

Building Systems UK

A Tata Steel enterprise



Trisobuild® Chill Store Ready

Site assembled roofing & cladding system for Chill Store Buildings



Trisobuild® Chill Store Ready

Non-combustible system for building envelopes

Made in the UK at our Shotton site in North Wales, Building Systems UK (A Tata Steel enterprise) now offer a range of innovative Trisobuild® specifications which meet the stringent demands of chill store buildings. These specifications prioritise air tightness, non-combustibility and thermal efficiency – essential characteristics for maintaining temperature-controlled environments.

Trisobuild® systems are fully tested for thermal performance, fire safety, acoustic performance, air tightness and resistance to water penetration, ensuring compliance with industry standards, supported by market leading Environmental Product Declarations (EPD's) whilst providing superior aesthetic design through a diverse selection of profiles, finishes and extensive colour palette.

Supported by the Platinum® Plus system guarantee, these solutions offer enduring durability and building performance, lowering the cost of ownership throughout the buildings life cycle.

Warehouse demand in the United Kingdom has significantly increased since the COVID-19 pandemic, and in particular the need for temperature-controlled space has increased with growth aligned to retail demand.

Chill stores are typically designed to operate at higher temperatures than cold stores, often between 0°C to 5°C. which facilitates reduced energy consumption and operational costs, aligning to sustainability goals.

Versatility in storage is an important feature of Chill stores, so whilst the stores are suitable for most perishable goods, including fresh produce, dairy products and certain pharmaceuticals, they also retain scalability and flexibility through design, allowing them to be easily adapted for businesses experiencing fluctuating demand or those looking to expand in a particular area their operations.

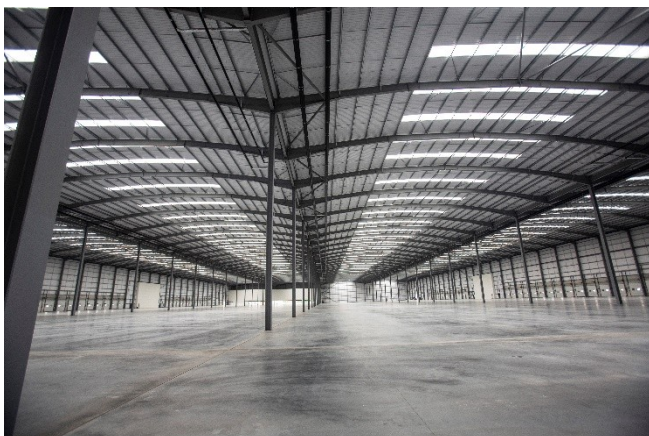
Building Systems UK (A Tata Steel Enterprise), have developed the Trisobuild® Chill Store Ready system to meet the demands of the sector, producing a system specification that is economical in delivery, environmentally supported by a market leading EPD scheme and allows flexibility in configuration and integration to ensure that the needs of the Chill store sector are met by a guaranteed, tried and fully tested building envelope solution.

Integral components such as sealants, fillers and fasteners are written into the Trisobuild® Chill Store Ready specifications and are available from our fully audited Platinum® Plus supply chain and further reinforced by construction site audits by our site services division ensures full compliance.

As a construction product specialist who is also one of the world's leading steel makers and coatings expert, we are able to bring to the market a variety of profiles and finishes which can be tailored both externally and internally to suit each clients demands for storage.

Our structural floor deck ComFlor® can be utilised for mezzanine areas within the building, and similarly our conveyance tubes can be utilised in the building services to provide a complete building solution from Tata Steel UK.

This combination of own manufactured building materials and component parts are unique to Tata Steel UK, which is why our Platinum® Plus guarantee is issued by Tata Steel UK direct to the building owner and remain fully transferable during their guarantee period – a true asset guarantee.



Chill Store Ready Specification built on research

Tata Steel UK as a renowned leader in steel manufacturing, coating technologies, and construction solutions for roofing and cladding systems, has undertaken extensive research and rigorous testing of Trisobuild® roofing and cladding systems to deliver in the rapidly growing chill store ready warehouse sector.

Working with the leading authority in the UK for energy performance and building physics, Tata Steel have established the Colorcoat Centre for the Building Envelope at Oxford Brookes University, which supports the research of pre-finished steel in building envelope and has gone beyond SBEM and evaluated building type, using TAS and IES ‘dynamic simulation modelling’ for better system design and real-life building performance.

