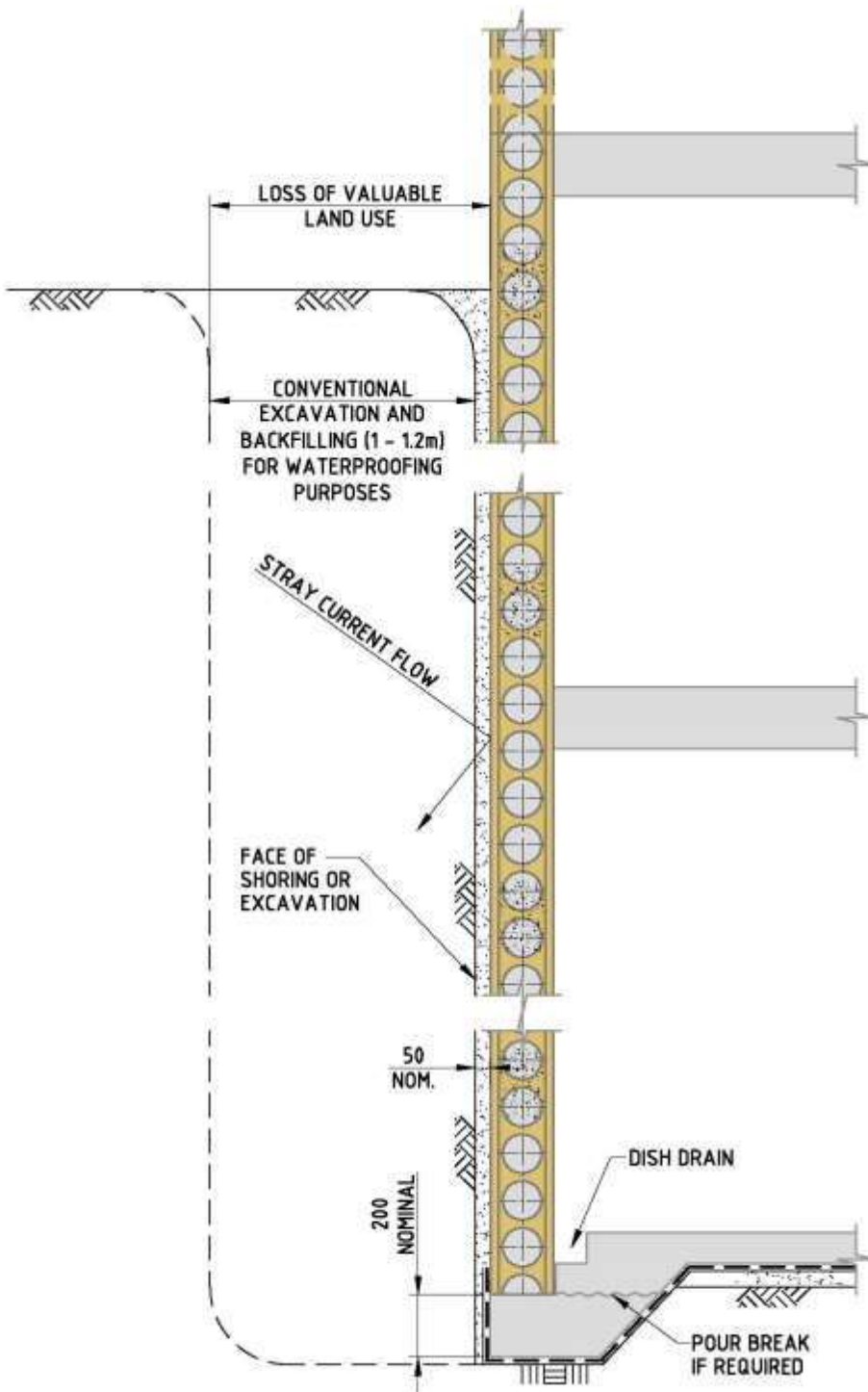


**DOWNLOAD – BASEMENT CONSTRUCTION** for basement detailing above or below the permanent water table.



**DINCEL-WALL ELIMINATES:**

- Loss of valuable land use
- Waterproofing need for the wall
- Stray Current Corrosion damage
- Excavation behind the wall
- Backfilling the excavation
- Wall joints
- Agricultural lines
- Conventional footings
- Horizontal wall reinforcement
- Scaffolding
- Painting of the internal wall face
- Cleaning costs
- Wastage
- Builder's Liability for wall cracking, water damages

**DINCEL-WALL ALLOWS:**

- Habitable spaces in basements
- Minimum 100 years wall life
- Stronger structural walls in comparison to reinforced masonry walls
- Fastest wall construction

