

Determination 2006/91

Surface water requirements for a building at 311 Annandale Road, RD2, Henderson



1. The dispute to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, John Gardiner, Determinations Manager, Department of Building and Housing, for and on behalf of the Chief Executive of that Department. The applicants are the owners, Mr and Mrs Pearce (“the applicants”) and the other party is the Rodney District Council (“the territorial authority”).
- 1.2 The dispute for determination is whether the territorial authority’s decision is correct with regard to declining to issue a code compliance certificate for a 2-year-old house because it is not satisfied that:

¹ The Building Act 2004 is available from the Department’s website at www.dbh.govt.nz.

- the building work complies with Building Code clause E1 “Surface Water”.

1.3 The question to be determined regarding this issue is whether I am satisfied on reasonable grounds that the provisions made to prevent surface water from entering the building comply with clause E1 of the Building Code². However, as I am of the opinion that the E1 issues also impinge on clauses B2 “Durability” and E2 “External Moisture” of the Code, I have also considered these additional clauses in this Determination.

1.4 In making my decision, I have considered the submissions of the parties, the report of the independent expert commissioned by the Department to advise on this dispute (“the expert”), and the other evidence in this matter.

2. The building

2.1 The building work consists of a single-storey detached house with an attached garage wing to the east, which is situated on a large rural site. The site has a gentle slope towards the north and is in a high wind zone for the purposes of NZS 3604³. Construction of the building is conventional light timber frame, with block veneer cladding to most walls and the balance clad in fibre-cement weatherboards. The block veneer cladding incorporates a drained and ventilated cavity, with “weep holes” (known as open perpend) provided in the bottom course of blocks.

2.2 A 2.4m deep lean-to veranda wraps around the north, west and south walls of the house, to finish at the garage wing. An in-ground water tank is built beneath the northwest corner of the veranda, with the concrete lid flush with the surrounding veranda paving.

3. Sequence of events

3.1 It appears that the territorial authority issued a building consent (ABA 33926, which I have not seen) in early 2004. Inspections were undertaken by Approved Building Certifiers Ltd (“the building certifier”), which included pre-line and external cladding inspections on 28 June 2004, and post-line on 7 July 2004. I also note that the building certifier’s inspection checklist shows that the “storm water disposal review” was not completed.

3.2 The building certifier’s approval to operate expired in September 2004, without the final inspections having been completed. It appears that the territorial authority carried out some subsequent inspections of the house, as concerns were raised with regard to storm water runoff from the surrounding land (refer paragraph 3.3).

² The Building Code is available from the Department’s website at www.dbh.govt.nz.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

3.3 In a letter to the territorial authority dated 27 March 2006, the applicants explained provisions made for the disposal of surface water from the south driveway and grassed area, noted they had not experienced water runoff problems, and concluded:

This is a quality built home using quality products and trades people. This is not a spec house and at no time have we allowed any workmanship to be compromised. We would appreciate a common sense approach to this problem and have confidence that the council will take our above comments in good faith.

3.4 The territorial authority issued a notice to fix dated 12 May 2006, which noted that the following items did not comply with the building code:

- Lid to concrete tank is too high and doesn't meet Building Code requirements under Section E1
- Path under the veranda is too high and doesn't meet Building Code requirements under Section E2.

3.5 An application for a determination was received by the Department on 25 May 2006.

4. The submissions

4.1 The applicants made a submission in the form of a letter to the Department dated 22 May 2006, explaining that the construction had been inspected and approved by the building certifier until it was obliged to hand over responsibility for completion to the territorial authority and concluding:

We feel R.D.C are taking an extremely hard-line approach to our situation with no sensible solutions or consideration towards the structure and quality of this project. We therefore turn to the D.B.H in a final attempt to put an end to this totally impractical decision by R.D.C.

4.2 The applicants forwarded copies of:

- some of the drawings
- the building certifier's inspection summary
- the letter dated 27 March 2006 to the territorial authority
- the notice to fix dated 12 May 2006.

4.3 The territorial authority made no submission.

4.4 Copies of the applicants' submission and other evidence were provided to the territorial authority, which made no submission.

- 4.5 Copies of the draft determination were forwarded to the parties on 1 September 2006. The territorial authority accepted the draft. The applicant also accepted the draft, but added the following comment:

Please note that the stormwater review has been completed when Rodney District Council took over the last of the inspection[s] (ABC Closure) [The territorial authority has] all this information and it has been passed.

5. The expert's report

- 5.1 The expert inspected the site works and the claddings of the building on 7 and 13 July 2006, and furnished a report that was completed on 21 July 2006. The expert noted that the wall and roof claddings, with the associated flashings, appeared to be generally “installed in a satisfactory workmanlike manner”, with cladding clearances generally satisfactory, and well-sealed penetrations.
- 5.2 The expert noted that the natural ground levels fall away from the house on all elevations except at the south elevation. On this elevation, the driveway drains into a soakpit and the veranda paving falls away from the walls. The expert tested the surface drainage by hosing water at the base of the walls at all verandas, and noted that all surfaces appeared to drain satisfactorily with a slope of between 1 and 2 degrees.
- 5.3 The expert also investigated the junction of the block veneer with the veranda paving and noted that the water tank (together with the adjacent paving) had been installed at the same time as the foundations.
- (a) In the water tank area, the bottom course of the blockwork is set above the paving, resulting in an up-stand varying from approximately 25mm to 30mm high to the interior floor level: refer Figure 1.

