

**“MORE PERFORMANCE THAN A TRADITIONAL HARDSTANDING”**

**Delivering performance to customers that need it**

Construction specialist, Russell WBHO needed a performance-enhancing alternative to traditional concrete hardstandings, for a quality-driven customer in Doncaster.

MPW Mawdsleys, a provider of third-party logistics to the pharmaceutical industry, needed a hardstanding that would withstand heavy vehicular traffic and be quick to install and easy to maintain around its day-to-day schedules.

Once installed, the 7254 sqm hardstanding needed to offer improved performance over traditional installations, to keep downtime minimal.



For the answer, Russell WBHO turned to trusted Groundworks contractor QED Construction, who put forward the Danley Strategic Reinforcement Design™. An alternative hardstanding construction method that promotes movement in the concrete slab, improving load transfer and minimising failure.

Ian Ashton from QED Construction explained: “Compared to traditional hardstanding methods, the Danley Strategic Reinforcement Design better manages the natural behaviour of concrete and reduces common failures.

“Most concrete slab deterioration happens at the joints, but by removing the steel from the mid-panel, and placing the support at the joints instead, we are able to optimise load transfer and control cracks in a way that can considerably reduce service yard maintenance and improve the structural integrity of the slabs.”



**Strategic Reinforcement™ Design  
Danley® PD3® Dowel Cradles  
Danley® Dowels**

**Project information**

- Client: MPW Mawdsleys
- Project: Redhouse Phase 2
- Location: Doncaster
- Concrete Hardstanding Area: 7250m<sup>2</sup>
- Main Contractor: Russell WBHO
- Design Slab Engineer: Adept Consulting Engineers Ltd
- Concrete Contractor: QED Construction Ltd
- Completion Date: May 2023

**Danley’s Services**

- Technical design support to the engineer
- On-site installation training and guidance on best practices for quality assurance
- Danley® design warranty



**Danley® Strategic Reinforcement™ Design**

- 180mm PAV2 C32/40 Concrete Slab
- No steel reinforcing mesh
- PD3® Dowel Cradles at contraction joints
- Danley® Dowels at construction joints at 450mm c/c
- Joints spaced at 4.2mx4.2m

**Original Design:**

- 200mm PAV2 C32/40 Concrete Slab
- Double layer of A393 mesh
- H16mm x 300mm dowelled construction joints at 300mm c/c spacings.
- Joints spaced 6m x 6m





(1) Danley PD3 Cradle™ (2) Danley™ Dowels

The Danley method requires less deliveries to site and reduces the time it takes to install the hardstanding, meaning QED Construction was able to install over 7000 sqm of hardstanding quickly with minimal distribution to MPW's daily logistics.

Looking ahead, the installation will accommodate movement and therefore be less susceptible to joint spalling and cracking, which means maintenance will be minimal and the groundworks will really stand the test of time.

Simon Bower, Contracts Manager for the main contractor, Russell WBHO, comments:

"Our customer works in a very fast-paced industry where deliveries and inventory are key. They needed a hardstanding that would not let them down, or cause lengthy closures of their service yard. This need for performance is what led us to the Danley method.

"It is reassuring for MPW to know that they need not worry about their service yard for many years, safe in the knowledge that they have a low-maintenance, long-life solution."

**In addition to meeting the performance requirements of MPW, QED Construction also delivered impressive material cost savings and carbon reduction thanks to the Danley Strategic Reinforcement Design™. They reduced the site's use of concrete by 6% and its use of steel by an impressive 86%. These savings translate to an overall cost saving of 24% and a Co2e/m2 saving of 31%.**

The Strategic Reinforcement™ Design complies with Concrete Society TR66 Rev 1: External in-situ Concrete Paving, ACI 330.2R-17: Guide for the Design and Construction of Concrete Site Paving for Industrial and Trucking Facilities and ACI 360-R-10: Guide to Design of Slabs-on-Ground.