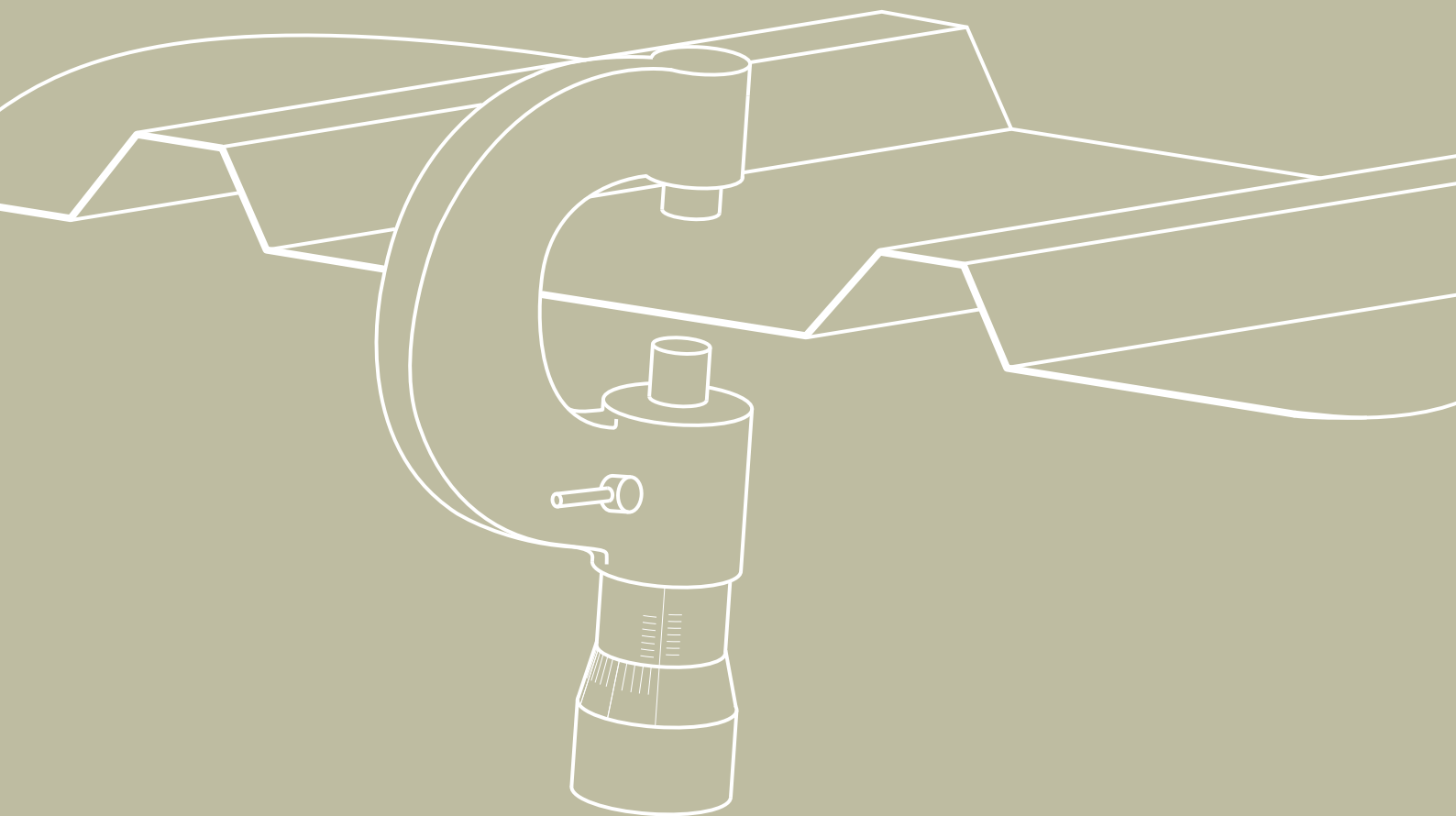




Corus Colors

Colorcoat® Technical Paper

The effect of gauge on pre-finished steel roof
and wall cladding performance



Corus and gauge

Corus have a long history of product development and the assessment of pre-finished steel roof and wall cladding systems used in the building envelope. Gauge plays an important role in the physical properties achieved by these systems and other ancillary building envelope components. Specifying Colorcoat® pre-finished steel will ensure that the correct gauge material is used and the integrity of these systems and products are not compromised.

There is much confusion as to the standard defining the tolerances for different grade, width and gauge of pre-finished steel. The guidance given here highlights the importance of using the correct gauge of pre-finished steel, the implications that using a lower gauge will have on the building envelope and how to clearly specify gauge.

Working together to provide guidance

Over the past 40 years, Corus have developed close strategic relationships with the leading roof and wall cladding system manufacturers and distributors. In developing the guidance contained in this Colorcoat® Technical Paper, Corus and the Steel Construction Institute have worked closely with CA Group, Corus Panels & Profiles, Eurobond, Euroclad and Tegral Metal Forming to assess the performance of the pre-finished steel roof and wall cladding systems and processed pre-finished steel sheet.

This close involvement with key leading suppliers of cladding systems and distributors of Colorcoat® pre-finished steel, such as Capital Coated Steel and Corus Colorsteels, ensures that the guidance given here represents the industry best practice.



