Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2009/11

Determination regarding the refusal to issue a code compliance certificate for a house with monolithic cladding at 2/65 Waipa Street, Birkenhead

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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, D Payne ("the applicant"), and the other party is the North Shore City Council ("the authority"), carrying out its duties as a territorial authority or building consent authority. I also consider that the builder, who was also the original owner of the house, is a person with an interest in the matter.

1.2 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a 10-year-old house because it was not satisfied that it

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

complied with Clauses B2 Durability and E2 External Moisture of the Building Code[2] (First Schedule, Building Regulations 1992).

1.3 The matters of non-compliance raised by the authority are restricted to the monolithic cladding and the age of the building work. There are no other matters in dispute. Therefore, the matters for determination are:

Matter 1: The compliance of the cladding

Whether the monolithic cladding as installed on the house ("the cladding") complies with Clause B2 Durability and Clause E2 External Moisture. 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.

Matter 2: The durability considerations

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

1.4 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Department to advise on this dispute ("the expert"), and the other evidence in this matter. With regard to the cladding, I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

2. The building work

2.1 The building work consists of a detached house on a flat site, which is in a high wind zone for the purposes of NZS 3604[3]. The house is two storeys high, except for a single-storey ground floor projection to the west. Construction is conventional light timber frame, with concrete slab and foundations, aluminium windows and some brick veneer cladding to the south ground floor walls, with monolithic cladding elsewhere. The house is fairly simple in plan and form, and has 30^{o} pitch concrete tile hip roofs over upper and lower roofs, with no eaves or verge projections.

2.2 An attached deck, with spaced timber decking and clad balustrades, extends to the east from the upper level living area.

2.3 The monolithic cladding consists of 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with an applied textured coating system.

2.4 The expert has noted that he found no evidence of treatment on timber framing within the exterior walls, although he observed that roof trusses were stamped as "H1". However, I note that the builder advised the authority in a letter dated 29 July 2004 that the wall framing was "kiln dried". Given the date of construction in 1998,

[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

it is possible the wall framing is treated but without further information in this regard I must consider the wall framing to be untreated.

3. Background

3.1 The authority issued a building consent (No. B10209) to the builder on 26 August 1997, under the Building Act 1991.

3.2 The authority carried out various inspections during construction, including a pre-line inspection on 17 March 1998 and a post-line inspection on 20 April 1998. Although no further inspections were recorded after the latter, the house was completed during 1998, with the builder retaining ownership of it as a rental property.

3.3 The authority carried out a final inspection on 13 July 2004, and the inspection summary notes:

> Cladding to be resolved – rest all OK.

3.4 The authority carried out a weathertightness inspection of the cladding on 26 July 2004.

3.5 The builder subsequently provided documentation, including confirmation of the cladding system in a letter to the authority dated 29 July 2004. According to the builder, he was not advised of any further requirements following the final inspection.

3.6 When considering purchasing the house in September 2004, it appears that the applicant asked the authority about the status of the building consent and was advised that a code compliance certificate would be issued within 6 weeks. The applicant purchased the house in October 2004, unaware that there were any cladding issues.

3.7 In a letter to the builder dated 30 November 2004 (which the applicant did not see), the authority stated that the Building Code required that building work must remain durable for specific periods of time after the code compliance certificate is issued and noted that the inspection process for monolithic claddings had changed since the time that the building consent for the house was processed. The authority listed 15 risk factors identified with the building, together with 5 weathertightness defects and some other outstanding items, and stated that, due to the risk factors, defects and other compliance requirements, it could not be satisfied on reasonable grounds that the cladding system complied with Clauses E2 and B2 of the Building Code.

3.8 According to the builder, he did not receive the above letter and assumed that a code compliance certificate had been issued for the house, as he was not aware of any outstanding requirements.

3.9 The applicant was not aware of the situation until he wrote to the authority on 15 March 2007 regarding the completion of the building consent. The authority responded on 26 March 2007 and attached a copy of its earlier letter.

3.10 In May 2007, the applicant advised the builder of the situation and provided him with a copy of the authority's letter dated 30 November 2004. In a facsimile to the authority dated 27 June 2007, the builder's lawyer noted that the builder had never received the letter. At the final inspection on 13 July 2004, the builder was given no indication of further requirements or that a code compliance certificate would not be issued. The lawyer stated:

> We do not understand how Council can provide a building consent, inspect a property, provide a list of remedial work, undertake a final inspection, sign the inspection record and then not issue a code compliance certificate.

