Project Details

Project:	North Star
Location	Christchurch, NZ

Project Partners

Specifier	Engenium
Contractor	Calder Stewart Construction
Subcontractor	Calder Stewart Precast /Cranes

Product

Reid™ SwiftLift™ 3Dx™ 7t Edge Lift Anchor, Articulated Edge Lift Clutch and Void.

A perfect 10 for lifting & rotating pre-cast concrete panels

Calder Stewart gives Reid™ SwiftLift™ 3Dx™ 7t Edge Lift Anchor and articulated lifting clutch top marks for lifting and manoeuvring precast concrete components.

New Zealand property development and building solutions provider Calder Stewart is committed to continuous sustainable improvement. Within their manufacturing divisions Continuous Sustainable Improvement (CSI) or LEAN is a guilding principle and practise. Calder Stewart's North Star or mission statement is "To be the first choice supplier of structural products to Calder Stewart Group".

Focusing on precast, this is achieved and measured by "Everybody safe, right value, right quality, delivered on time and profitable. In partnering with Reid™ on the development and marketing of the new 3Dx™ 7t Anchor and Clutch, it was the opportunity to collectively leverage knowledge and assets; focusing on the "waste" or non-value add operations, and by using facts and data to improve quality, safety, sustainability and the main value add, drop tangible "cash" out the end.

Already having a great customer relationship with Reid™ was only half of the secret. The other half was Reid™ sharing a passion for our business, and together, we faced business realities positively while holding each other responsible and accountable for delivering results. We then monitored our progress using the Plan, Do, Check, Adjust (PDCA) method. Collaborating with Reid™ to refine the development of its 3Dx™ 7t Articulated Edge Lift Clutch, Calder Stewart benefits from the patented articulated linkage paired with a cast-in anchor system, supporting high-lifting capacities without the need for supplementary reinforcement.

Safety First, Then Efficiency

Andrew Rasch, general manager of Calder Stewart's manufacturing operations, has a keen eye on systems that make lifting and positioning slabs easier and safer. **"The first thing you want to focus on is safety and then doing things more efficiently,"** he said.

Regulations requiring additional seismic-related features in concrete elements pose new challenges to concrete manufacturers.

“Numerous precast components, such as stirrup cages, compete for space at the edges where lifters are installed,” Rasch said. “Edges can be quite congested, and people were having to do workarounds to make the older type lifters fit. It was taking extra time.”

Rasch also said that the lifter itself and formwork were prone to moving during the pouring process, which often resulted in lifters cast close to one edge. Anchors located at the edges of thin elements can limit working load capacity, potentially invalidating the nominal anchor capacity marked on the anchor head.

Faster installation, better load distribution

Three principal design features of the SwiftLift™ 3Dx™ 7t Edge lift anchor are responsible for its easy setup and improved performance in both tension and shear.

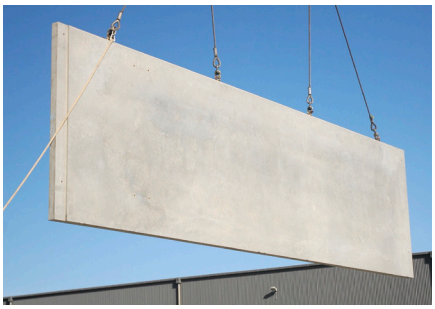
The anchor’s three-dimensional forged design provides greater concrete anchorage and anchor strength. It is also easier to manoeuvre around the mesh reinforcement and fittings, making installation much faster.

“The lifter is easier to fix in a central position, which is where you really want it. You can do it quickly and there’s little chance of it moving during the pouring process,” Rasch said.

The 3Dx™ I-beam design provides maximum shear capacity – without the need for a shear bar – eliminating congestion at the edge and tension between the anchor and reinforcement, providing Calder Stewart with both lower in-place-cost and installation efficiencies over comparative anchors.

Clutch engagement and remote release are far more streamlined thanks to a symmetrically tapered clutch engagement hole that better matches the profile of the locking arm.

Rasch also noted the coating on Reid’s lifter, which has all but eliminated galvanic reactions, which can lead to inferior finishes and remediation work.



Smooth and predictable at every orientation

Rigging and the connection between rigging and cast-in lifting anchors are potential flashpoints when lifting and handling precast components. Rigging must equalise the load across every anchor, and the connection between clutches and lifters needs to minimise snagging and promote the smooth manoeuvrability of concrete slabs when lifted.

The SwiftLift™ 7t Articulated Edge Lift Clutch provides Calder Stewart with a failsafe connection to pre-cast concrete elements, designed so that they won’t spontaneously disengage while under lifting load.

Moreover, the lifting clutch performs much like an articulated joint, allowing lifted concrete elements to move through both an x and y axis. The design brings superior manoeuvrability to lifting and placing concrete elements, all but eliminating risks of snagging or dynamic ‘shock loading’ caused by a panel self-correcting during lifting.

“Construction sites are dynamic environments,” Rasch said. “The are many potential issues when large panels are rotated in mid-air. The articulated clutch is easy to use and install and results in zero binding when lifting and rotating panels.”

Project Partner Calder Stewart