

# TATA STEEL



## Building envelope case study

### Pond Hall Building, Thorp Receipt and Storage Facility, Sellafield, Cumbria

Client: Sellafield Ltd

Main contractor: Shepley Engineers Ltd

Installation contractor: F. Brown plc

Cladding system: Trisomet® 333 System

Colorcoat® product: Double-sided  
Colorcoat HPS200 Ultra®

**The Trisomet® 333 System has been used to overclad the Pond Hall Building at Sellafield.**

The Pond Hall Building, of the Thorp Receipt and Storage Facility, houses two large water ponds as part of the reprocessing of spent uranium rods.

The building is 36 metres tall and 192 metres long.

The Trisomet® 333 System panel met the performance criteria set and also offered good lifetime performance to minimise further re-cladding and meet the design life requirements for the project.



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The Pond Hall Building is 36 metres tall, 192 metres along two elevations and 45 metres long at gable ends. It has two distinct roofs - one consisting of natural asphalt on a deck, the other featuring the Tata Steel KalZip® standing seam system. Its moist internal atmosphere creates an extremely similar high humidity environment to that of a swimming pool. It is also located in an extremely aggressive marine location, a few hundred yards from the Irish Sea.

Sellafield Ltd carried out performance analysis of the building envelope. Concerns were expressed over the potential long term integrity of the single-skin aluminium sheeting on the walls, as signs were emerging that suggested it would eventually require replacement. As an initial step, over 28,000 fixings were replaced, maintaining current performance levels while Sellafield Ltd sought an appropriate permanent solution.

Preston-based contractor F. Brown plc were approached with a view to putting forward an acceptable wall cladding replacement option. Mitch Dunne, F. Brown's Project Manager, takes up the story: "We worked closely with Tata Steel to establish a solution that would provide a long term answer to controlling the relatively unusual mixture of aggressive internal and external environments.

"We carried out a lot of work in conjunction with the Tata Steel technical department. Following extensive evaluation, Sellafield Ltd accepted our suggestion of the Trisomet® 333 System insulated wall panel system in double-sided Colorcoat HPS200 Ultra® pre-finished steel, covered by the Tata Steel Platinum® System Guarantee."

Featuring a straightforward side-lapping detail, the Trisomet® 333 System affords faster installation and a broad pan trapezoidal pre-finished steel external profile.

The system provides optimised water drainage, strength and durability. Its autohesively-bonded polyisocyanurate (PIR) insulation uses the latest foam technology, providing exceptional thermal performance from a relatively shallow foam core, enhanced environmental benefits, together with fire performance approved by the Loss Prevention Certification Board (LPCB).



Backed by a 30-year coastal Confidex® guarantee and available in 40 standard colours, Colorcoat HPS200 Ultra® is the ideal option for a building exposed to high winds and humidity and located near to salt water.

Made in the UK to ISO 14001, for a lower carbon footprint, Colorcoat HPS200 Ultra® is the most durable pre-finished steel on the market. It incorporates advanced coating technology, providing superior corrosion resistance, especially in challenging environments, with twice the colour and gloss retention of standard plastisol products.

F Brown plc is an approved installer within the Platinum® System Guarantee scheme. This means that their workmanship is continually checked to ensure everything is being correctly installed. The warranty provides peace of mind to clients for up to 25 years. It is free of charge, covers material performance and workmanship and provides the client with a direct link to Tata Steel in the unlikely event of a problem.

The guarantee covers all building envelope solutions provided by Tata Steel, making it the most comprehensive system warranty available.

Mitch Dunne explained that the new Trisomet® 333 System walls featured the Tata Steel Repertoire® bespoke colour matching service, to match the original cladding: "Sellafield Ltd accepted an Antelope (08B21) finish for the bottom 75% of the building, with Light Grey (10A03) on the top 25%. This provided a colour scheme designed to blend into the surrounding environment.

"Over 14,000m<sup>2</sup> of panels were supplied in four metre lengths to comply with site health and safety handling requirements. The thermal performance of Trisomet® 333 System helped to improve the mean temperature of the building. Installation of the panels also cut down the risk of air leakage through voids. The existing stainless steel structural tray lining remained in place, but we did carry out

work to reseal the liner joints to improve airtightness. We also installed a new stainless steel carrier rail to the existing structural liner laps and fixed the new Trisomet® 333 System panels, using Ash & Lacy Building Systems' stainless steel fixings throughout, having carried out appropriate pull out and shear testing. Flashings were made by Architectural Steel Ltd. Ash & Lacy and Architectural Steel were specifically chosen as they could provide products covered under the Platinum® scheme."

Reflecting on the completed project, Paul Rainford-Miller, Principal Architect, Sellafield Ltd commented: "In considering the re-cladding of the Pond Hall Building, the challenge for the design team was to come up with a cladding panel that could overcome the technical issues relating to condensation within the structure as well as tie in with the existing structural support system.

"The Tata Steel Trisomet® 333 System panel met the performance criteria set and also offered good lifetime performance to minimise further re-cladding and meet the design life requirements for the project. The appearance of the panel was also an important consideration and the double-sided Colorcoat HPS200 Ultra® coating offered the best in appearance and durability.

"In developing the detail design for the re-cladding system, the design team worked closely with Tata Steel and the cladding installer to answer all the technical requirements and this collaborative approach served to minimise site installation time and enabled the project to proceed with confidence."

Sellafield Limited Project Manager Richard DeLoughry noted: "The collaboration between all the project team members from the initiation of this project, including the design team, main contractor, installation contractor, Tata Steel and Sellafield Limited as a client, has resulted in a successfully delivered project for all concerned."

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