2017 PTI AWARDS

Recognizing Excellence in Post-Tensioning Applications

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The **PTI Project Awards** recognize excellence in post-tensioning applications. Any structure completed or rehabilitated in the past 7 years that uses post-tensioning as a structural component was eligible. Entries were submitted by owners, architects, engineers, contractors, and post-tensioning suppliers.

Awardees were selected by a jury of industry professionals and were judged based on creativity, innovation, ingenuity, cost-effectiveness, functionality, constructibility, and aesthetics.

Award of Excellence

James Pascoe Group Distribution Centre

Location:	Auckland, New Zealand
Submitted by:	BBR VT International Ltd.
Owner:	James Pascoe Group
Architect:	TSE Architects
Engineer:	BGT Structures
Contractor:	James Pascoe Group
PT Supplier:	BBR Contech
Other Contributors:	Conslab Ltd., Concrete Structures

Project Overview:

James Pascoe Group required a state-of-the-art national distribution center to consolidate, warehousing for all of the groups retail brands, which include Farmers, Whitcoulls, Stevens, and Pascoes. They set out with a long-term goal to minimize costs and maximize value for customers. This was supported by introducing the absolute latest warehousing systems and technology, including 16 m (52.5 ft) high very narrow aisle (VNA) racking—the highest level installed to date in the southern hemisphere. The cutting-edge VNA racking and material handling equipment (MHE) required a level of floor flatness that is considered the highest in the world, existing on the margins of what had been achieved globally.

The floor was constructed as a series of large bay post-tensioned floors, coupled together so that there were only two opening joints located within the 25,000 m^2 (267,500 ft^2) ground floor. Combined with the use of a new system for concrete floor jointing—the Rhino joint—this creates a surface that would require little to no maintenance during the life of the structure.

The use of post-tensioning allowed for an efficient and relatively thin 240 mm (9.4 in.) thick floor to cater to the 120 kN (28,100 lb) back-to-back rack loading, thereby reducing the volume of concrete compared to a traditional floor system. As the key working surface in the facility, the 25,000 m^2 post-tensioned concrete high-performance ground floor played a pivotal role in the success of the project.

Traditionally, a VNA floor would be constructed in narrow strips one aisle at a time to ensure the exacting flatness standards were achieved. Traditional construction processes would slow down program, thicken the floor, and make it weaker and more prone to maintenance. A hybrid, large-bay post-tensioned solution was developed, which minimized joints, allowed fast construction, and provided a more sustainable solution by reducing concrete volumes. The combination of faster construction time and a more efficient use of materials resulted in an approximate 25% reduction in cost.

Jury Comments:

- The use of post-tensioning significantly minimized the number of construction and expansion joints and allowed for precise control of floor flatness.
- A facility such as this one really benefits from the advantages of post-tensioning.