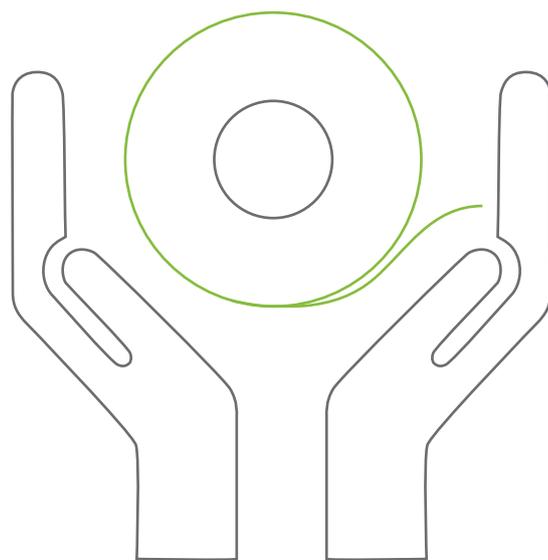


Storage Guidelines for Prepainted Metal



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This guidance is given by ECCA to help users to get the most out of their prepainted metal. This document represents best practice agreed across the coil coating industry. However, this does not in any way guarantee success and ECCA members may wish to suggest alternative storage methodologies for their specific products.

Introduction

Prepainted metal is used worldwide 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 or by ageing.

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 and so further guidelines are given specifically for sheet. Much prepainted metal is used for building

panels and 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 to damage, it is important to take steps to avoid corrosion and damage to panels on building sites.

In all cases, this guidance is intended to ensure that the prepainted metal 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 re-manufacturing costs. In some cases, it is not always practical to adopt all elements of guidance given here and so the guidance has been split into:

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

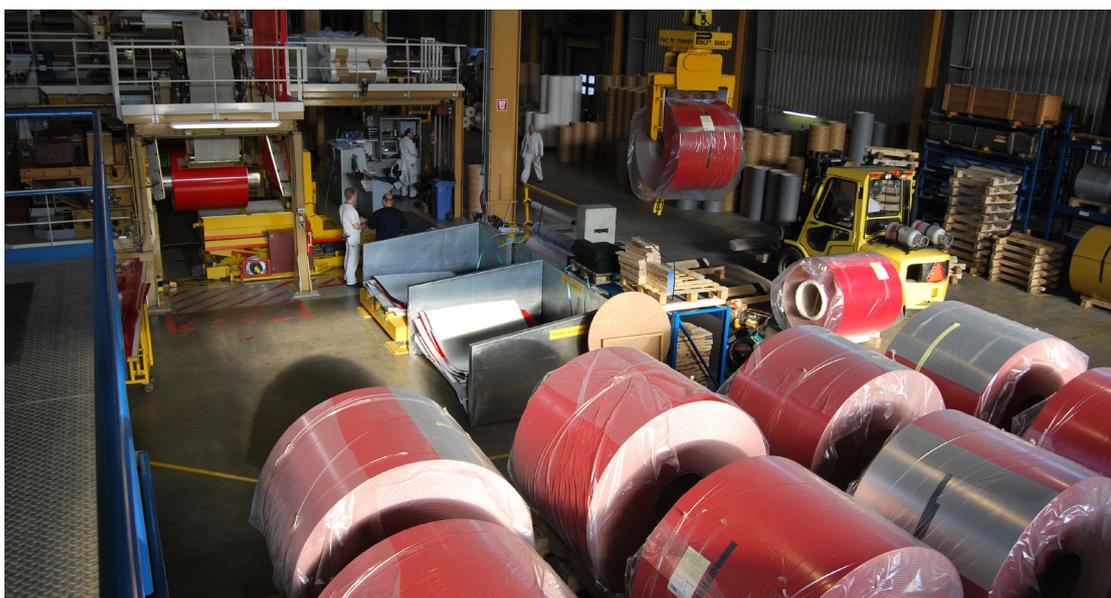


Photo courtesy of Euramax

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 fundamentally prone 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 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 vapour and 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 tonnes and even small coils can weigh in excess of 1 tonne. 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 metres of scrap. Ideally, dedicated storage facilities should be used, but it is always essential that whatever a coil sits on is clean and smooth.

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.



Photo courtesy of Jack Muller

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 using 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 and 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, then the operator should always be vigilant to avoid rapid temperature changes (such as taking a coil from an unheated warehouse at 0°C to a heated one at 20°C) 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 ovalisation. 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 and it is often best to leave them on the pallets until use. However, small, part-used coils sometimes do not sit on wooden pallets as intended, so care is needed.



