

Outstanding steel frame

A new distribution centre at Ellesmere Port is targeting the highest level of sustainability certification and will be certified as net zero carbon in operation for the base build works.



Visualisation of the completed project.

Steelwork erection has recently been completed on a new 61,966m² distribution centre for developer Stoford, located on the former Hooton Park Airfield at Ellesmere Port in Merseyside,

Aiming to achieve the highest sustainability certification, such as BREEAM 'Outstanding' and an EPC 'A' rating, the building has been pre-let to Peugeot, a subsidiary of the global automaker Stellantis Group and will be used as its UK parts distribution centre.

Measuring 344m-long x 174m-wide and 22m-high, the structure is said to be the biggest single cross-docked warehouse to be developed in

the North West during 2022.

Commenting on the scheme, Stoford Managing Director Dan Gallagher, says: "This is a modern, purpose-built distribution building that will create new jobs and deliver significant economic benefits. Sustainability has been a key factor throughout the design process, with consideration given to minimising embodied carbon and reducing the building's energy consumption. The development forms part of the expansion of Ellesmere Port and will ensure the longevity of Hooton Park as a significant employment site."

A steel-framed option has been used to construct the building. Winvic Design Manager



A steel-framed solution was chosen for its speed of construction.



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FACT FILE
Ellesmere Port distribution centre
 Main Client: Stoford
 Architect: Webb Gray
 Main contractor: Winvic Construction
 Structural engineer: BWB Consulting
 Steelwork contractor: Caunton Engineering
 Steel tonnage: 2,700t

Mihir Mehta, says the material was chosen for its speed of construction – the frame was erected in nine weeks – and because it offered the most efficient method for creating the large spans required for the distribution centre.

The portal-framed design features perimeter columns set at 8m centres, with four 43.5m-wide spans stretching along the building's entire length. In order to provide even more column-free space, the internal valley columns are arranged in a hit-and-miss configuration, meaning they are installed on a 16m grid pattern.

Caunton Engineering completed the steel erection using four mobile cranes with capacities of up to 130-tonne. The sequence to install the 43.5m-long spans, required the rafters to be delivered to site in two sections that were individually lifted into place using two cranes. Once the rafter sections were connected to their supporting columns and still being held in place by the cranes, the central bolted splice was made to



The distribution centre features four 43.5m-long spans.

complete the span.

The rafter sections used for the roof spans are typically $762 \times 267 \times 173$ UBs and weigh up to 4.2t each.

The design of the portal frame, and the roof steelwork in particular, includes scope for future flexibility.

Winvic Project Manager Sam Vickers, explains: “The steel frame is designed to accommodate future loads from a fire rated baffle ceiling. This ceiling will span an area of approximately 17,000m² above the goods in/out area and will be supported by secondary steel hung from the roof structural steel with a drop height of 9m from the haunch.”

The building will feature an array of sustainable features including photovoltaic roof panels, rainwater harvesting, LED lighting and an energy monitoring system. Staff will also benefit from an external wellbeing area, bicycle storage and EV charging points.

The distribution centre will also have an attached three-storey 1,850m² office block and a smaller two-storey 185m² transport office. Both are steel-framed extensions, attached and linked to the main distribution centre and formed with steel columns and beams supporting a steel metal decking composite flooring solution.

Externally, the distribution centre’s steel frame will support a composite cladding system, while Stoford has sympathetically designed the building to preserve the integrity of the existing listed structures on the former airfield, (this includes WWII air raid shelters), which means some of the surrounding ground and building floor levels of the new facility are recessed into an existing slope.

Winvic started on site in June 2022 and began its work by removing an old concrete runway and tarmac. This amounted to approximately 35,000 tonnes of material, which was broken down, graded and reused on the overall project.

Also forming part of Winvic’s early works was

the installation of pad foundations in readiness for the steelwork programme.

Winvic’s Head of Industrial, Distribution and Logistics, Danny Nelson, added: “We’re thrilled to be working with Stoford once again and to add another low carbon industrial facility to our roster of live projects. The relationships already built with the Stellantis team are driving the facility forward and we look forward to exceeding their expectations all the way to delivery in the second half of 2023.”

Gemma Davies, Director of Economy and Housing at Cheshire West and Chester Council, said: “This is another significant investment in Ellesmere Port, not only does the new building contribute to the green credentials we are striving for, it continues the historic association Ellesmere Port has with the motor industry and creates a new modern workplace.”

Winvic says, the development is programmed for completion in the second half of 2023. ■