



INDOOR/OUTDOOR FLOW

You'd think New Zealand had a subtropical climate when you consider how often the term 'indoor/outdoor flow' is used in property sales propaganda. Unfortunately, linking inside to outside often comes at the expense of good building practice.

By Stephen Sargent, BRANZ Technical Writer

Much of New Zealand has average temperatures between 20 and 30°C in summer and 10 and 15°C in winter. Subtropical warmth in the far north, temperate in the south, and a bracing mountain climate in the Central North Island and Southern Alps, mean that indoor/outdoor flow cannot always be treated as if we lived in the Mediterranean.

Recent trends towards blurring the distinction between inside and outside have created a problem as highlighted in the BRANZ 2005 House Condition Survey (see page 61).

Inadequate cladding clearances

In the 2005 survey, the minimum vertical clearance of the house cladding from the ground was physically measured. Ground type and cladding type were recorded together with the house age. The emerging pattern is that houses built from the 1980s onwards often have less cladding clearance than current industry acceptable minimums (49% of the houses surveyed had inadequate cladding clearance).

This trend appears to worsen with newer houses. The reasons for this could be that:

- homeowners are doing hard and soft landscaping alterations, thereby reducing their cladding clearance after receiving Code Compliance
- the insufficient clearance allowances are not being picked up before the final inspection.

The Acceptable Solution for external moisture in the New Zealand Building Code, Clause E2 *External Moisture*, E2/AS1, gives the minimum ground clearances for buildings covered by its scope.

E2/AS1 (via NZS 3604: 1999 clause 4.3.4.2) specifies 550 minimum from the →



This photo of a 1990s house close to the coast shows what happens when the cladding clearance is insufficient. Source: 2005 BRANZ House Condition Survey.

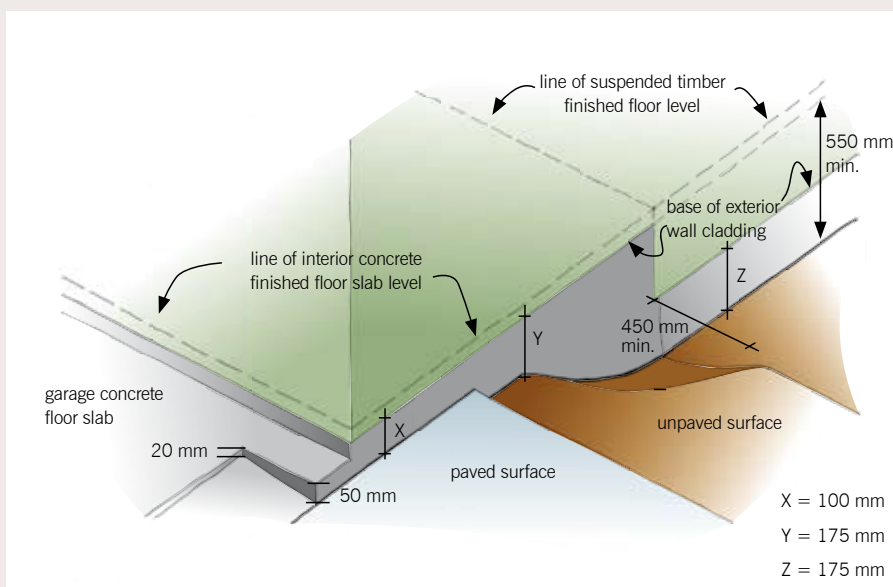


Figure 1: Minimum Acceptable Solution cladding clearance levels (refer NZBC E2/AS1 9.1.3, Figure 65 and Table 18).