High performing thermal insulation and limiting air infiltration are key design features of Trisobuild® for Chill Store Ready facilities, the system design is supported on all projects with condensation risk analysis calculations, and detailing interfaces are highly controlled from the testing conducted by Oxford Brookes University, further details can be found in the Colorcoat Technical Paper ‘Creating an air-tight building envelope’.

In the following tables we have extracted some areas of testing to demonstrate the critical importance of correct specification sealants, correctly installed fasteners and robust detailing to ensure that the building envelope effectiveness is maintained in temperature-controlled warehouses.

Fig 1. Cross section through Trisobuild®

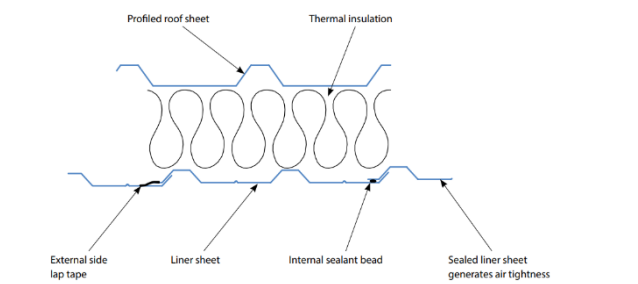


Table 1: Side lap joint configuration and air leakage rates

Joint details	Leakage rate m³/m/h	
	0.4 mm liner	0.7 mm liner
Unsealed unstitched	>10.00	>10.00
Unsealed stitched @ 450 mm	>5.00	>5.00
External sealant tape	<0.20	<0.20
External sealant tape and stitching @ 450 mm	<0.20	<0.20
Internal sealant bead	<0.25	<0.40
Internal sealant bead and stitching @ 450 mm	<0.20	<0.20

Fig 2. Isometric Trisobuild® end lap

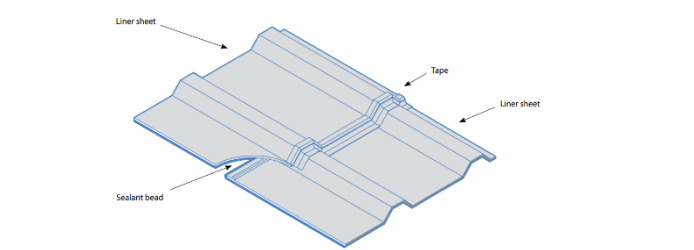


Table 2: End lap joint configuration and air leakage rates

Joint details	Leakage rate m³/m/h	
	0.4 mm liner	0.7 mm liner
Unsealed, stitched alternate valleys	<45.00	<45.00
Unsealed, stitched every valley	<15.00	<15.00
Internal sealant bead, stitched alternate valleys	<1.00	<0.50
Internal sealant bead stitched every valley	<0.30	<0.30
External sealant tape, stitched alternate valleys	<0.20	<0.20
External sealant tape, stitched every valley	<0.20	<0.20

Table 3: Side lap to flashing joint configuration and air leakage rates

Joint details	Leakage rate m³/m/h	
	0.4 mm liner	0.7 mm liner
Internal sealant bead, stitched @ 900 mm	>0.25	>0.25
Internal sealant bead, stitched @ 450 mm	>0.20	>0.20

