MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/017

Regarding the compliance of a concrete ramp to a door threshold and the refusal to issue a code compliance certificate for a house at 16 Pathways Drive, Kerikeri

Summary

The determination is concerned with the compliance of the concrete ramp and ground clearances, around the front entry of the house, to the Building Code. The determination considers whether the authority was correct in exercising its powers of decision in refusing to issue a code compliance certificate.

1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the current Act") made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment ("the Ministry"), for and on behalf of the Chief Executive of the Ministry.

1.2 The parties to the determination are:

- the licensed building practitioner concerned with the relevant building work, A Abercrombie ("the applicant")
- Far North District Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.3 This determination arose from the decision of the authority to refuse to issue a code compliance certificate for the house because it was not satisfied that the building work complies with certain clauses[2] of the Building Code (First Schedule, Building Regulations 1992).

1.4 The matter to be determined[3] is the compliance, with the Building Code Clauses B2 and E2, of the concrete ramp and ground clearances to the building's front entry.

1.5 In making my decisions, I have considered the submissions of the parties, and the other evidence in this matter.

2. The building work and background

2.1 The building work consists of a constructed single storey three bedroom house on concrete slab foundations with masonry veneer cladding that has a paint finish.

[1] The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.buiding.govt.nz or by contacting the Ministry on 0800 242 243.
[2] In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.
[3] Under sections 177(1)(b) and 177(2)(d) of the current Act

2.2 The front entry area is recessed back 1.2m from the front of the building, and there is a soffit overhang of 1.75m from the entry that partially covers the ramp. A 100mm thick concrete ramp has been built to the front entry that slopes away from the house, the ramp has a slope of approximately 1:40. There is a 20mm gap between the concrete ramp and the masonry veneer cladding. The as-built entry detail is shown in Figure 4.

