

Three frames in one

Consisting of three linked steel frames, Panattoni has completed a bespoke built-to-suit facility for Tesco, enabling enhanced logistics and operational capabilities.

Located on the west bank of the River Medway in Kent, on land formerly occupied by a paper mill, one of the final warehouses on Panattoni Park Aylesford has been completed.

The 90-acre park is said to be ideally positioned alongside the M20 motorway, with easy access to Junction 4. It is already home to a number of well-known companies, with Amazon, Fowler and Welch, Evri, DHL and Marley Tiles occupying previously completed warehouse units.

Structural steelwork is the framing solution for the vast majority of warehouses and distribution centres, and Panattoni Park Aylesford is no exception. All of the completed units have been built with the material and the latest project, which was designed in close collaboration with Tesco to meet its specific needs, is a 442m-long × 120m-wide steel-framed structure.

Commenting on the scheme, Winvic's Project Manager Richard Black, explains: "This facility is in fact three individual, structurally-independent frames. But once clad, it looks like one building."

A design that incorporates three separate frames is important. Tesco is using the facility as one of its regional distribution centres, with the frames housing freezer, chiller and ambient storage zones. Two insulated internal walls, positioned between a double row of steel columns, separate the three storage areas.

As the freezer needs to be maintained at -25 degrees, the design team had to take thermal isolation into account for this part of the project. Each of its perimeter columns sits on a timber block, positioned on top of the pile cap, which acts as a thermal insulation break and prevents any adverse effects on the foundations below.

There are fixed holding down bolts protruding through each block, so the setting out of the columns was said to have been tricky, with little room for adjustment.

The entire steel structure is based around perimeter columns set at 8m centres, which along with internal valley columns, help support four 30m-wide spans. The roof spans are formed with two spliced 15m-long rafters, which were lifted into place using two mobile cranes, each holding

one section, while the central bolted connection was completed.

The frame accommodating the freezer was the first to be erected. The steelwork started towards the end of March 2024 and the entire package was completed in eight and a half weeks.

With a 14.5m haunch height, the freezer frame is the highest part of the warehouse, while the chiller and ambient areas both have 6.5m haunch heights. The freezer is also the smallest of the frames, offering 9,586m² of floor space.

Keeping the construction programme on schedule is paramount for every project. The erection of the steel frame plays an important role in this, as it needs to be in place for the cladders, roofers, and other follow-on trades to carry out their work.

On this job, a little more flexibility was required in order to keep the construction sequence on schedule, as Mr Black explains: "We would normally expect the steel to be erected from one end of the structure to the other, but we needed to accommodate the partition wall installers."

"Consequently, once Severfield had completed

FACT FILE

**Tesco Distribution Centre,
Panattoni Park Aylesford, Kent**

Main client: **Panattoni**

Architect: **Stephen George & Partners**

Main contractor: **Winvic Construction**

Structural engineer: **BWB Consulting**

Steelwork contractor: **Severfield**

Steel tonnage: **2,408t**



The entire warehouse features four main spans.

the initial frame, the adjacent chiller was erected from the southern end, with the work proceeding northwards towards the freezer. Once the final bay was ready to be lifted into place, the first insulated wall had been completed and the team had already



The completed warehouse with the 14.5m-high freezer zone in the foreground.

moved to the opposite end of the site, to begin installing the other wall between the chiller and ambient areas.”

Occupying the middle portion of the warehouse, the chiller is the largest of the frames, offering 31,596m² of floor space. Although it has a lower haunch height, the chiller has a similar pitched portal design to the freezer.

Attached to the chiller are a couple of offices, positioned on each side of the warehouse. On the western elevation, the warehouse has a goods-in area and a connected two-storey office. The upper office floor is formed with steel beams supporting [metal decking](#) to create a composite flooring solution.

To enable trucks to enter and exit the warehouse, the goods-in zone has a large column-free doorway, created by a series of long plate girders, the biggest of which is a 21m-long beam that weighs 17t.

On the opposite eastern elevation, there is another two-storey office hub, also designed with a composite upper floor.