Fig 3. Isometric Trisobuild® end lap interface with flashing

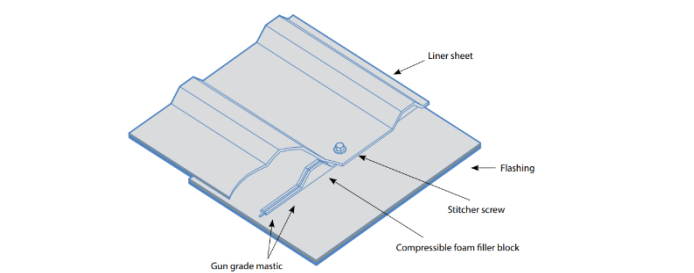


Table 4: End lap to flashing joint configuration and air leakage rates

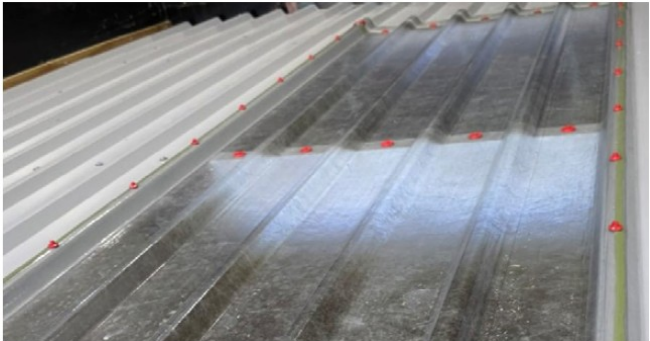
Joint details	Leakage rate m³/m/h	
	0.4 mm liner	0.7 mm liner
EPDM filler block stitched alternate valleys	<10.00	<5.00
PE filler block stitched alternate valleys	<10.00	<5.00
Bonded EPDM filler block stitched alternate valleys	<2.00	<2.00
Bonded PE filler block stitched alternate valleys	<2.00	<2.00
EPDM filler block stitched every valleys	<0.50	<0.50
PE filler block stitched every valleys	<0.50	<0.50
Bonded EPDM filler block stitched every valleys	<0.25	<0.25
Bonded PE filler block stitched every valley	<0.25	<0.25

Key

Recommended specification

Trisobuild® Chill Store Ready

BS EN 12865: 2001 is a European standard that specifies a method for assessing the resistance of building elements from driving rain under pulsating air pressure. Trisobuild® Chill Store Ready was submitted to this test at the BRE (Building Research Establishment) in October 2025 to determine the hygrothermal performance of the system when installed at 2.5 degrees, this reduced pitch is less than the minimum pitch recommended by BS 5427 for metal roofing systems with in-plane rooflights.

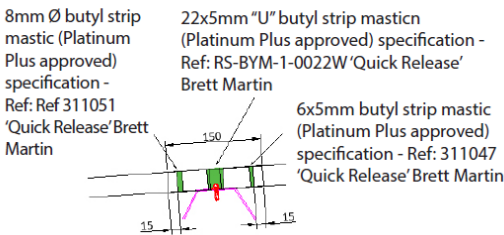


By simulating real world conditions, the test has determined the suitability of the sealant and lapping arrangement for Trisobuild® at a pitch less than recommended by BS 5427 in order to maintain the integrity of the building envelope, prevent the passage of water or air through profile joints and importantly prove the durability of the system for low-pitch application.

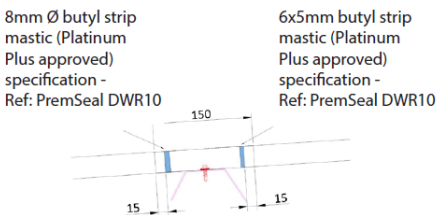
Table 5: Test observations of the specimen under testing

Maximum Pressure Cycle (Pa)	Time (Minutes)	Details
0	20	No Leakage
150	10	No Leakage
300	10	No Leakage
450	10	No Leakage
600	10	No Leakage
750	10	No Leakage
900	10	No Leakage
1050	10	No Leakage
1200	10	No Leakage