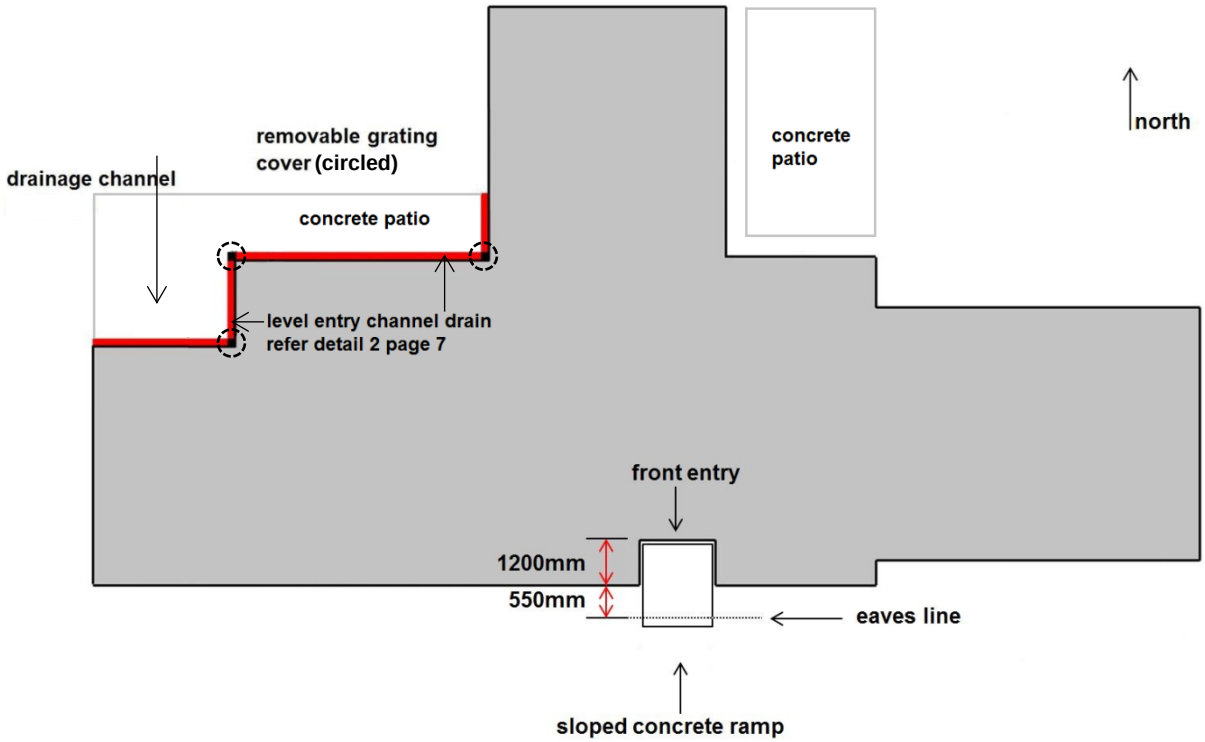


Figure 1: Outline floor plan of building (not to scale)

2.3 The authority sent the applicant a letter in which it outlined the reasons it would not issue the code compliance certificate. I have not seen a copy of this letter[4].

2.4 On 9 January 2017, the applicant emailed the authority in response to the refusal to issue code compliance certificate letter, outlining their view as the compliance of the concrete ramp to the front entry with the Building Code. The applicant stated:

- they had applied 'best practice' in achieving a level entry
- the concrete slopes away from the entry
- slab is isolated from the house
- the standard channel drain system does not work with the brick rebate in this instance
- '1800mm' soffit overhang provided cover to the front door, limiting rain penetration to the area
- surrounding ground is lower beyond the ramp
- if the cavity is needed to be cleaned out, this can be done by using a hose or vacuum cleaner.

[4] The authority advised the letter was provided with its 23 February submission, but the letter was not attached to the submission.

2.5 The authority replied on 10 January 2017 stating that it was of the view that the house did not comply with the Building Code, and was not constructed in accordance with the consented drawings. The authority stated the applicant needed to either 'remove [the ramp] or apply for a formal amendment' to the building consent.

2.6 In an email to the applicant dated 11 January 2017 the authority stated it was of the view that the ramp did not comply with Clauses B2 and E2, and requested that the applicant remove the concrete slab and 'build the drain as per consented drawings page 7 detail 2'. The authority stated the drain must be 'open to level ground at each end and have clean out points on corners.'

2.7 The applicant sought advice from the Ministry regarding the compliance of the ground clearances and sent this to the authority on 12 January 2017.

2.8 On 13 January 2017, the authority restated its opinion that the ground clearances, as set out in E2/AS1[5] were not achieved. It stated that there was an 'alternative solution in your plans that would have been ok to use' for the front entry construction but the as-built work 'does not comply with the consent issued this may affect the code compliance certificate'. The authority noted that if the applicant did not agree with the decision, they could seek a determination.

2.9 The Ministry received an application for determination on 16 January 2017.

3. The submissions

3.1 The applicant submitted in a letter with their application that they believed they had applied 'best practice' to give the owner of the house a near level entry, avoid the 'unappealing aesthetic' of drainage channels and that the concrete ramp has no 'detrimental effects' on the building. They provided the following as evidence that the building work complied with the relevant clauses of the Building Code (in summary):

- the front entry is covered by a soffit overhang of 1750mm
- the concrete is sloped away from the house
- as the entry door has a 'full bottom threshold bar and seal' it is not level entry
- the slab is isolated from the house by more than 20mm
- the clearances can be kept clear by using a hose if required
- driveway sumps are 385mm below finished floor level at 10.5m distance from the front entry.

3.2 The applicant provided copies of:

- selected drawings from the consented plans
- correspondence from the authority
- photographs of the building work
- as-built door sill detail.

