

Determination 2007/18

Refusal of a code compliance certificate for a building with a monolithic cladding system at 7 Oakway Drive, Albany



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, Determinations Manager, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicant is Mr Johnson (“the applicant”) of MaxBuilt Ltd (“the builder”), who is the agent for the current owner, Mr M^cGhie (“the current owner”) and the other party is the North Shore City Council (“the territorial authority”).
- 1.2 The matter for determination is whether the territorial authority’s decision to decline to issue a code compliance certificate for a 5-year-old house because it was not satisfied that the monolithic cladding to the walls of the house complied with clauses

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

B2 “Durability” and E2 “External Moisture” of the Building Code² (First Schedule, Building Regulations 1992) is correct.

1.3 The questions to be determined are:

Matter 1: The cladding

Whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the walls of the building (“the cladding”), complies with the Building Code (see sections 177 and 188 of the Act). By “the monolithic wall cladding as installed” I mean the components of the system (such as the backing materials, the flashings, the joints and the coatings) as well as the way the components have been installed and work together.

Matter 2: The additional durability considerations

Whether all the building elements installed in the house comply with clause B2 of the Building Code considering the time that has elapsed since the elements were constructed.

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. With regard to the cladding, I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

1.5 I have not considered any other aspects of the Act or the Building Code.

2. The building

2.1 The building work consists of a detached house situated on a flat site, which is in a medium wind zone for the purposes of NZS 3604³. The house is two storeys high, except for single-storey ground floor projections. Construction is conventional light timber frame, with concrete slab and foundations, aluminium windows and monolithic wall cladding. The house shape is moderately complex in plan, with 21° pitch concrete tile hip roofs over upper and lower roofs. Two areas of the upper level project beyond the ground floor walls on the north and south elevations, and are supported by monolithic clad timber framed columns. Eaves projections are 700mm above ground floor walls and 550mm above upper level walls. A horizontal band of monolithic cladding is used between lower level roof projections at the inter-storey level, and decorative sills are also used below the windows.

2.2 The applicant has submitted copies of invoices from the timber supplier, which indicate that the external wall framing supplied for the house was untreated. Based on this evidence, I accept that the wall framing of this house is untreated.

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

- 2.3 The cladding system is what is described as monolithic cladding, and is a 60mm “Rockcote” polystyrene system fixed directly to the framing over the building wrap, and finished with an applied textured coating system. The system includes purpose-made flashings to windows, edges and other junctions. The cladding to the exterior columns consists of 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with the same coating system used for the walls.
- 2.4 Rockcote Architectural Coatings NZ Ltd provided a 15-year components warranty, and Tui Plastering provided a 5-year “Licensed Plasterer Warranty” for the workmanship. The warranties noted the completion of the cladding as January 2001.

3. Sequence of events

- 3.1 The territorial authority issued a building consent on 25 July 2000. Inspections during construction were undertaken by Approved Building Certifiers Ltd (“the building certifier”), and the certifier’s scope of engagement dated 7 August 2000 included all inspections and the issue of a code compliance certificate.
- 3.2 The building certifier made various inspections during the course of construction, including the pre-line inspections. The records do not indicate the external claddings were inspected. The inspection record notes the final inspections as “pending”. I note that the foundation and slab inspections are also noted as “pending”, but this issue has not been raised by the territorial authority and is therefore not considered in this determination. I have no record of any further inspections carried out by the building certifier following the “Crossing inspection” on 22 February 2001.
- 3.3 The builder has noted that the house was completed by 3 May 2001, and it appears that the house was sold to the first owners (“the first owner”) and then subsequently to the current owner.
- 3.4 In a pro-forma memorandum to the territorial authority dated 24 February 2004, the building certifier noted that “we are hereby handing back all documents...” and supplied the documentation for the territorial authority to complete the project.
- 3.5 The territorial authority carried out the final inspection on 15 April 2004, and the final inspection record identified a number of defects and outstanding items of documentation, and noted “issue of the non-ventilated cladding system will be sent for review...”. A re-check inspection was carried out on 1 June 2004, which noted that some items of documentation remained outstanding. The territorial authority carried out a “Weathertightness” inspection on 8 June 2004, and the inspection report noted “overall condition good”.
- 3.6 In a letter to the first owner dated 14 June 2004, the territorial authority explained that the Building Code required the durability of the cladding to be 15 years and that of the timber framing to be 50 years. The territorial authority outlined its concerns with regard to monolithic claddings and listed certain weathertightness risk factors identified with the building, together with two defects, noting that “even when these defects are remedied to council’s satisfaction, we consider the consent would still need to go to the Building Industry Authority for determination.” The territorial

authority stated that, due to the risk factors and defects, it could not be satisfied on reasonable grounds that the cladding system complied with clauses E2 and B2 of the Building Code.