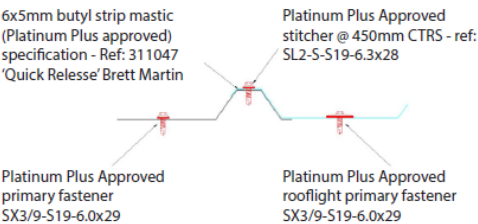
Rooflight end lap



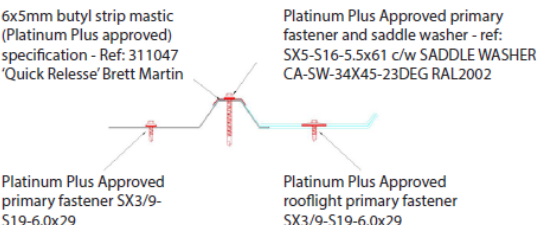
R32 end lap



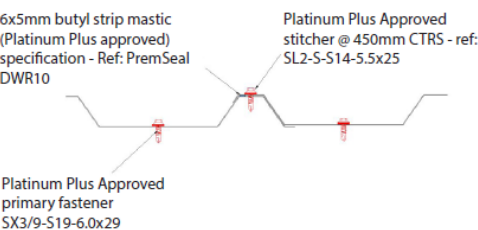
Rooflight side lap



Rooflight side lap primary fix



R32 side lap



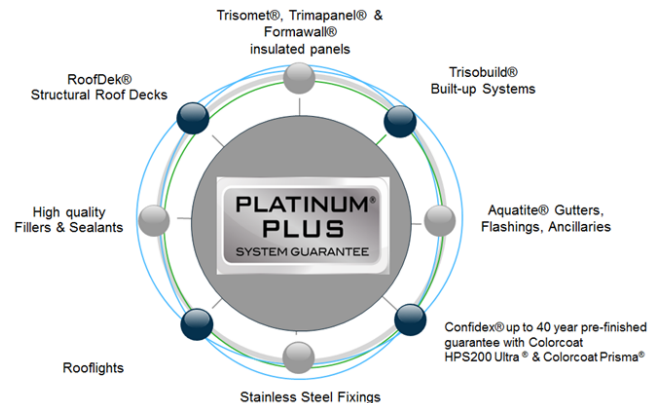
The full BRE Report (P130794-1000) and evidence of testing can be sourced from the Building Systems UK technical department.

Guarantee & Technical Support

Platinum® Plus – a guarantee of enduring performance

Platinum® Plus is a system guarantee for up to 25-years, derived from a project specification particular to the building function. Our reputable supply chain partners and commitment to responsible sourcing creates an enhanced building envelope system that is both robust and proven. Platinum® Plus offers enduring durability and assured building performance, lowering the cost of ownership throughout the service life of the building.

Made unique with our technical support from specification to completion, and beyond – including those all-important final checks both during and post-installation. Technical assistance is provided at every stage of the project, with single point of contact to ensure your specification meets the needs of the building owner. An important feature of the guarantee is that it is between the building owner and Tata Steel (without intermediaries) and is fully transferable on change of ownership of the building.



Confidex® – external pre-finished steel coating guarantee

Confidex® offers the most comprehensive guarantee for pre-finished steel products in Europe and provides peace of mind for periods up to 40-years.

The Confidex® Guarantee for Colorcoat HPS200 Ultra® and Colorcoat Prisma® has been extended to include cover for areas that are situated under photovoltaic (PV) frame modules. This ensures that Trisobuild® Chill Store Ready can be retrofitted or reconfigured with PV array and will not have a detrimental effect on the performance of the pre-finished steel, and that the entire roof or wall is guaranteed to perform for the same duration of up to 40 years.

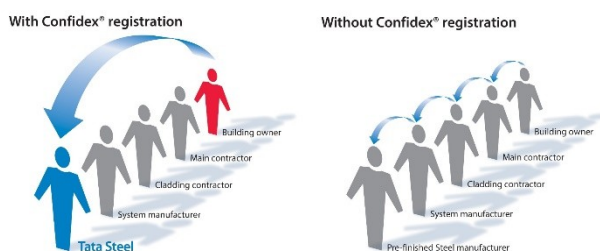
Registering the Confidex® Guarantee provides you with a direct link to Tata Steel UK Limited. In the unlikely event of a coating failure during the guarantee period, many years down the line, we can be contacted directly independently of the contractual chain.

Technical Support

Tata Steel products are tested by independent third parties for criteria such as reaction and resistance to fire, thermal performance, hard and soft body impact and resistance to water penetration. This together with our extensive and unbiased technical support sets us apart. We will recommend the most appropriate system for your project to provide you with the building envelope solution that meets your requirements, performance criteria and maximises the service life of your build.

We can offer project specific support on:

- Specification writing.
- Detail design.
- Wind Load calculations.
- U-value calculation.
- Condensation Risk Analysis.
- Fire Performance.
- Building Regulation advice.
- Assistance with SBEM.
- Advice on maximising BREEAM credits.
- Whole Life Cycle costs.



Trisobuild® Chill Store Ready – Roof Span Load Tables

The span tables below have been created in accordance with EN 1993-1-3 (Eurocode EC3) for the specific application as roofing only. The values are based on a maximum permitted deflection, span/200 under imposed load and span/150 under wind suction load.

