

Determination 2008/102

20 November 2008

Determination regarding a Notice to Rectify for an 11-year-old house at 110A Aranui Street, Mount Wellington, Auckland



1. The matter 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, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicant is the owner of the property, G McDermit (“the applicant”) and the other party is the Auckland City Council (“the authority”) carrying out its duties and functions as a territorial authority or building consent authority.
- 1.2 This determination arises from the decision of the authority to issue a Notice to Rectify for an 11-year-old building because it is not satisfied that the building work

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

complies with certain clauses of the Building Code² (First Schedule, Building Regulations 1992).

1.3 I consider that the matters for determination are:

1.3.1 Matter 1: The cladding

Whether the cladding as installed on the building (“the cladding”) complies with Clause E2 External Moisture of the Building Code. By “the cladding as installed” I mean the components of the system (such as the backing materials, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.

1.3.2 Matter 2: The durability considerations

Whether the building elements in the house comply with Clause B2 “Durability” of the Building Code, taking into account the age of the building work.

1.4 I have added Matter 2 as the “particulars of contravention” attached to the Notice to Rectify dated 6 May 2004 indicates that the authority has concerns in regard to the durability of the building elements in the building work consented in 1997.

1.5 I also note that the notice indicates that some aspects of the building work contravene Clauses B1, E3, G4 and H1 of the Building Code. I note that there are no specific items within the Notice to Rectify that relate directly to these clauses, and I have received no evidence relating to a dispute about them. I have therefore not considered these clauses further within this determination.

1.6 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. I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

2. The building

2.1 The building work consists of a 2-storey detached house on a gently sloping site, which is in a moderate wind zone for the purposes of NZS 3604³. The house is fairly simple in plan and form, with concrete block foundations, concrete floor slab, light timber frame construction, monolithic cladding, aluminium windows and a pressed metal tile roof. A ground level timber deck, with spaced timber slats and no balustrades, in fills the northwest corner of the house.

2.2 The 27° hipped roof to the upper level has no eaves projections to the east and south elevations and eaves projections of about 600mm to most of the north and west elevations, except for a projecting upper wall to the west and a bay window with an arched head to the north. A lower level lean-to roof extends from part of the upper north wall, and continues along the west and south elevations. A bay window

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

In this determination, unless otherwise stated, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

projects to the north from an upper bedroom, with a curved roof and a parapet directly above the curved head on the window.

- 2.3 The expert noted no evidence as to timber treatment. Given the date of construction in 1997, I consider that the external wall framing is unlikely to be treated.
- 2.4 The wall cladding is a form of monolithic cladding that consists of 7.5 mm thick fibre-cement sheets fixed through the building wrap directly to the framing, and finished with an applied textured coating system.

3. Background

- 3.1 The authority issued a building consent (No BLD 40961145201), which I have not seen. According to the date stamp on the consent drawings the consent was issued to the builder on 15 January 1997, under the Building Act 1991 (“the former Act”).
- 3.2 During 1997, the authority carried out various inspections of the construction, including pre-line inspections on 25 March and 7 April 1997 post-line inspections on 14 and 21 April 1997.
- 3.3 The authority carried out a final inspection on 6 June 1997, and the inspection summary notes “handrail to stairs”. A re-check inspection was carried out on 9 March 1998, which was noted as passed.
- 3.4 Although the applicant purchased the property from the builder in June 1998, it appears that the authority continued to correspond with the builder. In a letter to the builder dated 13 January 2000, the authority noted that the code compliance certificate would be issued as soon as the as-built drainage plan was received.
- 3.5 According to the applicant, he was subsequently advised by the builder that the drainage plan had been provided, and was also verbally assured by the authority that all outstanding matters were settled.
- 3.6 The applicant remained unaware that a code compliance certificate had not been issued for the house until a visit by a building inspector late in 2003. The authority subsequently undertook a cladding inspection on 23 April 2004, during which a number of weathertightness risks were identified and photographed.
- 3.4 In a letter to the owner dated 6 May 2004, the authority noted that recent information on the weathertightness risk of buildings with monolithic claddings had led to significant changes to the requirements for those buildings since the time of the building consent. The authority stated:
- The Council cannot be satisfied that the cladding system as installed on the above building meets the Functional Requirement of Clause E2 External Moisture of the Building Code...
- 3.7 The authority attached a Notice to Rectify dated 6 May 2004. The “particulars of contravention” attached to the notice are summarised as follows:
- 1) Items not installed per the manufacturer's specifications

