KEEPING SAFETY ON TRACK



Warehouse Systems Limited

Bespoke Steel Bar Storage System

BY WSL

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Our client is a global rail infrastructure specialist supporting the construction, maintenance, and performance of rail networks worldwide. One of their UK facilities manages high volumes of long-length steel bars as part of its operations.

The Storage and Handling Challenge

Steel bars were stored in floor-based stacks, requiring crane handling and manual access at height. This created safety risks, restricted movement, slow material retrieval, and inefficient use of space. The situation was further complicated by limited floor load capacity in an ageing warehouse.

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The client required a solution that would:

- Improve operator safety
- Allow controlled access to individual bundles
- Distribute heavy loads safely across the floor
- Integrate with existing operations



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The Solution: A Fully Bespoke Steel Bay Racking System

Following an initial site assessment and detailed consultations with the client's operational team, WSL proposed a bespoke steel bay racking system, designed to address both the handling challenges and the building's structural limitations.

Rather than tall storage, which would concentrate loads and increase stress on the warehouse floor, the solution focused on distributing the load horizontally. The available floor space allowed for a wider, shallower storage configuration using multiple steel racking bays. This approach would significantly reduce point loading, while improving accessibility and safety.

Key Design Features

The final solution comprised of multiple *steel bay units*, each engineered with the following features:

- Heavy-duty steel bases for even load distribution
- Full-length support channels to prevent overhangs
- Multi-level bundle capacity with clear separation
- Improved organisation and stock visibility

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Prototype Development and Design Refinement

As with all bespoke solutions, real-world validation was critical. WSL manufactured a demonstration bay as the first phase of the project which was installed on site to test the design under live conditions.

During this trial, it was established that additional reinforcement would further enhance system stability. Leveraging WSL's in-house fabrication capabilities, the design was quickly refined. Steel gussets were added beneath each vertical post, strengthening the connection between the post and the base and significantly improving performance under constant load.

The ability to implement design improvements rapidly, without reliance on external suppliers, highlights WSL's flexibility and strength in in-house manufacturing.



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In-House Manufacturing and Quality Assurance

All steel bay racking units were manufactured at WSL's Leeds facility. As a UKCA-certified factory and Approved Manufacturer Full SEMA member, WSL operates to high standards of quality, safety, and regulatory compliance.

Each component was precision-fabricated to ensure consistency across all bays. Following manufacture, the units were finished with a yellow paint coating to match the client's existing structures, improving visual consistency while enhancing visibility and safety within the warehouse.

By designing, manufacturing, and installing the system in-house, WSL avoided reliance on third-party suppliers, enabling greater cost efficiency, streamlined communication, and full control over quality and delivery.

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Logistics Planning and Safe Delivery

Due to the bespoke dimensions and weight of the steel bay units, transportation required detailed planning. The completed bays were loaded at WSL's Leeds factory onto HGV trailers, securely restrained, and transported to the clients South Yorkshire facility.

Key logistical considerations included:

- Controlled loading using forklift trucks
- Careful load distribution within trailers
- Secure restraint of oversized components
- Controlled offloading upon arrival

All units were delivered safely and without incident, ready for installation.











Phased Installation Strategy

To minimise disruption to ongoing operations, installation was completed in two planned phases.