3.11 The applicant subsequently engaged a property inspection company ("the inspection company") to inspect the house and advise on any remedial work required. The inspection company provided a report dated 3 August 2007, which described the construction of the house, its history and noted that the authority's defect list was being attended to under its supervision. The report listed non-invasive moisture testing undertaken throughout the house which had found no evidence of moisture problems, and concluded:

> This property, in our opinion, is in good condition but unfortunately has been caught up in the hysteria of leaking building syndrome.

3.12 The authority responded to the report in a letter to the inspection company dated 14 August 2007, noting that the survey undertaken was inadequate and an experienced specialist should be engaged to investigate all weathertightness issues and provide a remedial works proposal for the authority's approval. The authority also raised concerns about durability due to the age of the construction, and provided guidance for the applicant on a way to proceed, including a list of "Certified Weathertightness Surveyors".

3.13 In a letter to the builder's lawyer dated 12 September 2007, the authority responded to the issues raised (refer paragraph 3.10). The authority noted that:

- a review of the building consent file had revealed that two items on the 13 July 2004 "field inspection memorandum" had not been completed, one of which was the requirement for a weathertightness check.
- the subsequent inspection was carried out on 26 July 2004 and resulted in the letter to the builder dated 30 November 2004.

3.14 I am not aware of any further correspondence or discussions between the parties until the Department received an application for a determination on 7 October 2008.

4. The submissions

4.1 In a letter to the Department dated 2 October, the applicant outlined the background to the situation and noted that the house had been built correctly to requirements at the time of construction, there had been no alterations since that time, and the outstanding items from the final inspection had been attended to. The applicant submitted that the construction had been caught up in "several changes to the legislation covering Code of Compliance Certificates", and requested:

> ...a Letter of Acceptance be issued which would say that the building is suitable for the purpose for which it was erected.

4.2 The applicant forwarded copies of:

- some of the consent documentation
- some of the authority's inspection records
- the report from the inspection company
- the letters from the authority
- various other statements, certificates and information.

4.3 In a letter to the Department dated 30 October 2008, the authority stated that it was not satisfied with the building's code compliance due to cladding issues and the age of construction, concluding:

> The matters to be determined are:
>
> 1. Whether the installed cladding systems comply with clauses E2 and clause B2 of the New Zealand Building Code.
> 2. Whether any cladding not remediated will comply with clause B2 of the New Zealand Building Code, considering the age of construction.
> 3. Whether all other building elements incorporated in this building comply with clause B2 of the New Zealand Building Code, considering the age of the construction.

4.4 The authority forwarded copies of:

- the consent drawings
- the weathertightness inspection report
- the letter to the inspection company
- the correspondence with the builder's lawyer.

4.5 Copies of the submissions and other evidence were provided to each of the parties. Neither the applicants nor the authority made any further submissions in response to the submissions of the other party.

4.6 The draft determination was issued to the parties on 24 December 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.

4.7 The authority accepted the draft, subject to minor amendment, in a fax to the Department dated 12 February 2009. I have amended the draft to take account of that information.

4.8 The applicant accepted the draft without comment. In response to the builder's submission, refer paragraph 4.10, the applicant strongly refuted the comment about the lack of maintenance.

4.9 The parties agreed that compliance with Clause B2 was achieved on 1 October 1998.

4.10 The builder responded to the draft, via his lawyers, in a letter dated 21 January 2009, expressing concern that the authority was basing its decision to refuse to issue a code compliance certificate on today's building standards rather than the building standards of the day. The letter stated that:

- there were no structural changes to the deck and it matched the consented plans other than the alterations to "close in" the handrails
- the cladding manufacturer's specifications were followed. All of the required inspections by the authority were successfully carried out.
- maintenance has not been kept up on the house, leading to moisture ingress.

5. The expert's report

5.1 As mentioned in paragraph 1.4, 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 2 December 2008 and furnished a report dated 11 December 2008.