Abutting the chiller, the ambient zone was the final area of the warehouse to be erected. Offering 11,518m² of floor space, this frame accommodates space for a pallet wash zone and a packaging recycling area.

The frame differs from the rest of the warehouse, as it has been designed as a traditional portal frame with a [hit-and-miss](#) valley column

configuration.

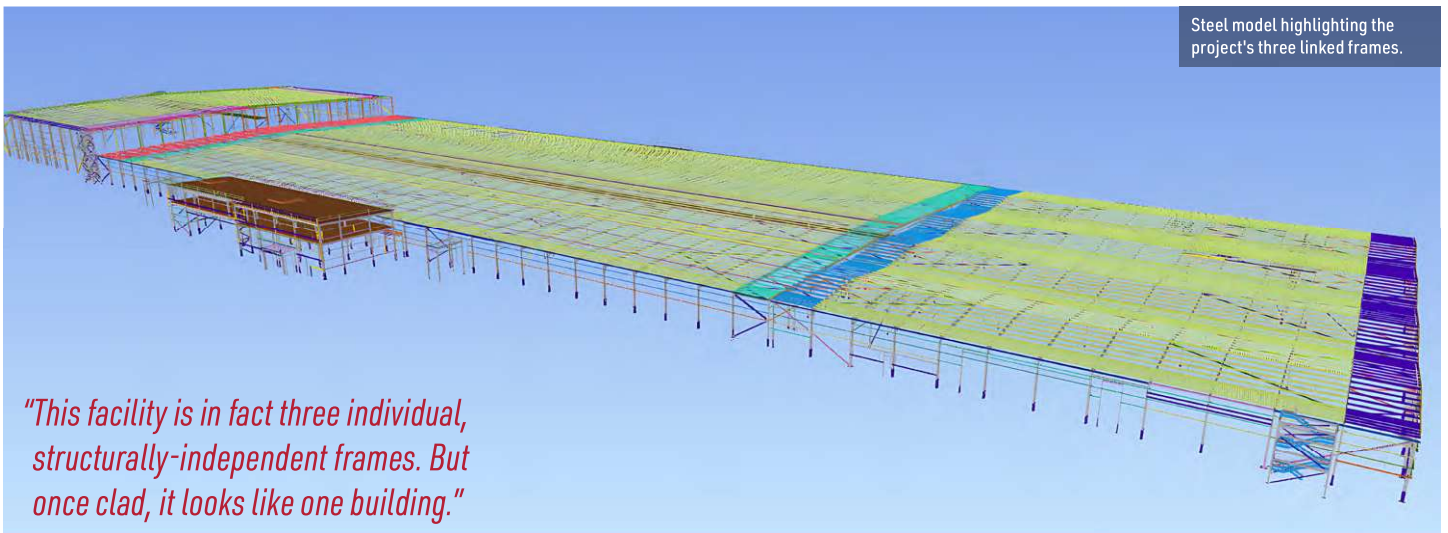
This design was deemed to be more efficient as the ambient frame does not include an internal gantry. With more plant equipment to accommodate, the freezer and chiller frames have a centrally-positioned raised gantry with a metal mesh floor.

Supported between a double row of columns, the 5m-wide gantry was delivered to site in individual [column](#) and [beam](#) elements, and was erected at the same time as the main frame.

Summing up, Tony Watkins, Head of Development: South East & London at Panattoni says: “The [BREEAM ‘Excellent’](#) facility is the culmination of our vision for the project to deliver cutting-edge operational capabilities for Tesco, creating jobs and generating benefits for Kent. This facility will also bring amenities such as retail, dining, and services, while driving investment in logistics and local businesses.”

Stuart Moffat, Head of Development – Distribution at Tesco, adds: “We have worked with Panattoni over the past few years to develop a bespoke facility that meets our operational needs while supporting our distribution and [sustainability](#) goals.

“This built-to-suit facility is particularly vital for us, incorporating cutting-edge features, including 90,000m² of solar panels and EV charging infrastructure that we have invested in to support our vehicles and staff.” ■



Steel model highlighting the project's three linked frames.

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