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Overview

There can be some confusion over the measurement and description of the gauge of pre-finished steel coil and sheet used to construct the building envelope. Increasing financial pressures encourage manufacturers to use lighter gauge material and the implications of this on the design of the building envelope needs to be fully understood before final specification.

The gauge of the pre-finished steel coil or sheet plays a vital role in the physical properties of the roof and wall cladding system of which it is a part.

This Colorcoat® Technical Paper advises on the relevant standards and tolerances which should be used and how they should be applied. The properties of the profiled pre-finished steel cladding can

be affected by the choice of the nominal gauge and the impact of this extends beyond basic structural implications. Corus seeks to explain this along with any limiting criteria which must be satisfied. This paper combines knowledge from Corus and the Steel Construction Institute (SCI) with practical considerations from leading pre-finished steel profilers.

Gauge measurement, standards and tolerances

How to measure gauge

Pre-finished steel products are made up of a number of paint layers, which are applied to a metallic coated steel strip using automated controlled manufacturing processes. Each layer has a specific function to provide a durable and aesthetic product. The structural properties of the pre-finished steel sheet are determined by the steel substrate properties and gauge. Metallic coatings and paint layers are applied to a controlled defined thickness

but do not contribute to the mechanical properties of the pre-finished steel.

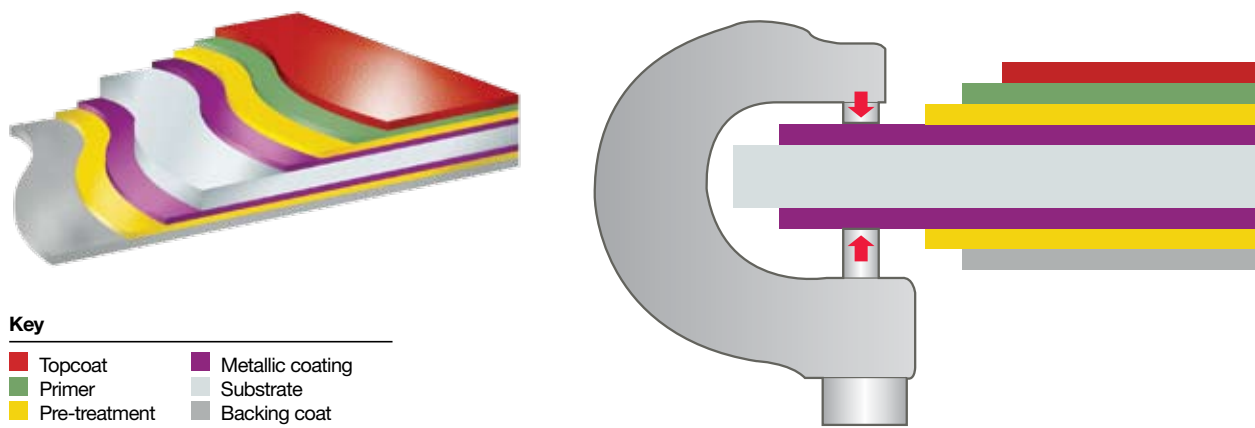
The actual gauge of a pre-finished steel product is measured using a micrometer and includes the steel substrate and metallic coatings, but excludes the paint and primer layers.

The only accurate way to carry this out is to actually remove the paint coatings from the area to be measured, prior to

measurement as shown in figure 1. The micrometer should be calibrated periodically against a verified standard.

In accordance with EN 10143:2006¹ measurements of the thickness of manufactured products, such as profiled sheets, should be made not less than 40 mm from the original mill edges in accordance with EN 10143:2006¹.

Figure 1. Measurement of gauge



Key

■ Topcoat	■ Metallic coating
■ Primer	■ Substrate
■ Pre-treatment	■ Backing coat

Paint film thickness and effect on measurements

It should be noted that the combined thickness of certain paint systems can be 250 microns or 0.25 mm. If this were incorrectly included in the measurement it could lead to the gauge being overstated in some cases by more

than 50%, which could have serious implications on the pre-finished steel sheet performance.

Measurement of gauge by measuring the total thickness including the paint

coatings and then subtracting the nominal paint coating thickness is only an approximation. This can be subject to a number of variables including variations in paint film thickness, paint compressibility and emboss.

Gauge standards and tolerances EN 10143:2006¹

The European standard EN 10143:2006¹ defines the tolerances for different grade, width and gauge material for normal (NT) and special (ST) tolerance categories.

Figure 2 shows the actual gauge measurement range which is allowed for a coil 1250 mm wide, 0.7 mm gauge, with a proof stress of < 260 MN/mm² to normal and special tolerances according to EN 10143:2006¹; this is compared with a number of frequently supplied material specifications. Any coil which has actual gauge measurements either greater than 0.76 mm or less than 0.64 mm, falls outside the allowable gauge

range for a coil with a nominal gauge of 0.70 mm and 1250 mm wide, with proof stress < 260 MN/mm².

