

Storage Guidelines for Prepainted Metals

Introduction

Prepainted metal is widely used in some of the most demanding applications; however, as with all materials, to achieve the longest possible life and the best possible looks, a bit of care is needed in handling the material. There are two main elements which should be avoided in handling prepainted metal, and the guidelines given here are intended to help avoid both of these:

- Physical damage;
- Degradation, including corrosion of the base metal, caused by action of external agents (e.g. moisture) or by aging.

Prepainted metal is generally produced and delivered in coil form and so these guidelines start by looking at handling and storage of coil. For many applications, prepainted metal is subsequently cut, handled, and stored in sheet form, so further guidelines are given specifically for sheet.

A significant amount of prepainted metal is used for building panels,. The very nature of a building site makes storage and handling considerations very different; however, the same basic principles apply. For the sake of both the long-term durability of the product and to avoid immediate loss due to damage, it is important to take steps to avoid corrosion and damage to panels on building sites.

In all cases, this guidance should result in prepainted metal that arrives at its final use in optimum condition. Avoiding damage not only ensures long life and good looks, but can also prevent yield losses and remanufacturing costs. In some cases, it is not always practical to adopt all elements of guidance given here; therefore, the guidance has been split into the following:

- The essentials – there is no excuse for not sticking to this guidance.
- Best practice – follow this guidance as much as possible to get the most out of your prepainted metal.

This Tool Kit is part of a series of educational aids developed by the members of the National Coil Coating Association. NCCA is a trade association of coil coaters and suppliers of raw materials and equipment used in the coil coating process. The association concentrates its efforts on providing educational resources and assisting its members in providing superior products and services to their customers. NCCA Tool Kits are informational tools and should not be used as substitutes for instructions from individual manufacturers. Always consult with individual manufacturers for specific instructions regarding their products and equipment.

Coil Storage & Handling

The Essentials

Keep dry

Even with the best coating technology, the substrate metals used for prepainted metal (e.g., steel or aluminium) are susceptible to corrosion. When the metal is coiled, capillary action can cause water to creep between laps of the coil and stay there for prolonged periods of time. Even if coils cannot always be stored inside, care should be taken to keep them dry, including avoiding the possibility of condensation. Never rely on paper or plastic wrapping to keep a coil dry. These materials are not designed to keep out water and can even cause more problems by not allowing moisture to escape. It is always important to ensure good ventilation to avoid build-ups of water vapor and to ensure that any water has a chance to dry out.

Store coils on a clean, smooth surface

Coils of prepainted metal can weigh up to 20 tons and even small coils can weigh in excess of 1 ton. Any debris or unevenness will result in this weight being supported on a very small area. A small indentation on the outer lap can travel several laps into the coil and cause many feet of scrap. Ideally, dedicated storage facilities should be used, but it is always essential that a coil sit on a clean, smooth surface.

Avoid handling damage

Coils should be treated with care and never dragged. It is important that coil storage is arranged with plenty of space between coils to allow for movement without any risk of damage.

Use promptly

As with any material, the properties of prepainted metal change slowly over time. In particular, some products will harden over time, resulting in a loss of flexibility for forming. Also, if a protective strippable film is applied, the material needs to be used promptly to avoid the likelihood of adhesive residues being left in place. A good general guideline is to use all material within 6 months of manufacture. To help with this, a first-in-first-out (FIFO) stock rotation system is recommended.

Best Practice

Store inside

The easiest way to ensure that the material is kept dry is to always store it inside.

Store in a temperature-controlled environment

Even when inside, if the air temperature varies greatly, condensation can form on metal coils, which can promote corrosion, so it is best to ensure that the coil storage temperature remains reasonably constant.

Avoid condensation

If it is not possible to store coils at a constant temperature, at a minimum be vigilant to avoid rapid temperature changes (such as taking a coil from an unheated warehouse at 40°F to a heated one at 68°F) which could lead to condensation on the metal. This can particularly be true when coils are delivered straight into a heated warehouse, so it is essential that all coils are given good ventilation to remove any condensation as quickly as possible.

Use dedicated storage facilities

The best storage solution is to use purpose-made stillages with coil contact points which are either wooden, rubber or covered in felt. Stillages should be inspected regularly to ensure that they remain in good condition. The coil contact surfaces should usually form a V-shape to hold the coil adequately and prevent ovalization. If coils must be placed directly on the ground, it is best to use rubber or felt mats underneath which spread the weight. If coils are delivered on wooden pallets, these generally represent a good storage solution. It is often best to leave coils on the pallets until use; however, small, part-used coils sometimes do not sit on the wooden pallets as intended, so care is needed.

Avoid double-stacking of coils

It is often tempting to store a second row of coils on top of the first (double-stacking) or even to multiple-stack coils. This practice increases the likelihood of damage, because more handling is required, and also increases the weight on the bottom coils, increasing the possibility of indentations or pressure marking. Double-stacking also dramatically increases the risk of accidents with coils. For both reasons of safety and avoiding damage, double-stacking is to be avoided wherever possible. Coils stored with the bore vertical (so-called eye to the sky) can sometimes be safely multiple stacked on pallets, but it is essential in this case to ensure that the top cover of the coil will cause no damage and will allow the next coil to sit safely on top.

Use soft lifting gear

Coils will usually be handled by either crane or fork-lift truck. In either case, it is best practice to cover the lifting gear with a soft material such as felt or cardboard to help avoid damage to the inner laps. Chain slings should never be used.

Condition the material before using

Some prepainted metal products are designed to be processed at a certain temperature, for example, to ensure optimum flexibility. In these cases, it is important that the coil is stored at this temperature for at least 24 hours before use. It is always advisable to seek guidance from the supplier whenever using a new product.

Sheet Storage & Handling

The Essentials

Keep dry

As for coils, it is essential that stacks of sheets are kept dry. Moisture can easily be trapped between sheets by capillary action, and it is then difficult to remove that water. Corrosion can be rapid. Even if stacks of sheets cannot always be stored inside, care should be taken to keep them dry, including avoiding the possibility of condensation. Never rely on paper or plastic wrapping to keep sheets dry – these materials are not designed to keep out water and can even cause more problems by not allowing moisture to escape. It is always important to ensure good ventilation to avoid build-ups of water vapor and to ensure that any water has a chance to dry out.

Avoid handling damage

Sheets should be treated with care. It is important that storage is arranged with plenty of space to allow for movement without any risk of damage. When removing sheets from a stack, never drag them off since this can scratch the sheet underneath.

Use promptly

As with any material, the properties of prepainted metal change slowly over time. In particular, some products will harden over time, resulting in a loss of flexibility for forming. Also, if a protective strippable film is applied, the material should be used promptly to avoid the likelihood of adhesive residues being left in place. A good general guideline is to use all material within 6 months of manufacture. To help with this, a first-in-first-out (FIFO) stock rotation system is recommended.