[5] Acceptable Solution E2/AS1 External Moisture

3.3 On 23 January 2017 the authority submitted the following comments:

- Building work does not comply with the approved plans and specifications, specifically the front entry 'is not 190mm to ground' as detailed in the consented drawings.
- The work does not comply with Clause E1 threshold clearances or with the 'minimums detailed in E2 AS1', and has not been approved.
- It had concerns regarding the permeability of the ground and that the site was in close proximity to the 100-year flood area that they felt increased the risk with variations to ground clearances.
- The clearances around the ramp are below ground level and the water cannot drain or be cleaned out properly.

3.4 The authority provided copies of:

- annotated photographs
- annotated approved plans and drawings
- correspondence between the applicant and the authority.

3.5 The applicant accepted the draft determination on 13 February 2017 and provided two photographs that showed the concrete ramp cut back further from the corners, to allow the channels to drain.

3.6 The authority responded on 23 February 2017 saying it does not accept the draft determination noting, in summary, that:

- There was no discrepancy in the approved plans between approving all doors as level entry, and not raising the issue of a lack of drainage channels identified on the foundation plan.
- The consented level entry details were 'reasonable' and had the front entry been constructed to the details it would have been compliant. There was no doubt that the front entry was to be a level entry.
- The titles applied to Figures 2 and 3 in the determination should refer to a 'ramp' instead of 'patio'.
- There is 'no acceptable outfall' to the 20mm clearance gaps either side of the entry ramp.
- The determination will set a precedent, stating 'if it is acceptable here it is acceptable everywhere'.
- The site development and the construction levels have not been discussed in the determination. The rainfall intensity and ground levels need to be considered when assessing compliance.

3.7 My response to the authority's comments in regards to the draft determination are below, unless covered elsewhere in the determination:

- The details (Figure 2 and 3) shown on the foundation plan only refer to the 'concrete patio'. No paving is shown to the front entry, nor are any drainage channels as for the patio. There is no indication that the consented details are also applicable to the front entry.
- The authority has cited the high rainfall as evidence that the front entry does not satisfy the Building Code, and that the 'outfall' from the 20mm clearance

gaps either side of the entry ramp has not been considered. The amount of water that may be expected to drain from the largely sheltered ramp is not considered significant to warrant the need for a dedicated surface water outfall. I note the approved plans show both ends of the drainage channel to the larger and more exposed patio as 'Channel drain open at end', and is also noted on Figures 2 and 3 in the consented drawings: no outfall appears to be provided for to this drain.

4. Discussion

4.1 The applicable requirements of the Building Code

4.1.1 Clause B2.3.1 states:

> Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, …

Clause E2.3.3 states:

> Walls, floors, and structural elements in contact with, or in close proximity to, the ground must not absorb or transmit moisture in quantities that could cause undue dampness, damage to building elements, or both.

4.1.2 The Acceptable Solution E2/AS1 is a prescribed means of establishing compliance with the Building Code and it sets out the minimum clearances for masonry veneer in Table 18 as 100mm to paved ground and 150mm to unpaved ground (see Appendix A). Where there is a floor rebate, as has been consented for this building, the ground clearance for masonry veneer is reduced to 25mm to paved ground and 100mm to unpaved ground as shown in Figure 73D(i) of E2/AS1 (see Appendix A).

4.2 The work as consented and as-built

4.2.1 The ground clearance and level entry nature of the entry door threshold is disputed by the parties, with differences between the consented documentation and constructed building work. In the consent drawings, there are three key details that relate to ground clearances and level entry:

- the approved patio / cladding junction (Figure 2)
- the approved level entry off the patio (Figure 3)
- the junction of the as-built entry door and concrete ramp (Figure 4).

4.2.2 On the consented plans (Sheet 6), there is a notation that states 'Level threshold for all exterior doors…Refer detail 2 page 19 for level threshold door sill details'. The drawings identified that all doors were proposed as level threshold, with the consent documentation including a level entry doorsill detail (Figure 3). The detail referenced the adjacent patio slab with a fall of 1:200.