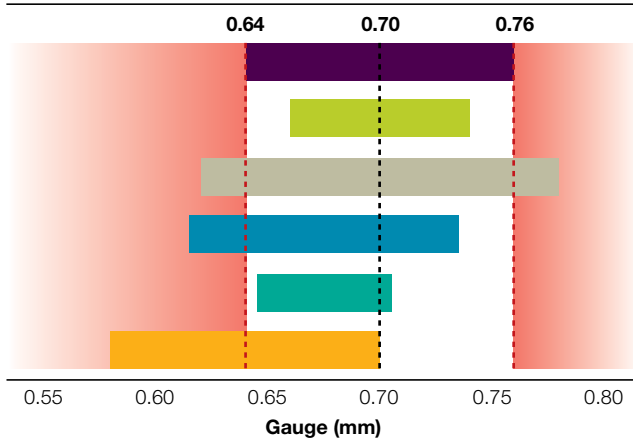
The following points should be noted:

- The allowable gauge range was tightened when the standard was revised in 2006¹ and this is demonstrated by comparison with the 1993² standard.
- Although the minimum allowable gauge measurement for 0.7 mm normal tolerance nominal pre-finished steel is 0.64 mm, the graph clearly demonstrates that material with a nominal gauge of 0.64 mm can have actual gauge measurements which will fall below this. This can lead to

possible structural and fire issues for roof and wall cladding systems.

- All manufacturing processes will have a degree of variability. Even for a manufacturing process with very tight controls, a nominal 0.64 mm coil will have some actual gauge results less than 0.64 mm.
- When ordering pre-finished steel, a specifier should clearly establish the nominal gauge and tolerances, which will be applied to ensure that these meet the requirements for their pre-finished steel roof or wall cladding system.

Figure 2. Gauge tolerance ranges by specification



Key

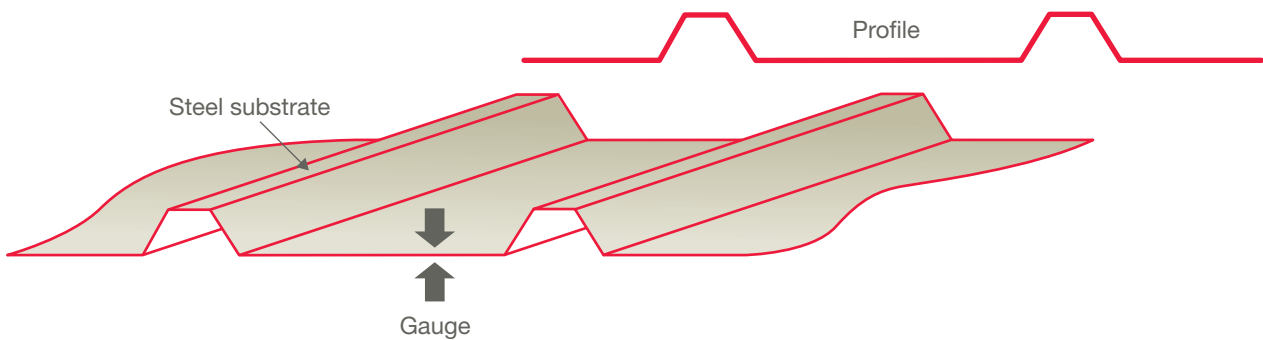
- 0.64 NT EN 10143:2006
- 0.675 Half gauge tolerances EN 10143:2006
- 0.675 NT EN 10143:2006
- 0.70 NT EN 10143:1993
- 0.70 ST EN 10143:2006
- 0.70 NT EN 10143:2006
- Allowable gauge range within EN 10143:2006¹ for 0.7 mm to normal tolerances
- Notional gauge
- Outside tolerance - under gauge and over gauge

Impact of gauge on performance

Structural performance

The profiled pre-finished steel cladding needs to meet a number of structural requirements. The structural performance is determined by the profile of the cladding, the mechanical properties of

the steel substrate and the gauge of the pre-finished steel used. It should be noted that the hot dip metallic coating layer has negligible contribution to the structural performance.



Mechanical properties of the pre-finished steel substrate

All Colorcoat® pre-finished steel for roof and wall cladding is supplied with a specified minimum yield strength. In practice, the actual yield strength will generally be significantly greater than the minimum value, which may result in a profiled pre-finished steel sheet with structural performances greater than stated. This will depend upon the limiting failure mode.

For further information on structural performance of pre-finished steel cladding systems refer to the Colorcoat® Technical Paper 'Structural performance of built-up roof and wall cladding systems'³⁷.

The structural requirements for profiled pre-finished steel cladding system can be summarised into a number of areas:

1. Service loads created by the dead load or weight of the cladding, uniform imposed loads such as snow loading and wind loading, and both positive pressure and suction.
2. Concentrated loads created by pedestrian activity on the roof.
3. Additional requirements specific to the actual construction phase.

Load span tables

Load span tables are used to calculate the maximum permissible purlin spacing at which the profiled sheeting will meet the structural requirements for the building location and application.

All Colorcoat® supply chain partners roof and wall cladding systems have load span tables that have been calculated in accordance to EC3⁴ and have been independently assessed and approved by the SCI.

The load/spans quoted in these tables are specific to the exact profiles and pre-finished steel specifications supplied by these system manufacturers. These calculations cannot be applied to different profiles or pre-finished steel grades and gauges supplied from other system manufacturers.

Lighter gauge material will have a greater deflection for a given load resulting in reduced spanning/load carrying ability.

Lighter gauge material is also more likely to fail due to localised web buckling when used in double or multi-span conditions.