- No evidence of control joints installed.
 - No provision for drainage from cladding above the head flashing.
 - No sill flashings and no provision for drainage at window sills.
 - Insufficient projection of head flashings past window jambs.
 - Insufficient clearances from bottom of cladding to paving and ground.
 - Insufficient clearances from internal floor level to paving and ground.
 - Exposed edges of backing sheets unsealed.
 - Insufficient overlap of cladding over foundations.
- 2) Items not installed per the acceptable solutions
- Cracks in the cladding.
 - Cracks between cladding and aluminium joinery.
 - No under flashing of corner of head flashing to corner kitchen window.
- 3) Items not installed per accepted trade practice
- A number of penetrations through the claddings are inadequately sealed.
- 4) Drainage and ventilation
- No allowance for drainage of water from the cladding and limited ability for air circulation to allow framing to dry out.

The notice also included the requirement to:

Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternate approved system; and ensuring all issues relating to the above are resolved.

- 3.8 The applicant's solicitor subsequently challenged the Notice to Rectify in letters to the authority dated 6 August and 8 September 2004, which noted that the applicant was entitled to rely on the fact that the building complied at the time of construction and also to rely on the verbal assurances given by the authority in 2000 (refer paragraph 3.5).
- 3.9 The authority responded in a letter to the solicitor dated 5 October 2004, stated that a code compliance certificate cannot be issued unless an authority is satisfied that the building work complies with the building code. The authority explained that knowledge about monolithic cladding had increased since the construction of this house, noting:
- Given this knowledge, Council cannot in good faith issue a CCC for your client's building. Photographic evidence, which I am going to provide you, shows inadequate ground clearances, cracking to the plaster, inadequate flashings and lack of control joints. These matters need to be rectified (as detailed on the Notice to Rectify) if Council is to issue a CCC.
- 3.10 I am not aware of any further correspondence on the matter until the authority wrote to the applicant on 11 April 2006 noting that there had been no response to the Notice to Rectify and, as new issues may have arisen since it had been issued, a new inspection would be necessary. The authority stated:

To date council has not received any advice from you as to how you intend to fix these matters. Council strongly urges you to fix your home as a matter of urgency. The longer you leave it, the more expensive the remedial work may be especially if structural damage has resulted from your inaction.

- 3.11 It appears that no response to the above letter was received as, in a follow-up letter dated 23 June 2008, the authority asked the applicant for their intention to rectify the issues identified in the notice to fix dated 6 May 2004 (refer paragraph 3.7).
- 3.12 The Department received an application for a determination on 2 July 2008.

4. The submissions

- 4.1 The applicant made a submission dated 27 June 2008, which explained that follow-up letters about the missing as-built drainage plan had been sent to the wrong address and stated:

I take issue with Auckland City Council, whilst they endeavoured to make contact with [the builder], at no time did Council try to find out who owned or lived at 110a Aranui Road, Mt Wellington. If Council had, I would have had the opportunity to follow up with [the builder]. However 3 years later, in December 2003 when Council had revised its knowledge on Monolithic Cladding, Council could then send a building inspector to inspect my property.

With respect to the above issue I consider Council to be negligent and totally incompetent.