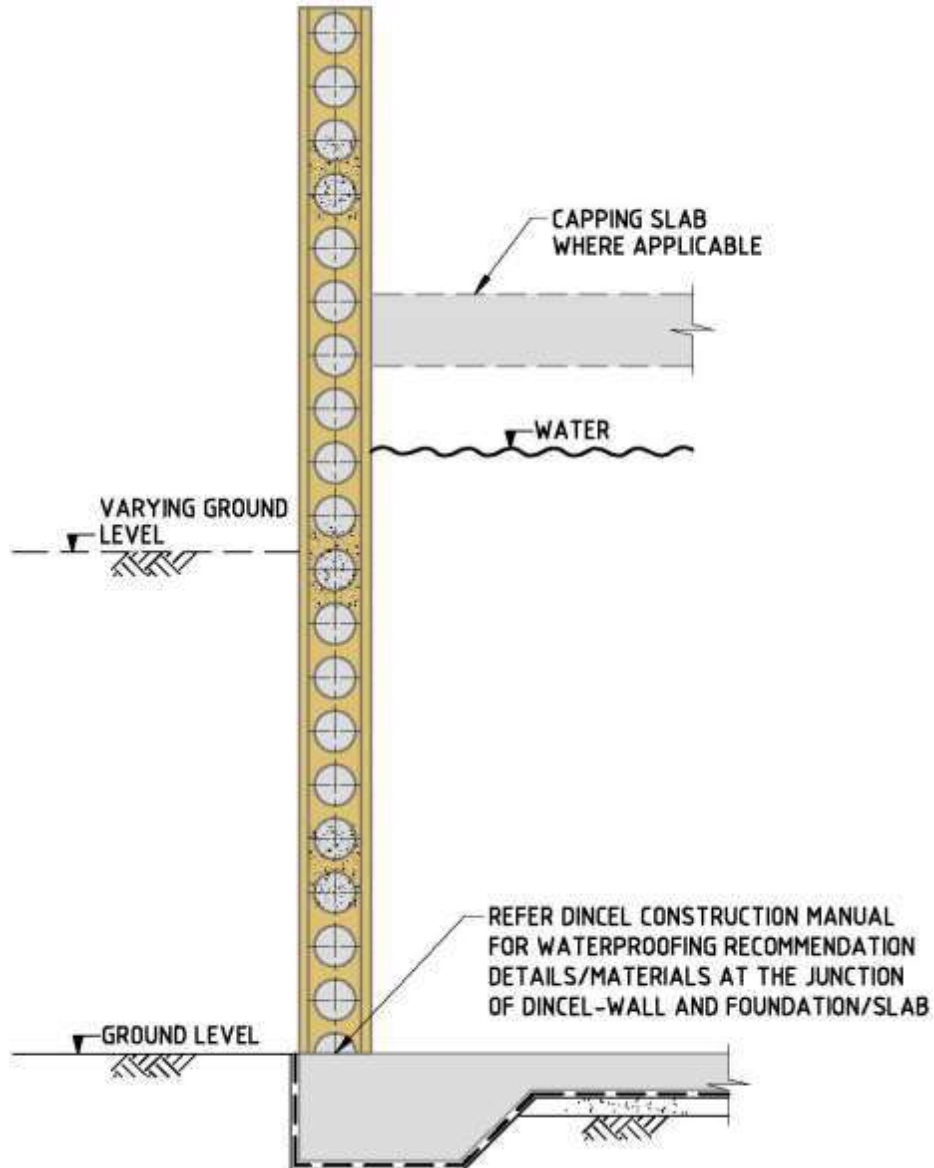
## **BASEMENT WALLS**

Refer to the Dincel Construction Manual – Details J1, J2 and J3 for where the water table is located below the footing/slab level. For submerged conditions, refer to the 275 Dincel Construction Manual.

## Water/Sewerage/Petrol Tanks and Swimming Pools

The presence of permanent water requires the most stringent waterproofing requirements at the wall face that is in contact with water.

Water pressure will require steel bars in the walls. Failure of waterproofing will result in steel corrosion, concrete degradation and structural failure of tank walls.



## WATER TANK

**DINCEL-WALL PROVIDES CRACK FREE, JOINT FREE, MONOLITHIC, WATERPROOF WALL WITHOUT THE NEED OF WATERPROOFING AS TESTED BY THE CSIRO**

## **HOW DINCEL-WALL PROVIDES WATERPROOFING**

Dintel Construction System (DCS) has the solution for waterproofing problems for all building walls.

DCS offers permanent polymer encapsulation for concrete. In other words, it is an integral part of the concrete wall with a flexible/non-brittle, waterproof permanent membrane skin with ready finish on both faces of the concrete wall.

Dintel-Wall eliminates the root causes of water problems which are porosity of walling material, leaking wall joints and wall cracks. The waterproofing solutions offered by Dintel-Wall are as follows:

- **Non-permeable Dintel Form Concrete Encapsulation**

Dintel-Polymer (shown below as ①) is already non-porous which will not allow water through the polymer itself. **The tests by CSIRO have proved that Dintel-Polymer is non-permeable.** Therefore, the only possible ingress point for water is at the joints of each adjacent module. The polymer membrane of Dintel-Wall provides the perfect environment for the curing and hydration process of concrete. This results in denser concrete which is stronger, both in tension and compression.

- **Waterproof Dintel Panel Joints**

The tests conducted by CSIRO [Download – CSIRO Waterproof Dintel-Wall Certificate](#) show that the Dintel panel joints are waterproof even when the panel joints were tested under 6m head of water pressure.

Dintel Wall possesses the following patented panel joint to achieve waterproofing.

