SEP
2026

CANZAC® IGROUP
Improving the performance of concrete worldwide®

CONCRETE COMPASS

INSIDE THIS ISSUE

JOINTS OPEN GRADUALLY

First 30 Days - Approx 20-30%

Next 355 Days - Approx 50-60%

One year Total - Approx 70-90%

The Rest over a period of time

JOINT WIDTHS INCREASE

As each panel shrinks, the joints between the panels progressively open. A typical rate of shrinkage in a conventionally reinforced 150 mm thick slab is approximately 3 mm over 6 metres. With saw cuts at 5 metre centres, this equates to approximately 2.5 mm of shrinkage movement at each joint. If the original saw cut is 3 mm wide, the joint could eventually open to around 6mm.

Joints may open more or less depending on mix design, aggregate size, humidity and ambient temp etc.

CANUTE ON CONCRETE

TO FILL OR NOT TO FILL?

UNDERSTANDING JOINTS IN INDUSTRIAL FLOORS

The Concrete floor is the working surface of an industrial facility. It carries the racking, forklifts, reach trucks and day to day operations of the building, so the way its joints are designed and detailed has a significant influence on how the floor performs over its service life.

Not all joints perform the same function. Contraction joints are introduced to control where shrinkage cracking occurs. Construction joints separate concrete placements and, particularly in large-bay floors. They become the locations where a significant amount of slab movement is concentrated.

UNDERSTANDING JOINTS IN INDUSTRIAL FLOORS Cont...

CONTRACTION JOINTS

Contraction joints, commonly referred to as saw cuts or control joints, create a weakened plane within the slab to encourage drying-shrinkage cracking to occur at a predetermined location rather than randomly across the floor. In an industrial warehouse subject to forklifts, reach trucks and other hard-wheeled material-handling equipment (MHE), these joints should never be left open.

As hard wheels repeatedly cross an unfilled joint, the concrete arrises are exposed to concentrated impact loading. Over time, this can lead to chipping and progressive spalling of the joint edges, resulting in a rougher transition for MHE, increased wear on equipment and an ongoing floor-maintenance liability.

For this reason, contraction joints in industrial floors should be filled with a high-quality semi-rigid joint filler such as Metzger McGuire Spal-Pro RS-88. The primary purpose of the filler is to provide support to hard-wheeled traffic as it crosses the joint and protects the concrete arrises from impact-induced deterioration.

Importantly, a semi-rigid joint filler should not be confused with a flexible joint sealant. The filler requires sufficient hardness and load-bearing capacity to support the joint edges under hard-wheeled traffic, while still having enough resilience to accommodate a limited amount of joint movement. Timing of joint filling is also of key importantance.

If contraction joints are filled too early, significant drying shrinkage may still be occurring within the slab and either cohesive or adhesive failure of the filler will occur. The objective is to delay filling for as long as practically possible, while balancing the need to protect the joint arrises before MHE traffic begins operating on the floor. It is also important to note that backing rod should never be used beneath a semi-rigid joint filler in a saw-cut contraction joint.

Semi-rigid fillers rely on sufficient depth and support within the saw cut to resist the concentrated loading generated by hard-wheeled MHE. Introducing backing rod reduces the effective depth of the filler and creates a compressible layer beneath it, allowing the filler to deflect under wheel loading rather than providing firm support to the concrete arrises.

WHEN SHOULD THEY BE FILLED?

Timing is important, Concrete continues to dry and shrink after placement, and the contraction joints will continue to open as this occurs. We recommend to defer joint filling as long as possible, or until the building reaches its final operating temperature especially critical in refrigerated or freezer facilities).

This allows a significant proportion of the early slab shrinkage to occur before the semi-rigid filler is installed.

If the joint is filled before most of the shrikage has occurred , either adhesive or cohesive separation should be expected.

WHAT ARE THE BENEFITS OF A SEMI-RIGID JOINT FILLER?

. Heavy-Duty Support

. Rapid Setting

. High Shore A Hardness (A80-90)

UNDERSTANDING JOINTS IN INDUSTRIAL FLOORS Cont....

A Semi-Rigid joint filler should not be expected to compensate for a joint that has not been designed for the amount of movement it will experience over time.

Where an anticipated joint opening is greater than 6mm , the joint should be Designed and Engineered with an appropriate Armour Joint System from the outset.

Do all construction joints need to be filled?

Armoured construction joints are often left unfilled, provided the joint opening remains within the movement capacity of the joint system. Where a cover plate is not required, a flexible polyurethane sealant may be installed simply to prevent debris from entering the open joint.

WE DESIGN
WE SUPPLY
WE SUPPORT

FREE-MOVING CONSTRUCTION JOINTS

Free-moving construction joints perform a very different role from conventional saw-cut contraction joints. They define the boundaries between individual concrete placements while allowing adjacent slab panels to move independently as the concrete shrinks.