- 4.2 The applicant forwarded copies of:
- some of the correspondence between the authority, the builder, the applicant and the applicant's solicitor
 - the Notice to Rectify dated 6 May 2004.
- 4.3 The authority forwarded a CD-Rom that was entitled "Property File" that contained documents pertinent to this determination, including:
- the consent drawings
 - the inspection summary
 - some of the correspondence with the builder and the applicant.
- 4.4 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other party.
- 4.5 The draft determination was issued to the parties on 10 October 2008. The draft was issued for comment and for the parties to agree a date when the house complied with Building Code Clause B2 Durability.
- 4.6 In response to the draft determination the applicants and the authority accepted the draft and submitted that compliance with B2 was achieved on 6 June 1997, being the date of the final inspection.

5. The expert's report

- 5.1 As discussed in paragraph 1.6, I engaged an independent expert to provide an assessment of the condition of those building elements subject to the determination. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 29 July, 26 August and 10 September 2008, and furnished a report that was completed on 16 September 2008.
- 5.2 The expert noted that the construction quality appeared to be “typical of generation”, with the cladding generally installed to “reasonable trade practice”, except for the items identified in paragraph 5.6. The expert noted that attempts had been made to repair some of the cracks in the cladding, although the paintwork was “dull and severely chalking” which indicated the need for repainting.
- 5.3 The expert noted that the house generally accorded with the consent drawings, except for some layout changes to the bathroom.
- 5.4 The expert noted that the windows and doors are face-fixed with metal head flashings. The cladding coating extended over the jamb flanges, with no evidence of sealant or Inseal applied between the flanges and the backing sheets.

5.5 Moisture levels

- 5.5.1 The expert inspected the interior of the house, taking non-invasive moisture readings internally, and noted readings between 20% and 30% in the following areas:
- the sill of the full-length lounge window, which the expert considered could be due to condensation
 - the corner of the living room, which the owner explained was due to a leak of the shower above
 - the sill and skirting of the bay window to bedroom 3, with lining cracks apparent
 - the reveals to the garage door.
- 5.5.2 The expert took invasive moisture readings through the cladding or interior linings at 6 high risk locations, and 5 elevated readings were noted as follows:
- 23% and 26% in the bottom plates beside the garage door, with soft drillings
 - 27% in the bottom of the south west corner stud beside the front door
 - 25% in the bottom of the north west corner of the living room, and 24% further up at the level of the window head
 - 40% beneath the jamb to sill junction of the north bay window to bedroom 3
 - 32% in the bottom of the corner framing of the bay window to bedroom 3.
- 5.5.3 The moisture level recorded below the corner kitchen window sill of 14% indicates the likely equilibrium moisture levels in the framing. Moisture levels that vary

significantly after cladding is in place generally indicate that external moisture is entering the structure.

5.6 Commenting specifically on the wall cladding, the expert noted that:

- there are no vertical control joints or horizontal inter-storey control joints on any of the external walls
- there are cracks in the cladding, some of which indicate that the layout of the backing sheet is not in accordance with the manufacturer's instructions
- the windows are ineffectively weatherproofed, with the windows installed against unsealed fibre-cement, no sealing applied between the flanges and the backing sheets, and no drainage gap above the head flashings and below some of the sill flanges
- the corner mitre to the corner kitchen window is open to water penetration
- clearances from the bottom of the cladding and the inside floor level to the outside ground and paving are insufficient in most areas, with the bottom of the cladding beneath the paving in some areas
- there is insufficient clearance from the bottom of the cladding to the timber deck slats
- there is no allowance for drainage of the cladding above the apron flashing to the lean-to, with sealant applied at the junction
- the parapet above the front of the north bay window appears to lack adequate cappings and is poorly weatherproofed at the junction with the gutters, and associated moisture penetration is evident
- penetrations through the cladding require re-sealing, and the paintwork to the cladding is in poor condition.

5.7 Commenting specifically on the roof cladding, the expert noted that:

- a lead "hood" installed to cover pipe penetrations through the lean-to roof has resulted in timber being exposed at the back of the gutter.

