not result in a satisfactory intercoat adhesion test, then it may be necessary to roughen the surface with a 400 mesh abrasive or a green 3M Scotchbrite[®] abrasive pad. Professional power washing can also be used. **It is extremely important that the suitability of any power washing process be verified on a small area before washing the entire surface. Be certain that either process (sanding or power washing) does not damage or strip the prepainted finish to expose bare metal.** These procedures are not recommended, or necessary, for plastisol coatings.

Repainting Procedures

Once the surfaces have been prepared and tested for adhesion, they must be coated within 24 hours with the field applied topcoat.

The surface must be completely dry prior to repainting, which should not be done in the early morning when dew is still present on the panels. Do not paint when the ambient temperature is below 50°F [10°C].

Follow the instructions of the paint manufacturer for applying the topcoat. Usually the aim is to achieve a dry paint film thickness of 1 mil.

¹ PPG Galvanized Steel Primer[®] 6-209 or equivalent primers designed for adhesion to galvanized surfaces.

Summary

Factory painted building panels have a proven performance record in providing many years of satisfactory performance. When their appearance eventually does begin to suffer, they can usually be refurbished and given a fresh appearance by repainting, using the recommendations in this GalvInfoNote.

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