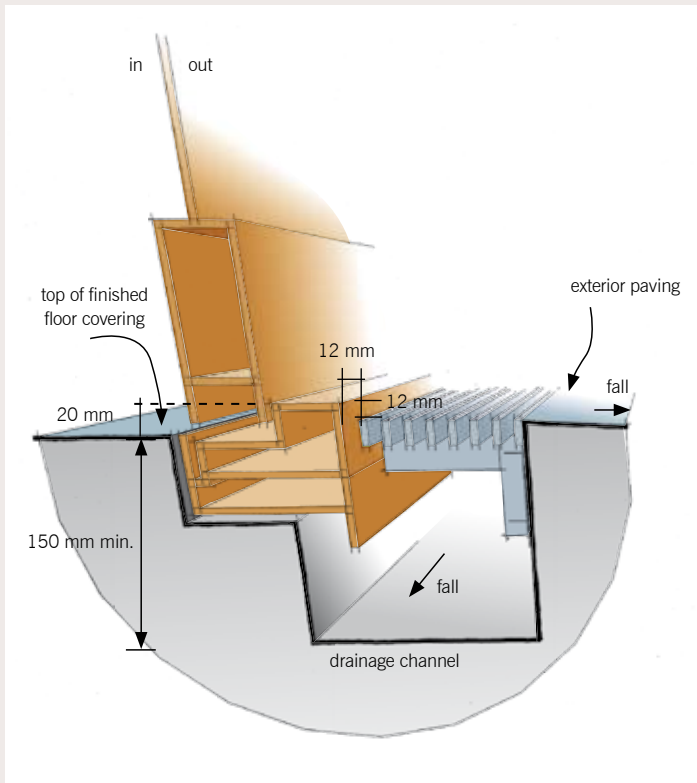


Figure 2(a): Section through door for concrete floor slab, details for inward opening door.

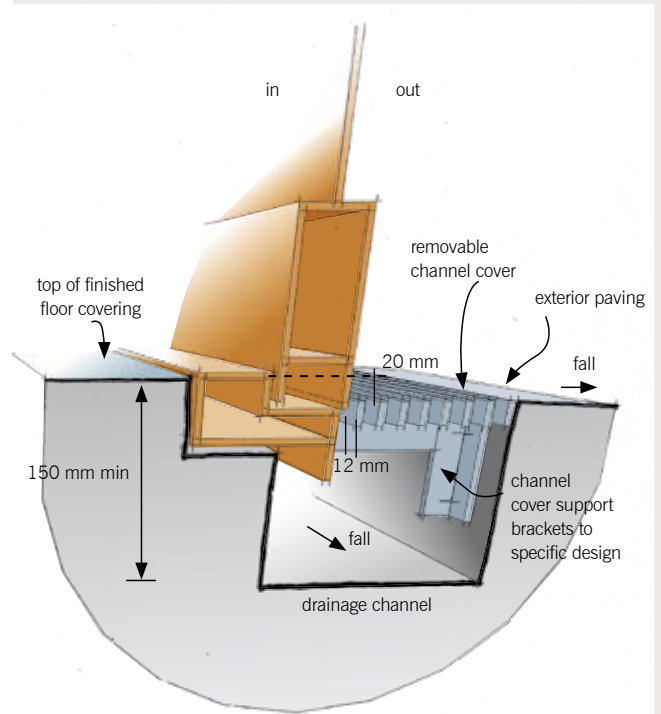


Figure 2(b): Section through door for concrete floor slab, details for outward opening door.

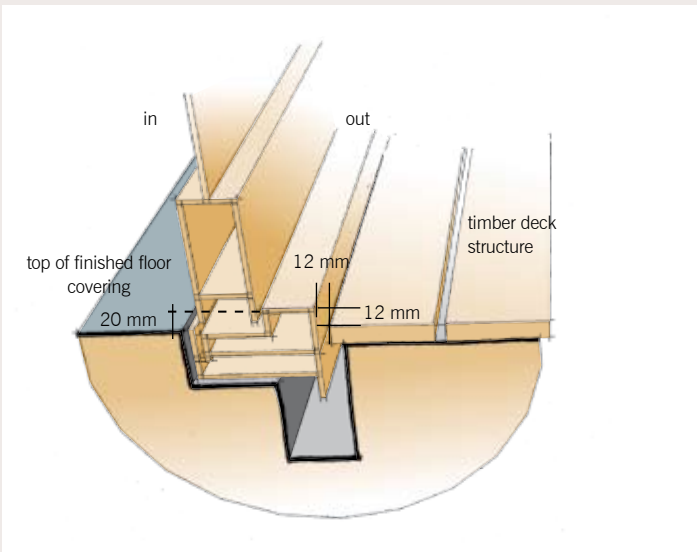


Figure 3(a): Section through door with timber floor, details for inward opening door.