Figure 3. Safe working load at 1.8 m multi-span conditions for a given gauge on 32/1000 profile panel

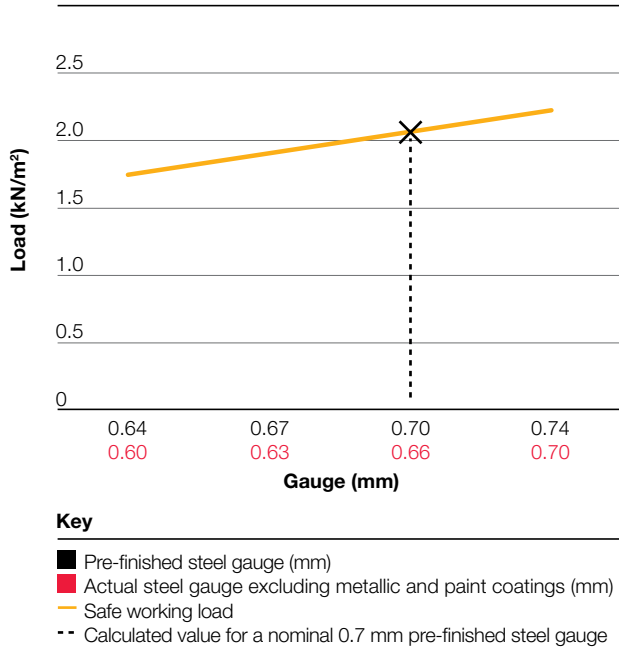


Figure 3 shows the load carrying capacity of a 32/1000 profile at 1.8 m multi-span conditions across a range of gauges. For pre-finished steel, it is only the steel substrate which is considered for the structural calculations. A 275 g/m² hot dip metallic coating has a nominal thickness of 0.04 mm and this must be subtracted from the pre-finished steel gauge, which already excludes the paint coating thickness, for structural calculation purposes.

The points below show how the incorrect specification of the pre-finished steel or using the actual pre-finished steel gauge for structural calculations, will affect the load span calculations for a nominal 0.7 mm pre-finished steel profile.

- 0.7 mm steel substrate gauge:
In this case, the calculations have been carried out without removing the thickness which is attributable to the metallic coating and the result over states the performance.

- 0.66 mm steel substrate gauge:
This is the correct figure to use for a nominal 0.7 mm pre-finished steel which has a 275g/m² hot dip metallic coating applied prior to painting and will give the correct load span calculation.
- 0.6 mm steel substrate gauge:
This is the minimum actual steel substrate gauge measurement which is allowed on a nominal 0.7 mm pre-finished steel according to EN 10143¹ normal tolerances. If 0.64 mm pre-finished steel is incorrectly specified, it clearly has a lower load span capability than a nominal 0.7 mm pre-finished steel.
- Although there is a 15% reduction in gauge from 0.7 mm to 0.6 mm, there is a 22% reduction in load carrying capacity. As gauge decreases there is a much larger decrease in load carrying capacity.

Incorrect specification of pre-finished steel gauge can result in incorrect load span calculations.

Resistance of roofing products to concentrated forces

This covers the load generated by pedestrian activity on a roof. BS 6399⁵ defines the conditions when

a roof is designed to allow access for maintenance or for regular pedestrian access.

Walkable roof access for maintenance and repair

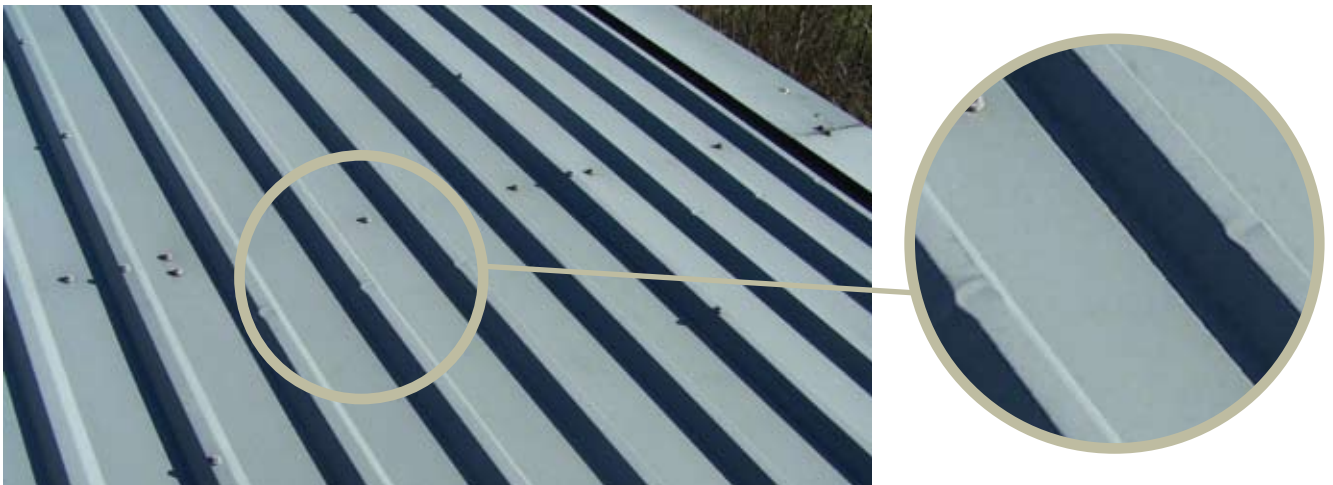
For a roof to be constructed to allow general access for maintenance and repairs, the pre-finished steel cladding must be designed to withstand the loads which are likely to be generated by maintenance personnel. There are two main design criteria which must be met.