5.8 A copy of the expert's report was provided to each of the parties on 16 September 2008.

Matter 1: The claddings

6. Evaluation for code compliance

6.1 Evaluation framework

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions⁴, which will assist in

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.

determining whether the features of this house are code compliant. However, in making this comparison, the following general observations are valid:

- Some Acceptable Solutions are written conservatively to cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.
- Usually, when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add one or more other provisions to compensate for that in order to comply with the Building Code.

6.2 Weathertightness

6.2.1 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to apply the principles of weathertightness. This involves the examination of the design of the building, the surrounding environment, the design features that are intended to prevent the penetration of water, the cladding system, its installation, and the moisture tolerance of the external framing. The Department and its antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations⁵ (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

6.2.2 The consequences of a building demonstrating a high weathertightness risk is that building solutions that comply with the Building Code will need to be more robust. Conversely, where there is a low weathertightness risk, the solutions may be less robust. In any event, there is a need for both the design of the cladding system and its installation to be carefully carried out.

6.3 Weathertightness risk

6.3.1 In relation to these characteristics I find that this house:

- is built in a medium wind zone
- is a maximum of two storeys high
- is fairly simple in plan and form
- has monolithic cladding fixed directly to the framing
- has eaves projections that vary between the gutter or fascia only and 600mm
- has a ground level timber deck
- has a curved-roof bay window with a parapet
- has external wall framing that is not treated to provide resistance to the onset of decay if the framing absorbs and retains moisture.

6.3.2 The house has been evaluated using the E2/AS1 risk matrix. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting level of risk can range from 'low' to 'very high'. The risk

⁵ Copies of all determinations issued by the Department can be obtained from the Department's website.

level is applied to determine what cladding can be used on a building in order to comply with E2/AS1. Higher levels of risk will require more rigorous weatherproof detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.

- 6.3.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.3.1 show that all elevations of the house demonstrate a moderate weathertightness risk rating, and would require a drained cavity in order to comply with the current requirements of E2/AS1.

7. Discussion

- 7.1 Taking into account the expert's report, I am satisfied that the current performance of the cladding installed on this house is inadequate because it has not been installed according to good trade practice or to manufacturer's recommendations at the time of construction. In particular, the monolithic cladding demonstrates the systemic defects listed in paragraph 5.6 that show non-compliance with the manufacturer's recommendations has resulted in an inadequate cladding installation. As a result there is moisture penetration into the walls through these defects, which may have led to decay in the untreated framing timber. Consequently I am not satisfied that the cladding system as installed complies with either Clause B2 or Clause E2 of the Building Code.
- 7.2 I find that, because of the extent and apparent complexity of the wall cladding faults identified in paragraph 5.6, I am unable to conclude how compliance with Clauses B2 or E2 will be achieved. I consider that final decisions on whether code compliance can be achieved by either fixing the identified faults or full re-cladding, or a combination of both, can only be made after a more thorough investigation of the cladding and the condition of the underlying timber framing. This will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen repair option should be submitted to the authority for its consideration and approval.
- 7.3 The defect in the roof cladding occurs in a discreet area, and I am able to conclude that satisfactory rectification of the item outlined in paragraph 5.7 will result in the roof becoming code-compliant.
- 7.4 I note that the Department has produced a guidance document⁶ on weathertightness remediation, and I consider that this guide will assist the owner in understanding the issues and processes involved in remediation work; and in exploring the various options that may be available when considering the upcoming work required to the house.
- 7.5 Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building applicant. The Department has previously described these maintenance requirements, including examples where the external wall framing of the building

⁶ External moisture – A guide to weathertightness remediation

may not be treated to a level that will resist the onset of decay if it gets wet (for example, Determination 2007/60).

