# Trisomet® Specification (Roof System)

## 120mm Trisomet®

| | |
|---|---|
| **Specification Reference:** | **SP4367** |
| **Section Number:** | **-1** |
| **Date:** | 06 February 2024 |
| **Project Name:** | Holmbush Centre |
| **Project Address:** | Upper Shoreham Road<br>Shorehan By Sea |
| **Project Postcode:** | BN43 6TD |
| **Cladding Area:** (specified cladding, $m^2$) | 700 |
| **Specifier Company:** | CS2 Limited |
| **Company Contact:** | Mr Will Mantle |
| **Contact Phone and Email:** | 020 7628 0080 |

| | |
|---|---|
| **System Summary:** | **Trisomet® System with a trapezoidal profiled metal external skin, PIR autohesively bonded core and micro-plank profiled metal lining skin.** |
| **External Skin:** | 0.5mm thick, Colorcoat HPS200 Ultra® finish in HPS200 Ultra® Colour Range - TBC colour |
| **PIR Core:** | 120mm core thickness to provide a 0.16W/m²K u-value |
| **Liner Skin:** | 0.4mm thick, Standard Lining Enamel finish in Bright White colour |
| **Fasteners:** | Stainless steel steel fixings. The fasteners supplied to the project should be from one supplier (i.e. do not use a mix of suppliers) |

| | |
|---|---|
| **Site Services Manager:** | Robert Taylor, T: 07900 165703, E: robert.x.taylor@tatasteeleurope.com |

Other products can be used, if proven to be of similar performance.

Building Systems UK
Shotton Works • Deeside • Flintshire • CH5 2NH • UK
T: +44 (0) 1244 892199 • www.tatasteelconstruction.com
Tata Steel UK Limited • 30 Millbank • London SW1P 4WY • Registered in England No. 2280000

## Trisomet® Specification (Roof System)

| | |
|---|---|
| **Specification prepared by:** | Steve Gough, T: +44 (0)1244 892134, E: stephen.gough@tatasteeleurope.com |
| **Area Sales Manager** | Jason Shears, T: 07860 909 798, E: jason.shears@tatasteeleurope.com |
| | *Please contact your Area Sales Manager for a list of regional installation contractors* |
| **Quotations:** | Laura Plummer T: (0)1244 892164, E: Laura.plummer@tatasteeleurope.com |
| **Alterations & variations:** | Any alterations required to this specification must be approved in advance by the technical department and a new specification will be issued. |


* *Care has been taken to ensure that the contents of this specification is accurate, but Tata Steel Europe Limited and its subsidiaries, (including Tata Steel UK Limited), do not accept responsibility or liability for errors or information that is found to be misleading.*

*Suggestions for, or descriptions of, the end use or application of products or methods of working are for information only and Tata Steel Europe Limited and its subsidiaries accept no liability in respect thereof.*

*Before using products or services supplied or manufactured by Tata Steel Europe Limited and its subsidiaries, customers should satisfy themselves as to their suitability.*

Tata Steel UK Limited retain the right to amend this specification without prior notice.

For specifications over six months old we would advise a revision be obtained from the Tata Steel UK Technical Department.


# Design Criteria:

| | |
|---|---|
| **U-value (W/m$^2$K):** | **0.16 (120mm core)**<br>U-values computer modelled in accordance with EN ISO 10211 as stated in MCRMA Technical note 14.<br>0.25W/m²K is the maximum u-value allowable in accordance with Building Regulations ADL2. |
| **Cladding material:** | Colorcoat® by Tata Steel pre-finished steel |
| **FM Approval required:** | **No** |
| **Fixing to steelwork** | Cold rolled steel purlins, minimum thickness 1.5mm |
| **Steelwork tolerance:** | L/200 |
| **EXTERNAL ENVIRONMENT** | |
| **Project within 1km of coast or estuary?** | No |
| **Project within 10km of coast or estuary?** | Yes |
| **This specification assumes:** | A coastal and marine environment, typically C4, C5-I & C5-M as defined in EN ISO 12944-2. |
| **INTERNAL ENVIRONMENT** | |
| **Internal environment class (to BS EN 10169:2010):** | Unknown assumed as A1 |
| **This specification assumes:** | A1 Environments - No chemical aggressivity, periodicity of cleaning operations with a neutral cleaning agent is not more than once per month. Occasional condensation |

# COMPOSITE PANELS

**Uniclass 2015 Code** **Pr_25_71_50_22**

**To be read with Preliminaries/ General conditions.**

## TYPES OF CLADDING/ COVERING SYSTEM

### METAL INSULATED PANEL SYSTEM:

Cladding systems to be designed and installed to meet the local Building Regulations or Technical Standards

