

# #09

SEPTEMBER 2022

# iNFORMER

YOUR QUARTERLY FRC NEWS & TECHNICAL UPDATE FROM iNFORCE

## CORSON GRAIN SILOS: HEAVY DUTY FOUNDATION SLABS

CPS approached iNFORCE to see if there was a way to reduce the requirement for conventional structural steel bar in an upcoming agribusiness project.

Five large heavy-duty foundations were being designed to support these super-sized silos. Extensive work was put into the modelling of the design,

incorporating important seismic considerations. These factors served to simplify the reinforcing, resulting in less steel bar and less congestion which was predicted to significantly hinder the construction program and correct placement of the concrete.

Working closely with both the project engineer and the construction company, iNFORCE was able to reduce the conventional steel, providing both program savings and real tangible cost savings for both the client and the contractor.

- **5 separate foundation pads**
- **Large point loads and important seismic load cases**
- **Significant reduction in conventional steel reinforcement**



“iNFORCE was able to reduce the need for conventional steel reinforcement, giving significant cost and program savings.”

# UNDER CONSTRUCTION: IBEX LIGHTING, TAURANGA



## THE PROJECT

The Ibex developer approached iNFORCE to provide a fit-for-purpose design for this stunning looking new warehouse and office complex in the fast-growing Tauriko business park in Tauranga.

iNFORCE was asked to review an existing conventionally reinforced floor in another building of theirs where the failed joints and structural cracking had caused significant disruption to their operations through maintenance and equipment damage.

## OUR SOLUTION

iNFORCE provided a floor design that could almost completely eliminate disruptive maintenance.

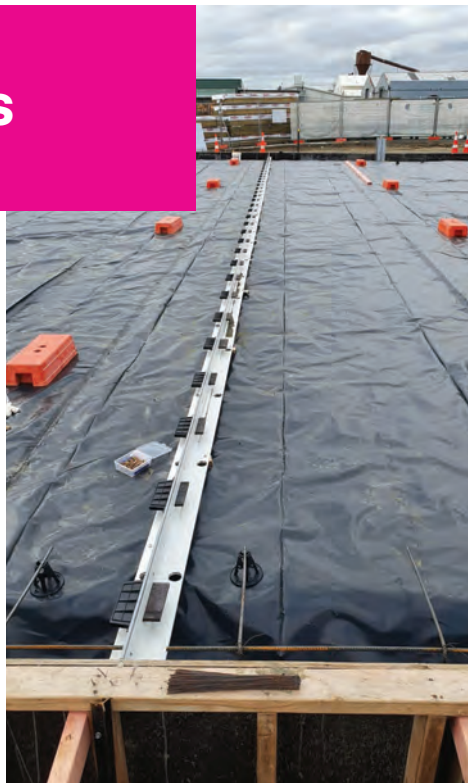
This was achieved by removing all sawcuts in the floor and armoring the control joints with the state-of-the-art Wave joint to create a large clear area for the company's materials handling equipment.



## ASK iNFORCE : WHY ARE DOWELS IMPORTANT?

We recently had a project manager ask “What’s the purpose of a dowel joint?”

Dowels perform the important job of load transfer between adjacent concrete slabs. Because a concrete slab only has around 50% of its load-bearing capacity at the edges, dowels are needed to support the slab, help bear and transfer weight, and permit controlled movement



of the two adjacent slabs (technically called the “approach and leave slabs”).

A dowel can come in variety of shapes and sizes, from square to round to plate dowels in both square and diamond shapes. Dowels are a critical part of a slab design and our team put a lot of emphasis on specifying the right dowel for the right application.

If you'd like to know more, get in touch with our team.



## ASK AN ENGINEER: COLUMN & SLAB PENETRATION ISOLATION

TR34, the standard that we design our fibre reinforced floors to, says best practice for detailing around columns and other slab penetrations in industrial floors is to isolate them completely to remove the issue of restraint.

Concrete floors move through shrinkage, especially in early stages of curing. At this point, the concrete is still gaining strength, making it very susceptible to cracking if it is restrained.

Isolating columns and all slab penetrations is critical to reduce risk of uncontrolled cracking in your floor.

“ *Square forms can increase the risk of cracks propagating from the corners into your slab.*”

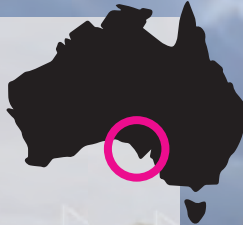
Of note also is that a round or half-round form is advised over against square forms.

This is because square forms create a re-entrant corner which increases risks of cracks propagating from the corners into your slab.



“ *Incorrect isolation significantly increases the risk of uncontrolled cracking.*”

## THE INGREDIENTS FOR A QUALITY PAVEMENT



Bidfood is a leading provider of food services, providing over 38,000 food service operators throughout Australia.

This means that the business requires facilities that can stand up to a high number of truck movements every day.

The construction company on this new build in South Australia looked to iNFORCE to provide a structurally superior slab for the large quantities of heavy vehicle movements.

We were also able to deliver significant cost savings compared to a conventionally reinforced mesh design.



## MEET THE TEAM: DANIEL GRIFFITHS

Daniel is one of the newest members of the iNFORCE team. Coming from a construction background, Daniel brings hands-on experience to the design team, making sure our optimised designs are easy to construct once they progress from paper to actually being executed on site.



His experience in project managing projects in remote areas means Daniel has a unique understanding of getting the planning right and attention to detail (as small details can create much larger issues downstream!)



## ASPHALT REINFORCEMENT?

We mechanically reinforce concrete, but not asphalt... is this about to change? Coming soon, learn how iNFORCE is putting our reinforcing expertise into new areas to make 'black' more 'green'!

**iNFORCE**  
SIMPLIFY WITH CONFIDENCE.