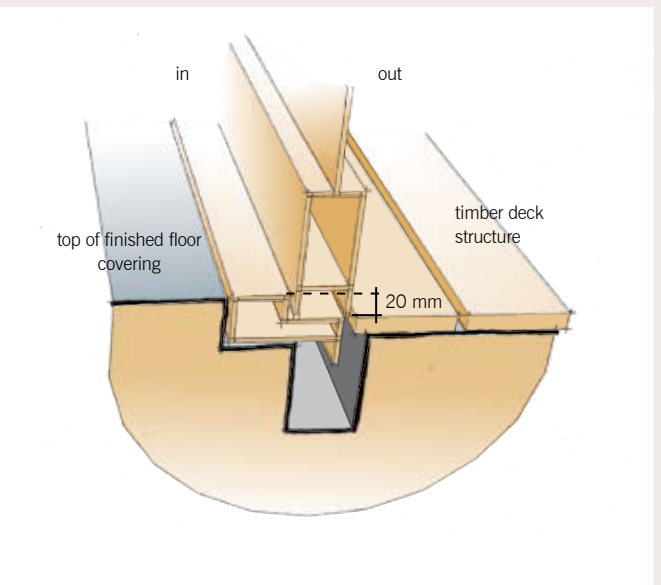


Figure 3(b): Section through door with timber floor, details for outward opening door.

Details adapted from E2/AS1 Figure 17B. Care should be taken when using this detail to carefully resolve the adjacent cladding clearances from the ground to deck surface. Rebate all floor structures to suit selected joinery.

underside of wood-based flooring products to ground below. So for suspended timber floor buildings a deck is the best option to get a good flow outside (refer to E2/AS1 7.1).

While there are situations where a reduced clearance is required/appropriate, i.e. as an Alternative Solution to E2/AS1, it is important to remember that the requirements are made for good reasons.

Capillary action

If the cladding is in contact with other materials such as concrete foundations, tiles, deck surfaces or vegetation, water may be absorbed into the bottom edge or back of the cladding (or moved up by capillary action because of insufficient separation, i.e. less than 6 mm). Such water absorption may affect its durability (and the bottom plate of the framing).

Space to paint

Many cladding systems require paint protection to reduce water absorption. This requirement demands space for painting and repainting, especially along the bottom edge of the lowest cladding.



Good ground clearances have been provided in the design of the levels of this house to allow for any future landscaping to be undertaken by the owners, yet still maintain typical minimum cladding clearances.

Cleaning, drying and drainage

When cladding is very close to the ground and partly covered by planting, drying will be restricted. Mud splashing on to the cladding will also hold moisture against the cladding for longer periods, as well as disfiguring the cladding. Cavity-based cladding systems must have cladding clearances to allow for drainage.

Contractors who leave the building site before the landscaping is complete should advise the building owner of the reasons for the clearances and ensure that the owner maintains them. This applies to both the cladding to ground and

cladding to deck edge clearances. Small gaps will fill up with debris and the cladding will deteriorate. A useful reference is the BRANZ book *Maintaining your home*.

Check finished floor level

It is recommended that the building platform be formed at a level at least 300 mm below the finished floor level for a slab on ground, with the surrounding ground sloped to carry water away from the external walls. This allows landscaping and paving to be built up approximately 75 mm, while still maintaining the required clearances to cladding and finished floor levels.

Pre-purchase inspections

Under NZS 4306: 2005 *Residential property inspection*, cladding clearance must be inspected. The standard introduces consistency and reliability into the inspection of residential properties. It sets out the minimum requirements for the visual inspection of residential buildings, and for the preparation of the appropriate property inspection reports. Refer also to BRANZ Bulletin 423. ◀