



## **ECCA Technical Note**

# **Colour Consistency and the Use of Prepainted Metal Panels on Buildings**

*Advisory guidance for architects, specifiers, contractors, installers, and building owners*

## **Introduction**

This document has been prepared as advisory guidance for users of prepainted steel and aluminium products in the construction sector. It reflects generally accepted European industry practice and is intended to support informed specification, procurement, installation, and use of prepainted metal products on buildings.

The guidance is not specific to any individual manufacturer, coating system, or proprietary product. It does not replace contractual documents, product-specific technical data sheets, or warranty conditions supplied by manufacturers. In the event of any conflict, project specifications, purchase contracts, and applicable warranties would take precedence over the old CPR to the new requirements.

## **1. Purpose and status of this guidance**

This document provides advisory guidance for users of prepainted steel and aluminium products on how colour should be specified, assessed, and managed on buildings.

It is aligned with the principles used in European product standards and with the way colour and appearance are typically addressed in coating warranties and guarantees.

## **2. Applicable European standards**

The manufacture, testing, and performance of prepainted metal products are covered by a number of European standards.

The following standards are particularly relevant when considering colour, appearance, and consistency:

- EN 10169 – Continuously organic coated (coil coated) steel flat products: establishes requirements for colour, gloss, and appearance at the time of supply.
- EN 1396 – Continuously organic coated aluminium strip and sheet: defines similar principles for aluminium-based products.
- EN 13523 (series) – Test methods for prepainted metals: provides instrumental methods for assessing colour, gloss, and durability.

These standards recognise that colour is supplied within defined tolerances and that small variations are inherent to industrial coating processes.

## **3. What determines the colour of prepainted metal panels?**

The perceived colour of prepainted metal panels is influenced by multiple factors all acting together. Whilst industrial coil coating processes are highly controlled, absolute colour uniformity is not technically achievable.

Colour is therefore supplied within defined tolerances rather than as a single fixed value. The key factors influencing colour appearance include:

- Pigment formulation, dispersion, and coating thickness
- Gloss level and surface texture
- Lighting conditions, viewing angle, distance, and orientation
- Metal substrate characteristics and reflectivity (for some products types only).



## **ECCA Technical Note**

# **Colour Consistency and the Use of Prepainted Metal Panels on Buildings**

*Advisory guidance for architects, specifiers, contractors, installers, and building owners*

### **4. Colour perception and viewing conditions**

The perceived colour of prepainted metal panels depends on lighting conditions, viewing angle, distance, and orientation.

Colour should always be assessed in natural daylight, from a representative viewing distance, and on a sufficiently large installed area.

### **5. Batch-to-batch colour variation**

Coil coating is a continuous process that is designed to produce large surface areas of coated material with uniform aspect, gloss and colour. Customers should order sufficient material to cover the building surface. The coil coater will then produce the required material in one production batch.

A production batch refers to material coated during a defined manufacturing run using a specific paint batch and controlled process conditions. Even when fully compliant with the relevant European standards, small colour differences between batches are normal and unavoidable.

As a general rule, material from a single batch should be used on each visible façade plane. Where more than one batch is unavoidable, batch changes should be aligned with architectural features such as corners, joints, or shadow lines.

For the customer, it is best practice to verify if different batches are present amongst the delivered volumes.

### **6. Use of panels from different batches**

In the event that the customer has material from different batches, the random mixing of panels from different batches on the same elevation is not recommended, as it significantly increases the risk of visible colour variation.

Any decision to use more than one batch on a façade should be considered at the design and procurement stage, not during installation.

Batch mixing should be avoided in particular for:

- Large, flat architectural façades
- Dark, saturated, metallic, or special effect colours
- High-gloss finishes
- Elevations viewed at shallow angles.

### **7. Specification, colour approval, and ordering**

It is best practice to obtain a sample, typically A6 or A4 in size, of the prepainted material prior to ordering in order to confirm the acceptability of the colour, gloss and overall appearance.

For visually critical applications, sufficient material should be ordered in a single production run for each elevation, including a reasonable allowance for waste and cutting.



## **ECCA Technical Note**

# **Colour Consistency and the Use of Prepainted Metal Panels on Buildings**

*Advisory guidance for architects, specifiers, contractors, installers, and building owners*

## **8. Installation practice and site assessment**

Panels should be installed in a consistent orientation and sequence. Rotating panels or altering installation direction can change light reflection and increase apparent colour differences.

Assessment of colour on site should only take place once a reasonable area has been installed and should not be based on close-up inspection of individual panels.

If different materials are used on the building e.g., powder coated window and door frames complete colour consistency and matching between these materials may not be possible.

## **9. Colour and appearance in warranties and guarantees**

Coating warranties typically confirm that the supplied product complies with the agreed durability, coating uniformity, and colour specification.

Warranties also define acceptable limits of colour change over time due to natural weathering, often expressed as a maximum  $\Delta E$  value over the warranty period.

Warranties do not normally cover:

- Absolute visual uniformity between different production batches
- Visual differences caused by panel orientation, installation practice, or lighting conditions
- Colour differences between weathered panels and later replacement material.

## **10. Weathering, ageing, and replacement panels**

All external prepainted metal products change gradually in appearance due to UV exposure, pollution, and orientation effects.

Different elevations of the same building will weather at different rates. Replacement panels installed at a later date will not exactly match the appearance of existing, weathered panels.

## **11. Key advisory messages for users of prepainted metal**

Batch control and façade zoning are the most effective ways to manage visual appearance. Minor colour variation within defined tolerances is normal and should be expected.

Colour assessment should reflect real viewing conditions and align with the principles used in the relevant European standards and warranties.

\*\*\*