5.2 The expert noted the following variations from the consent drawings:

- The deck position has changed.
- The balustrades are fully clad in lieu of the use of open timber.
- There are minor variations to the window joinery.

5.3 The expert noted that the layout of the backing sheets appeared satisfactory and vertical control joints had been installed, with an inter-storey junction provided by a uPVC jointer that had been coated with the texture coating.

5.4 The expert noted that the windows were faced fixed against the backing sheets, with metal head flashings, no jamb or sill flashings and the coating applied after the window installation. The expert inserted a knife behind several jamb flanges and noted no evidence of seals installed between the cladding and the flange.

5.5 Moisture testing

5.5.1 The expert inspected the interior of the house and took non-invasive moisture readings internally around the house. The expert noted damaged linings and swelling skirtings in bathroom walls, which appeared to relate to leaking shower fittings. The expert also noted carpet stains and corroded carpet fixings to the external walls of the ground floor northeast bedroom.

5.5.2 The expert took more than 50 invasive moisture readings through the cladding at high risk locations. Most of the readings were elevated and included:

General areas

- 20% to more than 40% in bottom plates
- 26% to 30% adjacent to the inter-storey jointer

- 18% to 20% below sill to jamb junctions of several windows
- 21% and 32% below pipe penetrations

Garage apron flashings

- 32% and more than 40% below the north and south apron flashing ends

The deck

- 32% and more than 40% below the corner mitre of the timber capping to the deck balustrade
- 18% and 21% at the deck balustrade to wall junction
- 24% to 40% below the bolt fixings to the deck stringer
- 4 readings of more than 40% in the northeast corner framing.

Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. (I note that the applicant has noted that the testing was carried out immediately following a period of rain).

5.5.3 Given the high moisture readings below the apron flashings and at the north east corner, the expert removed small sections of cladding from those areas and noted wet framing with black stains and signs of fungal decay on the timber.

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

- clearances from the cladding to the paving are inadequate in some areas
- the horizontal inter-storey jointer is coated, with no gap to allow drainage, and filler is bulging above the junction in some areas
- there are some isolated cracks in the cladding
- the windows are installed over unsealed fibre-cement, with no seals behind the jamb flanges
- the unpainted fascia boards are fixed directly against the backing sheets, with the coating applied after installation
- the ends of the apron flashings above the garage are not weatherproof, with no kickouts, a downpipe from the upper roof discharging beneath the flashing, and high moisture levels, wet timber and signs of decay in the framing below
- the deck stringer is bolted directly to the wall cladding, with no allowance for drainage and significant moisture penetration apparent beneath the bolts
- the timber decking continues beneath the balustrade cladding
- the balustrade to wall junctions are not weatherproof, with exposed timber and significant moisture penetration apparent at the northeast corner
- the timber cappings to the monolithic-clad balustrades are flat, lack weathergrooves on the undersides and have no flashings at the corner mitre joints, with moisture penetration apparent in the balustrade framing below

- some penetrations of pipes through the cladding are unsealed or poorly sealed, with high moisture levels recorded in the framing below
- there is no head flashing above the kitchen extractor fan.
- a 6mm clearance has not been provided at the foundation overlap.
- the meter-box "windows" were loose and unsealed.

5.7 A copy of the expert's report was provided to the parties on 16 December 2008.

5.8 The applicant responded to the expert's report in a letter to the Department dated 24 December 2008, which included the following points:

- The house is relatively sheltered from the wind.
- Moisture testing followed a period of rain.
- The design and detailing of the house was approved by the authority at the time of consent and construction.
- Except for the meter-box and gas pipe, all penetrations are well sealed.
- Apart from the deck to wall junction and separating the balustrade from the walls, all items requested by the authority have been attended to.
- At the time, the use of window back seals was suggested as an option only.
- If the construction did not comply with the manufacturer's specifications and standards, this should have been reflected in the inspections which listed only minor items to be remedied. If these had been remedied, a code compliance certificate would have been issued.
- The current status of the house has a severe impact on its value.

I have considered the applicant's comments and amended the draft determination as I consider appropriate.

Matter 1: The compliance of the cladding

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 Solutions[4], which will assist in determining whether the features of the building work are code compliant. However, in making this comparison, the following general observations are valid:

- Some Acceptable Solutions 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.

