



At the junction



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Renovations or extensions can often mean a new slab is laid abutting an old one. There's plenty to consider before starting work to ensure the junction is weathertight, strong and Building Code compliant.

THE JUNCTION BETWEEN an old slab and a new slab is often a weak link, as events in Christchurch have made very clear.

Weak link poses challenges

Even when there are no earthquake stresses, problems can arise if the soil bearing capacity under the new addition is inadequate or the new slab is poorly connected to the existing.

Maintaining a waterproof junction between old and new slabs can also pose challenges.

Needs to comply with Building Code

The new slab must comply with NZS 3604:2011 *Timber-framed buildings* section 3 Site requirements and section 7.5 Concrete slab-on-ground floors (as modified by B1/AS1 of the New Zealand Building Code).

Older existing slabs are unlikely to be insulated, but the new slab must comply with the provisions of Building Code clause H1 *Energy efficiency*, which may require underslab insulation.

A few things to check first

For the site conditions, check:

- the ground bearing capacity is at least 300 kPa at the perimeter of the new slab and beneath loadbearing walls and point loads
- whether the site is considered prone to liquefaction, in which case, an engineer's advice must be sought for foundation design
- whether there are groundwater issues.

Check details of the existing slab, for example:

- whether the foundation is in situ concrete or masonry
- the location of the damp-proof membrane (DPM)

D12 dowels @ 500 mm centres, 50 mm below slab surface to clear reinforcing, epoxy into existing slab

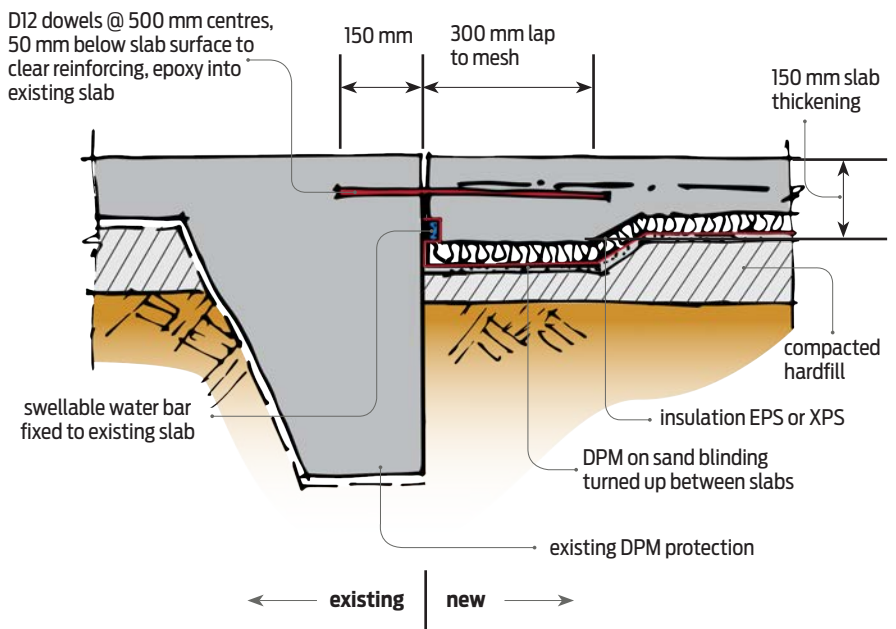


Figure 1 Existing slab DPM is protected.

- whether there is slab edge insulation – unlikely unless the existing building is recently constructed
- the cladding – the foundation detail for brick veneer walls differs from other claddings.

Challenge waterproofing between DPMs

Forming a waterproof junction between the existing and new DPMs can pose challenges. Carefully expose the foundation to check the DPM:

- Does it extend up the outside of the foundation?
- What is its condition?
- Has protection been installed?

Example 1 – DPM in good condition

Figure 1 illustrates one way of joining slabs where the existing DPM is in good condition and has been protected from damage, for example, by sheet material.

A slab thickening of 150 mm is provided at the junction with the existing slab. Once the slab preparation is complete, cut the DPM protection 150 mm below floor level and fix a swellable water bar to the existing DPM.

The new DPM is laid to finish above the water bar. The new slab is tied to the existing by D12 dowels drilled and epoxied into the existing slab and tied to the new reinforcing mesh. ➤

If existing slab reinforcing is struck when drilling for the dowels, drill a new hole 100 mm to the side. The epoxy mortar must be installed in dry conditions, and follow the manufacturer's recommendations.

Example 2 – DPM in poor condition

Figure 2 illustrates one way of joining slabs where the existing DPM is damaged, dirty or in otherwise poor condition or does not continue up the face of the foundation.

A new foundation is constructed to the same depth as the existing, and the swellable water bar is fixed at the base of the foundations, creating a continuous waterproof plane. The new DPM extends to above the water bar and can be taped to the face of the original foundation. Installation of D12 dowels is as for Figure 1.

The external foundation walls can be connected with M12 dowels top and bottom, with the same embedment as previously. ◀

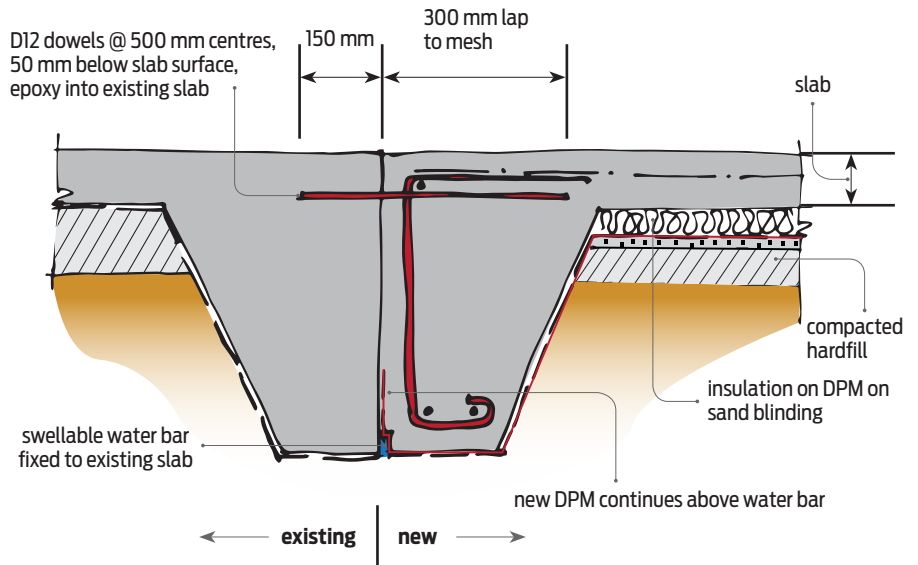


Figure 2 DPM to existing slab is damaged, dirty or unprotected.