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# Roofing and Cladding (Hathaway)

## Contents

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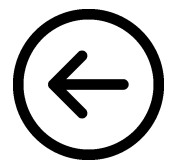


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# Scope of Works





## **P23-027 The Range, Stowmarket - Fit Out (SW189)**

### **SECTION 1 – Scope of works**

#### **Internal Ceiling**

0.4mm thick steel liner 19/1000 reverse, bright white lining enamel to internal face.

0.7mm thick steel flashings to match.

All fixings are 304 grade stainless steel.

#### **Canopy 1 Roof Specification**

Euroclad single skin roof sheet comprising of a 0.7mm thick 32/1000 forward double sided finish in HPS200 Goosewing Grey RAL7038/White RAL9003.

0.7mm thick flashings, coating and colours to match above.

All fixings are 304 grade stainless steel.

#### **Canopy 1 Gutter Specification**

Single skin boundary wall gutter comprising of a 1.2mm thick Fatrametal in RAL7012.

#### **Canopy 1 Vertical Specification**

Euroclad single skin roof sheet comprising of a 0.7mm thick 32/1000 reverse double sided finish in HPS200 Anthracite RAL7016/White RAL9003.

0.7mm thick flashings, coating and colours to match above.

All fixings are 405 grade stainless steel.

#### **PPC Coated Flashings**

2mm thick aluminium flashings polyester powder coated in Cobalt Blue RAL5013.

#### **Rainwater Pipes**

2.5mm thick aluminium polyester powder coated rainwater pipes, colours as below.

RWP Merlin Grey RAL180 40 05

RWP Alaska Grey RAL7000

RWP Anthracite RAL7016



**Sub-Contract Bird Proofing System**

Avid Pest Control Ltd – See Section 4.2

**Sub-Contract GRP**

Jones & Woolman – See Section 4.3

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# Certificates/Warranties/Guarantees



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# Confidex Guarantee Certificate

**Confidex® Guarantee**

The term "Confidex Guarantee" refers to a guarantee of the Product against paint delamination and, where applicable, a guarantee against excessive colour change. This certificate validates the Confidex Guarantee in respect of the Building identified below. This certificate is evidence of the relationship between Tata Steel UK Limited and the Building Owner (which term means Tata Steel UK Limited's original customer or any notified transferee who is the registered freeholder of the Building). Please keep it in a safe place and make a note of the guarantee registration number. The paint delamination guarantee is based on and lasts for the Guarantee Period (as stated below), which is the length of time before a Building Owner needs to consider whether to repaint the Building's exterior. It is guaranteed that, for this period, on any single plane (i.e. one wall or one roof slope), not more than 5% or 100 square metres of the painted surface, whichever is the lesser area, will be affected by paint delamination. If the Product does not meet these criteria, Tata Steel UK Limited will restore the defective material according to the terms of this Confidex Guarantee.

<b>Guarantee number:</b>	64060	<b>Registration date:</b>	23 / 07 / 2024
<b>Building owner:</b>	Norton Stowmarket Ltd	<b>Completion date:</b>	28 / 06 / 2024
<b>Building address:</b>	The Range, Fit Out, Plot 4000, Gateway Boulevard, Stowmarket, Suffolk, IP14 5BP	<b>Guarantee start date:</b>	28 / 06 / 2024
<b>Architect:</b>	-		
<b>System manufacturer:</b>	Euroclad Group Ltd		
<b>Main contractor:</b>	Winvic Construction		
<b>Cladding contractor:</b>	Hathaway Roofing Ltd		

Product	Application	Colours	Guarantee Period (years)	Local Environment
Colorcoat HPS200 Ultra® Zone 1	Roof	Goosewing Grey	40	Inland
Colorcoat HPS200 Ultra® Zone 1	Walls	Anthracite	40	Inland



**The Confidex® Guarantee for the Product requires the Building Owner to perform certain tasks to maintain the benefit of the Confidex® Guarantee.**

**Obligations of the Building Owner**

- In general, no inspection or maintenance is required to maintain the validity of the Confidex® Guarantee, except when material is used in areas subject to build-up of dirt or debris, contact with sea spray or where Colorcoat HPS200 Ultra® or 3 layer Colorcoat Prisma® Solid, Metallic or Matt colours are used on a roof or wall that has a Photovoltaic (PV) installation. For those situations, please see Exclusions 4 and 13 and the Confidex® PV Addendum in addition to this certificate for details of the required inspection and maintenance conditions.
- Colorcoat Prisma® manufactured in standard colours after 1st October 2017 is guaranteed against excessive colour change for the period and subject to the terms and conditions, limitations and exclusions set out in a Confidex® Guarantee Colour Addendum, which is issued on request where applicable.
- To invoke this guarantee, the Building Owner or its agent must notify Tata Steel UK Limited in writing within 30 days of the identification of any defect (and in any event, no later than the expiry of the relevant Guarantee Period) indicating a failure of the Product to conform to the terms of the guarantee. The notification must be made using Tata Steel UK Limited's standard form document, must be sent to Tata Steel UK Limited and must include the

registration number or a copy of the registration details. Tata Steel UK Limited must then be given a reasonable opportunity to inspect the alleged defect. Any notification received after 10% or 200 square metres of the painted surface (whichever is the lesser area) has been affected by paint delamination will be invalid.

4. In respect of any inspection or repair of the Product by Tata Steel UK Limited its agents or contractors, the Building Owner shall ensure that there is adequate and safe roof access.

5. The Building Owner must notify Tata Steel UK Limited of any change of building use in writing within 90 (ninety) days of such change.

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# The Confidex® Guarantee for the Product is subject to the following Limitations and Exclusions.

## Limitations

1. This Confidex® Guarantee applies only to deterioration of the weatherside of the Product when used in standard cladding applications within Zones 1 and 2.
2. This Confidex® Guarantee includes the condition of the cut edges for the duration of the relevant Guarantee Period in accordance with this clause 2 (not applicable to material with a gauge of 1mm or more). Limited edge peel may arise from normal weathering at sheet overlaps and at eaves. However given the superior corrosion protection provided by the unique Galvalloy® substrate of Colorcoat HPS200 Ultra® and Colorcoat Prisma®, this phenomenon will not impair the functionality of the cladding. In the unlikely event that edge peel is premature and deemed to be excessive by Tata Steel UK Limited, Tata Steel UK Limited will undertake to investigate and carry out any remedial action to ensure that the cladding system will be fully serviceable at the end of the Guarantee Period. Cut edges are defined as those manufactured in factory-controlled conditions using conventional shearing procedures. Cut edges generated by alternative processes or on-site should be subject to best practice, including painting where necessary. Refer to Tata Steel UK Limited for guidance.
3. Only Buildings designed or constructed in accordance with the current guidelines on Tata Steel UK Limited website: [www.colorcoat-online.com](http://www.colorcoat-online.com) will be covered by the Confidex® Guarantee. In particular, but without limitation, all cut edges on flashings shall be welded. Flashings are only guaranteed when used in conjunction with Colorcoat HPS200 Ultra® or Colorcoat Prisma® cladding sheets or panels. Because the surface of flashings can emulate roofs, walls or both, their durability is determined by the function they perform. If a single flashing emulates both a roof and a wall, the entire flashing is assumed to have the durability of a roof. Both the design of flashings and their application to the building should follow Tata Steel UK Limited's recommendations.
4. The legal remedy of the Building Owner and the obligation of Tata Steel UK Limited (whether under this Confidex® Guarantee, tort or otherwise) is limited solely to the cost of labour and materials for restoring the defective plane during the Guarantee Period or, where relevant, the colour guarantee period. Tata Steel UK Limited shall be entitled, at its sole discretion, to determine the appropriate measures to be taken in order to provide suitable restoration in the event of failure.
5. Under no circumstances shall Tata Steel UK Limited (or any of its associated companies) be liable for any loss, damage or expense whatsoever incurred or suffered by the Building Owner (including, but without limitation, loss of profit, revenue or goodwill) howsoever such loss, damage, or expense may have been caused (including, but without limitation, any breach of contract, negligence or breach of any duty of Tata Steel UK Limited whatsoever) other than as set out under paragraph 4 above.
6. For Buildings situated at altitudes greater than 900m a 20% reduction in duration of the Guarantee Period applies.

## Exclusions

This Confidex® Guarantee does not apply to failure or damage caused by or due to:

1. Fire, lightning, flood, explosion, abnormal winds, earthquake, acts of war, riots, civil commotion, radiation, falling objects, vandalism, ground movement or failure of foundations or other extraneous causes;
2. Misuse, wilful act, negligence or incorrect or unsuitable specification or use of the Product;
3. Any damage whatsoever caused to the Product during or following fabrication, storage, transport or erection;
4. Accumulations of dirt or debris or failure or damage in areas not exposed to washing by rainfall, unless such areas are washed at a frequency commensurate with both the application and external environment of the Product and the local environment of the Building (and the Building Owner's records clearly demonstrate that fact);
5. Ponding on roofs and inadequately sealed overlaps allowing retention of water and other contaminants;
6. Emissions of harmful gases, fumes or chemicals from either natural or man-made sources at or within 400m of the original erection site;
7. Exposure to continuous temperatures howsoever caused greater than: 60°C in the case of Colorcoat HPS200 Ultra®; or 90°C in the case of Colorcoat Prisma®;
8. Any screw, rivet, fastener or other attachment or thing fixed (or attempted to be fixed) to any part of the Product during or after erection, except for PV on a Colorcoat HPS200 Ultra® or Colorcoat Prisma® roof or wall which is fitted and maintained in accordance with the terms and conditions of the Confidex® PV Addendum;
9. Deterioration caused by contact with wet, green or treated timber or due to direct or indirect contact with corrosive materials;
10. Any alteration, extension or modification to or re-erection of the Product after erection, except for the installation of a PV array on a Colorcoat HPS200 Ultra® or Colorcoat Prisma® roof or wall which is fitted and maintained in accordance with the terms and conditions of the Confidex® PV Addendum;
11. The performance of any touch-up paint or overpaint used on the panels before, during or after erection;
12. Corrosion or other effects arising from elements within the Building, corrosion arising from entrapment of pollutants including (without limitation) within overlaps or from abnormal atmospheric pollution or contact with aggressive gases, fumes or chemicals;
13. Direct contact with sea spray (when in a Coastal environment), unless regular washing is undertaken to stop the build-up of salt on the Product and the Building Owner's records clearly demonstrate that fact;
14. Roofs with pitches lower than 1° (one degree);
15. Soffits; or
16. The use of Products manufactured more than 18 (eighteen) months before the Completion Date of the Building.

## General

The Confidex® Guarantee sets out the entire agreement and understanding between the parties in respect of the subject matter of the Confidex® Guarantee and will be entered into on the understanding that:

- (a) neither party has entered into the Confidex® Guarantee in reliance upon any representation, warranty or undertaking of the other party which is not expressly set out or referred to in the Confidex® Guarantee. Any condition, warranty, statement or undertaking as to the quality of the Product or its fitness or suitability for any purpose however or whenever expressed or which may be implied by statute, custom of the trade or otherwise is hereby excluded, except to the extent such exclusion is prevented by law;
- (b) without prejudice to (a) above, no statement or undertaking contained in any national Standard, National edition of a European Standard, ISO Standard, or other standard or technical specification as to the suitability of the Product for any purpose shall give rise to any legal liability of Tata Steel UK Limited, except to the extent such exclusion is prevented by law. The Building Owner shall satisfy itself that the Product is suitable for any product or application for which it is to be used before the Product is incorporated into such product or application;
- (c) nothing in this Confidex® Guarantee shall exclude or restrict the liability of Tata Steel UK Limited for death or personal injury caused by Tata Steel UK Limited's negligence or as otherwise prohibited by law;
- (d) neither party shall have any remedy in respect of misrepresentation or untrue statement made by or on behalf of the other party which is not contained in the Confidex® Guarantee nor for any breach of warranty which is not contained in the Guarantee;
- (e) this clause shall not exclude any liability for, or remedy in respect of, fraudulent misrepresentation;
- (f) the Confidex® Guarantee will only become valid and binding when registered with and issued by Tata Steel UK Limited; and
- (g) the Confidex® Guarantee is subject to the most recent limitations and exclusions, available on the Tata Steel UK Limited website at [www.colorcoat-online.com](http://www.colorcoat-online.com).

This Confidex® Guarantee shall be subject to and construed in accordance with English law; Tata Steel UK Limited and the Building Owner submit to the exclusive jurisdiction of the English courts. Enquiries about this Confidex® Guarantee should be addressed to the Colorcoat Connection® helpline. Tata Steel UK Limited is registered in England under 2280000 with registered office at 18 Grosvenor Place, London, SW1X 7HS, England.

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## Confidex® Guarantee Transfer Notification Form

The Confidex® Guarantee may be enforced by the Building Owner from time to time subject to Tata Steel UK Limited being satisfied that the Building Owner is the original customer or the registered freeholder of the Building. Tata Steel UK Limited owes no duty to any person other than the Building Owner under this Confidex® Guarantee but may respond to requests for its enforcement from registered leaseholders of the Building, in its sole discretion. To notify Tata Steel UK Limited of a change in the registered freeholder of the building please complete all of the sections below. Until notified to the contrary, Tata Steel UK Limited shall be entitled to rely on its records to identify the Building Owner. Please note that the notification of transfer cannot be processed without all of the necessary information.