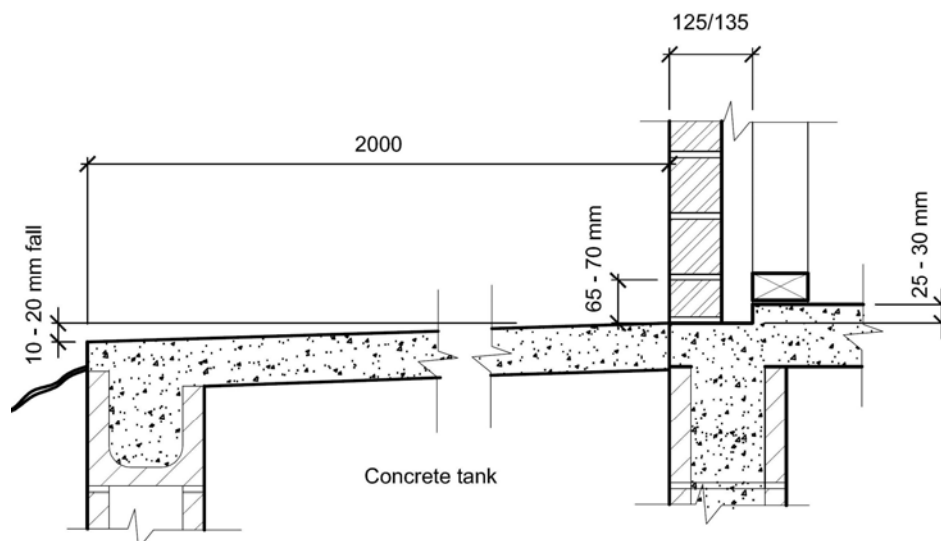


Figure 1: Wall adjacent the water tank

- (b) Elsewhere the veranda paving has been installed after the erection of the block veneer, with the concrete paving poured against the block veneer resulting in the creation of a 70-75mm deep x 40mm wide channel between the block veneer and the rebate in the house floor slab at the bottom of the block veneer cavity: refer Figure 2.

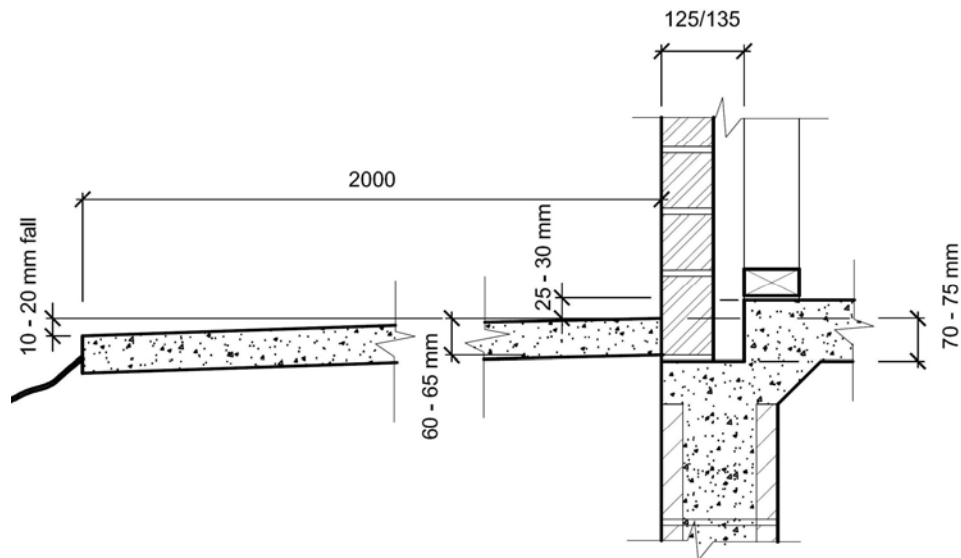


Figure 2: Wall generally adjacent the concrete veranda

- 5.4 The expert made the following specific comments on the cladding:
- Water is able to enter the blockwork cavity via the open perpend in the blockwork and will be trapped in the channel formed by the blockwork and the rebate to the floor slab (refer Figure 2).
 - There is no gap between the bottom edge of the fibre-cement weatherboards and the concrete of the northeast garage porch.
- 5.5 The expert noted that, while the set-down of the veranda paving below the interior floor level is only 25-30mm at the water tank area, the paving to wall junction is sheltered under a 2.4m roof overhang.
- 5.6 The expert took non-invasive moisture readings through interior linings of exterior walls throughout the house, and noted no elevated readings or signs of moisture damage. The expert did not consider it necessary to take invasive moisture readings.
- 5.7 A copy of the expert's report was provided to each of the parties. The applicants replied in a letter dated 31 July 2006 commenting on aspects of drainage of the area and possible solutions. The applicants supplied a document, described as "Maddrens report that the pre-nail external framing was all treated timber." The document, which appears to be from the pre-nail supplier, indicated that the external framing was H1.2 treated.

