

METALLIC COATING APPLICATION

WHAT IS “FLIP”?

Flip is the apparent difference in colour of a metallic coating depending on the viewing angle. This phenomenon is entirely due to the alignment or orientation of the metallic flake pigment. When metallic coatings are applied by spray, the flake pigment aligns itself in a particular direction across the surface. The type of spray gun used, application (or atomisation) pressure, fan width, distance from the gun to substrate, angle of spray are all contributing factors to the orientation of the flake pigment. The result is that two panels sprayed at the same time with the same coating may appear identical but when one of the panels is turned upside down, they may then appear very different due to flip.

Flip is even more obvious when the metallic coating is applied by brush – every direction the coating is applied results in a different shade! This can be used to great effect, however, but the designer must ensure that the application method is reproducible, and that the applicator provides a site sample for sign-off.

APPLICATION OF METALLIC FINISHES

For high aesthetics, metallic or flake pigmented coatings are best applied by spray in a controlled environment such as a specialised spray-booth. This will result in a uniform metallic appearance similar to an automotive finish.

Two-pack metallic coatings are usually polyurethane based, which rely on an isocyanate hardener to cure. The use of these materials is controlled by local regulations or by State legislation. The applicator must use these materials in accordance with all local rules and regulations, paying particular attention to the wearing of Personal Protective Equipment while handling these materials.

Sometimes in-situ application is required. In these cases, the work must be carried out outside normal work hours to protect other trades. Extraction equipment must be installed to ensure spray vapours are removed during application, and good ventilation is essential at all times. Again, the wearing of Personal Protective Equipment while handling these materials is mandatory.

APPLICATION TO FACADE PANELS

When using metallic finishes on architectural facade panels, extra preparation work is required. Each panel should be clearly marked on the back to identify the direction the panel must be painted and erected. A simple arrow mark pointing up is sufficient. Each panel should then be painted and installed so that the directional alignment is the same for all panels. Failing to do so may result in panels being mounted in different directions, resulting in perceived variations in panel colour due to flip.



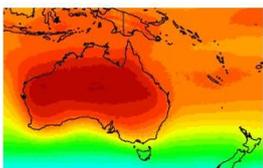
Applicator is applying a waterborne metallic paint by spray. Polyurethane paint requires far greater PPE, including full positive air-fed head gear.



This metallic coating exhibits very strong flip



Flip can be used as a decorative feature



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CAN METALLIC FINISHES BE REPAIRED OR “TOUCHED UP”?

Metallic coatings are quite difficult to repair aesthetically to achieve the same appearance as the original surrounding coating due to:

- UV degradation of the original coating. All organic coatings are degraded when exposed to UV light. Therefore, the longer a coating has been exposed, the harder it is to colour-match later.
- The metallic flake pigment is unlikely to achieve the same orientation in the newly applied area as the original, so the eye will perceive differences in colour.

In most cases, repairs to damaged metallic coatings are best achieved by fully repainting the surface area to surrounding borders or to the point where the angle of the substrate changes.

CAN METALLIC FINISHES BE APPLIED BY BRUSH?

Application by roller or brush generally results in a vastly different finish from that of spray application, as the metallic pigment particles are highly irregular in shape, and therefore inhibit the natural flow-out of the wet paint. For this reason, metallic paints exhibit higher brush-marking, roller-marking and stipple than other types of paint.

Normally, broad wall brush and roller application involves “cutting in” with a brush at the corners of each wall, and a roller to apply the paint over the area and up to and overlapping the brush-applied sections. The differences will be very noticeable and unattractive.

The brush application of metallic paint can be carried out to deliberately achieve a striking, aesthetically pleasing, special effect. A site sample should be performed exactly according to specification and with same the tools and techniques as to be used for the entire job and approved prior to commencement of work.

CAN METALLIC FINISHES BE APPLIED BY ROLLER?

No. A small area applied with roller can appear fairly uniform, but when the same metallic coating is applied to broad wall areas with roller, vertical “tramlines” (parallel lines caused by the delivery to the wall of slight excess of paint from each end of the roller), stop-start horizontal lines (caused by inconsistent speed of the roller) and stipple are obvious.

IS ANY SUBSTRATE SUITABLE?

No. Rough surfaces, such as unfinished concrete, provide poor bases for metallic coatings. The pits and pockets of rough surfaces cause the resins and solvents to pool in these areas, causing uneven distribution of the metallic flake pigment and a poorer finish. Smooth surfaces are ideal for sprayed metallic coatings, as the level surface allows uniform distribution of the metallic flake pigment.



Cutting in by brush creates a very different appearance compared with surrounding sprayed or rolled areas



Intentional brush marks can be used to striking effect, but is not everyone's idea of a beautiful finish. Ensure a site sample is performed to ensure you agree on the right technique to get what you expect.



Rolling results in tramlines and other inconsistencies of finish

For more information, please contact the Dulux Protective Coatings Technical Consultant in your state.