

Painting Hollow Metal Products

Hollow metal doors, frames, and related products are fabricated from hot-rolled, cold-rolled, zinc-coated, or stainless steel. Stainless is typically not painted and therefore not referred to in this tech note. Hot and cold-rolled steel are supplied either dry or oiled and require treatment prior to painting. Zinc coated steel is either galvanized or galvanized. Galvanized steel is manufactured suitable for immediate painting without further treatment other than normal cleaning. Galvanized steel requires treatment prior to painting. Refer to HMMA 802, "Manufacturing of Hollow Metal Doors and Frames" for more information.

Hollow metal products must be stored in a manner to prevent exposure to adverse environmental elements. Refer to HMMA 840, "Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames" for more information. Primer protects the uncoated base metal and provides the bonding agent required for the finished paint. It is very important that the primer is protected and cleaned prior to the application of the finish coat of paint. Primer manufacturers advise that the primer receive a finish coat within 30 days of delivery.

Exposure to elements, such as high humidity, salt air, snow, rain, damp wrappings, etc., without proper protection and air circulation, allows moisture to be absorbed by the primer. Once this occurs, with the presence of oxygen, an electrolytic action follows. Moisture travels between primer and the metal surfaces in a capillary action, deteriorating primer adhesion. Eventually this can result in water stains, rusting, flaking, lifting, or peeling. When paint flakes, lifts, or peels, rusting is not always evident. Typically these areas have not been in constant contact with the elements, but moisture has traveled under the primer.

Breakdown of the primer adhesion can be caused by incompatibility with the finish coat of paint resulting in the same conditions as listed above. Care must be taken to ensure compatibility of primer and any top coat. A small area test is always recommended to verify compatibility and adhesion. In some instances, a barrier coat between primer and top coat is necessary. Consult finish paint manufacturer's instructions.

Different paint problems have different solutions. Depending on the severity of the problems, sanding, sanding to bare metal, cleaning to remove contaminants, and re-priming can be necessary.

The selection of paint is also a consideration. Manufacturing marks are not always visible with a flat low gloss primer but can appear after a gloss finish coat is applied. The use of high gloss paint will increase the show through tendencies and is not recommended. A maximum paint gloss rating of 20 % reflectance, measured using a 60 degree gloss meter, would be the standard recommendation. Select a commercial direct to metal, (DTM) quality paint.

It is extremely important to follow the finish paint manufacturer's instructions. It is important to avoid painting in extremely hot, cold, or damp weather. Ensure material being painted is clean and dry. Prior to finish painting, lightly sand primed surfaces with fine grit sand paper or emery cloth.