<b>Original registration number:</b>	<b>Name of new Building Owner (registered freeholder):</b>
<input type="text"/>	<input type="text"/>

<b>Date ownership changed:</b>	<b>Address of new owner (if different from address of building)</b>
<input type="text"/>	<input type="text"/>

**Contact details** To help us effect the transfer quickly and accurately, please enter the name, company name, telephone number and email of the person who filled out this form.

<b>Name:</b>	<b>Company Name:</b>
<input type="text"/>	<input type="text"/>

<b>Telephone:</b>	<b>Email:</b>
<input type="text"/>	<input type="text"/>

<b>Send transfer notification form to:</b>	<b>Alternatively for further enquiries:</b>
<b>Colorcoat Connection® helpline,</b> Tata Steel UK Limited General Office, Shotton Works, Deeside, Flintshire, CH5 2NH	T: +44 (0) 1244 892434 Email: <a href="mailto:colorcoat.connection@tatasteelurope.com">colorcoat.connection@tatasteelurope.com</a> W: <a href="http://www.colorcoat-online.com">www.colorcoat-online.com</a>

## Confidex® Photovoltaic (PV) Addendum used with PV frame modules

This document is an addendum to and must be read in conjunction with the Confidex® Guarantee by Tata Steel

Confidex® Guarantee No. 64060

PV Addendum Issued 28 / 06 / 2024

This addendum forms part of the Confidex® Guarantee and provides the additional terms on which the Confidex® Guarantee covers Colorcoat HPS200 Ultra® and 3 layer Colorcoat Prisma® Solid, Metallic and Matt colours launched on 1st October 2017 used on a roof or wall that has a PV installation. Owing to the potentially more aggressive environment created beneath / behind / adjacent to the PV array, additional terms and conditions are required to mitigate the increased risks of corrosion and degradation of the Colorcoat HPS200 Ultra® and Colorcoat Prisma® due to reduced natural wash down.

The inclusion of PV installations on a roof or wall is likely to result in unequal colour fade between those areas of the roof exposed to sunlight and natural weathering and those areas of the roof or wall which are shaded by the PV array. Such differential fading is normal and to be expected.

If a replacement Confidex® Guarantee incorporating this addendum is issued in respect of a retro-fit PV installation on a Colorcoat HPS200 Ultra® or Colorcoat Prisma® roof or wall then the replacement guarantee will be valid for the unexpired period of the original guarantee.

### Terms and Conditions

1. The Guarantee applies to Colorcoat HPS200 Ultra® and Colorcoat Prisma® Solid, Metallic and Matt colours when used on a roof or wall on to which PV panels are mounted on a suitable framework supported above and fixed indirectly to the cladding sheets / panels. The guarantee does not apply to Colorcoat HPS200 Ultra® or Colorcoat Prisma® onto which a PV system is directly bonded. The Guarantee does not apply to roofs or walls to which PV is installed if the external cladding sheets/panels are not using Colorcoat HPS200 Ultra® or Colorcoat Prisma®.
2. The PV array must be installed such that effective cleaning and maintenance can be undertaken, including any future repair or maintenance which might be required under the Guarantee. Safe access and roof safety systems must be considered and the building Health and Safety file must include details of the design considerations and risk control measures to allow inspection, cleaning and construction work on the building at any time. Specifically, the design of the array should give adequate regard to the need to clean underneath the PV units to remove any build-up of general contamination and debris, which would invalidate the guarantee.
3. In the unlikely event of a claim arising due to failure of any areas of cladding beneath or adjacent to the PV array, it will be solely the responsibility of the building owner to provide safe and adequate access to allow Tata Steel to investigate and instigate remedial measures as deemed necessary by Tata Steel. In any case, Tata Steel will not be responsible for removing / replacing PV panels, their mounting brackets / framework or cabling to facilitate repair or replacement of cladding sheets or panels.
4. Areas of cladding affected by the PV array should not be considered "maintenance free to maintain the validity of the Confidex® Guarantee" because they are more likely to accumulate debris and dirt and are less exposed to rainfall. Accordingly, roofing or walls covered by PV arrays must be regularly cleaned and accurate records of cleaning must be retained for future reference. The frequency of maintenance / cleaning operations should be commensurate with local environmental conditions. Particularly harsh environments including (but not limited to) heavy industrial exposure, locations subject to salt deposition and areas affected by leaf litter will inevitably require more rigorous and frequent attention to ensure the ongoing validity of the guarantee. Cleaning and maintenance should be carried out in accordance with Tata Steel's Inspection and Maintenance brochure which forms an integral part of this guarantee. The guide can be downloaded from [www.colorcoat-online.com](http://www.colorcoat-online.com)
5. The Guarantee does not apply to failure or damage caused by or due to any alteration to the Colorcoat HPS200 Ultra® or Colorcoat Prisma® product caused by the PV array installation including (but not limited to) perforations for mounting brackets, additional fasteners, cabling penetrations and associated sealants.

#### Technical enquiries

##### **Colorcoat Connection® helpline**

T: +44 (0)1244 892434

E: [colorcoat.connection@tatasteel.com](mailto:colorcoat.connection@tatasteel.com)

W: [www.colorcoat-online.com](http://www.colorcoat-online.com)

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# Cleaning and Maintenance Regimes



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## Cleaning and Maintenance Regimes

This maintenance schedule for **P23-027 The Range, Stowmarket** is to be followed from PC date **24/10/2024** year on year to ensure all plant and equipment is kept within warranty.

Please keep a log of these inspections so that records can be checked should an issue arise.

Code; ✓ **Blue – Recommended** ✓ **Red – To Maintain Warranty**

Item	Daily	Weekly	Monthly	3 Months	6 Months	9 Months	Annually	5 Yearly	Certificates	Regime
Roof / Wall Cladding & Gutters					✓		✓		2.0 Confidex	<p><b>Records of inspections for the roofing &amp; cladding should kept using Tata Inspection + Maintenance Prefinished Steel document</b></p> <p>It is recommended that a six-monthly inspection be carried out to monitor the performance condition of the roof and wall cladding, checking for: -</p> <ul style="list-style-type: none"> <li>(i) Mechanical damage</li> <li>(ii) Heavy soiling</li> <li>(iii) Storm damage</li> <li>(iv) Loos fixings</li> <li>(v) Corrosion/deterioration of cladding, roofing materials and gutter coatings.</li> </ul> <p>These checks should also be carried out immediately following storm conditions</p>

Item	Daily	Weekly	Monthly	3 Months	6 Months	9 Months	Annually	5 Yearly	Certificates	Regime
Sub-Contract Bird Proofing System							✓			<p><b>Bird net</b> – should be periodically checked to ensure the perimeter fixings, straining wire, hog rings and brackets (if fitted) are sound. Any suspect parts should be changed. The tension in the straining wire should be checked and altered as required.</p> <p><b>Bird wire</b> – the wire tension should be periodically checked and adjusted as required. Any springs that have been stretched beyond their elastic limit (an indication of third-party damage) should be replaced.</p> <p><b>Bird spikes</b> – ensure the strips are still adhering to the substrate and any loose ones should be replaced with new.</p> <p><b>Avishock</b> – ensure that no debris builds up on the track causing a short and before attempting to remove any debris ensure the track has been isolated. Periodically check its voltage.</p> <p>Maintenance inspections should be at least annually and depending on the location could be as much as quarterly.</p> <p>Over time, as dirt particles and/or litter accumulate, they can be removed by hand and the surfaces brushed clean with a soft brush. There is no set timescales for this, rather it is completed as required.</p>

Item	Daily	Weekly	Monthly	3 Months	6 Months	9 Months	Annually	5 Yearly	Certificates	Regime
GRP Weathering details							✓			Annual Inspection to include: Drainage channels check Debris removed to prevent build up. Visual inspection - <b>tightness of all fixings should be checked.</b>  Clean with high pressure water and/or steam cleaner, exercise care as the sealing of the system may be compromised. <i>Recommended Cleaning Solutions</i> - Household Soap, Household Detergent

### INSPECTION, MAINTENANCE & CLEANING RECOMMENDATIONS

We are obliged to point out that all contractors and their employees must, AT ALL TIMES, comply with the Health and Safety at Work Act and all subordinate legislation.

It is recommended that a six-monthly inspection be carried out to monitor the performance condition of the roof and wall cladding, checking for: -

- (i) Mechanical damage
- (ii) Heavy soiling
- (iii) Storm damage
- (iv) Loose fixings.
- (v) Corrosion/deterioration of cladding, roofing materials and gutter coatings.

These checks should also be carried out immediately following storm conditions.





It is essential that all access to the roof is recorded indicating the area of roof accessed and maintenance requirements followed up with records of the maintenance work carried out, when and by whom.

In particular it should include a detailed examination of the roof. All debris, leaves etc., should be removed from the whole roof area including gutters and rainwater outlets.

Gutters/outlets should initially be subject to more regular inspections to determine appropriate inspection frequency governed by particular site conditions.

On completion of the inspection all necessary repairs are to be carried out without delay.

Any storm or impact damage is to be rectified immediately.

Failure to attend promptly to leaks could lead to premature deterioration of roofing/cladding components.

Cleaning and inspection is to be carried out by skilled personnel under strict supervision.

High pressure hoses should not be used since these can have an adverse effect on seals and coatings.

**NOTE:**

We draw your attention to suppliers' maintenance recommendations included elsewhere within this manual.

**ACCESS PROCEDURES**

No person should have access to the roof unless under the direct supervision of an individual who should be sufficiently competent to assess and take action to minimise any risks.

Access to the roof should be avoided when the roof is wet or in slippery conditions.

Areas of roof access are to be defined by the person responsible for maintenance/cleaning operations and controlled to ensure that only these areas are used for access.



General care should be taken in terms of footwear when walking on the roof to carry out either inspection or maintenance to general roof areas. It is important that appropriate footwear is worn, and their soles checked to ensure that they are not contaminated with abrasive items e.g., grit etc., which could damage the roof finish.

Maintenance records are to be kept as stated in the Maintenance Schedule.

Ladders must not be leant against the wall cladding.

In order to mitigate damage caused by foot traffic/access the client is advised to obtain a comprehensive Method Statement from any person or firm carrying out maintenance or cleaning work.

### FLOODING

If rainwater outlets/overflows get blocked, there is a possibility that rainwater will enter the building. On single ply membrane roofs this could lead to an overloading of the structure. It is therefore IMPORTANT that all outlets and overflows are checked regularly to ensure they are performing as designed.

### DISMANTLING/DISPOSAL/REMOVAL OF CLADDING PANELS

It is not practical to provide Method Statements or Risk Assessments for removal of panels since different specialist Cladding Contractors will have different preferences of approach to this issue.

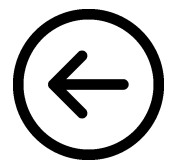
There may also be changes to the building configuration that affect access or other safety considerations

We therefore recommend that a specialist Cladding Contractor, who will prepare job specific Method Statements based on the prevailing conditions, carries out such operations. The Client should make 'As Built' drawings available for reference purposes.

Guidance on disposal precautions is given on the Material Safety Data Sheets / EPD statements for the individual elements.

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# Data Sheets



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**P23-027 The Range, Stowmarket - Fit Out (SW189)**

**SECTION 4 - MATERIAL SUPPLIERS DIRECTORY**

Supplier	Contact Details
<b>Hathaway Roofing Ltd</b> Tindale Crescent Bishop Auckland Co Durham DL14 9TL	Tel: 01388 605636 <a href="http://www.hathaway-roofing.co.uk">www.hathaway-roofing.co.uk</a>
<b>Euroclad Group</b> Wentloog Corporate Park Wentloog Cardiff CF3 2ER	Tel: 02922 010101 <a href="http://www.eurocladgroup.com">www.eurocladgroup.com</a>
<b>Avid Pest Control Ltd</b> Office 1 Vanguard Business Centre Alperton Lane Western Avenue Greenford Middlesex UB6 8AA	Tel: 0208 991 8226 <a href="http://www.avidpestcontrol.co.uk">www.avidpestcontrol.co.uk</a>
<b>Jones &amp; Woolman (UK) Ltd</b> Croxstalls Road Bloxwich Walsall West Midlands WS3 2XU	Tel: 01922 712111 <a href="http://www.jandwuk.com">www.jandwuk.com</a>

**TATA STEEL**

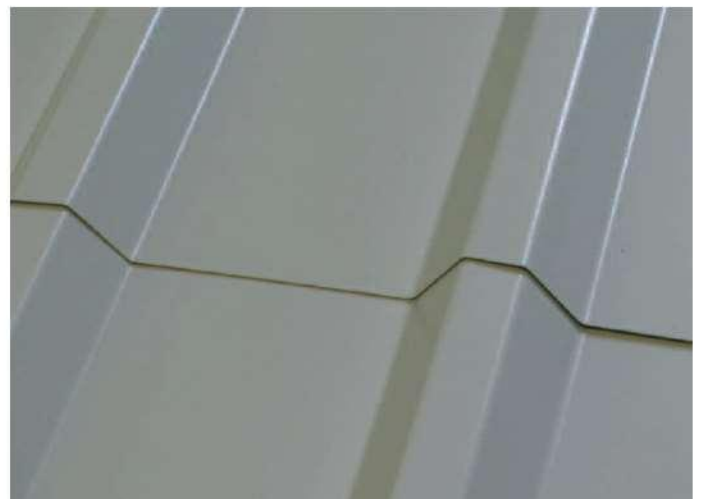


## **Inspection and maintenance guidance**

For pre-finished steel building envelopes

# Inspection and maintenance

To secure the best possible performance and life-time from pre-finished steel cladding, a structured maintenance regime is recommended. This document details the main areas that need to be checked and actioned as part of an ongoing inspection and maintenance programme are outlined. This then provides the basis for an easy-to-use 'inspection survey template' that can be included with any handover documents once a building is operational. The templates can be copied and used on site to note the location of any issues or areas of concern, record any recommended remedial action and confirm the completion of these.



