

Danley's solution reduces hardstanding costs by 40%+ at famous family bakehouse...

Botham's Bakery has been a family business since Elizabeth Botham first set up her bakery in the ancient fishing port of Whitby over 150 years ago. Famed for its Whitby Lemon Bun, amongst other delicacies, the Botham family had repeatedly extended the rear of their popular tearoom and bakery to accommodate increasing demand. The result was a multi-level site, connected by a network of stairs, ramps, and a central production lift. In 2000, they opened their first purpose-built site nearby, and moved the production of their wrapped goods with immediate effect.

In 2022, more than two decades after the opening of Botham Bakery's purpose-built site, the decision was made to extend the modern production facility to accommodate the remaining bakehouse processes, which were still housed in the historic building.

When it came to the industrial-grade concrete flooring, Botham's of Whitby turned to local contractor, Harland's Builders for support. They needed a 1600 sqm hardstanding for their new bakery expansion, that would provide a durable and low-maintenance flooring substrate with a long life.

For a family business, the cost of such an expansion is a considerable investment. Reducing labour time and materials during the build, in ways that would not compromise building performance, was an important consideration to help make this significant move achievable.



Upon initial investigation, the conventional solution was concrete slabs reinforced using two layers of A393 mesh. Not satisfied that this was the right option, Harland's Builders opted for Danley's Strategic Reinforcement Design™, - a solution proven to reduce common deterioration challenges and deliver a performance-engineered hardstanding for less cost.

Craig Harland, owner of Harland's Builders comments:

"Compared to traditional concrete reinforcement techniques that rely on mesh support systems, the Danley method uses tapered dowel plate supports at the joints to better manage the natural behaviour of concrete.

"This reduces joint spalling and random cracking by using saw-cut joints that are strategically placed to mitigate cracks and limit differential deflection of the slab sections.

"We were confident that by applying this method, and doing away with the traditional mesh system, we could save the Botham family both time and money on what was a really significant milestone investment for their family business."

Project information

- Client: Botham's
- Project: Botham Bakery
- Location: Whitby
- Concrete Hardstanding Area: 1600m²
- Design Slab Engineer: Adept Consulting Engineers Ltd
- Concrete Contractor: Harland's Builders
- Completion Date: September 2022

Danley's Services

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



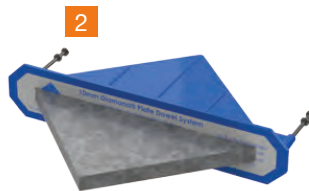
Danley® Strategic Reinforcement™ Design

- 175mm thick PAV2 C32/40 Concrete Slab
- No steel reinforcing mesh
- PD3® Dowel Cradles at contraction joints
- Danley® Dowels at construction joints
- Joints spaced at 4.2mx4.2m



Original Design:

- 200mm thick PAV2 C32/40 Concrete Slab
- 2 layers of A393 Mesh placed at top and bottom
- B16 x Dowel Bars x 500mm
- Joints spaced at 5.8m x 6.8m



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

Using Danley's Strategic Reinforcement Design™, Harland's Builders reduced both the amount of steel and concrete used in the building of the bakery extension.

In total, they delivered a 13% reduction in concrete volume and an impressive 93% reduction in steel across the installation of the floor. The speed of installation also saved a day on labour costs. The materials and time savings equated to an overall cost saving of 42% compared to the original hardstanding specification.

These cost savings come with zero compromise on slab performance. In fact, Danley's Strategic Reinforcement Design™ drastically reduces maintenance, which in the longer term, will help the bakery meet its increasing demand by maintaining uptime in the production facility. This improved performance lengthens the product lifecycle, making the bakery floor a more sustainable and extremely cost-effective alternative.

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.