1. General load of 0.6 kN/m²
2. Point loading of 0.9 kN

The performance is established by calculation in accordance with EC3⁴

and therefore failure to meet nominal values for gauge and yield strength will reduce the structural capacity of the roof and may mean that it no longer meets the load span requirements. Lighter gauge pre-finished steel roof cladding material will be more susceptible to failure by local web buckling from the concentrated load and/or deflection limits as shown in figure 4.

Figure 4. Localised damage to sheeting



Non-fragility of the pre-finished steel liner sheet

One of the main causes of deaths and serious injuries during construction work is falling from height, particularly from or through a roof.

The HSE⁶ have produced ACR(CP)001:2003⁷ Recommended Practice for Work on Profiled Sheeted Roofs. The salient points with reference to profiled pre-finished steel sheet gauge are:

- That a non-fragile assembly should be specified.

- That the classification of the roof assembly can be confirmed by the supplier and that test data can be provided to support the classification.
- That the conditions affecting guarantees of non-fragility should be clearly stated.

The ACR(M)001:2005⁸ test for non-fragility is the basic test to establish whether a roof assembly is fragile or non-fragile and is used to check that the assembly can support, without

catastrophic failure, the loads that will be applied by a person falling onto it.

The critical performance issue is the resistance of the liner sheet to tearing and failure around the fasteners. Pre-finished steel which is of a lighter gauge than that which has been tested may not meet the test requirements and so cannot be classified as non-fragile. Other key points include the fastener and washer size, and position, in relation to the sheet edge.

Figure 5. Failed non-fragility test where fasteners have torn through and the sheeting has failed



Figure 6. Successful non-fragility test with minimal damage on nominal 0.7 mm gauge liner



Walkable pre-finished steel liner sheet

In some construction projects, it may be desirable to specify a walkable liner. This allows the installation contractor to safely walk on the liner without any permanent local distortion of the liner sheeting.

The walkability of a liner sheet is dependant upon the profile and the gauge of the pre-finished steel used. It should also be noted that the sheet is only walkable once it is fully fixed. Pre-finished steel which is of a lighter gauge, for the same profile, will be more prone to permanent deformation from the concentrated loads which will be applied by the installation contractor activities and will be visible from inside the building.

Shallower profiles are generally also more susceptible to damage so a combination of a shallower profile in a lighter gauge can exacerbate the issue.

Fasteners

Where a lighter gauge pre-finished steel is used in areas which are highly loaded, there is an increased possibility of the fastener tearing through the cladding or in some cases, particularly where smaller sealing washers have been used, the complete fastener can pull through the sheeting.

Flashings and sheet side/end laps are secured using stitcher screws.

These rely on drilling a threaded hole into the pre-finished steel cladding sheet. The security of the stitcher screw can be greatly reduced by use of a lighter gauge pre-finished steel. It is critical to use the correct screw type and a screw gun with torque control to avoid stripping the threads in the sheet, which would result in a failure.

Over-tightened screw fasteners can also cause dimpling around the fastener and this can be more pronounced on lighter gauges. On a low pitch roof, this could result in water ponding around the fastener which could lead to corrosion of the pre-finished steel or the fastener.

Fire Performance

External fire performance for roofing applications

Pre-finished steel performance in roofing applications has been assessed according to EN 1187⁹ and certain generic performances have been allocated:

1. Pre-finished steel with a coating having a calorific value of $< 4 \text{ MJ/m}^2$ is 'deemed to satisfy without the need for testing' in accordance with Commission Decision 2000/553/EC¹⁰.
2. Plastisol, pre-finished steel, with a calorific value of $< 8 \text{ MJ/m}^2$, a nominal dry film thickness of 200 microns and a maximum dry mass of 330 g/m^2 can be classified without further testing as $\text{B}_{\text{ROOF}}(\text{t}1)$, $\text{B}_{\text{ROOF}}(\text{t}2)$, $\text{B}_{\text{ROOF}}(\text{t}3)$ in accordance with Commission Decision 2005/403/EC¹¹.

These Commission Decisions both have a specific requirement that the gauge of the pre-finished steel must be $\geq 0.4 \text{ mm}$.

Reaction to fire performance for wall cladding applications

Research carried out by European technical committees has shown that material gauge has a significant effect on 'the reaction to fire performance' of pre-finished steel wall cladding. Reducing pre-finished steel gauge generally shows a poorer performance in 'reaction to fire'. For this reason reaction to fire performance is usually quoted for pre-finished steel greater than or equal to the nominal gauge of the pre-finished steel which was tested. Most sheeting for wall cladding is 0.5 mm nominal gauge or greater.

For a product classification to be valid, testing must have been carried out on pre-finished steel of at least 0.5 mm. Pre-finished steel which does not meet the minimum requirements of 0.5 mm according to EN 10143:2006¹ cannot claim the classified result.