## The inspection regime

Tata Steel has developed and manufactured pre-finished steel for use within roof and wall cladding systems since 1965 so has vast experience in this area. This supports the provision of best practice advice for the inspection and maintenance of pre-finished steel building envelopes. Good inspection and maintenance practice will repay the careful building owner with the best possible performance in terms of appearance, durability and lifespan.

This Inspection and Maintenance guide should be included in the Building Operation and Maintenance manual for future reference. Copies can be downloaded from [www.colorcoat-online.com](http://www.colorcoat-online.com)

How often should inspections take place? They should be carried out periodically through the building's lifetime. It is difficult to quantify how often as different building locations and designs will demand different levels of maintenance. It is suggested that the building be inspected after the first year of occupation to assess future maintenance requirements and the duration required between inspections.

In line with Health & Safety Executive (HSE) latest Work at Height Regulations, every effort must be made to avoid having to go on to the roof to facilitate inspections. It may be possible to inspect the roof from a cherry picker, an access hatch or with binoculars from ground level or adjacent buildings.

For more information about safe working at heights visit [www.colorcoat-online.com/site\\_safety](http://www.colorcoat-online.com/site_safety)

Colorcoat HPS200 Ultra®, with its outstanding performance and exceptional durability, and Colorcoat Prisma®, with the ultimate combination of durability and aesthetic appeal, have been developed for optimum performance in normal weathering conditions. This means that these products, when used as part of a roof or wall cladding system, will not require any annual inspections to maintain the validity of the Confidex® Guarantee for the entire guarantee period. This supports HSE guidance about minimising roof visits and reduces building service costs. Should a claim need to be made in this guarantee period there is no requirement to provide maintenance and inspection reports to Tata Steel.

### Photovoltaic panel installations

When photovoltaic (PV) panels are installed on pre-finished steel roofs, the sheeting is no longer exposed to normal weathering conditions and washdown by rainfall. This can result in an accumulation of debris, dirt and airborne salts underneath the PV array and additional maintenance and inspection will be required.

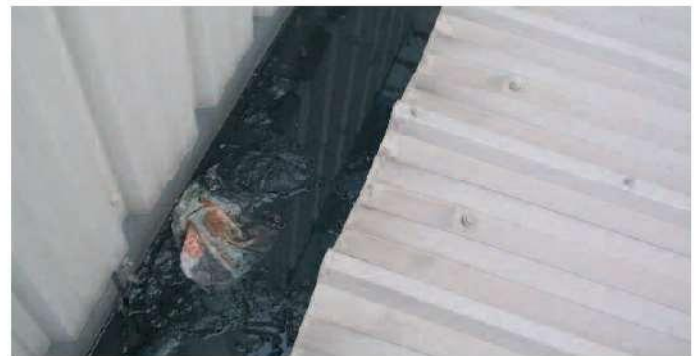
When Colorcoat HPS200 Ultra® is used, the Confidex® Guarantee will remain valid underneath any mechanically attached PV system,

provided the additional requirements of the PV addendum are followed.

These include:

- The area of cladding under the PV cannot be considered maintenance and inspection free.
- The area must be regularly cleaned, and accurate records of cleaning retained for future reference.
- The frequency of cleaning/maintenance should be commensurate with local environmental conditions.

## Dealing with potential maintenance issues



Build up of dirt in a gutter.

### Build up of dirt and debris

A build up of dirt and debris can occur on all surfaces, on all elevations and on roof cladding. Such build up will be particularly profound at any irregularity, such as at corners, penetrations and gutters. In some environments such as industrial estates and areas close to busy roads, dirt will build up more quickly than elsewhere. Rainfall will have a degree of washing effect. However, any area of the building sheltered from rain, for example, the top of roller doors, overhanging eaves or underneath photovoltaic panels, will not benefit from this natural cleaning effect.



Dirt build up on cladding.

## Cleaning

Cleaning should be carried out when dirt and debris are visibly apparent, not merely out of habit. The presence of dirt and debris not only affects the appearance, but may also lead to a breakdown of the coating. Furthermore, over many years, corrosion of the metal substrate may occur if a 'poultice' of debris, dirt, retained water and aggressive chemicals is allowed to build up.

Large quantities of debris can also lead to the overflowing or ponding of water, particularly in guttering, which may also lead to corrosion. To avoid this, debris should be swept into a pile, using a soft-bristled brush and removed. Shovels or hard tools should be avoided. All dirty areas should then be washed down using clean water. Do not use salt water or high pressure jets with a hose. If necessary use a recommended cleaning product, or a 10% solution of a good household or industrial detergent in water, before applying a final hose down with clean water. A soft-bristled brush can be used for particularly stubborn deposits.

For details of recommended cleaning products contact the Colorcoat Connection® helpline on +44 (0) 1244 892434.

Oil can be removed by wiping the area with white spirit before cleaning and rinsing as for general dirt and debris.

In some areas birds can be a nuisance. A build up of bird droppings can occur on roofs and this may significantly alter the pH of the surface water run off. Buildings used as communal roosts, where an excessive build up of bird droppings is possible, should be regularly monitored and cleaned down.

## Graffiti

Graffiti can be removed with specialist cleaners, and over-paint systems are available. These fall into three categories:

- Specialist graffiti removal products such as solvents and gels.
- Waxy sacrificial anti-graffiti treatments can be post-applied to the pre-finished steel. These can be power-washed off, removing graffiti and the treatment at the same time. Re-application of the treatment would then be required.
- Anti-graffiti coatings can also be applied. These render any graffiti easy to clean off, using hot water or cleaning solutions and do not need re-application after the graffiti is removed.

## Build up of fungal growth

Fungal growth can occur on virtually any surface when the micro-environment is conducive to it. Colorcoat HPS200 Ultra® and Colorcoat Prisma® are formulated to be resistant to mould growth but in extreme circumstances this can still be problematic.

In general, fungi grow as a result of certain conditions, such as the presence of fungal spores, moisture and also of nutrients from various types of dirt. As with dirt and debris, fungal growth will not only affect the appearance, but can also lead to a breakdown of the coating and ultimately result in corrosion of the sheet. Washing the surface can remove fungal growth. A basic solution may be applied to a pre-washed surface by means of a low pressure spray or brush containing:

Household detergent	0.5%
Trisodium Phosphate	3.0%
5% Sodium Hypochlorite solution	25.0%
Clean, fresh water	71.5%

This should be rinsed thoroughly with clean water after treatment.



Mould growth on pre-finished steel cladding.



## Physical damage

Physical damage may occur for a number of reasons such as impact and abrasion. If there is minor damage, such as scuffing of the paint coating less than the depth of any emboss, then no remedial action is required. If there is more serious damage, such as breaching of the paint coating, then remedial action is suggested. If the coating has been breached, then the metal substrate will be vulnerable to corrosion. The repair of breaching should be carried out by removing any loose or flaking paint, cleaning the area and, when dry, covering the breach using a recommended touch-up paint. If the metallic coating has been breached, exposing the underlying steel, then application of an air-curing zinc rich paint can be used to replenish the sacrificial protection layer. It is important to ensure that any applied paint is no wider than the original scratch. To achieve this, the paint should be applied with a medium-to-fine artist's paintbrush. If the damage is extensive, the panel should be replaced, which is easy to do with pre-finished steel.

## Natural breakdown of the coating

In the case of natural breakdown of the coating, a decision must be made as to the severity of the breakdown. Ultimately, over-painting or re-cladding may be necessary. The minimum Period to Re-paint Decision (PRD) is the minimum length of time before any such decision will be necessary for a given pre-finished steel product.

For more information about PRD and durability visit [www.colorcoat-online.com/durability](http://www.colorcoat-online.com/durability)

Caution must be exercised as over-painting is not simply a case of applying proprietary paint to the surface of the cladding. It is important that a compatible coating solution is defined and the use of an approved contractor will ensure correct application. Tata Steel can recommend appropriate over-paint solutions.

For more information about over-painting and over-cladding solutions visit [www.colorcoat-online.com/refurbishment\\_solutions](http://www.colorcoat-online.com/refurbishment_solutions)



Wall cladding being over-painted.

## Construction debris

Metallic debris, such as swarf, rivet stems or other debris that may remain after construction or modification to the building will be vulnerable to corrosion, leading to an unsightly staining of the cladding. Debris of this nature should simply be removed at as early a stage as possible, carefully so as not to damage the underlying coating.

Staining caused by the corrosion of construction debris can be removed using a 5% Hydrochloric acid solution. This should be followed by thorough washing and rinsing as with general dirt and debris. Specialist cleaning products may be required for particularly stubborn marks.

Other debris may include expanded foam, bitumen, tar and mastics, all of which require specialist cleaners. Concrete, cement and plaster may also be present as debris and can be removed with a 5% Phosphoric acid solution. This should be followed by thorough washing and rinsing as with general dirt and debris.



Swarf left on a roof.

### Strippable film

If strippable film is left in place for too long then the adhesive sets and the tack increases to the point where the removal of the film becomes difficult and sometimes impossible. This can also apply to UV-opaque black films if left for long enough. The removal of bonded film or residual adhesive can typically be carried out using WD40 or white spirit, followed by thorough washing and rinsing as with regular dirt and debris. It is important that the manufacturers specific advice on film removal is always followed.

### Faulty fasteners

Fasteners which are faulty through damage or corrosion should be removed and replaced. Corrosion can lead to unsightly staining and potential corrosion of the cladding. Caps, if used, should be placed over uncovered fasteners, or replaced if damaged. Inappropriate fasteners of incorrect material or design should also be replaced as again they could lead to corrosion of the panels.



Damaged fastener on roof cladding.

### Site cut edges

A cut edge is an area of exposed substrate where a pre-finished steel cladding sheet has been cut. All exposed, site cut edges must be produced to an optimum standard. Where it is not possible to protect the site cut edge from weathering by a cover flashing, they should be treated with a suitable edge protection paint or lacquer. The requirement for this sort of protection is particularly important in:

- Highly aggressive environments such as marine and industrial.
- Low and very low-pitched roofs.



Cut edge on roof cladding.

Burrs at cut edges should be minimised by effective shearing practice. Where possible the down burr edges should be on the down slope edge of the roof pitch.

On damaged edges, remedial treatment is achieved by abrading back the effects of corrosion and then applying a suitable primer and topcoat to match the colour of the existing cladding.

### Penetrations

Check around existing penetrations, such as pipe-work and rooflights where the panels have been breached. Clearly, these penetrations have a significant site cut edge and so should be treated as for site cut edges, or sealed using recommended solutions. These areas will be vulnerable to corrosion and ponding, which should be avoided by using the appropriate weather protection.



A penetration in roof cladding.

For more information about building components visit [www.colorcoat-online.com/building\\_components](http://www.colorcoat-online.com/building_components)

## Inspection and maintenance checklist

Check for	Action
Build up of dirt and debris	Remove debris and wash these areas.
Build up of fungal growth	Remove growth and wash these areas.
Physical damage and natural coating breakdown	Assess the extent of the damage or breakdown and either repair it with touch-up paint, replace the panel or over-paint using a specialist contractor.
Construction debris	Immediately remove all debris.
Strippable film	Remove the film and wash these areas with an appropriate solution.
Faulty fasteners	Replace the fasteners and any missing caps.
Site cut edges	Use approved maintenance products.
Penetrations	Use specialist contractors and approved maintenance products.
Photovoltaic installation	See specific requirements of the Confidex® Guarantee PV addendum for Colorcoat HPS200 Ultra®

## Roof and wall maintenance survey

Maintenance survey completed by

Date of maintenance survey

Date of next scheduled maintenance survey

Locations	Maintenance issues	Remedial action required	Completed?
Roof cladding sheets	<input type="checkbox"/> Build up of dirt/debris <input type="checkbox"/> Damage to coating <input type="checkbox"/> Exposed cut edges <input type="checkbox"/> Penetrations <input type="checkbox"/> Temporary coatings or adhesive labels		
Roof cladding fixings	<input type="checkbox"/> Inappropriate, incorrectly fitted and/or corroding <input type="checkbox"/> Broken or missing washers or covers		
Gutters, hoppers, gullies and down pipes	<input type="checkbox"/> Build up of dirt/debris <input type="checkbox"/> Build up of fungal growth <input type="checkbox"/> Damage to coating <input type="checkbox"/> Exposed cut edges		
Flashings including ridge cappings	<input type="checkbox"/> Build up of dirt/debris <input type="checkbox"/> Build up of fungal growth <input type="checkbox"/> Damage to coating <input type="checkbox"/> Exposed cut edges		
Eaves and verges	<input type="checkbox"/> Build up of dirt/debris <input type="checkbox"/> Build up of fungal growth <input type="checkbox"/> Damage to coating		