Trisobuild® R32, 0.7mm Steel, HPS 200 Ultra

Safe Imposed (positive) Loads (kN/m²)

Span (m)	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4
Single span	7.49	6.66	5.50	4.54	3.81	3.24	2.79	2.42	1.99	1.65	1.38	1.16	0.99	0.84	0.73	0.63	-
Double span	4.34	3.66	3.13	2.71	2.37	2.10	1.86	1.67	1.50	1.36	1.24	1.13	1.03	0.95	0.88	0.81	0.75
Multi span	5.14	4.34	3.73	3.24	2.84	2.51	2.24	2.01	1.81	1.64	1.50	1.37	1.26	1.16	1.07	0.99	0.92

Safe Wind Suction (negative) Loads (kN/m²)

Span (m)	0.8	0.9	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4
Single span	8.43	6.67	5.41	4.48	3.77	3.22	2.78	2.43	2.07	1.74	1.47	1.26	1.09	0.95	0.84	0.74	-
Double span	8.70	6.89	5.59	4.62	3.89	3.32	2.87	2.51	2.21	1.96	1.75	1.58	1.43	1.30	1.19	1.09	1.01
Multi span	10.87	8.60	6.97	5.77	4.86	4.14	3.58	3.12	2.75	2.44	2.18	1.96	1.78	1.61	1.47	1.35	1.25

NOTES Black figures are stress limited, the load shown is the ultimate load divided by 1.5.
 Blue figures are deflection limited.
 These tables apply to the metal profile, a check on fastener capacity is also required.
 Maximum allowable span 2400 mm limited by point load, tested to EN 14782 Annex B.
 Profile selfweight 6.6 kg/m² is included, so is not required in the applied loads.

Trisobuild® LP1000, 0.4mm Steel, PE15, bright white

Safe Imposed (positive) Loads (kN/m²)

Span (m)	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6
Single span	1.15	0.95	0.80	0.68	0.59	0.51	0.45	0.40	0.36	0.32	0.29	0.26	0.24	0.21	-	-	-
Double span	0.95	0.82	0.71	0.62	0.55	0.49	0.44	0.39	0.36	0.33	0.30	0.27	0.25	0.23	0.22	0.20	-
Multi span	1.14	0.98	0.85	0.75	0.66	0.59	0.53	0.48	0.43	0.40	0.36	0.33	0.31	0.28	0.26	0.25	0.23

Safe Wind Suction (negative) Loads (kN/m²)

Span (m)	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6
Single span	1.27	1.05	0.89	0.75	0.65	0.54	0.45	0.37	0.31	0.27	0.23	0.20	0.17	0.15	-	-	-
Double span	1.15	0.95	0.80	0.68	0.59	0.51	0.45	0.40	0.36	0.32	0.29	0.26	0.24	0.22	0.20	0.18	-
Multi span	1.44	1.19	1.00	0.85	0.74	0.64	0.56	0.50	0.45	0.40	0.36	0.33	0.30	0.27	0.25	0.23	0.21

NOTES Black figures are stress limited, the load shown is the ultimate load divided by 1.5.
 Blue figures are deflection limited.
 These tables apply to the metal profile, a check on fastener capacity is also required.
 * This profile is not capable of supporting any construction loading.

Trisobuild® Chill Store Ready – Wall Cladding Span Load Tables

The span tables below have been created in accordance with EN 1993-1-3 (Eurocode EC3) for the specific application as wall only. The values are based on a maximum permitted deflection, span/150 under imposed load and span/150 under wind suction load.

Trisobuild® C32, 0.7mm Steel, HPS 200 Ultra or Prisma

Safe Imposed (positive) Loads (kN/m²)

Span (m)	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3
Single span	2.74	2.38	2.00	1.67	1.41	1.20	1.03	0.89	0.77	0.67	-	-	-	-	-	-	-
Double span	1.94	1.74	1.57	1.43	1.30	1.20	1.10	1.01	0.94	0.87	0.81	0.76	0.71	0.67	0.63	-	-
Multi span	2.32	2.09	1.89	1.72	1.57	1.44	1.33	1.23	1.14	1.06	0.98	0.92	0.86	0.81	0.76	0.72	0.68

Safe Wind Suction (negative) Loads (kN/m²)

Span (m)	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3
Single span	2.82	2.46	2.16	1.92	1.71	1.53	1.38	1.21	1.05	0.92	-	-	-	-	-	-	-
Double span	2.74	2.38	2.10	1.86	1.66	1.49	1.34	1.22	1.11	1.01	0.93	0.86	0.79	0.74	0.68	-	-
Multi span	3.42	2.98	2.62	2.32	2.07	1.86	1.68	1.52	1.39	1.27	1.16	1.07	0.99	0.92	0.86	0.80	0.75

NOTES Black figures are stress limited, the load shown is the ultimate load divided by 1.5.
Blue figures are deflection limited.
These tables apply to the metal profile , a check on fastener capacity is also required.