**Drawing reference(s):** Tata Steel's typical construction details to be used as guidance. (download at www.tatasteelconstruction.com)

**Support structure:** Cold rolled steel purlins, minimum thickness 1.5mm

**Bearing width (minimum):** 60mm

**Centres:** Determined in accordance with design loads and Tata Steel load/span data sheets. (download at www.tatasteelconstruction.com)

**Minimum design pitch:** 5.5° recommended for Trisomet; 6.5° recommended for rooflights (To BS 5427: 2016)

**Minimum pitch after deflections:** 4° for Trisomet; 5° for rooflights (To BS 5427: 2016)

### EXTERNAL SHEET:

**Manufacturer:** Tata Steel UK, Shotton Works. T: +44 (0) 1244 89 2199

**Panel reference:** **Trisomet® System**

**External skin outer finish:** **Colorcoat HPS200 Ultra®**

Colorcoat HPS200 Ultra® by Tata Steel – a super durable pre-finished steel, with the Confidex® Guarantee of up to 40 years for the weatherside of industrial and commercial buildings with no inspection or maintenance to maintain its validity. This also includes factory cut edges for the full guarantee period. Colorcoat HPS200 Ultra® has a 200µm nominal coating thickness with the Scintilla® emboss of nominal depth 40µm, delivering colour and gloss retention in excess of Ruv4 standard to EN 10169, and having a light grey high performance backing coat to the reverse. Integral to Colorcoat HPS200® Ultra is the use of Galvalloy® hot-dip metallic coating based on a zinc (95%): aluminium (5%) ZA255 alloy manufactured to EN 10346:2015, delivering exceptional corrosion resistance performance in excess of RC5 standard to EN 10169. Colorcoat HPS200 Ultra® is a 'chrome free' product, and is fully compliant with REACH legislation.

**Outer metal thickness (mm):** **0.5**

**Outer colour:** **HPS200 Ultra® Colour Range - TBC**

**External skin reverse finish:** **High Performance Polyester Standard Backing Coat**

**Reverse colour:** **Light Grey**

**Panel cover width:** **1000mm**

**Core insulation:** PIR core has zero ozone depletion potential (ODP) and a very low global warming potential (GWP) of less than 5.

**Panel core thickness:** **120mm**

**Panel u-value:** **0.16W/m²K**

**Internal liner finish** **Standard Lining Enamel**

Tata Steel Colorcoat PE15® pre-finished steel using hot-dip galvanised steel EN 10326:2015 substrate.

**Liner metal thickness (mm):** **0.4**

**Internal colour:** **Bright White**

| | |
|---|---|
| **Maximum panel length:** | 20000 mm |
| **Cutback:** | 150 mm for endlap |
| | (min cutback is 25 mm, max cutback is 250 mm) |

| | |
|---|---|
| **Primary panel fasteners:** | Coloured Injection Moulded Nylon encapsulated head austenitic Stainless Steel, minimum 304 Grade Self Drilling Fastener. Thread form and drill point configuration to suit the material and thickness of the supporting structure. Minimum 5.5mm diameter thread, incorporating a 19mm diameter EPDM bonded sealing washer. Integral moulded head fully protecting and supporting the 19mm diameter washer to provide superior pullover resistance and to provide an air seal and maximum resistance to water ingress. |
| **Primary fasteners supplied by:** | **Ejot UK Ltd** |
| **Alternative suppliers:** | .<br>SFS<br>Or similar performing product |
| **Fastener location:** | Fix through profile trough |
| **Number and location of fasteners:** | Generally fix through every trough (i.e. 3nr per support). Fastener layout should be checked against negative wind loads for the project. |
| **End laps:** | Minimum 150mm. |
| **Stitching laps:** | |
| **External end laps:** | Tail stitch at crown positions, 50mm from the end of lap |
| **External side lap fasteners, at maximum 450mm centres to centre of sidelap:** | Coloured injection moulded nylon encapsulated head austenitic stainless steel, minimum 304 grade self drilling fastener. Minimum 5.5mm diameter buttress thread with self-piercing drill point minimising swarf during installation, incorporating a 15mm diameter EPDM bonded sealing washer. Integral moulded head fully protecting the 15mm washer to provide superior pullover resistance and to provide an air seal and maximum resistance to water ingress. |
| **Sidelap fasteners supplied by:** | **Ejot UK Ltd** |
| **Alternative suppliers:** | Ejot UK Ltd<br>SFS<br>Or similar performing product |
| **Sealing laps:** | External end laps to be fully sealed.<br>External side laps to be fully sealed. |
| **Sealant type:** | **6x5mm high grade butyl mastic strip sealant (minimum 25 year guarantee), used for both end and side laps.** |
| **Seals supplied by:** | **Ejot UK Ltd (Blue Strip)** |
| **Alternative suppliers:** | Brett Martin (Green Strip)<br>Premier Sealants (White Strip)<br>SFS (Pink Strip)<br>Or similar performing product |
| **Seal quality:** | Ensure continuity and effectiveness of seal, especially at corner of sheets.<br>Do not over-compress. |
| **End lap sealant positions:** | Three lines of 6 x 5mm butyl mastic strip sealant (green, blue, white or pink strip as above, with minimum 25 year guarantee) placed between sheets prior to fixing, two rows approximately 10 mm from the sheet ends at the top and bottom of the lap, and a third downslope of the fixing screw.<br>Position sealant in straight, unbroken lines across the profile.<br>Place into troughs. Do not allow to stretch or to sag into position. |
| **Side lap sealant positions:** | One continuous run of 6 x 5mm butyl mastic strip sealant (green, blue, white or pink strip as above, with minimum 25 year guarantee) to underlap crown, positioned on weather side of stitching fastener. |