## Roof and wall maintenance survey continued

Locations	Maintenance issues	Remedial action required	Completed?
Penetrative features	<input type="checkbox"/> Build up of dirt/debris		
	<input type="checkbox"/> Exposed cut edges		
Access hatches	<input type="checkbox"/> Build up of dirt/debris		
	<input type="checkbox"/> Build up of fungal growth		
	<input type="checkbox"/> Build up of mould		
Upstands and parapet sheets	<input type="checkbox"/> Build up of dirt/debris		
	<input type="checkbox"/> Build up of fungal growth		
	<input type="checkbox"/> Damage to coating		
	<input type="checkbox"/> Exposed cut edges		
	<input type="checkbox"/> Penetrations		
	<input type="checkbox"/> Temporary protective films or adhesive labels		
Wall cladding sheets	<input type="checkbox"/> Build up of dirt/debris		
	<input type="checkbox"/> Build up of fungal growth		
	<input type="checkbox"/> Damage to coating		
	<input type="checkbox"/> Exposed cut edges		
	<input type="checkbox"/> Penetrations		
Wall cladding fixings	<input type="checkbox"/> Broken or missing washers or covers		
	<input type="checkbox"/> Inappropriate and/or corroding		
Sealant, filler blocks and isolation tape	<input type="checkbox"/> Inappropriate and/or corroding		
	<input type="checkbox"/> Perished, mouldy or missing		

[www.colorcoat-online.com](http://www.colorcoat-online.com)

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**Colorcoat Connection® helpline**

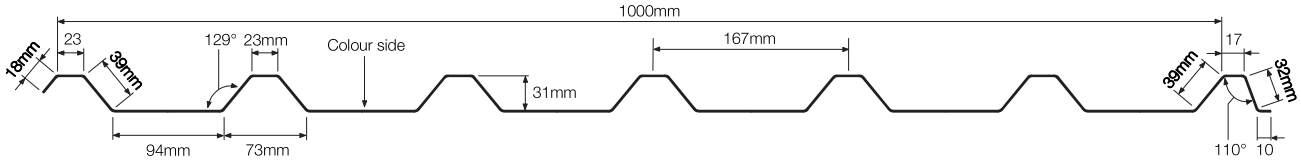
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Language English 0115

# ROOF CLADDING PROFILES

## 32/1000 Forward · Steel



### Dimension details

Cover width	1,000mm
Profile pitch	167mm
Profile depth	32mm
Crown width	23mm
Valley width	94mm
Rib width	73mm
Web	39mm
Overlap (left as shown above)	12mm (minimum)
Underlap (right as shown above right)	12mm

### Weight per linear metre

0.5mm	4.823 kgs
0.7mm	6.753 kgs
0.9mm	8.682 kgs

Tolerance on all dimensions as per BS EN 508 – 2.

## 32/1000 Forward Steel · Load/Span tables – working load UDL (kN/m<sup>2</sup>)

Load factor (working load to ultimate) = 1.5

		SPAN (m)																	
		1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	
GRAVITY	L/200	Thickness																	
	Single Span	0.5mm	3.86	3.51	2.97	2.53	2.18	1.90	1.60	1.34	1.13	0.96	0.82	0.71	0.62	0.54	0.47	0.42	0.37
	Double Span	0.5mm	2.14	1.86	1.64	1.45	1.30	1.17	1.06	0.96	0.88	0.80	0.74	0.68	0.63	0.59	0.55	0.51	0.48
	Multi Span	0.5mm	2.53	2.21	1.95	1.73	1.55	1.39	1.26	1.15	1.05	0.97	0.89	0.82	0.76	0.71	0.66	0.62	0.58
	Single Span	0.7mm	6.49	5.36	4.50	3.84	3.31	2.87	2.37	1.97	1.66	1.41	1.21	1.05	0.91	0.80	0.70	0.62	0.55
	Double Span	0.7mm	3.72	3.22	2.81	2.48	2.20	1.97	1.78	1.61	1.46	1.34	1.23	1.13	1.04	0.97	0.90	0.84	0.78
	Multi Span	0.7mm	4.44	3.84	3.37	2.97	2.65	2.37	2.14	1.94	1.77	1.62	1.49	1.37	1.27	1.18	1.09	1.02	0.92
	Single Span	0.9mm	8.45	6.99	5.87	5.00	4.31	3.74	3.08	2.57	2.17	1.84	1.58	1.36	1.19	1.04	0.91	0.81	0.72
	Double Span	0.9mm	5.50	4.73	4.11	3.61	3.20	2.85	2.56	2.31	2.10	1.91	1.75	1.61	1.49	1.37	1.28	1.19	1.11
Multi Span	0.9mm	6.59	5.68	4.95	4.36	3.86	3.45	3.10	2.81	2.55	2.33	2.13	1.96	1.81	1.68	1.52	1.35	1.20	

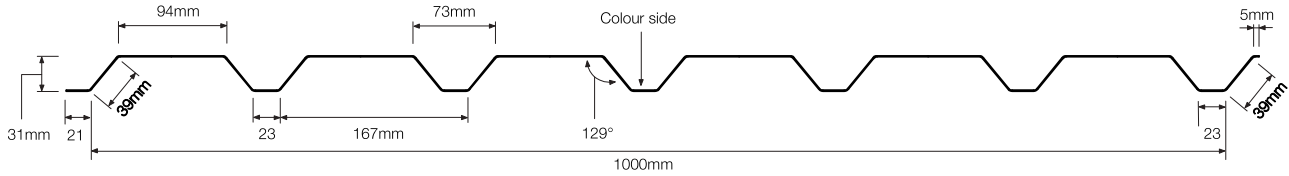
Load factor (working load to ultimate) = 1.5

		SPAN (m)																	
		1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	
UPLIFT	L/200	Thickness																	
	Single Span	0.5mm	3.84	3.17	2.67	2.27	1.87	1.52	1.25	1.04	0.88	0.75	0.64	0.55	0.48	0.42	0.37	0.33	0.29
	Double Span	0.5mm	2.24	1.96	1.72	1.53	1.37	1.23	1.12	1.02	0.93	0.86	0.79	0.73	0.68	0.63	0.59	0.55	0.49
	Multi Span	0.5mm	2.65	2.32	2.04	1.82	1.63	1.47	1.34	1.22	1.12	1.03	0.95	0.88	0.80	0.70	0.62	0.55	0.49
	Single Span	0.7mm	5.76	4.76	4.00	3.41	2.86	2.32	1.91	1.59	1.34	1.14	0.98	0.85	0.74	0.64	0.57	0.50	0.45
	Double Span	0.7mm	3.95	3.42	3.00	2.65	2.36	2.12	1.91	1.73	1.58	1.44	1.33	1.22	1.13	1.05	0.94	0.84	0.74
	Multi Span	0.7mm	4.70	4.08	3.58	3.17	2.83	2.54	2.30	2.09	1.90	1.74	1.60	1.41	1.23	1.07	0.94	0.84	0.74
	Single Span	0.9mm	7.74	6.40	5.38	4.58	3.91	3.18	2.62	2.18	1.84	1.56	1.34	1.16	1.01	0.88	0.78	0.69	0.61
	Double Span	0.9mm	5.77	4.98	4.34	3.81	3.38	3.02	2.72	2.46	2.23	2.04	1.87	1.72	1.58	1.47	1.29	1.14	1.02
Multi Span	0.9mm	6.90	5.96	5.21	4.59	4.08	3.65	3.28	2.97	2.70	2.47	2.23	1.93	1.68	1.47	1.29	1.14	1.02	

Tables calculated by the SCI to EN 1993-1-3 (Eurocode EC3).

# WALL CLADDING PROFILES

## 32/1000 Reverse · Steel



### Dimension details

Cover width	1,000mm
Profile pitch	167mm
Profile depth	32mm
Crown width	23mm
Valley width	94mm
Rib width	73mm
Web	40mm
Overlap (left as shown above)	21mm
Underlap (right as shown above right)	5mm (minimum)

### Weight per linear metre

0.5mm	4.823 kgs
0.7mm	6.753 kgs
0.9mm	8.682 kgs

Tolerance on all dimensions as per BS EN 508 – 2.

## 32/1000 Reverse Steel · Load/Span tables – working load UDL (kN/m<sup>2</sup>)

Load factor (working load to ultimate) = 1.5

		SPAN (m)																		
		L/200	Thickness	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60
POSITIVE PRESSURE	Single Span	0.5mm	3.84	3.17	2.67	2.27	1.96	1.71	1.50	1.33	1.17	1.00	0.85	0.74	0.64	0.56	0.49	0.44	0.39	
	Double Span	0.5mm	2.24	1.96	1.72	1.53	1.37	1.23	1.12	1.02	0.93	0.86	0.79	0.73	0.68	0.63	0.59	0.55	0.52	
	Multi Span	0.5mm	2.65	2.32	2.04	1.82	1.63	1.47	1.34	1.22	1.12	1.03	0.95	0.88	0.82	0.76	0.71	0.66	0.62	
	Single Span	0.7mm	5.76	4.76	4.00	3.41	2.94	2.56	2.25	1.99	1.78	1.52	1.31	1.13	0.98	0.86	0.76	0.67	0.59	
	Double Span	0.7mm	3.95	3.42	3.00	2.65	2.36	2.12	1.91	1.73	1.58	1.44	1.33	1.22	1.13	1.05	0.98	0.91	0.85	
	Multi Span	0.7mm	4.70	4.08	3.58	3.17	2.83	2.54	2.30	2.09	1.90	1.74	1.60	1.48	1.37	1.27	1.19	1.11	0.99	
	Span	0.9mm	7.74	6.40	5.38	4.58	3.95	3.44	3.03	2.68	2.39	2.08	1.79	1.54	1.34	1.18	1.03	0.92	0.81	
	Double Span	0.9mm	5.77	4.98	4.34	3.81	3.38	3.02	2.72	2.46	2.23	2.04	1.87	1.72	1.58	1.47	1.36	1.27	1.18	
	Multi Span	0.9mm	6.90	5.96	5.21	4.59	4.08	3.65	3.28	2.97	2.70	2.47	2.27	2.09	1.93	1.79	1.66	1.53	1.36	

Load factor (working load to ultimate) = 1.5

		SPAN (m)																		
		L/200	Thickness	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60
SUCTION	Single Span	0.5mm	3.86	3.51	2.97	2.53	2.18	1.90	1.67	1.48	1.32	1.18	1.07	0.95	0.82	0.72	0.63	0.56	0.50	
	Double Span	0.5mm	2.14	1.86	1.64	1.45	1.30	1.17	1.06	0.96	0.88	0.80	0.74	0.68	0.63	0.59	0.55	0.51	0.48	
	Multi Span	0.5mm	2.53	2.21	1.95	1.73	1.55	1.39	1.26	1.15	1.05	0.97	0.89	0.82	0.76	0.71	0.66	0.62	0.58	
	Single Span	0.7mm	6.49	5.36	4.50	3.84	3.31	2.88	2.53	2.24	2.00	1.80	1.62	1.40	1.21	1.06	0.93	0.83	0.74	
	Double Span	0.7mm	3.72	3.22	2.81	2.48	2.20	1.97	1.78	1.61	1.46	1.34	1.23	1.13	1.04	0.97	0.90	0.84	0.78	
	Multi Span	0.7mm	3.72	3.22	2.81	2.48	2.20	1.97	1.78	1.61	1.46	1.34	1.23	1.13	1.04	0.97	0.90	0.84	0.78	
	Single Span	0.9mm	8.45	6.99	5.87	5.00	4.31	3.76	3.30	2.93	2.61	2.34	2.10	1.82	1.58	1.38	1.22	1.08	0.96	
	Double Span	0.9mm	5.50	4.73	4.11	3.61	3.20	2.85	2.56	2.31	2.10	1.91	1.75	1.61	1.49	1.37	1.28	1.19	1.11	
	Multi Span	0.9mm	6.59	5.68	4.95	4.36	3.86	3.45	3.10	2.81	2.55	2.33	2.13	1.96	1.81	1.68	1.56	1.45	1.35	

Tables calculated by the SCI to EN 1993-1-3 (Eurocode EC3).



September 2011

# Plastisol based pre-finished steel

## Safety data sheet

### 1. Identification of the Substance and company

#### 1.1

<b>Other names:</b>	Colorcoat HPS200 Ultra <sup>®</sup> , Colorcoat <sup>®</sup> LG, Colorcoat <sup>®</sup> EGP
<b>Description:</b>	A plastisol based coating on hot dip metallic coated steel sheet or coil.

#### 1.2

Use – for cladding buildings (internally and externally) and also general engineering.

#### 1.3

<b>Company:</b>	Tata Steel, Shotton Works, Deeside, Flintshire, North Wales, CH5 2NH, UK
<b>Telephone:</b>	0044 (0) 1244 892434
<b>Normal Hours:</b>	Technical Enquiries Department
<b>Email:</b>	colorcoat.connection@tatasteel.com

#### 1.4

<b>Emergency:</b>	Contact Security Department on 0044 (0) 01244 812345
-------------------	--

### 2. Hazards Identification

#### 2.1

Pre-finished steel with plastisol based coatings are not classified as dangerous under both the EU Dangerous Substances (67/548/EEC) / Preparations (1999/45/EC) Directives, and according to the Classification, Labelling and Packaging of substances and mixtures (CLP) regulations (EC)1272/2008).