Trisobuild® 300MR, 0.7mm Steel, HPS 200 Ultra or Prisma

Safe Imposed (positive) Loads (kN/m²)

Span (m)	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6
Single span	3.15	2.60	2.19	1.87	1.61	1.40	1.23	1.09	0.97	0.87	0.76	0.66	-	-	-	-	-
Double span	1.84	1.57	1.36	1.18	1.04	0.92	0.83	0.74	0.67	0.61	-	-	-	-	-	-	-
Multi span	2.23	1.90	1.65	1.44	1.27	1.13	1.01	0.91	0.82	0.75	0.68	0.62	-	-	-	-	-

Safe Wind Suction (negative) Loads (kN/m²)

Span (m)	1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2	2.3	2.4	2.5	2.6
Single span	2.23	1.85	1.55	1.32	1.14	0.99	0.87	0.77	0.69	0.62	0.56	0.51	-	-	-	-	-
Double span	3.15	2.60	2.19	1.87	1.61	1.40	1.23	1.09	0.97	0.87	-	-	-	-	-	-	-
Multi span	3.49	2.89	2.42	2.07	1.78	1.55	1.36	1.21	1.08	0.97	0.87	0.79	-	-	-	-	-

NOTES Black figures are stress limited, the load shown is the ultimate load divided by 1.5.
Blue figures are deflection limited.
These tables apply to the metal profile , a check on fastener capacity is also required.

Construction details – Roof and Wall Cladding

Achieving superior thermal efficiency and airtightness begins with precise detailing at the design stage. The Triosbuild® site-assembled system delivers exceptional on-site flexibility alongside reliable performance, supported by a defined sealing strategy that maximises the liner profile to minimise air leakage and maintain airtight continuity at every junction and interface.

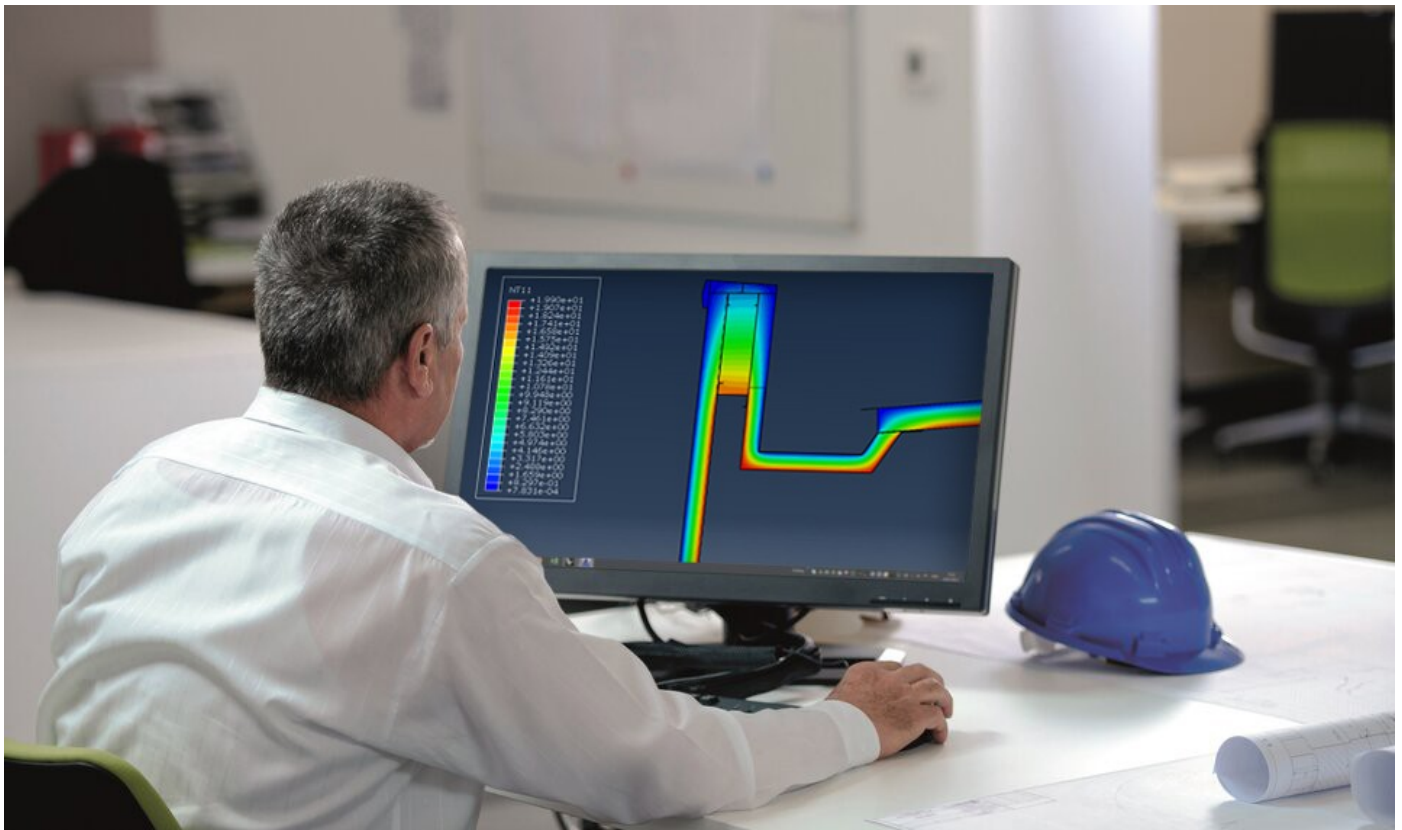
With high-quality, market-leading components specified within the Building Systems UK Triosbuild® range, the system ensures consistent, high-level performance throughout the building's operational life.