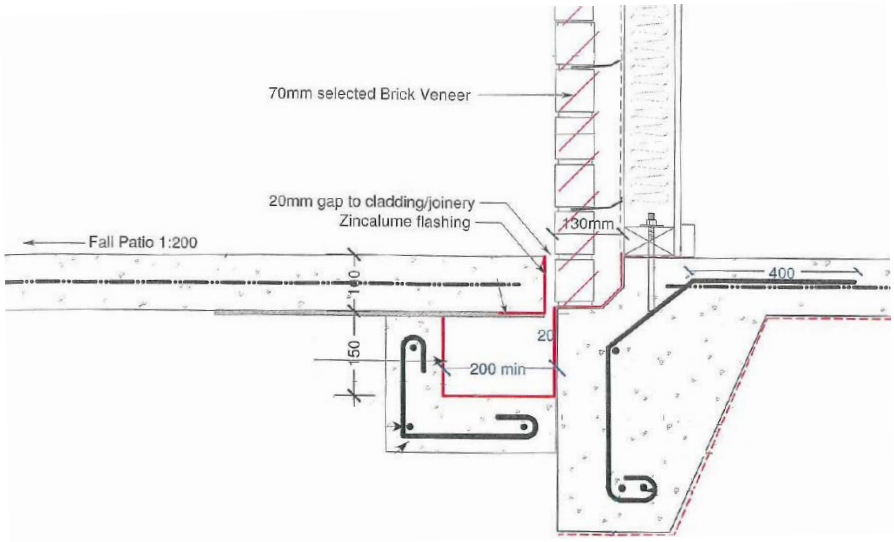


Figure 2: The approved patio / cladding junction (detail 2 on page 7)

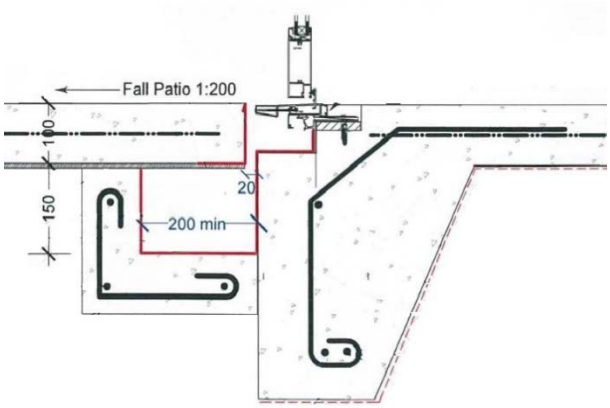


Figure 3: The approved level entry off the patio (detail 2 on page 19)

4.2.3 The applicant has stated in their submission that the doorsill detail (Figure 3) is only applicable to the 'uncovered patio concrete area at the rear of the house'. On the consented drawings, (Sheet 6) the level entry detail and associated drainage channels are specific to the patio area l to the north west of the building (see Figure 1).

4.2.4 I consider Figure 3 is not specific to the detail intended for the entry door and the associated drainage channels are only shown to the patio area. This discrepancy should have been addressed at consent stage.

4.2.5 The as-built threshold detail to the front entry is shown in Figure 4. From the as-built detail and photographs provided by the applicant, it is evident that the concrete ramp is lower than the floor by 30mm at the door and approximately 60mm at the lowest point of the ramp adjacent to the wall. I note that the concrete ramp appears to be above the base of the cladding (above the rebate in the floor slab), however, it is not contact with the cladding due to the 20mm gap.