Under normal application we do not recommend the following activities and advise against carrying them out on our product. Mechanical working such as dry grinding / sanding and hot working such as welding or flame cutting could potentially give rise to hazardous dust / fumes from components of the coating layers. Section 3 (Composition/information on ingredients) identifies the main components of the pre-finished steel and those, which may be hazardous. Strontium chromate is present in small quantities in the backing coat and top coat primer and is known to be carcinogenic as well as reproductive toxic and classified as very toxic to aquatic organisms and may cause long-term adverse effects to the aquatic environment. Zinc is present within the hot dip metallic coating layer of the product, exposure to zinc (oxide) fumes should not occur as we advise against the activities listed above. Exposure to zinc (oxide) fume can lead to operators experiencing flu like symptoms, which could occur after exposure.

#### 2.2

No label required, no signal word required.

#### 2.3

Pre-finished steel has sharp edges and corners and precautions should be taken when handling and storing. Under normal conditions of use and storage these materials are stable and non-toxic.

### 3. Composition / information on ingredients

#### 3.1

Plastisol based coatings applied to hot dipped galvanised steel sheet and zinc/aluminium alloy coated steel sheet. The reverse surface of the sheet is usually coated with a single coat polyester backing system but may also be supplied as a double sided plastisol product.

Strontium chromate is present in small quantities in the backing coat and primer layer. This is fully encapsulated within the X linked polymer resin base. The solvent components of the liquid paint are not present in the finished product. The table details the general



composition of the steel substrate and the metallic and organic layers of the coating. Based on 0.4mm gauge material, the organic coating represents approximately 7.5% of the weight of the finished product and the strontium chromate within that coatings is >0.1% by weight and the zinc/aluminium metallic coating being 8% by weight.

Once the plastisol and polyester are cured they are deemed non-hazardous, as they become un-reactive inert materials, which protect the zinc/(aluminium) and steel layers resulting in zero exposure to any of the substances present in the layers if the correct application methods are applied.

**Table showing typical composition of the product range based on 0.4mm pre-finished steel gauge with a ZA255 metallic coating**

Product area	Substance	EINECS No.	CAS No.	(%) By Weight	Hazard Class (Dangerous Sub/Prep Dir)	Hazard Class (CLP Regs)
Steel Substrate	Iron	231-096-4	7439-89-6	~ 81.0%	---	---
	Carbon	231-153-3	7440-44-0	~ 0.50%	---	---
Hot dip metallic coating	Zinc	231-175-3	7440-66-6	~ 7.60%	---	---
	Aluminium (in Galvalloy <sup>®</sup> substrate)	231-175-3	7440-66-6	~ 0.40%	---	---
Organic coating layers (Paints)	PVC resin base	---	---	~ 6.0%	---	---
	Strontium Chromate	232-142-6	7789-06-02	~ 0.1%	Carc. Cat. 2; R45 Xn; R22 N; R50-53	Carc. 1B; H350 Acute Tox. 4; H302 Aquatic Acute 1; H400 Aquatic Chronic 1; H410
	Polymer Resins	---	---	~ 1.5%	---	---

For double sided products, the backing coat is replaced by the Top coat and Primer, which will increase total % SrCrO<sub>4</sub> to ~0.20% maximum.

#### 4. First aid measures

##### 4.1

**Skin contact:** Cuts (lacerations) to the skin from sharp steel edges, treat as a normal cut and if required seek medical attention.

**Eye contact:** If particles enter the eye then wash the eye with running water for at least ten minutes. Seek medical advice if irritation persists.

**Inhalation:** If hot work such as welding / burning causes exposure to significant concentrations of fume/dust, remove to fresh air. Seek medical attention if symptoms such as coughing persist.

**Ingestion:** None required.

##### 4.2

The most important symptoms and effects for eye exposure are soreness and irritation are the main symptoms.

##### 4.3

Immediate medical attention is required if lacerations are deep.

#### 5. Fire fighting measures

Non-flammable and has a high melting point of >1000°C. This product has a very low calorific value and reaction to fire classification. If the product is involved in a fire there is a potential for carbon monoxide to be released through combustion. In the event of fire, suitable and approved respiratory equipment should be worn by fire services.

#### 6. Accidental release measures

Not applicable.



## 7. Handling and Storage

### 7.1 Handling

The supplied coiled or bundled product may be secured by banding straps, which have been fitted under tension and should not, under any circumstances, be used to lift the product.

When released, the coiled or bundled product itself or the banding straps can spring loose and cause impact injury to the eyes, face or any other part of the body. Certain products may, as a result of processing, be brittle or have residual stress, which can cause them to fracture or move significantly. Shearing these products, may produce flying debris and operators should be trained and aware of these issues prior to handling this material.

All products are likely to have sharp edges, which could cause lacerations. Operators should wear suitable protective clothing and equipment, such as hand and eye protection.

### 7.2 Storage

Some products may be secured by using straps or bands but they could cause injury to eyes or other injuries when tension is released. There may be sharp edges present, which could cause lacerations. Store in the appropriate facility to prevent damage, use suitable racks or stillages that will ensure stability. Lifting should always be done to prevent personal (injury) damage to the operators and lifting equipment is advised at all time to move the steel unless a full risk assessment has been carried out.

## 8. Exposure controls and personal protection

### 8.1 Control parameters (Occupational Exposure Limits (OELs))

Current Workplace Exposure Limits (WEL) (EH40/2005 as revised to Oct 2007). Please note these exposure limits are not directly associated with the product but with possible exposures that may occur when performing certain activities, which are advised against and which may give rise to specific hazards.

Country in EU with OEL for the relevant substance	Substance					
	Iron oxide (Fe <sub>2</sub> O <sub>3</sub> & FeO) as Iron		Dust inhalable		Dust respirable (also applicable as fume)	
	8 hr TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	8 hr TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	8 hr TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )
Austria	5.0 (resp)	10.0 (resp)	10.0	20.0	5.0	10.0
Belgium	5.0	---	10.0	---	3.0	---
Denmark	3.5	7.0	10.0	20.0	---	---
France	---	---	10.0	---	5.0	---
Germany (AGS)	---	---	10.0	20.0	3.0	6.0
Germany (DFG)	---	---	4.0	---	1.5	---
Hungary	6.0 (resp)	---	10.0	---	6.0	---
Poland	5.0	10.0	---	---	---	---
Spain	5.0	---	10.0	---	3.0	---
Sweden	3.5	---	10.0	---	5.0	---
United Kingdom	5.0	---	10.0	---	4.0	---
TWA - Time Weighted Average measured over an 8 hour period						
STEL - Short Term Exposure Limit Value – 15 minute duration						
Resp - Respirable fraction of dust						

### 8.2 Control Measures

Wear suitable gloves, overalls and eye/face protection when handling the pre-finished steel to prevent cuts and abrasions.

If hot work activities such as welding or burning or mechanical abrasion are to take place then local exhaust ventilation (LEV) should be used to remove any fume produced. During the use of LEV systems the manufacturers instructions and guidance should be followed at all times so that there is sufficient capture hood and capture velocity and the air cleaning system is in good working order. If a large amount of fume is generated then in conjunction with the LEV, use of suitable and approved respiratory protection should be worn if exposure is likely to be above the OEL. Ori-nasal respirators fitted with either a P2 or P3 filter (EN149: FFP2S / FFP3S) may be used when fume levels are high depending on concentration. Manufacturers directions for use must be followed and where applicable an RPE face fit test should be successfully completed before use. It should be necessary to prove a tight fitting face seal via face fit testing.



## 9. Physical and chemical properties

Property	Value used
Physical State at 20 °C/ 1013 hPa	Solid
Form	Hard, dense silver/grey coloured metallic solid with external paint layer
Melting point	1450-1520 °C at 1013 hPa (steel); 419 °C at 1013 hPa (zinc)
Boiling point	Not applicable
Relative density	7.85 kg/dm <sup>3</sup> at 20 °C
Vapour pressure	Not applicable steels due to high melting point >1000 °C
Surface tension	Not applicable steels are an inorganic solid with very low aqueous solubility
Flash point	Not applicable steels are an inorganic solid with a high melting point >1000 °C
Flammability	Reaction to fire class C
Explosive properties	Non explosive
Oxidising properties	No
Viscosity	Solid

## 10. Stability and reactivity

The product is stable under normal conditions. When heated to high temperatures (>1000 °C) it may give rise to fumes (iron oxide).

## 11. Toxicological information

Under the general applications of this product health effects should not occur due to the low risk of exposure to minimal hazard material. If the following activities are carried out, mechanical working, such as dry grinding or machining or hot work such as welding and burning, dust / fume will be produced which may contain irritating components at sufficiently high enough concentrations. The principal route of entry into the body is via inhalation as fume/dust.

### Acute toxicity

Excessive fume/dust may cause irritation and can be potentially harmful if inhaled into the body in large amounts over long time periods. This is not expected under normal use of the product.

### Skin corrosion / irritation

The potential fumes/dust arising is not known to be an irritant.

### Eye damage / irritation

The potential fumes/dust arising is not known to be an irritant.

### Respiratory / Skin sensitisation

The potential fumes/dust arising is not known to cause sensitisation.

### Germ cell mutagenicity

No effect. No exposure under normal use

### Carcinogenicity

No effect.

### Reproductive toxicity

No effect. No exposure under normal use

### Repeated dose toxicity - Inhalation

Exposure to iron oxide fume, in excessive concentrations and over long periods of time, may cause a benign condition called siderosis. Repeated inhalation could lead to cumulative effects. This condition is not expected under normal use of the product.

## 12. Ecological information

There are no known harmful effects from the product to the environment. Under general application exposure to the environment should not occur.

### 12.1 Toxicity

No effect.



#### 12.2 Persistence and Degradability

No effect.

#### 12.3 Bioaccumulative potential

No effect.

#### 12.4 Mobility in soil

No effect.

#### 12.5 Results of PBT and vPvB assessment

Plain carbon steel is not PBT or vPvB.

### 13. Disposal considerations

Steel products are 100% recyclable and should be recycled at "end of life" in all situations.

### 14. Transport information

Plain carbon steel is not classified as dangerous under CLP or Dangerous Substances Directive for transport so there is no requirement for transport information. All subheadings in this section are not applicable for this product.

### 15. Regulatory information

#### 15.1

Plain carbon steel specifications are covered by numerous ISO standards. All steels covered by this safety data sheet comply with the packaging and packaging waste EC Directive 94/62/EEC on heavy metal content, the Restriction of Hazardous substances directive 2002/95/EC and the End of Life Vehicle directive 2000/53/EC. The iron manufactured and used to produce this steel product has been registered under REACH along with any other component where a registration was required.

#### 15.2

A Chemical Safety Assessment has not been carried out as steel is defined as an article under REACH and does not require an assessment, plus it is not classified as dangerous under the CLP Regulations (EC)1272/2008 and or the Dangerous Substances Directive (67/548/EEC).

### 16. Other Information

#### Revision

This safety data sheet (SDS) has been produced / revised in line with Annex II of the REACH Regulations (2006) as guidance only, as articles do not require a SDS. Information in this safety data sheet is supplied to inform the customer and should be used where necessary.

This revision is the current version dated **September 2011**

Previous Versions: *November 2010, June 2009 (as Corus), September 2008 (as Corus), March 2002 (as Corus)*

**Risk and Safety Phrases according to (67/548/EEC):** No Risk phrases.

**Hazard and Precautionary Statements according to CLP Regulations (EC)1272/2008:** No Hazard statements.

#### References

GESTIS International Limit Values Institut fuer Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA) – website: [http://bgia-online.hvbg.de/LIMITVALUE/WebForm\\_gw.aspx](http://bgia-online.hvbg.de/LIMITVALUE/WebForm_gw.aspx)

#### Disclaimer

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# SPECIALIST COATINGS LIMITED



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## CLEANING OF THE POLYESTER POWDER COATING SYSTEMS

As with any organic coating, in order to retain the aesthetic qualities and the expected long-term durability of the Polyester Powder Coating System, it is important that the coating is cleaned regularly. The frequency of cleaning depends upon the environment in which the coating is in service.

For areas of 'normal' urban environment we recommend a maximum period of 6-9 months between cleaning operations, unless any undue soiling is apparent on the coating, in which case cleaning should be more frequent. In areas of high pollution, marine and swimming pool environments cleaning should be carried out every 3 months. Care must be taken to ensure that the more inaccessible areas are cleaned to the same standard as the open areas.

It should be noted that one of the conditions of our Guarantee is that the coating is cleaned at the specified frequency and that the building occupier retains proof of cleaning. These cleaning records would be needed should a claim arise against the guarantee. Cleaning of the Polyester Powder Coating is an important part of the routine maintenance of any building. It is for this reason that we advise that only companies who specialise in this type of work are used for large cleaning operations.

The coating is to be closely examined on a regular basis for abrasions, scratches, or scuffs. These areas are to be detailed on a building plan depicting the type of damage e.g. surface only, or through to substrate. Records to be kept of all cleaning carried out including contractor and materials used.

### Cleaning of Small Areas

The Polyester Powder Coating can be cleaned by using a solution of mild detergent in warm water (e.g. Upol-5%). All surfaces should be cleaned using a soft cloth, sponge or a natural bristle brush. Abrasive materials should be avoided, as they will damage the coating. If the powder coating has become heavily soiled it may be difficult to remove this soiling using only a mild detergent. In order to overcome this problem any mild, non-abrasive household cleaner may be used (after applying to a small test area first). Cleaners containing esters, ketones or chlorinated hydrocarbons must not be used.