Photo courtesy of Euramax

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, so 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 in avoiding 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 the 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.



Photo courtesy of ArcelorMittal

Sheet Storage & Handling

The Essentials

Keep dry

As for coils, it is essential that stacks of sheets are kept dry because moisture can easily be trapped between sheets by capillary action and it is then difficult to remove that water, so 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 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 vapour and 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 pre-painted 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 using 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 and to help with this a first-in-first-out (FIFO) stock rotation system is recommended.



Photo courtesy of Corus Myriad

Best Practice

Keep dry

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Store coils on a clean, smooth surface

Coils of prepainted metal can weigh up to 20 tonnes and even small coils can weigh in excess of 1 tonne. 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 metres of scrap. Ideally, dedicated storage facilities should be used, but it is always essential that whatever a coil sits on is clean and smooth.

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.



Photo courtesy of Euroclad

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Building Panels

The Essentials

Keep dry

Paradoxically, while the prepainted metal panels will be relied upon to resist the weather for the life of a building, it is on the building site where they are most prone to corrosion. As with coils and bundles of sheets, water can often penetrate between panels by capillary action and remain there even when surface water has dried out, promoting corrosion all the while. As there is often no natural rain-proof cover on a building site, it is particularly important that all steps are taken to keep panels dry.

Avoid damage

Building panels should always be treated with care. The exact shape of the panel has been designed to give a tight-fitting, weatherproof building envelope and any dents or kinks, particularly to the edge of panels, can affect the weathertightness of the final building. Moreover, scratches to the surface which may not appear significant at first sight can provide weak points in the coating which, over time, may cause corrosion, again hampering the weatherproofing of the building as well as being unsightly. Panels should be stored in a dedicated storage area away from the flow of people and machines, with plenty of separation to allow manoeuvring of fork lift trucks or other lifting gear. Panels should always be lifted with care to avoid damage to the edge as well as to avoid scratching and supported along the full length at all times to avoid distortions.

Use promptly

The longer the building panels are present on-site, the more likelihood of them being damaged. Additionally, corrosion is promoted by prolonged damp conditions, so one way to avoid it is to ensure that the building panels are on-site for the minimum time possible. This demands sophisticated ordering, delivery, stock rotation and overall project management. Where a strippable film is applied to the panel to protect it from damage, this should be removed as soon as feasible once the panel is mounted since the adhesives used tend to strengthen with time, and particularly in sun-light, making removal more difficult and increasing the likelihood of adhesive residues remaining on the panel which can lead to unsightly dirt retention. At the very latest, strippable film must be removed no later than 6 months after it's initial application or no more than 1 month after the panel has been fixed on the building.



Image supplied & is copyright of Kingspan Ltd

Best Practice

Store inside

The most reliable way of ensuring that building panels remain dry is to store them inside a weatherproof building, away from open doors or vents.

Store under cover

On many building sites, it is impractical to store panels inside. In this case, it is important to arrange a good covered area to store the panels. This could be done by erecting a scaffold frame and covering with a continuous, waterproof tarpaulin or sheet of plastic. Alternatively, a tarpaulin or other waterproof sheet can be draped over a bundle of panels, but in this case, it is important to ensure good air-flow all around the panels and that it is not resting on the top of the bundle by placing spacers between the top-most panels and the waterproofing. In any case, it is important to secure the tarpaulin or waterproof sheet all round the pack, again ensuring that a gap is maintained to promote air flow.

Store off the ground

Most bundles of panels will be delivered on wooden "skids" which should be maintained for storage of the panels. This will ensure that the panels do not come into contact with the ground and that there is adequate air-flow around them. Use of this packaging arrangement will also ensure that the panels are supported adequately along their full length. This is equally important for individual panels when removed from the main stack. Ideally, panels should be raised off the ground at least 30cm to ensure good air flow, no splashing and to minimise the risk of damage.

Store on a slope

While panels should always be stored on smooth, level ground, it is advisable to store them on a slight slope (3° – 5°) so that any water which might creep in will run off.

Lift with care

If panels or bundles are lifted with a crane, nylon slings should be used and never wire rope slings, however, this will always risk damaging the edge, so extra care must be taken. A better alternative is to use a specially designed spreader bar which ensures that the weight is taken at the right points. For sandwich panels, specially designed suction-cup devices are often used which support the panels well and minimise any risk of damage. If a forklift truck is used, the forks must be arranged to support the panel along its length, alternatively a spreader arrangement should be used. Where panels are handled manually, they should be lifted from the edge and carried upright with the long edge horizontal. For panels over 3m in length, two or more people should be used to support the panel and prevent buckling.