## SOUND TRANSMITTANCE / REDUCTION:

| | | |
|---|---|---|
| **Weighted sound reduction index:** | **29** | **Rw dB** |

For information on individual frequency ratings please contact the Technical Department on 01244 89 2199.

The acoustic performance of the profiled metal cladding construction detailed above has been predicted using the 2016 version of the computer programme developed by the Department of Applied Acoustics at the University of Salford under a research contract funded by the Metal Cladding and Roofing Manufacturers Association.

Laboratory measurements should be used to provide definitive acoustic data.

Predicted SRI values should be used only to provide guidance for preliminary design and/or appraisal of cladding systems.

## PROFILE FILLERS GENERALLY:

| | |
|---|---|
| **Fillers supplied by:** | **Ejot UK Ltd** |
| **Alternative suppliers:** | Brett Martin |
| | Premier Sealants |
| | Or similar performing product |
| **Product reference:** | Trisomet® System |
| **Material:** | EPDM, MP or Superseal |
| **Colour:** | Black |
| **Thickness:** | 25 mm. |
| **Fixing:** | Locate to close off corrugation cavities from the outside of the building. |
| | Compression fix between sheets and flashings / supports. |
| | Sealant applied to both top and bottom. |
| | Ensure a tight fit and leave no gaps. |

## WATER VAPOUR AND AIR SEALING

The panel edges at ridge, eaves and verge must be seated onto a 6mm diameter bead of high grade butyl mastic (minimum 25 year guarantee).

The metal lining layer must be reasonably airtight so that the air permeability does not exceed 10M³/h/M² at an applied pressure of 50Pa in accordance with the Building Regulations for England and Wales (Part L2) and Scotland (Technical Handbook Section 6 Energy).

The Trisomet® System side and end laps when tested provide evidence of air leakage as low as 0.43m³/h/m².

A practical expectation for a finished system, with effective sealing at all junctions would be 3-5$m^3$/hr/$m^2$ at 50Pa.

Enhanced detailing on large shed buildings can realise air leakage performance figures of less than 3$m^3$/hr/$m^2$.

| | |
|---|---|
| **Internal flashings:** | Provide internal flashings to ensure continuity and effectiveness of seal, especially at corners of sheets such as at roof / wall junctions and at all penetrations of pipes, ducts, rooflights, etc. |
| **Specified humidity:** | **Standard** |
| **Seals supplied by:** | **Ejot UK Ltd (Blue Strip)** |
| **Alternative suppliers:** | Brett Martin (Green Strip) |
| | Premier Sealants (White Strip) |
| | SFS (Pink Strip) |
| | Or similar performing product |

## FLASHING & TRIM DETAILS:

| | |
|---|---|
| **System type:** | **Standard Press brake 0.7mm Colorcoat® pre-finished steel flashing** |
| **Material and finish:** | To match outer sheet, 0.7mm minimum gauge. |
| **Manufacturer:** | Tata Steel UK, Shotton Works T: 01244 89 2199 |
| **Lap joint treatment:** | End joints to be lapped by 150mm and sealed, unless specified otherwise. |
| | Where possible arrange with laps away from the prevailing wind. |
| | Where butt joints are required, butt join and seal flashings / trims on 150 mm wide butt straps made from sheet of the same material and finish. |
| **Design:** | Maximum un-stiffened leg on flashing to be 200mm. |
| | Visible free edges to be finished with a stiffened edge or welt. |
| **Position of fasteners:** | Max 450mm centres |

