Metal Construction Association

Metal Panel Field Repainting

The factory applied coating on metal siding and roof panels is a baked-on finish designed to provide trouble-free performance for many years with minimum service required. When repainting metal siding and roof panels care must be taken to prepare the factory applied finish and to assess the adhesion between this surface and the coating to be used to repaint the panels.

Polyester factory-applied coatings are standard technology and present the least difficulty in repainting. Polyvinylidene fluoride (PVDF) and plastisol factory applied coatings require special precautions.

SURFACE PREPARATION

Before any repainting process can begin the following procedures should be followed:

DIRT, LOOSE CHALK AND MILDEW MUST BE REMOVED

a. ***Polyester coatings*** should be washed with a mild solution of detergent or household ammonia. Use a solution of one cup of common detergent, containing less than 0.5% phosphate (example - "Tide"), dissolved into five gallons of warm water. A solution containing one cup of household ammonia dissolved into 5 gallons of water (at room temperature) will also aid in the cleaning of dirt, mildew and chalking. Solvent containing cleaners (examples "Fantastic" or "Formula 409") and detergents with greater than 0.5% Phosphate may be used if mildew or other fungal growth resists the milder treatments.

b. ***PVDF and Plastisol*** coatings should be washed as above with the exception that solvent containing cleaners should generally not be used. If solvent containing cleaners are used, a small area should be tested before general application; contact should be limited to ***five minutes***

Following the above cleaning processes, the metal panel surface must be thoroughly flushed with water to remove any residual cleaning agents. Any cleaning agents left on the metal panel surface will damage the adhesion of the newly applied paint system.

SURFACE IMPERFECTIONS

Minor scratches, which have not exposed the substrate, may be lightly sanded or buffed to create a smooth surface for repainting. Care must be taken not to expose the substrate. If the substrate becomes exposed, refer to paragraph 3)

EXPOSED METAL AND RUST

Exposed metal must be treated to prevent rust from developing. A light sanding of the exposed, unrusted area should be followed by application of a high quality primer. Special care must be exercised to avoid the possibility that solvents (example - NMP or acetone types) in some primers may delaminate the factory applied PVDF and plastisol finishes.

If either red or white rust is evident, it should be totally removed by scraping or brushing followed by a light sanding and the application of a high quality primer. Care must be taken not to destroy the metal coating on the steel substrate.

TESTING FOR ADEQUATE INTERCOAT ADHESION

Repainting should not be done until after the intercoat adhesion is known to be acceptable. Unacceptable intercoat adhesion could result in delamination after long term exposure.

The following test can be used to determine the intercoat adhesion of a repaint material to a well prepared factory-applied coating.

Equipment:

+ Sharp utility knife
+ Scotch #610 Cellophane Tape

Procedure:

Step 1 After properly cleaning and preparing the surface to be repainted, repaint a 4" x 4" area with the repaint material according to the manufacturer's instructions. Allow to dry completely before proceeding.

Step 2 Use a utility knife to cut a two-inch "X" into the repaint coating.

Step 3 Place a three-inch strip of Scotch #610 tape over the "X" and rub with heavy pressure, leaving one half-inch of tape free for easy removal.

Step 4 Pull the tape back over itself at a 180 degree angle.

Step 5 Examine the tape and the panel for signs of paint removal.

REPAINTING

Evaluation of Test Results

If the tape removes more than 1/16" of the repaint material from the "X" cut, or if any material is removed from the face of the panel, the intercoat adhesion is inadequate for repainting. Do not proceed to repaint the panels since long term adhesion failure would be likely. Determination that acceptable intercoat adhesion has been achieved is the responsibility of the repainting contractor.

ADDITIONAL SURFACE PREPARATION METHODS

A layer of factory applied wax is often applied to protect the metal panels during forming and transit. Failure to remove this wax layer will result in poor intercoat adhesion and the probable peeling or flaking of a new coating. After washing the metal panel, the wax can be removed by wiping the surface with a clean cloth saturated with an industrial solvent (example - Xylene). An industrial solvent will facilitate the removal of the wax layer and assure maximum intercoat adhesion. After solvent cleaning, the acceptability of the intercoat adhesion of the cleaned metal panel must again be determined.

If intercoat adhesion is still unacceptable, it will be necessary to 'rough-up' the panel surface by light sanding (#400 grit sandpaper is recommended) or power washing. Care must be exercised so that the factory applied finish is not removed during this process. Building panels must be repainted within 24 hours after the surface preparation is completed.

MIXING AND REDUCTION

The paint must be thoroughly mixed before using. Mechanical mixing is recommended to assure that no settlement remains in the bottom of the container. Paint can be reduced for spraying by adding a solvent (example - xylene) to the paint and mixing thoroughly. The recommendation of the paint supplier concerning the use of specific solvents should be followed. The use of more, or less of the solvent recommended may be required depending upon the temperature conditions at the job site and application equipment used.

APPLICATION

The metal panel surface should be completely dry before starting to paint. Painting should not be done in the early morning and should not be done at job site temperatures less than 50 degrees Fahrenheit. Paint application should be at the rate recommended by the paint manufacturer. Excessive or heavy film application thickness can result in cracking or wrinkling.

COVERAGE

The application of paint at the rate of 1.0 mil dry film should result in approximately 400-500 square feet of coverage per gallon. This assumes minimum application losses. Some spray equipment and application methods can result in significant losses (up to 50%) which should be considered in estimating paint requirements.

CLEAN-UP

The solvent recommended by the paint manufacturer should be used to clean all equipment.

This technical bulletin has been distributed, prior to publication, for review and comment by those organizations believed to have a direct interest in and knowledge of the subject matter.

Metal Construction Association

ISSUED 7/97

11 S. LaSalle St. ■ Suite 1400 ● Chicago, IL 60603
(312) 201-0193 ▲ Fax (312) 201-0214
or P.O. Box 697 Chicago, IL 60690-0697

TB 1051