5.8 The applicants also forwarded a copy of a letter dated 5 July 2006 from a registered drainlayer. The drainlayer stated that there was no chance that the house could be flooded. He also noted:

As long as the ground area remains sloping away from the path it will not be possible for flooding to occur. It is impossible for flood water to rise to a higher level to flood the house due to the gradient of the land.

6. Discussion

6.1 The relevant provisions of the building code in respect of disposal of surface water and floor levels, in Building Code Clause E1 “Surface water”, are:

E1.3.1 Except as otherwise required under the Resource Management Act 1991 for the protection of other property, surface water, resulting from a storm having a 2% probability of occurring annually and which is collected or concentrated by buildings or sitework, shall be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

Provision	Limits on application
E1.3.2 <i>Surface water</i> , resulting from a storm having a 2% probability of occurring annually, shall not enter buildings.	Performance E1.3.2 shall apply only to <i>Housing, Communal Residential and Communal Non-residential buildings</i> .

6.2 Clause 2.0.1 of Acceptable solution⁴ E1/AS1 states:

Suspended floors and slabs on ground shall be at least 150mm above the finished level of the surrounding ground immediately adjacent to the building...

6.3 I note the expert’s investigations as outlined in paragraph 5.2, and accept that the building has adequate provisions for the management of surface water runoff to the southern elevation.

6.4 I accept that the floor separation and clearance provided at the water tank area (Figure 1) is adequate in the circumstances, as the junction is sheltered beneath a 2.4m deep veranda roof and the concrete paving falls away from the house.

6.5 The expert noted that the cavity at the base of the block veneer adjacent to the general veranda paving (Figure 2) can retain water entering from the exterior through the blockwork via the open perpends. The base of the wall cavity is below the top surface of the paving, creating an un-drained channel in the cavity 70mm to 75mm deep. Any water trapped in the channel may lead to elevated levels of moisture in the bottom plate and adjacent framing.

6.6 I accept that the base of much of this wall is protected by a 2.4m wide veranda roof, with adequate falls to the paving; and is therefore unlikely to be at risk of rainwater

⁴ An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way, but not the only way, of complying with the Building Code. The Acceptable Solutions are available from the Department’s website at www.dbh.govt.nz.

reaching the junction, however, there is very limited protection provided by the veranda in two locations (southern elevation at either end of the garage). Additionally, I consider that water is likely to enter the cavity as a result of normal maintenance and cleaning activities involving water, and in two areas where the lower wall may be exposed to rain, whether wind-driven or otherwise. Any water entering the cavity will be unable to drain away, which may lead to undue dampness within the cavity itself.

- 6.7 I also consider that, if a satisfactory method of draining the cavity is proposed, to the approval of the territorial authority, the clearances between the interior floor level and the veranda concrete will be adequate in these circumstances.

7 Conclusion

- 7.1 I am satisfied that the performance of the building in resisting the ingress of water is not satisfactory and consequently the building does not comply with clause E1 and E2 of the Building Code.
- 7.2 I consider that the drainage of the blockwork cavity is an essential element of what is intended to be a drained cavity system. At present this is compromised by the presence of what is effectively a non-draining channel between the blockwork and the rebate in the concrete floor slab. In particular, I am concerned that there is no apparent provision for any water entering the cavity to be able to freely drain away.
- 7.3 There is also no gap between the bottom edge of the fibre-cement weatherboards and the concrete paving at the garage porch.
- 7.4 While the expert's report establishes there is presently no evidence of external moisture entering the house, the building is also required to comply with the durability requirements of clause B2: "Durability". Clause B2 requires that a building shall continue to satisfy all the objectives of the Building Code throughout its effective life. Because the faults in the house are likely to allow the ingress of moisture, the house does not comply with the durability requirements of clause B2.
- 7.5 In the circumstances, I decline to incorporate any waiver or modification of the Building Code in this determination.

8 The decision

- 8.1 In accordance with section 188 of the Act, I hereby determine that the building work does not comply with clauses B2, E1 and E2 of the Building Code, and accordingly, confirm the territorial authority's decision to refuse to issue a code compliance certificate.

- 8.2 However, I am able to conclude that satisfactory rectification of the faults outlined in paragraph 5.4 will result in the building becoming code compliant.
- 8.3 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.2. Initially, the territorial authority should withdraw the notice to fix dated 12 May 2006 and issue a new notice to fix, requiring the owners to bring the house into compliance with the Building Code. The notice to fix may list the items to be rectified but it should not specify how compliance is to be achieved as this is for the owner to propose and for the territorial authority to accept or reject. It is important to note that the Building Code allows for more than one method of achieving compliance.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 18 September 2006.

John Gardiner
Determinations Manager