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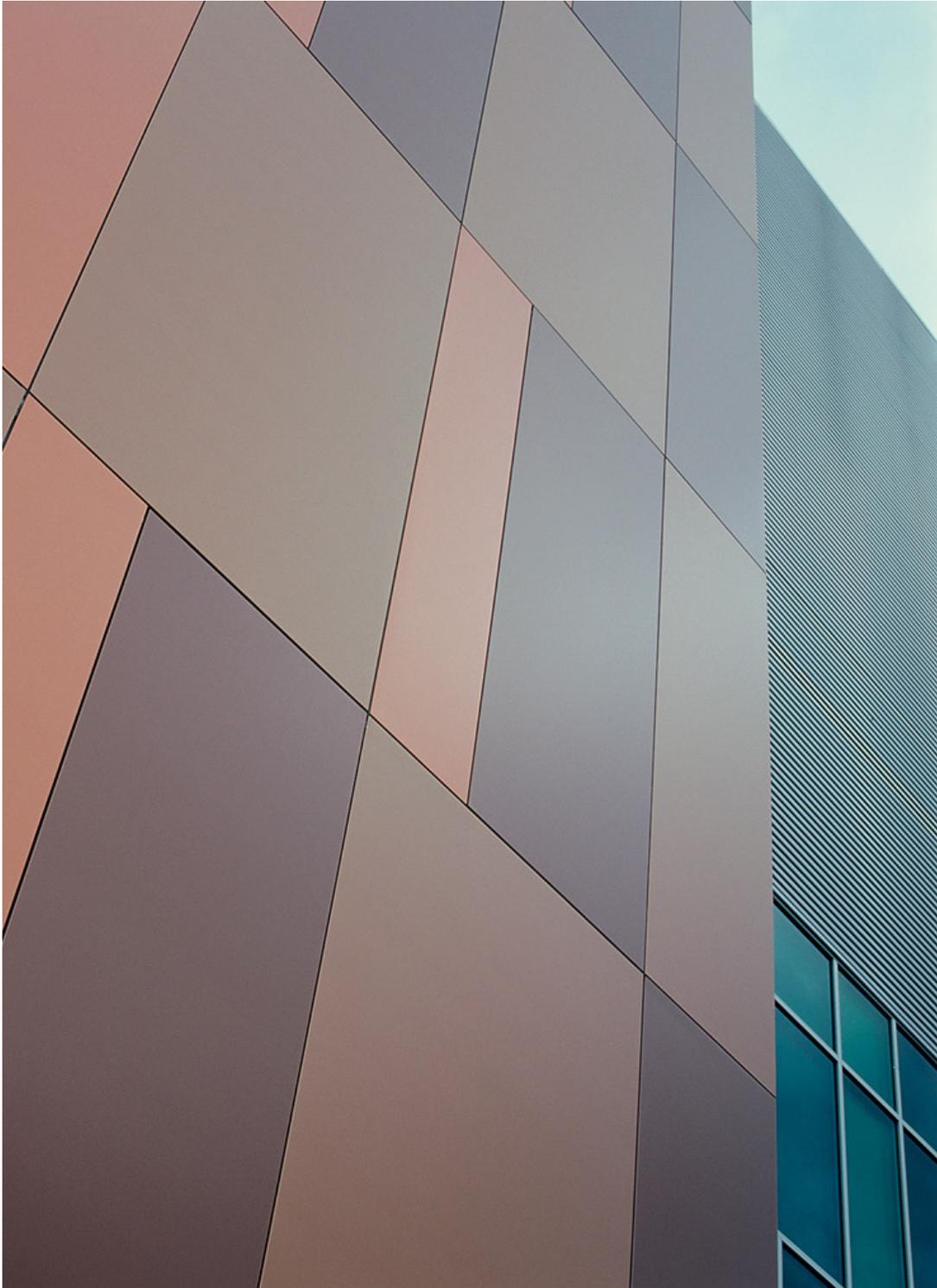


Image Courtesy of Hunter Douglas

ECCA MISSION STATEMENT

ECCA is dedicated to the promotion of the use of coil and/or sheet coated metal as the environmentally sound, the cost effective and the high quality method of finishing.

ECCA OBJECTIVES

Setting quality performance standards and developing test methods

Promoting the benefits of coil and/or sheet coated metal with particular emphasis on environmental, cost and quality benefits.

Stimulating product, process, application and market development

Increasing the awareness of coil and/or sheet-coated metal through professional marketing and by organising educational training programmes for non-users

Creating an industry network and forum for the development and exchange of ideas

Representation of the Industry in its contacts with Public Officials and Public Authorities

Providing liaison with other Trade Associations and Professional Bodies.

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