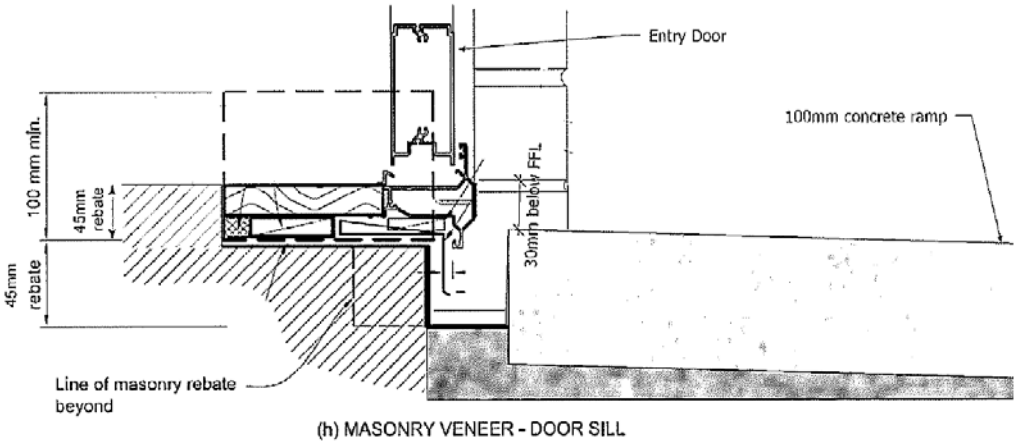


Figure 4: The junction of the as-built entry door and concrete ramp

4.3 The compliance of the as-built work

Clause E2

4.3.1 It is clear that there are differences between the consented documentation and the constructed building work. There is also doubt that the detail shown in Figure 3 can also have reasonably been expected to have been intended for the entry porch.

4.3.2 In establishing whether the as-built work complies with the Building Code it is important to consider the nature of the work, and what mitigating factors apply in this case:

- The entry door threshold is in a very sheltered position. The threshold is recessed 1200mm into the front elevation with, in effect, a 1750mm deep soffit overhang. It is important to note that while Kerikeri does receive higher rainfall amounts compared to the surrounding areas, the inland and sheltered areas of Northland are 'among the least windy in the country, with mean annual wind speed at…Kerikeri about 10 km/hr'[6]. Little, if any, wind-driven rain will reach the door threshold itself. However, I note that wind-driven rain will reach the side walls of the porch, and water must be able to safely be removed from the base of the cladding and ensure it does not enter through the weepholes.
- The ramp has a significant fall (1:40) away from the door threshold. The steep gradient will be effective in draining water away from the entry and preventing ponding.
- Any debris build-up in the 20mm clearance gap between the ramp and the building will be readily observable. The gap is able be cleaned out by the owners, as part of the building's regular maintenance.
- The top of the ramp at its highest point is still 30mm below the finished level (the exterior paving in Figure 17B of E2/AS1 is shown higher than the internal floor level).
- The masonry veneer is on a ventilated cavity and any water that may reach the cladding and enter the cavity will be able to dissipate.

[6] Chappell, P.R., *The Climate and Weather of Northland* (2013) NIWA

- The 20mm clearance at the sides of the ramp between it and the masonry veneer cladding will allow any water to drain away from the building. (However, it is noted both gaps drain to a raised garden area finishing against the ramp.)
- The treatment of the timber framing has not been identified on the drawings provided, however, there is no dispute that the framing is not treated to an acceptable level.

4.3.3 I consider it unlikely that water will threaten this junction, and have a detrimental impact on the cladding system due to the mitigating factors noted. This part of the building envelope is well protected from the effects of external moisture, and any water that may penetrate the masonry veneer will be able to dissipate without causing undue dampness, and damage to the building elements. I therefore consider the entry door threshold and associated ramp satisfy Clause E2.3.3.

4.3.4 The authority requested that the applicant construct the ramp in accordance with the level entry detail (Figure 3) in order to achieve compliance with the Building Code. However, I am of the view that the consented level entry detail provides a solution that is no better to that as-built: the consented detail has similar maintenance requirements to that as-built.

Clause B2 Durability

4.3.5 The house is required to comply with the durability requirements of Clause B2, which requires a building to satisfy all the objectives of the Building Code throughout its effective life. The durability requirements of Clause B2 include a requirement for wall claddings to remain weathertight for a minimum of 15 years and for timber framing to remain structurally adequate for a minimum of 50 years.