In large-bay steel fibre-reinforced floors, where saw-cut contraction joints can be significantly reduced or eliminated completely , shrinkage movement that would otherwise be distributed across multiple saw-cut joints is instead concentrated at the free-moving construction joints. As a result, these joints experience considerably greater openings and need to be designed accordingly.

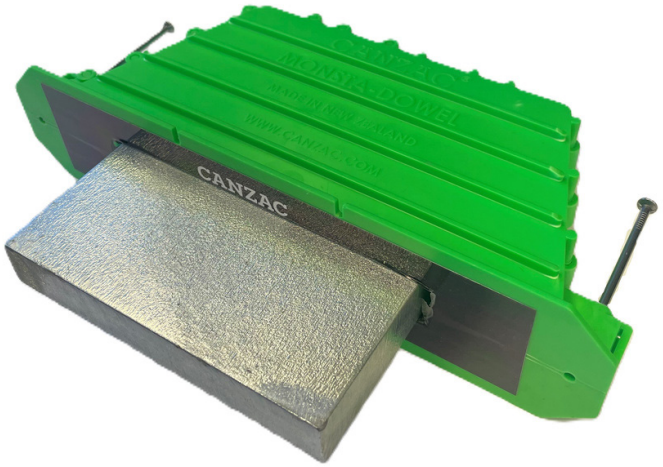
The joint system should be selected based on the anticipated slab movement, expected joint opening, applied loads and the type of traffic that will cross it.

Modern armoured joint systems are available that can accommodate significantly wider joint openings than conventional straight armoured joints, while maintaining a smooth transition for hard-wheeled traffic. Systems incorporating a low-profile joint filler support plate also provide continuous support beneath the semi-rigid filler as the joint opens.

The CANZAC / Lesa Systems Zig-Zag Curve N Straight Joint is a good example. Designed for wider joint openings while providing continuous support to the joint filler and a smooth transition across the joint for material-handling equipment.

WHEN SHOULD CONSTRUCTION JOINTS BE FILLED?

If an un-armoured construction joint is going to be exposed to MHE traffic, it will always be a vulnerable point in the floor. Without steel edge protection, repeated wheel impacts lead to arris breakdown, spalling and ongoing maintenance as the joint opens. Where these joints do exist, they should be filled as late as practically possible, ideally just before building handover and, where the programme allows, approximately 12 months after slab placement. This gives the slab more time to undergo drying shrinkage and allows the joint to open before the semi-rigid filler is installed.



INTRODUCING: MONSTA-DOWEL

THE MOST ADVANCED PLATE DOWEL SYSTEM IN THE INDUSTRY FOR HEAVY DUTY CONCRETE SLABS AND PAVEMENTS

The **MONSTA-DOWEL** is a high performance Plate Dowel System engineered and designed to provide ultimate load transfer for heavy-duty industrial concrete slabs and pavements. Where a single row of 10mm thick plate dowels simply wouldn't perform.

A tapered dowel plate is not utilised, as the reduction in effective bearing area with increasing joint width would significantly diminish dowel capacity.

The tapered dowel sleeve geometry provides variable lateral movement capability, increasing proportonally with joint opening width.

The **MONSTA-DOWEL** System consists of a constant width plate dowel 125mm wide x 150mm long x 20mm thick.

INSTALLATION ADVANTAGE

The days are gone where you need to double layer 10mm plate dowels in heavy duty slabs to achieve adequate load transfer. **MONSTA-DOWEL** is designed to be placed central in the slab depth, In slabs 200mm thick and above, no less than 200mm.

MONSTA-DOWEL can be nailed to traditional formwork boxing or can be installed in any CANZAC Armour Joint System.

WHY MONSTA-DOWEL?

- ✓ High load transfer capacity for heavy duty applicatons
- ✓ Un-restricted lateral movement as joints open

APPLICATIONS

Heavy Duty slabs & pavements 200mm thick and above.

SPECIFICATIONS

Plate width 125mm
Plate length 150mm
Plate thickness 20mm
Steel grade: 300
Available in mild steel or galvanised steel.

BE IN TO WIN!

GOT A CANZAC PRODUCT ON SITE?

Snap a photo of **CANZAC**'s products in action on your site and send it to info@canzac.com

You'll go in the draw to win **1 OF 3 EPIC PRIZES!**

No mucking around. No complicated entry.

Just GET THE JOB DONE, SNAP A PIC & SEND IT IN!

CANZAC® Under Slab - In Slab - On Slab | LESA SYSTEMS | MONSTA-SLAB | converge | ROMBUS INDUSTRIES | CANZAC® LTD Concrete Lifting Systems®

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