Should oil or grease deposits exist, strong solvents must not be used to remove them. White spirit has been tested and approved for this purpose. Whilst tests show that products of this type may be used successfully in the removal of heavy surface deposits, particular care must be exercised in their use to avoid any scuffing of the powder coating. It is recommended that in all cases, such products are reserved for heavy soiling only and should be tested on small areas of the soiled powder coating first to assess their efficiency. After application, all detergents and cleaners must be thoroughly rinsed away with clean water.

## REMOVAL OF ALKALINE DEPOSITS

The powder coated component is more often than not installed in close proximity to concrete based construction materials. Rainfall can cause alkaline substances to leach from those materials and deposit themselves on the surface of the Polyester Powder Coating (this usually occurs when the concrete is new). By using the correct process, it should be possible to remove the alkaline deposits without causing damage to the Polyester Powder Coating.

**Visual effect of alkaline deposit:** Hard glaze/powder deposit.

### Method of Removal

The use of specialist cleaning contractors is recommended. The following acids and alkalis have been tested, in conjunction with powder coating, and have shown no detrimental effect.

- Sulphuric acid - 30%
- Phosphoric acid - 30%
- Acetic acid - 20%
- Nitric acid - 30%
- Hydrochloric acid - 30%
- Lactic acid - 10%
- Citric acid - 10%
- Ammonia - 10%
- Hydrogen peroxide - 30%

(All chemicals should be applied to a small test area before commencing any cleaning procedure and, following application, all chemicals should be rinsed away with clean water.)

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Registered No: 2792107 Vat No: 605 5028 69



Reg. No. 026360

# SPECIALIST COATINGS LIMITED



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## WARNING

Extreme caution should be taken when using strong brick/glass cleaners. When it is necessary to use these materials, which are available in varying concentrations, all adjacent areas coated with the Polyester Powder Coating must be fully protected. Please contact us for further advice.

## SITE APPLIED REMEDIAL SYSTEMS (FOR SCRATCHES OR SMALL AREAS OF DAMAGE)

Wherever possible, Polyester Powder Coating items that have been damaged should be reprocessed by an Approved Applicator. However, if the Polyester Powder Coating suffers on site damage and the coated item cannot be removed it should be repaired using a suitable colour matched remedial liquid paint system from Specialist Coatings Ltd.

The particular method of repair, and repair system to be adopted, will be dictated by the nature of the required repair. Comprehensive product data and method statements are available from reputable paint suppliers. The method statement will describe:-

1. Surface preparation
2. Practice to be adopted if bare substrate is showing
3. Practice to be adopted if impact damage has resulted in indentations that need to be filled.

It is important to recognise that liquid repair systems are unlikely to have durability equivalent to the original Polyester Powder Coating, and, accordingly, repaired areas may weather differently. No warranty is expressed or implied by Specialist Coatings Ltd. relative to the use of repair and remedial paint systems and it remains the responsibility of the user / specifier to ensure that any repair system is suitable for the purpose intended.

Remedial systems are general-purpose air-drying paints for the repair of the factory applied Polyester Powder Coating. If there is any query concerning the quality of the Polyester Powder Coating then the Approved Applicator who coated the work should be consulted immediately. All remedial systems and the areas of metalwork coated in these materials are expressly excluded from the Polyester Powder Coating guarantee. The Polyester Powder Coating guarantee will continue to apply to any 'unrepaired' area of Polyester Powder Coating, on any component, where the Polyester Powder Coating has been unaffected by the repair.

**THE ABOVE INFORMATION IS GIVEN IS BASED ON DATA OBTAINED FROM RELIABLE SOURCES AND IS BELIEVED TO BE CORRECT, HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED.**

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Reg. No. 026360

# Teodur® AP

## Polyester Architectural AE Matt

### AE30017700020 RAL 7000 SQUIRREL GREY

Polyester Architectural is a standard durability TGIC free and lead free polyester powder coating, especially formulated for application on aluminum extrusion and sheets, steel and galvanized steel substrates. Polyester Architectural meets the requirements of the building industry thanks to its excellent outdoor durability and mechanical properties.



#### Characteristics

- Matt Smooth
- Solid
- Tribo/Corona

#### Colour Chart

- RAL 840-HR

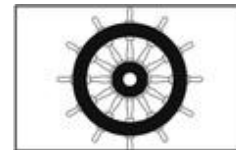
#### Usage Area

- Aluminum profiles and sheets
- Verandas, doors, window frames, facades
- Urban furniture
- Steel or galvanized steel for cladding



#### Approvals

Qualicoat	Class 1: P-0720, P-0397, P-0713, P-0862, P-1640
GSB	Florida 1: 171k
Marine	CE 0575, CE 2690



- This powder coating complies with the European Directives "Restriction of the use of certain hazardous substances" 2011/65/EU and 2015/863/EU (RoHS)
- Meets the requirements of AAMA 2603-15
- Meets the requirements of EN 12206-1 (formerly BS 6496), EN 13438 (formerly BS 6497)
- Classification A2 (non flammable) of reaction to fire in accordance with NF EN 13501-1 + A1: 2013

The following data has been obtained under laboratory conditions as described below. Actual product properties such as gloss, colour and finish may vary depending on application conditions.



#### Test Conditions

- Curing Conditions (object temperature) 10 min @ 190°C
- Substrate 0,8 mm AA5005 Aluminium panels (AA6060 or AA6063 for Acetic Salt Spray)
- Film thickness 70 ± 10 µm  
EN ISO 2360

#### Physical Data

- Density 1,57 g/cm<sup>3</sup>  
calculated





## Product Performance / Film Properties

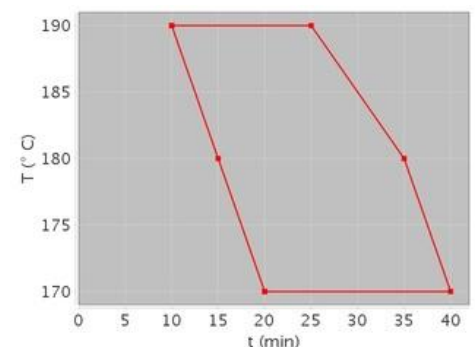
Gloss @ 60° EN ISO 2813	30 ± 5
Impact Resistance EN ISO 6272 / ASTM D2794	2,5 Nm / 22 inch-pound
Adhesion EN ISO 2409	GTO
Buchholz Hardness EN ISO 2815	80
Erichsen Cupping EN ISO 1520	5 mm
Cylindrical Mandrel Bending EN ISO 1519	5 mm
Kesternich (SO <sub>2</sub> ) 30 cycles EN ISO 3231	No change
Acetic Salt Spray 1000 h EN ISO 9227	Maximum 16 mm <sup>2</sup> infiltration over a scratch length of 10 cm
Resistance to Boiling Water	No defect or peeling after 2 hours
Humidity Chamber 1000 h EN ISO 6270-2	No blistering
Mortar Resistance EN 12206-1	No change (in accordance with Qualicoat requirements)
Weathering - Florida EN ISO 2810	1 year, Residual gloss ≥ 50%, Colour change ΔE: According to Qualicoat requirements, Colour Change ΔL*, ΔC*: According to GSB
Accelerated weathering - Xenon lamp EN ISO 16474-2	1000 hours, Residual gloss ≥ 50%, Colour change ΔE: According to Qualicoat requirements
Accelerated Weathering - UVB-313 EN ISO 16474-3	300 hours, Residual gloss ≥ 50%



## Curing Conditions (object temperature)

Can be cured using a variety of methods, e.g. IR, convection, combi ovens. In direct gas ovens, combustion by-products may cause significant colour changes (for specific advice, please contact us).

10-25 min @ 190°C  
15-35 min @ 180°C  
20-40 min @ 170°C





## Storage Stability

24 months/35°C

Shelf life applies to materials stored in sealed plastic bags under dry and cool conditions.



## Substrate Preparation

- On aluminium, steel and hot-dip galvanized steel: both chemical pre-treatment and mechanical surface preparation are compatible with Polyester Architectural. Surface preparation should be chosen according to type of substrate and required performance.
- On steel and hot-dip galvanized steel, corrosion resistance may be further enhanced by the use of our Alesta® ZeroZinc protective primers (please contact us for further information).
- The suitability of the surface preparation should be tested by the coater beforehand using appropriate test methods. Reference should be made to guidelines issued by Qualicoat, Qualisteelcoat and GSB.



## Application

- Do not mix this product with other powder coatings.
- Substrate should be correctly cleaned before use.
- Can be applied with manual or automatic guns.
- Film thickness: application settings will depend upon the geometry of the object being coated as well as the required film thickness. It is the responsibility of the applicator to make the appropriate adjustments. Certain colours should be applied at higher film thickness to ensure full coverage and therefore colour homogeneity. Below this limit, colour variation may occur due to differences in film thickness.
- Great care is taken during our manufacturing process but small variations in colour and/or appearance are unavoidable with effect colours. Therefore we recommend that a single batch of powder coating should be used to coat parts that will be subsequently assembled together. Differences are more likely with effect powder coatings such as metallic, pearlescent, speckled, textured and combinations thereof. Differences will be more easily visible on large coated parts such as cladding panels, flat sheets etc.
- Recycling of the powder: possible up to 30 % with exception of some metallic and pearlescent products (please contact us for details).



## Comments

- Certain chemicals or domestic cleaning products may cause damage to the appearance of the coating. We recommend testing a small inconspicuous area first to confirm suitability.
- For maintenance of material coated with Polyester Architectural powder coating, it is extremely important to follow our recommendations (defined in the Alesta® AP warranty document).
- Strict implementation of the correct maintenance procedure is needed to maintain the validity of the warranty and the decorative appearance of the coating.
- Coated parts should be packed after they are fully cooled using suitable materials that are free of plasticizers. Packaged parts should be stored under cover to avoid the formation of condensation (for example under plastic wrapping film) which could result in permanent marks on the surface of the coating.



## Safety

Consult the Safety Data Sheet prior to use

The information provided herein corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials or additives or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since Axalta cannot anticipate all variations in actual end-use conditions Axalta makes no warranties and assumes no liability in connection with any of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights.

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# Teodur® AP

## Polyester Architectural AE Matt

### AE30017701620 RAL 7016 ANTHRACITE GREY

Polyester Architectural is a standard durability TGIC free and lead free polyester powder coating, especially formulated for application on aluminum extrusion and sheets, steel and galvanized steel substrates. Polyester Architectural meets the requirements of the building industry thanks to its excellent outdoor durability and mechanical properties.



#### Characteristics

- Matt Smooth
- Solid
- Tribo/Corona

#### Colour Chart

- RAL 840-HR

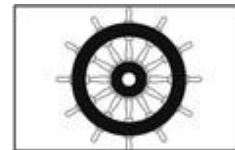
#### Usage Area

- Aluminum profiles and sheets
- Verandas, doors, window frames, facades
- Urban furniture
- Steel or galvanized steel for cladding



#### Approvals

Qualicoat	Class 1: P-0720, P-0397, P-0713, P-0862, P-1640
GSB	Florida 1: 171k
Marine	CE 0575, CE 2690



- This powder coating complies with the European Directives "Restriction of the use of certain hazardous substances" 2011/65/EU and 2015/863/EU (RoHS)
- Meets the requirements of AAMA 2603-15
- Meets the requirements of EN 12206-1 (formerly BS 6496), EN 13438 (formerly BS 6497)
- Classification A2 (non flammable) of reaction to fire in accordance with NF EN 13501-1 + A1: 2013

The following data has been obtained under laboratory conditions as described below. Actual product properties such as gloss, colour and finish may vary depending on application conditions.



#### Test Conditions

• Curing Conditions (object temperature)	10 min @ 190°C
• Substrate	0,8 mm AA5005 Aluminium panels (AA6060 or AA6063 for Acetic Salt Spray)
• Film thickness EN ISO 2360	70 ± 10 µm

#### Physical Data

• Density calculated	1,57 g/cm³
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## Product Performance / Film Properties

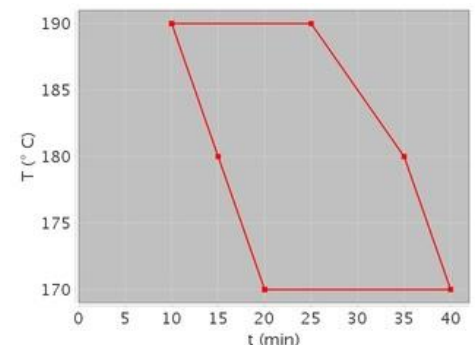
Gloss @ 60° EN ISO 2813	30 ± 5
Impact Resistance EN ISO 6272 / ASTM D2794	2,5 Nm / 22 inch-pound
Adhesion EN ISO 2409	GTO
Buchholz Hardness EN ISO 2815	80
Erichsen Cupping EN ISO 1520	5 mm
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Acetic Salt Spray 1000 h EN ISO 9227	Maximum 16 mm <sup>2</sup> infiltration over a scratch length of 10 cm
Resistance to Boiling Water	No defect or peeling after 2 hours
Humidity Chamber 1000 h EN ISO 6270-2	No blistering
Mortar Resistance EN 12206-1	No change (in accordance with Qualicoat requirements)
Weathering - Florida EN ISO 2810	1 year, Residual gloss ≥ 50%, Colour change ΔE: According to Qualicoat requirements, Colour Change ΔL*, ΔC*: According to GSB
Accelerated weathering - Xenon lamp EN ISO 16474-2	1000 hours, Residual gloss ≥ 50%, Colour change ΔE: According to Qualicoat requirements
Accelerated Weathering - UVB-313 EN ISO 16474-3	300 hours, Residual gloss ≥ 50%



## Curing Conditions (object temperature)

Can be cured using a variety of methods, e.g. IR, convection, combi ovens. In direct gas ovens, combustion by-products may cause significant colour changes (for specific advice, please contact us).