4.3.6 As noted in paragraph 4.3.2, the 20mm clearance gaps either side of the ramp run to garden area finished against the ramp. In my opinion there needs to be a clear space of some description provided to ensure the 'exit' points for these gaps remain visible, and unobstructed. I am of the view that once this has been addressed the wall cladding system will continue to meet the durability requirements of Clause B2.3.1.

4.4 Clause E1

4.4.1 Clause E1 is concerned with the effects of surface water on people and other property: it has the following functional requirement:

> **E1.2** Buildings *and* sitework *shall be constructed in a way that protects people and* other property *from the adverse effects of* surface water.

The performance requirements of Clause E1 include:

> **E1.3.2** *Surface water*, resulting from an event having a 2% probability of occurring annually, shall not enter *buildings*

4.4.2 The authority has stated that the constructed building does not comply with 'E1[/AS1] threshold clearances', noted its concern regarding the close proximity of the site to the 100-year flood area, and that the variations in finished floor level increased the risk of water penetration. I note Clause E1.3.2 is concerned with the effects on the property from a 1-in-50-year event (having a 2% annual exceedance probability).

4.4.3 The requirements of Clause E1.3.2 should have been raised during the consent processing stage if these were in any doubt. Compliance with Clause E1.3.2 arises from the effects of surface water on the site (i.e. flood water) and height of the floor

slab in relation to that eventuality to prevent water entering the building. The likelihood that surface water will enter the building is usually not dependent on door threshold details, and similar.

4.5 Conclusion

4.5.1 The concrete ramp and ground level clearances have been constructed with mitigating factors to reduce the risk of water penetration into the cladding and the building envelope. I note that the applicant will be required to ensure the channels are open ended alongside the concrete ramp. Once this has been addressed, in my view the building work will satisfy Clauses B2.3.1 and E2.3.3.

4.5.2 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular design or building feature has been established as being code compliant in relation to a particular building does not necessarily mean that the same system will be code compliant in another situation.

4.5.3 I consider the alteration of the doorsill detail a minor variation and a record of the minor variation will be required for the issuing of the code compliance certificate.

5. The decision

5.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building work complies with Clauses B2 and E2 of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 15 March 2017.

John Gardiner
Manager Determinations and Assurance

Appendix A: The Acceptable Solution for Clause E2 External moisture

A.1 The relevant paragraphs of E2/AS1include:

7.3.2.1 Concrete slab

Where provision for level access is required from a concrete floor slab to exterior paving, this shall be as shown in Figure 17B with:

a) A channel, together with drainage provisions, across the door opening, with:
   i) the width to suit capacity in accordance with E1/AS1,
   ii) a minimum depth of 150 mm,
   iii) a maximum length of 3700 mm, and
   iv) 1:200 minimum fall along length of channel towards a drainage outlet,

b) Grating, in accordance with Tables 21 and 22, over the channel, that:
   i) is supported independently of the door frame,
   ii) is removable to allow access for cleaning,
   iii) is specifically designed to accommodate imposed loads,
   iv) has gaps sized to prevent the wheels of wheel chairs or mobility aids entering or being trapped, and
   v) has a continuous gap of 12 mm minimum from door frame and wall cladding, and

c) Exterior paving that:
   i) has a minimum fall of 1:40 away from the channel for a minimum distance of 1 m, …

A.2 The relevant figures from Acceptable Solution for Clause E2 External Moisture, E2/AS1, include:

Figure 65: Levels and garage openings
Paragraphs 9.1.3, 9.1.3.4, 9.2.5, Table 18

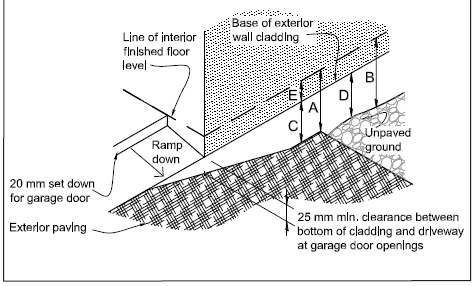


Table 18: Minimum clearances
Paragraphs 9.1.3, 9.1.3.1, 9.1.3.2, 9.1.3.3, 9.1.3.4, 9.1.3.5 and 9.2.7