| | |
|---|---|
| **Fasteners:** | Coloured injection moulded nylon encapsulated head austenitic stainless steel, minimum 304 grade self drilling fastener. Minimum 5.5mm diameter buttress thread with self-piercing drill point minimising swarf during installation, incorporating a 15mm diameter EPDM bonded sealing washer. Integral moulded head fully protecting the 15mm washer to provide superior pullover resistance and to provide an air seal and maximum resistance to water ingress. |
| **Flashing fasteners supplied by:** | **Ejot UK Ltd** |
| **Alternative suppliers:** | .<br><br>SFS<br><br>Or similar performing product |

| | |
|---|---|
| **System Type:** | **Colorcoat® pre-finished steel fabricated items (e.g. ridge, verge, eaves details, etc.)** |
| **Material and Finish:** | TBC |
| **Manufacturer:** | Tata Steel UK, Shotton Works T: 01244 89 2199 |

| | |
|---|---|
| **System Type:** | **Large openings (e.g. Vents, large ducting etc.)** |
| **Material and Finish:** | Bespoke design and on site applied reinforced, liquid weatherproofing soaker systems |
| **Soakers supplied by:** | **M R Site Services** |
| **Alternative supplier:** | Jones and Woolman |
| | Or similar performing product |

**DESIGN:**

Roof cladding to be designed in accordance to BS 5427 and manufacturers design and installation recommendations.

**THERMAL BRIDGING:**

Use recommended construction details as design guidance to reduce thermal bridging.

Go to www.tatasteelconstruction.com to download typical details.

**DESIGN FACTORS:**

**DEFLECTION OF METAL CLADDING:**

Maximum permitted roof cladding deflection under distributed loads: Span/200

**FIXING PANELS GENERALLY:**

Cut sheets to give clean, true lines with no distortion and without damage to any protective coating.

Remove burrs and any lubricant.

Cut openings in sheets for outlets, vent pipes, flues, etc. to the minimum size necessary.

Reinforce edges of openings with suitable steel support.

Drill all holes. Remove all drilling swarf, dust and any other foreign matter before placing any membranes or insulation.

Protect sheets during fixing and up to Practical Completion against mechanical damage, corrosion and disfigurement.

Rectify any defects as quickly as possible to minimise damage and nuisance.

## INSULATED GUTTERS:

| | |
|---|---|
| **System type:** | **Insulated Gutter** |
| **Gutter system:** | A prefabricated light-weight self-supporting metal composite insulated construction with a fully bonded, continuous membrane lining to the water-carrying surface.<br><br>The gutters are suitable for regular walkway traffic and have minimal maintenance requirements.<br><br>System manufacturers can provide a design and specification service and it is recommended that they are consulted early in the design process. |
| **Manufacturer:** | Tata Steel UK, Shotton Works, T: 01244 89 2199<br><br>Tata Steel will assist in the design of all aspects, provide details for incorporation into the project drawings and supply a fully detailed specification document for your project. |
| **Dimensions:** | TBC |
| **External skin:** | **1.2mm thick Colorcoat Aquatite® PVC weatherproofing membrane, colour: Light grey.**<br><br>Laminated to a minimum of 1.2mm thick hot dipped galvanised steel to BS EN 10142. |
| **Insulation type:** | **Polyisosyanurate (PIR) which is CFC and HCFC, various thickness levels are available to suit the required u-value.** |
| **Insulation depth:** | **Gutter Insulation Depth - TBC** |
| **Psi value (W/mK):** | Not calculated |
| **Internal liner sheet:** | Min 0.6mm Galvanised steel to BS EN 10142 grade Fe P02G with Z275 coating or Colorcoat PE15® pre-finished steel using hot-dip galvanised steel EN 10326:2015 substrate, nominal thickness 0.7 mm |
| **Method of jointing:** | Form site joints and fit outlets and overflows by riveting the overlap of metal and hot air weld overlapping Colorcoat Aquatite® PVC membrane, leaving a central unbonded strip which allows for expansion and contraction. |
| **Method of fixing:** | Gutter wings to be pre-fixed to purlin/support steelwork at approximately 300mm centres both sides prior to installation of panels. |
| **Support:** | (Where required). Loose pre-galvanised steel support straps 50 x 6 mm flat bar. |
| **Site fixing materials:** | 4.9mm diameter plated steel rivets.<br><br>Colorcoat Aquatite® PVC jointing strip. |
| **Factory fabricated materials:** | Outlets and overflows, which are generally supplied loose for site installation and positioning.<br>Fitted stop ends / mitred corner sections / tee sections / change of section / sumps / downpipes. |