Where bespoke solutions are required, our decades of experience and close collaboration with installation contractors enable the development of efficient, practical designs. Combined with advanced performance modelling, this expertise provides assurance of long-term durability and energy efficiency.

A full library of standard DWG/PDF drawings is available.



For bespoke junction design or technical advice, contact the Building Systems UK Technical Team on +44 (0)1244 892199 or email technical.envelopeproducts@tatasteelurope.com



ComFlor® Structural Floor Deck

Mezzanine solutions

Space optimisation within Chill store buildings is often exemplified in the inclusion of a mezzanine floors to utilise the building vertical space, be that for the provision of fixed separate storage or alternatively the inclusion of production rooms or office facilities.

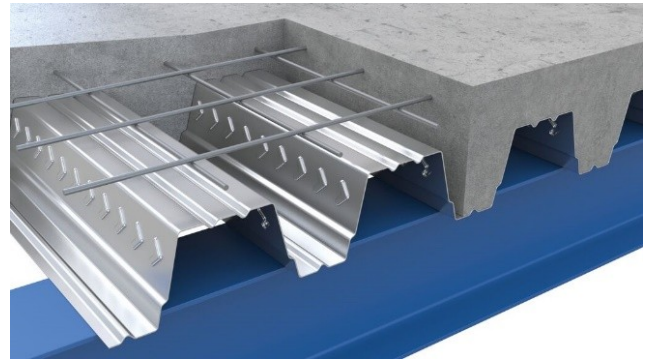
The choice between steel decking with concrete poured in-situ or concrete pre-cast planks represents a critical decision that significantly influences the performance and efficiency of the building structure. Whilst both methods have their merits, steel decking with poured-in-situ concrete emerges as a preferred solution for various reasons, striking a harmonious balance between structural integrity, design flexibility, and construction efficiency.

ComFlor® is the market leading structural floor deck system in the UK, manufactured from our Building Systems UK site in Shotton, it offers the most comprehensive range of deck depths, supported by design software and a wealth of experience in the technical department, it is the system most familiar to many steel structural consultants and engineering practices.

Classic composite floor decks are chosen for their simplicity and efficiency, they are supplied to site nested and permit fast laying and concrete pour. The system provides excellent structural strength, making it suitable for the supporting of load-bearing requirements of a mezzanine floor, able to accommodate both live and dead loads. The system offers design flexibility, especially in multi-floor configurations and the speed of construction is considered to be fast with 400m² per day installation speed for single teams.

Fire performance of the system is excellent, with zero soffit protection necessary and slab thickness guidance is available from our Technical Office to demonstrate compliance with the fire insulation requirements of Tables 7.1 & 7.2 of the SCI Publication P359 'Composite Design of Steel Framed Buildings'.

Other innovations such as ComFlor® Active can be integrated to reduce reliance upon carbon intensive fuels, the system activates the floor thermally to heat the room via a network of water pipes embedded in the floor. This method provides highly effective heating benefits in Chill store buildings. The low temperature differential between the Chill storage areas and the circulated water in the mezzanine rooms allows the use of low carbon technologies, rather than traditional carbon intensive heaters.



www.buildingsystemsuk.com

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