Figure 7. Reaction to fire: single burning item test



Approved Document B2¹² contains a 'deemed to satisfy' clause for profiled or flat pre-finished steel sheet with an organic coating. This is only valid for pre-finished steel with a nominal gauge of at least 0.5 mm.

CE Marking of profiled pre-finished steel cladding and sheeting

CE marking is a European product information label that indicates that the properties of the product have been tested according to European standards and that the product complies with the Construction Products Directive¹³. The European Commission has determined which properties for which building products in the EU are relevant, and should be tested, and what external verification is appropriate. The values of the tested parameters have to be stated/printed by the producer on the product, the packaging or the accompanying coupon/paperwork.

Country supervisors inspect randomly if CE marks on products are complete and correct.

All Colorcoat® supply chain partners and accredited distributors are able to supply CE marked pre-finished steel profiled sheeting, which meets the requirements of EN 14782¹⁴. CE marking according to EN 14782¹⁴ requires the manufacturer to provide information against a number of criteria, which can be affected by the product gauge. These must all be quoted according to European

Standards, which allows direct comparison between different products.

These criteria include:

1. Nominal gauge
2. Resistance of roofing products to concentrated forces
3. External fire performance
4. Reaction to fire performance

These criteria are all affected by the actual gauge of the pre-finished steel used in roof and wall cladding systems.

Resistance to concentrated forces for CE marking to EN 14782¹⁴

Figure 8. Resistance to concentrated forces test in progress

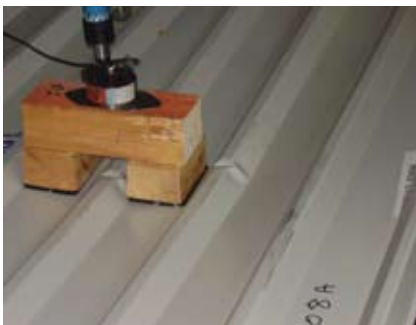


Figure 9. Failed pre-finished steel profiled sheet showing local buckling



An increasing load is applied to the pre-finished steel profiled sheet supported at predetermined centres until the sheet fails and is unable to support the applied load.

Visual appearance of walls

There are a number of factors, which need to be taken into account to ensure that the appearance of a building is consistent with the design. The gauge of pre-finished steel used for the wall cladding can affect a number of parameters. Slight misalignment of the secondary steelwork can cause very slight rippling in the pre-finished steel cladding and this is far more visible when a lighter gauge is used. For this reason heavier gauge pre-finished steel is often specified for horizontally laid cladding where these effects can be more pronounced.

End lap joints in profiled pre-finished steel cladding can sometimes not close up fully. This effect is often referred to as 'bird

mouthings'. There are a number of factors that contribute to this including, sealant bead size, compressibility and position within the joint, as well as fastener position and gauge. Lighter gauge pre-finished steel will be more likely to display this characteristic.

The installer must ensure that the correct type of fastener for the application is used and that screw fasteners are tightened to the correct torque setting. Over-tightening of fasteners can cause local distortion of the sheeting around the fastener head, which will show up as a slight variation in colour or gloss. This is more pronounced when lighter gauge pre-finished steel is used.

Over-tightening will also lead to failure of the EPDM sealing washer.

In order for a wall to be constructed with the required visual appearance it is important that the gauge of the pre-finished steel specified is consistent with that which is actually used. Using a lighter gauge pre-finished steel can have detrimental effect on the overall visual appearance of a building.

Further information on how to maintain the visual appearance of wall cladding can be found in the Colorcoat® Technical Paper 'Ensuring consistent appearance of pre-finished steel wall cladding¹⁵'.

How Corus ensure Colorcoat® pre-finished steel meets these requirements

Material processing

All pre-finished steel supplied by Corus for construction applications, is produced using cold rolled hot dip metallic coated steel manufactured by Corus. This means that Corus have direct control of all manufacturing processes, ensuring consistency of steel substrate supply, within tight control parameters at all stages. All Corus processes are subject to external audit against ISO 9001:2006¹⁶ quality management systems, which ensures process control and consistency at all stages of manufacture.

Control of cold rolled substrate gauge

The gauge of the cold rolled steel substrate is critical to ensuring the final product gauge. It is also the steel substrate which determines the mechanical properties of the pre-finished steel sheet/coil. For a 0.7 mm finished product, the cold reduction process, reduces the gauge of hot rolled steel coil from around 2.4 mm to a cold reduced gauge of 0.66 mm. X-ray gauges continuously measure the input and output coil gauge and adjust the process parameters, through an automatic closed loop process control.

All X-ray gauges are subject to a calibration process against verified standards. The final gauge is measured using 2 separate X-ray gauges, which are cross checked to ensure accuracy. Any coil which does not meet the tolerance requirements is automatically highlighted for further inspection and rectification processing. All measured data is stored and full coil gauge logs are available to demonstrate compliance. Actual physical gauge measurements are carried out using a calibrated micrometer according to a defined inspection regime.

Control of metallic coating thickness

The metallic coating weight on each side of the strip is measured continuously using scanning X-ray fluorescence gauges and this is displayed to the line control, where the line operator can make adjustments if required to the process parameters. Periodic physical checks are carried out on line samples to ensure that the actual coating thickness measured in a laboratory agrees with the X-ray measurements.