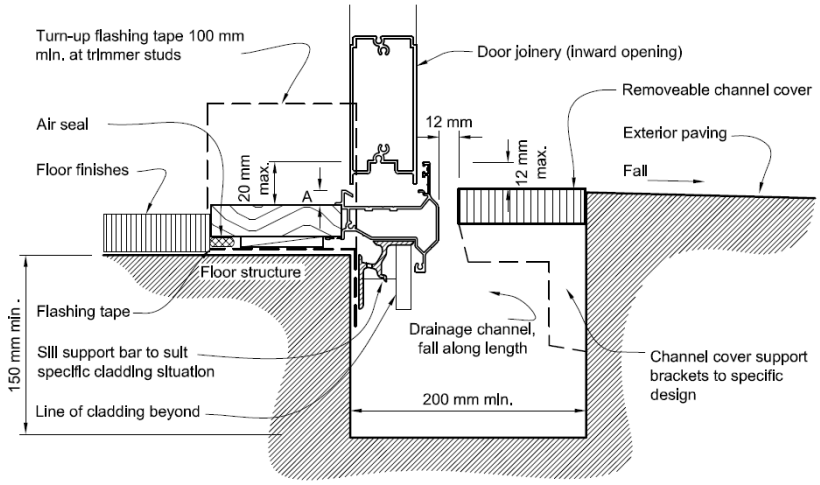
Minimum clearances (mm)	Masonry veneer		Other claddings				
	A	B	A	B	C	D	E
Concrete slab	100	150	150	225	100	175	50
Timber floor Refer Note 1)					100	175	50[2)]

NOTE: 1) Refer to NZS 3604 for requirements.
2) Cladding to extend minimum 50 mm below bearer or lowest part of timber floor framing.

Figure 1: Figure 65 and Table 18

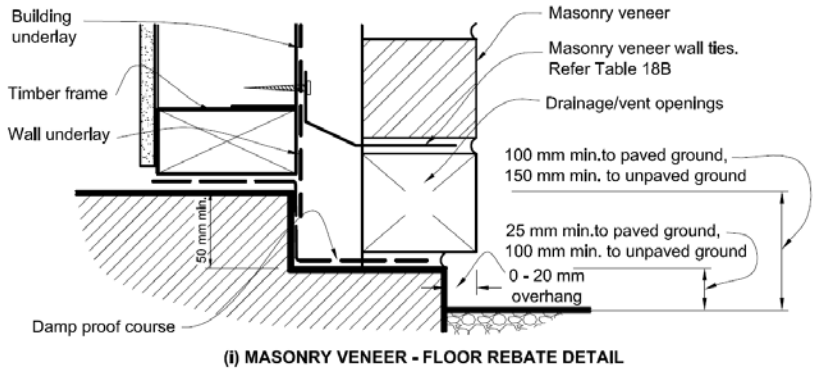
Figure 17B: Level thresholds for ground level
Paragraph 7.3 and Figure 17A

NOTE:
(1) Detail (a) is suitable for use with concrete floor slabs - refer Paragraph 7.3.2.1 for requirements.
(2) Detail (b) is suitable for use with timber floors. It may also be adapted for timber *decks* on upper *storeys* as per Paragraph 7.1.1 b), or for *enclosed decks*, with removable panels or decking as shown in Figure 17A.
(3) Both details may be adapted for inward or outward opening doors.
(4) Exposure to wind-driven rain must be specifcally taken into account when using these details, and shelter to doors and joinery provided where local conditions warrant.



(a) CONCRETE SLAB

Figure 2: Level threshold



(i) MASONRY VENEER - FLOOR REBATE DETAIL

Figure 3: Figure 73D(i) of E2/AS1