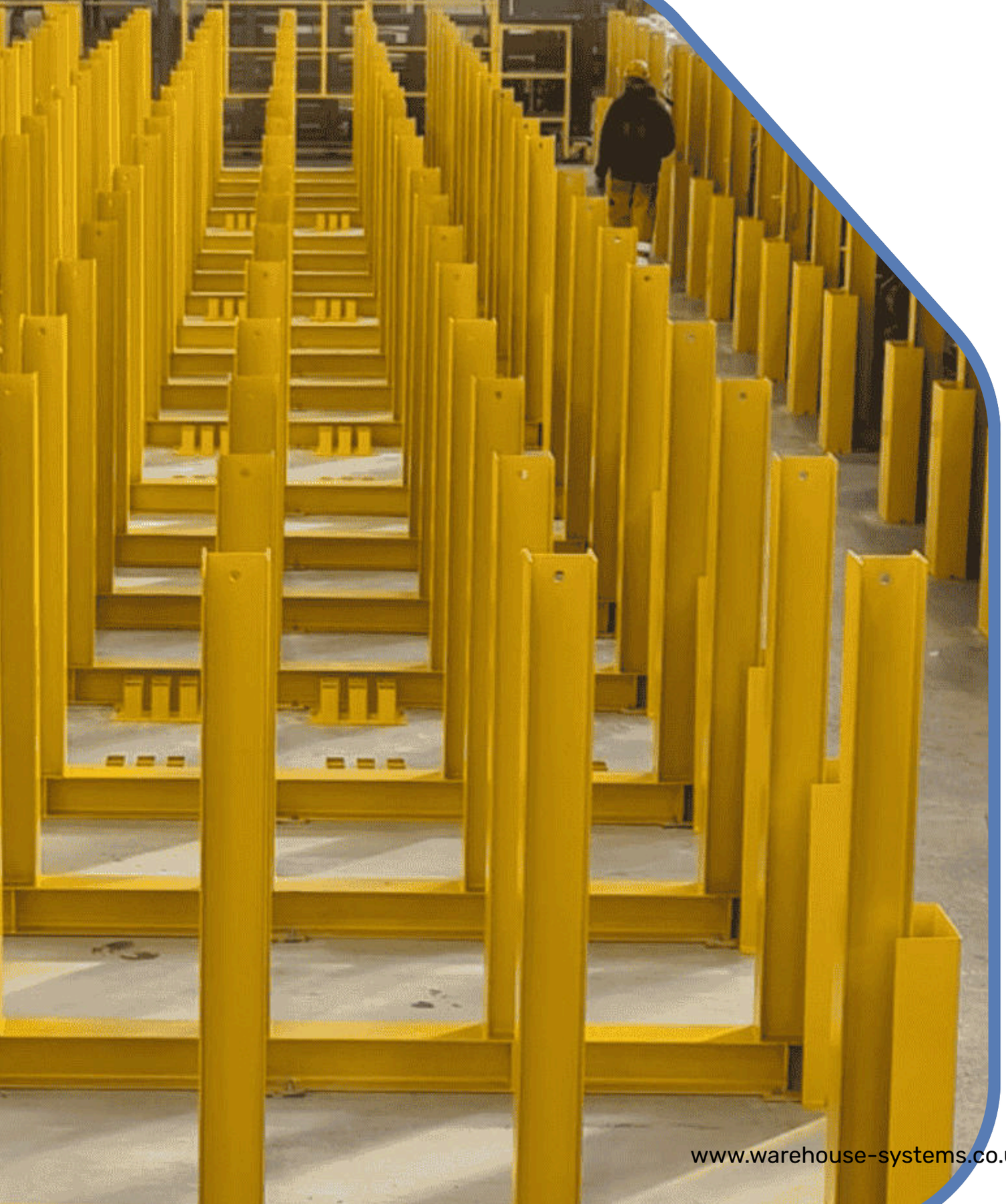
Phase One: Initial Installation and Stock Transfer

One half of the warehouse was cleared, allowing a five-person installation team to install the first set of racking bays between Monday and Friday. This enabled the client to transfer steel bar stock onto the new racking over the weekend.

Phase Two: Completion and Full Commissioning

With the first area operational, the second half of the warehouse was cleared. The team returned on Monday to install the remaining bays, with the full system installed and operational by Friday.
This phased approach ensured continuous operation while maintaining safety throughout the installation

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Project Management and Coordination

The project was managed by Project Manager Gareth Crowley, who worked closely with WSL's engineering and manufacturing teams to maintain full oversight of production and installation readiness.

This integrated approach enabled real-time communication, proactive client updates, and accurate coordination of transport and installation schedules.

With the completion date critical due to an upcoming senior management site visit, careful planning ensured the project was delivered on time and to specification

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Benefits and Operational Impact

This project demonstrates how bespoke engineering, combined with in-house manufacturing and proactive project management, can resolve complex storage problems. By fully understanding the client's constraints and objectives, WSL delivered a future-proof solution that significantly improves safety, efficiency, and long-term operational resilience.

For a global rail infrastructure specialist operating at scale, the new steel bay racking system provides a robust, future-proof storage solution, supporting operational excellence today while enabling continued growth in the years ahead.



Need a Solution for a Complex Storage Challenge?

WSL designs and delivers bespoke storage and handling solutions for space, load, safety, and non-standard requirements. From site survey and design to manufacture, installation, and compliance, we manage it all.

Established in 1989 and UKCA & SEMA accredited, we create safe, efficient, future-proof systems built around your operation.

Contact us today to discuss how a tailored storage system could transform your facility.
Call 0113 245350 or email sales@wslmail.co.uk

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