Hot dip metallic coating has negligible affect on the structural performance of the product but good coating thickness control is essential to ensure uniform corrosion resistance and product durability. Actual physical gauge measurements are carried out on all coils after metallic coating.

Control of mechanical properties

The mechanical properties of the pre-finished steel substrate are governed by a number of factors:

1. The steel chemistry which is controlled during the steel making process in the BOS plant.
2. The cold reduction process which reduces the steel coil to the final gauge.
3. The metallic coating line process set up.

All process parameters and product test data is recorded and stored.

Ability to produce material to tolerances tighter than EN 10143:2006

All pre-finished steel for roof and wall cladding should meet the requirements of EN 10143:2006¹ normal tolerances as a minimum. Corus are able to manufacture to tighter tolerance which ensures that the Colorcoat® pre-finished steel will easily

meet the specification requirements.

This is based upon:

1. Plant capability and through process control
2. Management processes
3. Inspection and release standards.

Effect of process control and capability on the ability to meet product standard specifications

Figure 10 represents a distribution of actual gauge measurements for 4 different pre-finished steel coils each 1250 mm wide, 0.7 mm gauge, with a proof stress of < 260 MN/mm², with the normal and special tolerances according to EN 10143:2006¹ super imposed.

- Although the red coil demonstrates good process capability, the average gauge is only 0.65 mm and it contains material which actually measures less than 0.64 mm and therefore does not meet the requirements for nominal 0.7 mm coil.
- The dark green coil has fairly poor process capability and the average gauge is 0.74 mm. The coil contains material which actually measures more

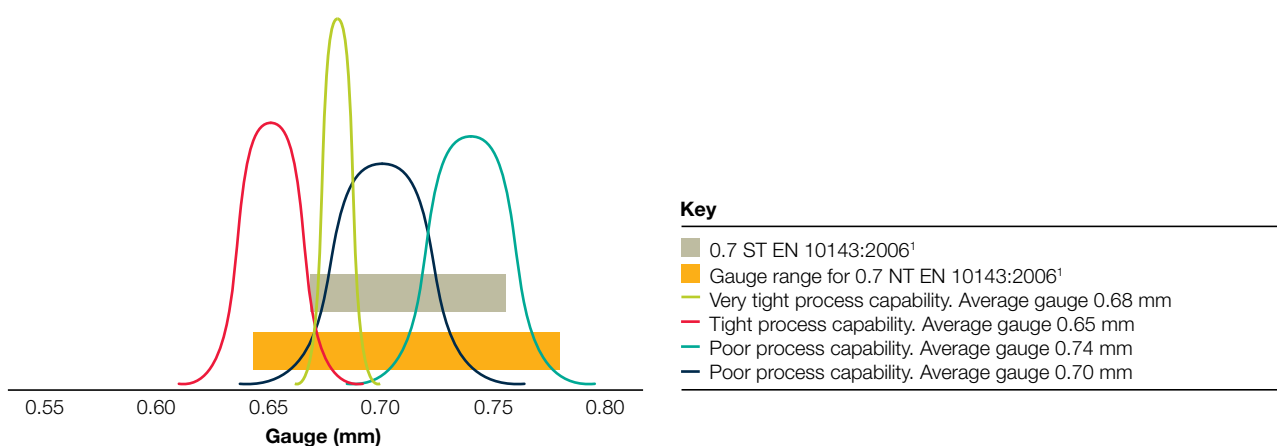
than 0.76 mm and therefore does not meet the requirements for a nominal 0.7 mm coil.

- Although the blue coil demonstrates the poorest process control, all of the actual gauge measurements are between 0.64 mm and 0.76 mm and it therefore meets the requirements for a nominal 0.7 mm coil to normal tolerances according to EN 10143:2006¹.
- The light green coil demonstrates the best process capability and has all actual gauge measurements between 0.66 mm and 0.7 mm, with an average of 0.68 mm. It meets the requirement for a nominal 0.7 mm coil to both normal and special tolerances according to EN 10143:2006¹.

Corus cold rolling mills, which supply all steel substrate for Colorcoat® pre-finished steel have very good process capability and are able to produce material with consistent gauge throughout each coil and between coils, to normal and special tolerances according to EN 10143:2006¹ and tighter tolerances. Special and tighter tolerances are subject to commercial agreement.

This ensures that cladding systems manufactured using Colorcoat® pre-finished steel can meet the specified performance requirements.

Figure 10. Distribution of actual coil gauge measurements for different process capability



Conclusions

Actual gauge and gauge tolerance are critical to ensuring that a pre-finished steel product meets the required performance criteria for roof and wall cladding systems and other products manufactured from pre-finished steel.

The specifier should:

1. Ensure that all pre-finished steel meets the requirements of EN 10143:2006¹ normal tolerances as a minimum.
2. Ensure that the pre-finished steel gauge specifications, including tolerances, which is to be ordered, meets the requirements of the nominal gauge requirements.
3. Ensure that the supplied pre-finished steel meets the requirements of the gauge order.
4. Ensure that all structural calculations relate only to the specific profile and the nominal gauge of pre-finished steel used.
5. Ensure that the reaction to fire performance classification is valid for the pre-finished steel nominal gauge specified.
6. The normally specified gauges for roof and wall cladding are 0.7 mm and 0.5 mm respectively. These gauges have been derived by structural calculations and a record of in service performance. Using material which does not meet these requirements may result in small initial savings, but can leave the building owner liable to considerable future costs and an overall poorer performing building.