10-25 min @ 190°C  
15-35 min @ 180°C  
20-40 min @ 170°C





## Storage Stability

24 months/35°C

Shelf life applies to materials stored in sealed plastic bags under dry and cool conditions.



## Substrate Preparation

- On aluminium, steel and hot-dip galvanized steel: both chemical pre-treatment and mechanical surface preparation are compatible with Polyester Architectural. Surface preparation should be chosen according to type of substrate and required performance.
- On steel and hot-dip galvanized steel, corrosion resistance may be further enhanced by the use of our Alesta® ZeroZinc protective primers (please contact us for further information).
- The suitability of the surface preparation should be tested by the coater beforehand using appropriate test methods. Reference should be made to guidelines issued by Qualicoat, Qualisteelcoat and GSB.



## Application

- Do not mix this product with other powder coatings.
- Substrate should be correctly cleaned before use.
- Can be applied with manual or automatic guns.
- Film thickness: application settings will depend upon the geometry of the object being coated as well as the required film thickness. It is the responsibility of the applicator to make the appropriate adjustments. Certain colours should be applied at higher film thickness to ensure full coverage and therefore colour homogeneity. Below this limit, colour variation may occur due to differences in film thickness.
- Great care is taken during our manufacturing process but small variations in colour and/or appearance are unavoidable with effect colours. Therefore we recommend that a single batch of powder coating should be used to coat parts that will be subsequently assembled together. Differences are more likely with effect powder coatings such as metallic, pearlescent, speckled, textured and combinations thereof. Differences will be more easily visible on large coated parts such as cladding panels, flat sheets etc.
- Recycling of the powder: possible up to 30 % with exception of some metallic and pearlescent products (please contact us for details).



## Comments

- Certain chemicals or domestic cleaning products may cause damage to the appearance of the coating. We recommend testing a small inconspicuous area first to confirm suitability.
- For maintenance of material coated with Polyester Architectural powder coating, it is extremely important to follow our recommendations (defined in the Alesta® AP warranty document).
- Strict implementation of the correct maintenance procedure is needed to maintain the validity of the warranty and the decorative appearance of the coating.
- Coated parts should be packed after they are fully cooled using suitable materials that are free of plasticizers. Packaged parts should be stored under cover to avoid the formation of condensation (for example under plastic wrapping film) which could result in permanent marks on the surface of the coating.



## Safety

Consult the Safety Data Sheet prior to use

The information provided herein corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials or additives or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since Axalta cannot anticipate all variations in actual end-use conditions Axalta makes no warranties and assumes no liability in connection with any of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights.

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# Alesta® AP

## Polyester Architectural AE Matt

### AE30007018823 RDS 180 40 05

Polyester Architectural is a standard durability TGIC free and lead free polyester powder coating, especially formulated for application on aluminum extrusion and sheets, steel and galvanized steel substrates. Polyester Architectural meets the requirements of the building industry thanks to its excellent outdoor durability and mechanical properties.



#### Characteristics

- Matt Smooth
- Solid
- Corona

#### Usage Area

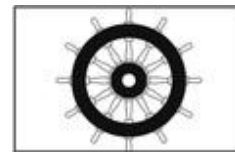
- Aluminum profiles and sheets
- Verandas, doors, window frames, facades
- Urban furniture
- Steel or galvanized steel for cladding



#### Approvals

Qualicoat  
GSB  
Marine\*

Class 1: P-0720, P-0397, P-0713, P-0862, P-1640  
Florida 1: 171k  
CE 0575 (Sw, De, Uk), CE 2690 (Fr)



- Product approved by QUALICOAT
- QUALICOAT is a quality label for licensed coater
- This powder coating complies with the European Directives "Restriction of the use of certain hazardous substances" 2011/65/EU and 2015/863/EU (RoHS)
- Meets the requirements of AAMA 2603-15
- Meets the requirements of EN 12206-1 (formerly BS 6496), EN 13438 (formerly BS 6497)
- Classification A2 (non flammable) of reaction to fire in accordance with NF EN 13501-1:2018
- -----
- \* not valid for all production plants. Please consult us.

The following data has been obtained under laboratory conditions as described below. Actual product properties such as gloss, colour and finish may vary depending on application conditions.



#### Test Conditions

- Curing Conditions (object temperature) 10 min @ 190°C
- Substrate 0,8 mm AA5005 Aluminium panels (AA6060 or AA6063 for Acetic Salt Spray)
- Film thickness 70 ± 10 µm  
EN ISO 2360

#### Physical Data

- Density 1,49 g/cm³  
calculated





## Product Performance / Film Properties

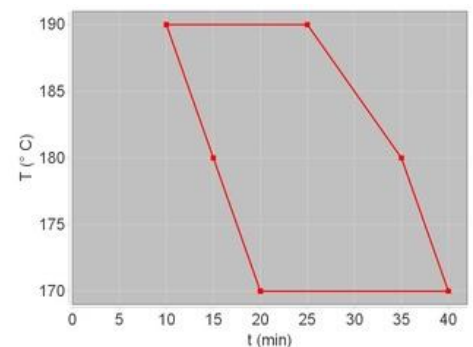
Gloss @ 60° EN ISO 2813	30 ± 5
Impact Resistance EN ISO 6272 / ASTM D2794	2,5 Nm / 22 inch-pound
Adhesion EN ISO 2409	GTO
Buchholz Hardness EN ISO 2815	80
Erichsen Cupping EN ISO 1520	5 mm
Cylindrical Mandrel Bending EN ISO 1519	5 mm
Mar Resistance (Martindale) CEN/TS 16611 (according to Qualicoat)	Residual gloss 50-70 %
Kesternich (SO <sub>2</sub> ) 30 cycles EN ISO 3231	No change
Acetic Salt Spray 1000 h EN ISO 9227	Maximum 16 mm <sup>2</sup> infiltration over a scratch length of 10 cm
Resistance to Boiling Water	No defect or peeling after 2 hours
Humidity Chamber 1000 h EN ISO 6270-2	No blistering
Mortar Resistance EN 12206-1	No change (in accordance with Qualicoat requirements)
Weathering - Florida EN ISO 2810	1 year, Residual gloss ≥ 50%, Colour change ΔE: According to Qualicoat requirements, Colour Change ΔL*, ΔC*: According to GSB
Accelerated weathering - Xenon lamp EN ISO 16474-2	1000 hours, Residual gloss ≥ 50%, Colour change ΔE: According to Qualicoat requirements
Accelerated Weathering - UVB-313 EN ISO 16474-3	300 hours, Residual gloss ≥ 50%



## Curing Conditions (object temperature)

Can be cured using a variety of methods, e.g. IR, convection, combi ovens. In direct gas ovens, combustion by-products may cause significant colour changes (for specific advice, please contact us).

10-25 min @ 190°C  
15-35 min @ 180°C  
20-40 min @ 170°C





## Storage Stability

24 months/35°C

Shelf life applies to materials stored in sealed plastic bags under dry and cool conditions.



## Substrate Preparation

- On aluminium, steel and hot-dip galvanized steel: both chemical pre-treatment (including pre-anodising for aluminium) and mechanical surface preparation are compatible with Polyester Architectural. Surface preparation should be chosen according to type of substrate and required performance.
- On steel and hot-dip galvanized steel, corrosion resistance may be further enhanced by the use of our Alesta® ZeroZinc protective primers (please contact us for further information).
- The suitability of the surface preparation should be tested by the coater beforehand using appropriate test methods. Reference should be made to guidelines issued by Qualicoat, Qualisteelcoat and GSB.



## Application

- Do not mix this product with other powder coatings.
- Substrate should be correctly cleaned before use.
- Can be applied with manual or automatic guns.
- Film thickness: application settings will depend upon the geometry of the object being coated as well as the required film thickness. It is the responsibility of the applicator to make the appropriate adjustments. Certain colours should be applied at higher film thickness to ensure full coverage and therefore colour homogeneity. Below this limit, colour variation may occur due to differences in film thickness.
- Great care is taken during our manufacturing process but small variations in colour and/or appearance are unavoidable with effect colours. Therefore we recommend that a single batch of powder coating should be used to coat parts that will be subsequently assembled together. Differences are more likely with effect powder coatings such as metallic, pearlescent, speckled, textured and combinations thereof. Differences will be more easily visible on large coated parts such as cladding panels, flat sheets etc.
- Recycling of the powder: possible up to 30 % for solid colours. For special finishes (for example metallic, pearlescent, speckled), please refer to our website and the 'Metallics are us - Tips for Users' guide.



## Comments

- Certain chemicals or domestic cleaning products may cause damage to the appearance of the coating. We recommend testing a small inconspicuous area first to confirm suitability.
- For maintenance of material coated with Polyester Architectural powder coating, it is extremely important to follow our recommendations (defined in the Alesta® AP warranty document).
- Strict implementation of the correct maintenance procedure is needed to maintain the validity of the warranty and the decorative appearance of the coating.
- Coated parts should be packed after they are fully cooled using suitable materials that are free of plasticizers. Packaged parts should be stored under cover to avoid the formation of condensation (for example under plastic wrapping film) which could result in permanent marks on the surface of the coating.



## Safety

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# Alesta® AP

## Polyester Architectural AE Matt

### AE30015001423 ± RAL 5013 COBALT BLUE

Polyester Architectural is a standard durability TGIC free and lead free polyester powder coating, especially formulated for application on aluminum extrusion and sheets, steel and galvanized steel substrates. Polyester Architectural meets the requirements of the building industry thanks to its excellent outdoor durability and mechanical properties.



**Characteristics**

- Matt Smooth
- Solid
- Tribo/Corona

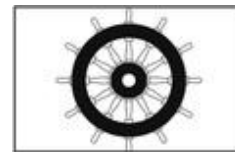
**Usage Area**

- Aluminum profiles and sheets
- Verandas, doors, window frames, facades
- Urban furniture
- Steel or galvanized steel for cladding



**Approvals**

Qualicoat	Class 1: P-0720, P-0397, P-0713, P-0862, P-1640
GSB	Florida 1: 171k
Marine	CE 0575, CE 2690



- This powder coating complies with the European Directives "Restriction of the use of certain hazardous substances" 2011/65/EU and 2015/863/EU (RoHS)
- Meets the requirements of AAMA 2603-15
- Meets the requirements of EN 12206-1 (formerly BS 6496), EN 13438 (formerly BS 6497)
- Classification A2 (non flammable) of reaction to fire in accordance with NF EN 13501-1 + A1: 2013

The following data has been obtained under laboratory conditions as described below. Actual product properties such as gloss, colour and finish may vary depending on application conditions.



**Test Conditions**

- Curing Conditions (object temperature) 10 min @ 190°C
- Substrate 0,8 mm AA5005 Aluminium panels (AA6060 or AA6063 for Acetic Salt Spray)
- Film thickness 70 ± 10 µm  
EN ISO 2360

**Physical Data**

- Density 1,52 g/cm³  
calculated



## Product Performance / Film Properties

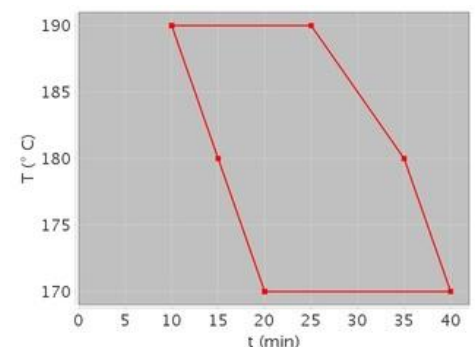
Gloss @ 60° EN ISO 2813	30 ± 5
Impact Resistance EN ISO 6272 / ASTM D2794	2,5 Nm / 22 inch-pound
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# **OPERATION & MAINTENANCE MANUAL**

**For**

**Hathaway Roofing Ltd**

**Bird Proofing Systems**

**At**

**The Range Gateway Stowmarket Suffolk IP14**

## **Contents**

- 1 Contents & Introduction
- 2 Scope of Works
- 3 Suppliers Products
- 4 Cleaning & Maintenance
- 5 Access for Cleaning & Maintenance
- 6 Replacement
- 7 Dismantling and disposal
- 8 Drawing Register
- 9 Ironmongery Schedule
- 9 Test Certificates & Guarantees
- 11 Building Regulations & Other Statutory Approval
- 12 Spares
- 13 Residual Hazard
- 14 COSHH
- 15 Design Calculations

**All correspondence should be addressed to the trade contractor below**

Email [info@Avidpestcontrol.co.uk](mailto:info@Avidpestcontrol.co.uk)

Contact Alan Scott



## 2 Scope of Works

Installation of pigeon deterrent systems to:

### SPECIFICATION

## 3 Products Used

### Bird net Specification

Standard netting fabric	knotted, 380 denier, 12/6 twine, polyethylene, UV stabilised net
Colours & gauge	19, 28, 50 mm
Straining Wire	7x7 stainless steel core filament wire rope Breaking strain of 2mm rope – 240kg
Diameter Tolerance	1.98mm to 2.14mm
Weight	1.7kg/100m
Masonry Fixings	M6 eyebolts constructed from stainless steel, complete with expansion shield and nut. Intermediate fixings include stainless steel fixings suitable for masonry and/or wood
Barrel Tensioners	150mm long, stainless steel as standard
Hog rings	Stainless steel.
Wire rope ferrules	Seamless copper ferrules designed for use on ropes between 2.00mm and 2.40mm in diameter.