[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.

- Usually, when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add some other provision to compensate for that in order to comply with the Building Code.

6.1.2 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 determinations[5] (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

6.1.3 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.

6.2 Weathertightness risk

6.2.1 This house has the following environmental and design features which influence its weathertightness risk profile:

Increasing risk

- the house is in a high wind zone
- the house is 2-storeys high
- there are no eaves or verge projections to shelter the walls
- the walls have monolithic cladding fixed directly to the framing
- the house has an upper level deck that has clad balustrades
- the external wall framing is not treated to a level effective in resisting decay if it absorbs and retains moisture
- the house has a complex roof to wall junction

Decreasing risk

- the house is fairly simple in plan and form.

6.2.2 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 level is applied to determine what claddings 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.

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

6.2.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2.1 show that two elevations demonstrate a moderate weathertightness risk rating and two a high risk rating. I note that, although a drained cavity is now required by E2/AS1 for these risk levels, that was not a requirement at the time the house was constructed.

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. The cladding is allowing significant water penetration into the walls through defects in many locations, which in turn may have led to decay in the untreated framing. In particular, the cladding demonstrates the key defects listed in paragraph 5.6.

7.2 I have identified the presence of a range of known weathertightness risk factors in this house. The presence of the risk factors on their own is not necessarily a concern, but they have to be considered in combination with the significant faults identified in the cladding system. It is that combination of risk factors and faults that indicate that the structure does not have sufficient provisions that would compensate for the lack of a drained and ventilated cavity. Consequently, I am not satisfied that the cladding system as installed complies with either Clause B2 or Clause E2 of the Building Code. I have given further consideration to the question of B2 compliance under Matter 2 of this determination.

7.3 I consider that a more thorough investigation of the cladding is required before the method of remediation can be decided, either by targeted repairs, re-cladding, or a combination of both. 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.

7.4 I note that the Department has produced a guidance document on weathertightness remediation[6]. I consider that this guide will assist the owner in understanding the issues and processes involved in remediation work and in exploring various options that may be available to them when considering the upcoming work required to the house.

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 completion date of the building during 1998.

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

[6] External moisture – A guide to weathertightness remediation. This guide is available on the Department's website, or in hard copy by phoning 0800 242 243

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 In this case the delay between the completion of the building work in 1998 and the applicant's request for a code compliance certificate has raised concerns that various elements of the building are now well through or beyond their required durability periods, and would consequently no longer comply with Clause B2 if a code compliance certificate were to be issued effective from today's date.

8.5 The 10-year delay between the substantial completion of the house and the applicant's request for a code compliance certificate raises the issue of when all the elements of the building complied with Clause B2. I have not been provided with any evidence that, with the exception of the cladding, the authority did not accept that those elements complied with Clause B2 at a date in 1998. The sequence of events outlined in paragraph 3.2 does not give me a clear indication when the durability periods should commence although a date of about 1 July 1998 appears appropriate.

8.6 It is not disputed, and I am therefore satisfied, that all the building elements complied with Clause B2 on 1 October 1998. This date has been agreed between the parties, refer paragraph 4.9.

8.7 In order to address these durability issues, I sought some clarification of general legal advice about waivers and modifications. I have now received that clarification and the legal framework and procedures based on this clarification are described in previous determinations (for example Determination 2006/85) and are used to evaluate the durability issues raised in this determination.

8.8 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 house had been issued in 1998.

8.9 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 not issued a notice to fix. A notice to fix should now be issued that requires the owner to bring the building into compliance with the Building Code, identifying the items listed in paragraph 5.6 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. It is not for the notice to fix to stipulate how the defects are to be remedied and the house brought to compliance with the Building Code. That is a matter for the owner to propose and for the authority to accept or reject.

9.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 9.1. Initially, the authority should issue the notice to fix. The owner 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.

9.3 I note that the expert has identified some variations between the consent drawings and the house as constructed, and I leave that matter to the authority to resolve with the owner as it considers appropriate.

10. The decision

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

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 1 October 1998.

(b) the building consent is hereby 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 1 October 1998 instead of from the time of issue of the code compliance certificate for all building elements except the wall cladding as set out in Determination 2009/11.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 25 February 2009.

John Gardiner
Manager Determinations