Matter 2: The durability considerations

8. Discussion

- 8.1 The authority has concerns about the durability, and hence the compliance with the building code, of certain elements of the building taking into consideration the age of the building work completed in 1997 (refer paragraph 1.4).
- 8.2 The relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods (“durability periods”) “from the time of issue of the applicable code compliance certificate” (Clause B2.3.1).
- 8.3 These durability periods are:
- 5 years if the building elements are easy to access and replace, and failure of those elements would be easily detected during the normal use of the building
 - 15 years if building elements are moderately difficult to access or replace, or failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance
 - the life of the building, being not less than 50 years, if the building elements provide structural stability to the building, or are difficult to access or replace, or failure of those elements would go undetected during both normal use and maintenance.
- 8.4 The 11-year delay since the substantial completion of the building work consented in 1997 raises the matter of when all the elements of the building complied with Clause B2. I have not been provided with any evidence that the authority did not accept that those elements complied with Clause B2 at a date in 1997. The final inspection of the house was carried out on 6 June 1997 as outlined in paragraph 3.2, which indicates that a date in or about July 1997 would be an appropriate date for the durability periods for the building work to commence. Accordingly, I urge the parties to discuss this matter and agree on which date is the appropriate one for inclusion in the final determination.
- 8.5 In order to address these durability issues when they were raised in previous determinations, I sought and received clarification of general legal advice about waivers and modifications. That clarification, and the legal framework and procedures based on the clarification, is described in previous determinations (for example, Determination 2006/85). I have used that advice to evaluate the durability issues raised in this determination.
- 8.6 I continue to hold that view, and therefore conclude that:
- (a) the authority has the power to grant an appropriate modification of Clause B2 in respect of all the building elements.

- (b) it is reasonable to grant such a modification, with appropriate notification, because in practical terms the building is no different from what it would have been if a code compliance certificate for the building work had been issued in 1997.

8.7 I strongly recommend that the authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning this property.

9. What is to be done now?

9.1 I note that the authority has issued a Notice to Rectify that required provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a Notice to Rectify can require the owner to bring the additions into compliance with the Building Code. The Building Industry Authority has found in a previous Determination 2000/1 that a Notice to Rectify cannot specify how that compliance can be achieved. I concur with that view.

9.2 The authority shall withdraw the Notice to Rectify. A notice to fix is to be issued in its place that requires the owners to bring the building up to compliance with the Building Code, identifying the defects listed in paragraphs 5.6 and 5.7 and referring to any further defects that might be discovered in the course of rectification, but not specifying how those defects are to be fixed. That is a matter for the owners to propose and for the authority to accept or reject. It is important to note that the Building Code allows for more than one method of achieving compliance.

9.3 I suggest that the parties adopt the following process to meet the requirements of paragraph 9.2. Initially, the authority should issue the notice to fix. The owners with their builder should then produce a response to this in the form of a detailed proposal, produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified issues. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

9.4 I also note that changes from the consent drawings have been identified and I leave the matter of appropriate documentation of these changes for the authority to resolve with the applicant.

10. The decision

10.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building does not comply with Clauses B2 and E2 of the Building Code, and accordingly confirm the authority's decision to issue a notice to fix.

10.2 I also determine that:

- (a) all the building elements installed in the building, apart from the items that are to be rectified as described in this determination, complied with Clause B2 on 6 June 1997.

- (b) the building consent is modified as follows:

The building consent is subject to a modification to the Building Code to the effect that, Clause B2.3.1 applies from 6 June 1997 instead of from the time of issue of the code compliance certificate for all the building elements, except the roof and wall claddings as set out in paragraphs 5.6 and 5.7 in Determination 2008/102

- (c) once the matters set out in paragraphs 5.6 and 5.7 together with any other matters arising from a more extensive investigation, have been rectified to its satisfaction, the authority is to issue a code compliance certificate in respect of the building consent as amended.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 20 November 2008.

John Gardiner
Manager Determinations