12/6 twine means that each strand of Bird-Net material consists of twelve individual strands braided together in pairs.

Fixings are installed around the perimeter of the area to be protected at approximately 0.5m centres, with M6 eyebolts in corners or at ten metre intervals. The stainless-steel perimeter wire is strung through the fixings and tensioned manually with a barrel strainer.

The net is secured to the net using hog-rings (like closed staples). The edges are then trimmed down using hand shears to produce a neat finish.

### Bird spikes Specification

Base	50mm wide UV stabilised acrylonitrile polystyrene
Spikes (versions)	1.3mm x 115mm stainless steel (varies slightly with different versions)
Adhesive	Neutral high-performance adhesive

### **Bird wire Specification**

Posts	4mm stainless steel, 150mm or 100mm long. (Multi-holed long pins are 6mm diameter).
Springs	25mm x 0.36mm stainless steel, 26.5kg/m tension
Plugs	6.5mm diameter, 25mm long, glass filled nylon
Wire	0.45mm nylon coated braided stainless steel, 22kg test

### **Avishock Specification**

<b>Track:</b>	Flat copper strips protected by conductive plastic cover in a molded flexible UV stabilised PVC track
Track Colours available:	Stone and Black
Track width:	37mm
Track height:	8mm
<b>Energisers:</b>	
Size:	L190 x W85 x H50mm or L190 x W85 x H50mm
Input:	240VAC
Output:	7.5KV DC or 8.5KV DC
Output pulse width (500OHMS):	80 microseconds
Pulse Interval:	1.3 seconds
Complies with:	EN60335-2-76: 2005 Electromagnetic Compatibility Regulations
Lead out wire:	Black or Brown 15m max. 14 gauge double wire
Connections:	Female connectors and Ring terminals

## **4 Cleaning & Maintenance**

**Bird net** – should be periodically checked to ensure the perimeter fixings, straining wire, hog rings and brackets (if fitted) are sound. Any suspect parts should be changed. The tension in the straining wire should be checked and altered as required.

**Bird wire** – the wire tension should be periodically checked and adjusted as required. Any springs that have been stretched beyond their elastic limit (an indication of third-party damage) should be replaced.

**Bird spikes** – ensure the strips are still adhering to the substrate and any loose ones should be replaced with new.

**Avishock** – ensure that no debris builds up on the track causing a short and before attempting to remove any debris ensure the track has been isolated. Periodically check its voltage.

Maintenance inspections should be at least annually and depending on the location could be as much as quarterly.

Over time, as dirt particles and/or litter accumulate, they can be removed by hand and the surfaces brushed clean with a soft brush. There is no set timescales for this, rather it is completed as required.

## **5 Access for Cleaning & Maintenance**

Bird net is not load bearing. Cleaning will need to be completed from underneath, or adjacent to.

If access is required through Bird Net, it is best to cut it with scissors (in a parallel cut to the twines and not diagonally) to the required size and re-sealed with black plastic cable ties, cut to remove tailings.

Bird spikes and Bird wire will need to be cleaned by working next to it. Neither is load-bearing. In an emergency, Bird-Wire springs can be unhooked to allow the wires to drop out of the way for access, however carrying this out repeatedly could cause damage.

If Bird spikes are to be replaced or moved out of the way for access, it should be replaced rather than reused as residues of the old adhesive will remain on the base stopping a good fix with the new adhesive.

## **6 Replacement**

If left undisturbed, Bird net, Bird spikes, Bird wire and their associated fixings should not require replacement for many years. If damage occurs, please contact Avid Pest Control Ltd, Head Office by phone or email (details above).

Avishock will require twice a year maintenance and cleaning. Avid Pest Control Ltd can provide a cost for this service.

## **7 Dismantling and disposal**

**Bird net:** Wearing gloves and eye protection, cut net with sharp scissors and dispose as Polyethylene twine. Release the tension on the wires by slackening the Barrel Tensioner and then unhook or cut with wire cutters, recycle as 304 and 316 stainless steel scrap, and leave fixings in situ to prevent damage to surfaces.

**Bird wire:** Wearing gloves and eye protection cut the wire with wire cutters and dispose. Posts are snug fit in the bases, consider leaving posts and bases to prevent damage to substrate. If required pull the posts out vertically and recycle as scrap stainless steel.

**Bird point:** Wearing gloves and eye protection slide a scraper under the base and pull the assembly off. Steel can be disposed of as scrap metal

**Avishock: Turn energiser off by pulling out the plug** Wearing gloves and eye protection slide a scraper under the base and pull the assembly off. Dispose of track as metal scarp, dispose of energiser as electronic equipment scrap.

**8 Drawing Register**

None available.

**9 Ironmongery Schedule**

Not applicable.

**10 Test Certificates & Guarantee's**

No test certificates available

Your Bird Net installation with stainless steel wire and perimeter fixings completed by Avid Pest Control Ltd holds a materials and workmanship guarantee of five years from completion of installation and galvanised fixings includes a two-year guarantee providing a maintenance inspection is undertaken annually by Avid Pest Control Ltd, otherwise our standard one-year guarantee applies, as stated in our Terms and Conditions.

Should birds gain access through our installation or netting, or fixings come adrift or otherwise lose effectiveness, contact Avid Pest Control Ltd on the above number to arrange visit and repair.

Please note this does not cover damage caused by a third party.

If third party damage does occur, please contact Avid Pest Control Ltd to arrange for a survey and a quotation for repair as needed.

**11 Building Regulations & Other Statutory Approvals**

None required

**12 Spares**

Spare parts are available from Avid Pest Control Limited.

**13 Residual Hazard Register**

Hazard	Area	Control
Working at Height		
Fall of Material		
Electrocution		

**14 COSHH**

N/A

**15 Design Calculations**

N/A

Croxstalls Road,  
Bloxwich,  
Walsall,  
West Midlands,  
WS3 2XU

Telephone: +44 (0) 1922 712111  
Facsimile: +44 (0) 1922 712539  
email: [kelly.cunningham@jandwuk.com](mailto:kelly.cunningham@jandwuk.com)  
Website: <http://www.jandwuk.com>

10<sup>th</sup> October 2023

Hathaway Roofing Ltd  
Tindale Crescent  
Bishop Auckland  
Co. Durham  
DL14 9TL

**Our Ref: 48049 – Stowmarket**

## Curbs and Upstands

### **Maintenance**

GRP products are virtually maintenance free, cleaning if required see below.  
Care should be taken not to penetrate the skin with sharp tools such as screwdrivers.  
Site repairs are possible if necessary; please seek advice from J & W.  
Drainage channels should be checked annually as part of routine planned preventative maintenance, debris should be removed to prevent build up.  
A visual inspection should be undertaken periodically, **tightness of all fixings should be checked** one year after installation and periodically thereafter as part of routine planned preventative maintenance.

### **Cleaning**

#### *Cleaning Small Areas*

Wet with copious amounts of lukewarm water and wash with a mild household soap or detergent using a soft cloth, then rinse with clean water.

For paint or tar splashes use a recommended solvent and a very soft cloth, gently agitate the surface contamination with light pressure, use a clean cloth frequently. Test on a small hidden area if possible before continuing. Finally wash the surface as above with mild household soap or detergent.

#### *Cleaning Large Areas*

Clean with high pressure water and/or steam cleaner, exercise care as the sealing of the system may be compromised

#### *Recommended Cleaning Solutions*

Household Soap  
Household Detergent

### **Remember**

ALWAYS follow correct HSE safety guidelines for “working at height”.  
Don't use abrasive or highly alkaline cleaners  
Never scrape with sharp instruments  
Don't clean GRP in hot sun or at elevated temperatures as staining may occur.

Directors:  
D.L. Jones (Managing Director), S. Jones  
(Managing Director), M. Jones (Sales Director),  
N. Boylan (Contracts Director)  
Registered in England No. 2841080  
VAT Registration No. 632 1862 54



Croxstalls Road,  
Bloxwich,  
Walsall,  
West Midlands,  
WS3 2XU

Telephone: +44 (0) 1922 712111  
Facsimile: +44 (0) 1922 712539  
email: matthew.jones@jandwuk.com  
Website: <http://www.jandwuk.com>

Our Ref: 48049

10<sup>th</sup> October 2023

Hathaway Roofing Ltd  
Tindale Crescent  
Bishop Auckland  
Co. Durham  
DL14 9TL

**For the attention of Paul Green**

**Re: Stowmarket**

**Warranties & Liabilities**

Subject to the conditions set out below, the seller warrants to Hathaway Roofing Ltd, that the goods will correspond with their specification at the time of delivery & will be free from defects in material & workmanship for the following periods:-

- a. When acting in a sub-contract capacity to Hathaway Roofing Ltd, Jones & Woolman (UK) Ltd guarantee all in-situ installations on existing end laps to be weatherproofed for a period of 25 years. This guarantee being restricted to the immediate area of our installations.
- b. Jones & Woolman (UK) Ltd, guarantee all their externals on existing cladding to be weather-proofed for a period of 25 years. This guarantee being restricted to the immediate area of our installations.

The above warranty is given by the seller to Hathaway Roofing Ltd, subject to the following conditions:-

- a. The seller shall be under no liability in respect of any defect arising from any drawing, design or specification supplied by the buyer.
- b. The seller shall be under no liability in respect of any defect arising from fair wear & tear, wilful damage, negligence, abnormal working conditions, failure to follow the sellers instructions (whether oral or in writing), misuse or alteration or repair of the goods without the seller's approval.
- c. The seller shall be under no liability under the above warranty (or any other warranty condition or guarantee), if the total price for the goods has not been paid for by the due date for payment.
- d. The above warranty does not extend to parts, materials or equipment not manufactured by the seller, in respect of which the buyer shall only be entitled to the benefit of any such warranty or guarantee as is given by the manufacturer to the seller.
- e. **Warranty will only become valid upon receipt of full payment. Non-payment will make all warranties null and void.**

Subject as expressly provided in these conditions, and except where the goods are sold under a consumer sale (as defined by the Sale of Goods Act 1979), all warranties, conditions or other terms implied by the statute or common law are excluded to the fullest extent permitted by law.

Directors:  
D.L. Jones (Managing Director), S. Jones  
(Managing Director), M. Jones (Sales Director),  
N. Boylan (Contracts Director)  
Registered in England No. 2841080  
VAT Registration No. 632 1862 54



Where the goods are sold under a consumer sale (as defined by the Sale of Goods Act 1979), the statutory rights of the buyer are not affected by these conditions.

Any claim by the buyer which is based on any defect in the quality or condition of the goods or their failure to correspond with specification shall (whether or not delivery is refused by the buyer) be notified to the seller within 7 days from the date of delivery or (where the defect or failure was not apparent on reasonable inspection) within a reasonable time after discovery of the defect or failure. If delivery is not refused, and the buyer does not notify the seller accordingly, the buyer shall not be entitled to reject the goods and the seller shall have no liability for such defect or failure, and the buyer shall be bound to pay the price as if the goods had been delivered in accordance with the contract.

Where any valid claim in respect of any of the goods which is based on any defect in the quality or condition of the goods or their failure to meet specification is notified to the seller in accordance with these conditions, the seller shall be entitled to replace the goods (or the part in question), free of charge or, at the sellers sole discretion, refund to the buyer the price of the goods (or a proportionate part of the price), but the seller shall have no further liability to the buyer.

Except in respect of death or personal injury caused by the sellers negligence, the seller shall not be liable to the buyer by reason or any representations, or any implied warranty, condition or other term, or any duty at common law, or under the express terms of the contract, for the consequential loss or damage (whether for loss of profit or otherwise), costs, expenses or other claims for consequential compensation whatsoever (and whether caused by the negligence of the seller, its employees or agents or otherwise which arise out of or in connection with the supply of the goods or their use or resale by the buyer, except as expressly provided in these conditions.

The seller shall not be liable to the buyer or be deemed to be in breach of the contract by reason of any delay in performing, or any failure to perform, any of the sellers obligations in relation to the goods, if the delay or failure was due to any cause beyond the sellers reasonable control. Without prejudice to the generality of the foregoing, the following shall be regarded as causes beyond the sellers reasonable control:-

- a. Act of god, explosion, flood, tempest, fire or accident.
- b. War or threat of war, sabotage, insurrection, civil disturbance or requisition.
- c. Acts, restrictions, regulations, by-laws, prohibitions or measures of any kind on the part of any governmental, parliamentary or local authority.
- d. Import or export regulations or embargoes.
- e. Strikes, lock-outs or other industrial actions or trade disputes (whether involving employees of the seller or of a third party).
- f. Difficulties in obtaining raw materials, labour, fuel, parts or machinery.
- g. Power failure breakdown in machinery.

Yours faithfully



Matthew Jones  
Sales Director