1. Dintel's snap connection mechanism (shown below as ③) which occurs at each adjacent module consists of special barbs similar to clutches of sheet piling. The panel joint is already tight and further tensioned when the panels are filled with concrete.
2. The joint with the presence of special barbs further receives concrete slurry filling the gaps in between the barbs. The calcination occurs after concrete placement (i.e. concrete's chemical reaction) further fills any gaps in between the barbs at the panel joint.
3. If any water under hydrostatic water pressure penetrates through the Dintel panel joint (the entire panel joint including the barbs must be damaged for this to occur) the water is captured by the vertical drainage holes at each face of the panel.

Refer [\(download\) Dintel Wall Waterproofing Warranty](#) for detailed explanation of the above mechanism.

- **Concrete Mix**

Refer to the Dintel Construction Manuals.

- **Crack Free Wall**

Dincel-Forms consist of in-built crack inducers (shown below as ④) at every 125mm centres which results in concrete having cracks of very small widths at each crack inducer. These very small crack widths of about 0.01mm (at 40°C temperature variation) are healed by the concrete's natural autogenous healing process in the space of a couple of days, making the entire concrete matrix within the Dincel-Form impregnable by water. This mechanism virtually ensures a crack free wall. Engineers requiring detailed explanation [Download – Information for Design Engineers](#)

- **No Steel Corrosion – No Concrete Deterioration**

Dincel-Wall's permanent polymer encapsulation and controlled wall cracking by in-built crack inducers eliminate the need for horizontal wall reinforcement which is mainly used for crack control purposes. [\(Structural Engineering Design Certification – download\)](#). However, the use of horizontal reinforcement across the Dincel panel joints may be required other than for crack control purposes (i.e. flexural reasons). The waterproof Dincel-Wall, as tested by CSIRO, is waterproof thus eliminating the possibility of steel reinforcement corrosion and concrete deterioration.

## DINCEL-WATERPROOFING

### ① **DINCEL® POLYMER**

- Provides a perfect concrete curing environment which results in stronger concrete, with durable, waterproof surfaces.
- Ready finish for most applications.

### ② **CONCRETE INFILL**

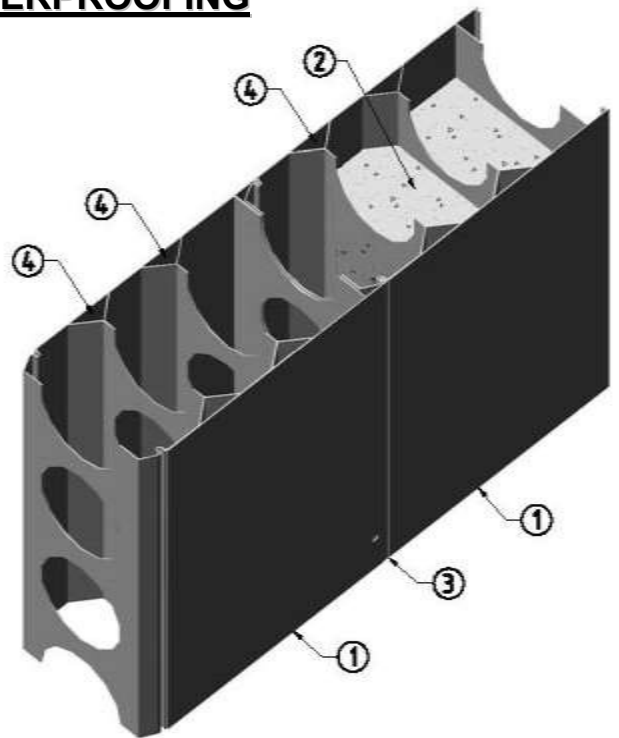
- Durability limitations of concrete eliminated by **DINCEL®** polymer. Lower strength concrete (i.e. less cement) can be used for majority of structural applications. **DINCEL®** provides 100 year plus lifespan for structures.
- **DINCEL®** with concrete infill creates earthquake, cyclone and hurricane proof buildings through ductile composite action, thus achieving greater safety for occupants than offered by concrete alone.

### ③ **SNAPPING JOINTS**

- Patented snap connection mechanism at each adjacent module as tested by the Australian CSIRO is waterproof.

### ④ **CRACK INDUCERS**

- Crack inducers ensure that concrete cracks occur in a controlled fashion, as shown in the photo on the right. The crack control achieved by **DINCEL®** polymer means that reinforcement to control cracks caused by shrinkage and temperature variations is eliminated, i.e. no horizontal reinforcement. Crack free walls are achieved as confirmed by many 60m to 80m long, joint free Dincel-Wall constructions that have been built to date.



## CONCLUDING COMMENTS

The tests conducted by CSIRO have conclusively proved that Dincel-Wall is waterproof.

The reliability of the waterproofing of DCS will be increased with the following:

1. Installation of Dincel-Wall must be in accordance with the "DINCEL CONSTRUCTION MANUAL".
2. A basement or water tank will leak at the wall-slab junctions. The treatment of joint detailing between Dincel-Wall and floor slabs/footings is therefore important.

The reader may refer to the Dincel Construction Manual for recommendations.