In addition:

7. Specifying Colorcoat® pre-finished steel ensures full through process control from steel manufacture to pre-finished steel coil/sheet, with consistency of pre-finished steel properties and performance.
8. Corus Colors are able to supply Colorcoat® pre-finished steel to normal and special tolerances according to EN 10143:2006¹ and tighter tolerances subject to commercial agreement.

It is important that all these factors are taken into account to ensure a structurally sound, building envelope, which performs as designed, when specifying pre-finished steel as part of a roof and wall cladding system.

References

1. BS EN 10143:2006: Continuously hot-dip coated steel sheet and strip. Tolerances on dimensions and shape.
2. BS EN 10143:1993: Continuously hot-dip coated steel sheet and strip. Tolerances on dimensions and shape.
3. Colorcoat® Technical Paper 'Structural performance of built-up roof and wall cladding systems'.
4. Eurocode 3: Design of Steel Structures (EN 1993).
5. BS 6399-1:1996: Loading for buildings. Code of practice for dead and imposed loads.
6. Health and Safety Executive: Head Office, 1G Redgrave Court, Merton Road, Bootle, Merseyside, L20 7HS www.hse.gov.uk
7. ACR[CP]001:2007 Rev.3 Recommended practice for work on profiled sheeted roofs.
8. ACR[M]001:2005: Test for Non-Fragility of Profiled Sheeted Roof Assemblies.
9. EN 1187:2002: Test methods for external fire exposure to roofs.
10. 2000/553/EC: External fire performance of roof coverings.
11. 2005/403/EC: External fire performance of roofs and roof coverings.
12. Building Regulations Approved Document B2: Buildings other than dwellinghouses: Internal fire spread (linings).
13. Construction Products Directive.
14. BS EN 14782:2006: Self-supporting metal sheet for roofing, external cladding and internal lining. Product specification and requirements.
15. Colorcoat® Technical Paper 'Ensuring consistent appearance of pre-finished steel wall cladding'.
16. ISO 9001:2006: Quality management systems.

The Colorcoat® brand

The Colorcoat® brand is the recognised mark of quality and metal envelope expertise from Corus. With over 40 years experience, we actively develop Colorcoat® products and processes to reduce their environmental impact to a level beyond mere compliance. All Colorcoat® products are manufactured in factory controlled conditions, providing clear advantages onsite in terms of speed of construction and minimising social disruption.

Colorcoat® products manufactured in any UK Corus site are certified to the independently verified international management system, ISO 14001 and 100% recyclable, unlike most other construction products.



Colorcoat® products and services

Colorcoat® products offer the ultimate in durability and guaranteed performance reducing building life cycle costs and environmental impact.

Corus has detailed Life Cycle Costing and Life Cycle Assessment information that demonstrates the positive performance of Colorcoat® products when compared with other alternatives. This is available from www.colorcoat-online.com

Colorcoat HPS200 Ultra®

The latest generation product for roof and wall cladding, Colorcoat HPS200 Ultra® offers an exciting new colour range and dramatically improved colour and gloss performance. Maintenance free, Colorcoat HPS200 Ultra® delivers twice the colour and gloss retention of standard plastisols, and is now guaranteed for up to 40 years, combining outstanding performance with unrivalled reliability.

Colorcoat Prisma®

The ideal choice to deliver eye-catching buildings that will stand the test of time. Technically and aesthetically superior to PVDF (PVF2), Colorcoat Prisma® is readily available in the most popular solid and metallic colours. All backed up by the comprehensive Confidex® Guarantee.

Confidex® Guarantee

Offers the most comprehensive guarantee for pre-finished steel products in Europe and provides peace of mind for up to 40 years. Unlike other guarantees, Confidex® covers cut edges for the entirety of the guarantee period and does not require mandatory annual inspections. Available only with Colorcoat HPS200 Ultra® and Colorcoat Prisma®.

Confidex Sustain®

Provides a combined guarantee which covers the durability of the Colorcoat® pre-finished steel product and makes the pre-finished steel building envelope CarbonNeutral – the first in the world. Corus and their Confidex Sustain® assessed supply chain partners endeavour to reduce the CO₂ emissions generated in the manufacture of pre-finished steel cladding systems but there will always be some unavoidable CO₂ emissions. These unavoidable CO₂ emissions are measured from cradle to cradle and the impact offset. Our aim is to encourage specification of the most sustainable pre-finished steel products and cladding systems. Available only with Colorcoat HPS200 Ultra® and Colorcoat Prisma®.

Colorcoat® Technical Papers

We have published a wide range of technical papers to independently guide and advise you on key issues in building design and construction commonly considered for roof and wall cladding systems using Colorcoat® products. From acoustics and air-tightness to low carbon design and fire performance, there is a technical paper that will help you find a solution.

If you require any further information please contact the Colorcoat Connection® helpline on **+44 (0)1244 892434**. Alternatively further information can be found in the Colorcoat® Building manual or at www.colorcoat-online.com



www.colorcoat-online.com

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