- 3.7 The territorial authority did not issue a Notice to Rectify under section 42 of the Building Act 1991 or a notice to fix under section 164(2) of the Building Act 2004.
- 3.8 There appears to have been no further correspondence until the current owner met with the territorial authority on 16 September 2005 to request a code compliance certificate. In a letter to the current owner dated 14 November 2005, the territorial authority referred to the outstanding items listed in the earlier letter dated 14 June 2004, noting that a determination should be sought if a code compliance certificate was wanted.
- 3.9 The applicant applied for a determination on 9 February 2006, and authority for the applicant to act on the current owner's behalf was received by the Department on 21 February 2006.

4. The submissions

- 4.1 Within the application, the applicant explained that, as the builder, "MaxBuilt Ltd has an obligation to help the owner above to gain a code of compliance...", and outlined the history of the project under the "Matter of doubt or dispute", noting that:

MaxBuilt Ltd T/A G J Gardiner Homes built the house as a showhome. We did not get the final inspection done. Second purchaser received a letter from NSCC saying they did not have a code of compliance and could they apply for one. We asked NSCC to inspect the house mid June 2004. We have now finally received their letter.

- 4.2 The applicant forwarded copies of:

- the drawings, specifications and consent documentation
- the building certifier's inspection summaries
- the technical information on the cladding
- the plasterer's pre-installation and final checklists
- the correspondence to the owner from the territorial authority
- various invoices, warranties, producer statements and other statements.

- 4.3 The territorial authority made a submission in the form of a letter to the Department dated 11 April 2006, which explained that it could not be satisfied that the house complied with the building code due to "cladding issues and the age of construction", and noted that:

The matters to be determined are:

- Whether the installed cladding system complies with clauses B2.3.1 and E2.3.2 of the New Zealand Building Code.
- Whether all other building elements incorporated in this building comply with clause B2 of the Building Code, considering the age of construction.

4.4 The territorial authority forwarded copies of:

- the consent drawings and documentation
- the building certifier's inspection summaries
- the territorial authority's inspection records
- the letter to the owner dated 14 November 2005.

4.5 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.

4.6 The first draft determination was sent to the parties for comment on 12 September 2006. Both parties accepted the draft without comment.

4.7 The first draft determination addressed the durability matter but not in a form that required the parties to agree on a date when compliance with B2 was achieved. A second draft determination addressed B2 compliance in this manner and was sent to the parties on 14 November 2006. The second draft was issued for the parties to agree a date when all the building elements installed in the house, apart from items that are to be rectified, complied with the Clause B2 Durability.

4.8 In a response to the Department dated 24 November 2006, the applicants proposed a date of 3 May 2001 being the date of practical completion. On 11 January 2007 the territorial authority advised the Department that it accepted the second draft determination and advised that agreement had been reached with the applicants (in a telephone conversation held on 11 January 2007) that compliance with B2 was achieved on 1 July 2001.

Matter 1: The cladding

5. The expert's report

5.1 The expert inspected the claddings of the building on 4 May 2006, and furnished a report that was completed on 15 May 2006. The expert noted the cladding appeared to be "generally good and showing a consistent even texture and paint finish" and had no cracks although there were signs of past repairs. The expert noted that cladding clearances were generally adequate, and that the wall areas present in this

house are of dimensions that do not require control joints in order to comply with the manufacturer's instructions.

- 5.2 The expert scraped away a small section of coating at the sill to jamb and head to jamb junctions of a window, and noted that the window installation appeared to generally accord with the manufacturer's instructions with sealant at the jamb to sill junction in lieu of corner soakers. I accept that the location opened is typical of similar locations around the building.
- 5.3 The expert took non-invasive moisture readings through linings of exterior walls throughout the house, and noted elevated readings, with signs of moisture damage, at the corner of the ground floor family room. The expert cut out sections of the cladding at the inter-storey band and the bottom plate level to investigate this corner, and noted mildew on the back of the cladding and signs of decay in the bottom plate.
- 5.4 A large number of invasive moisture readings were taken through the wall cladding, at window sills, bottom plates and other risky areas, and more than 12 elevated readings were recorded. Areas where elevated readings were recorded are as follows:

Family room walls

- More than 40% in the bottom plate of the northeast corner, at the cutout.
- 22% at the bottom plate below a roof to wall junction.

South projection above the entry

- 2 at 21%, 2 at 20% and one at 18% at the corners below the upper bow window.
- 28% and more than 40% at the sides, below the roof to wall junctions.

North projection above the dining area

- More than 40% at the base of one of the columns.

South garage wall

- 20% and 18% at the sides of the garage door.

Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

- 5.5 The expert made the following specific comments on the cladding:
- there are no drainage gaps at the window sills to allow moisture from the jamb flashings to drain to the outside
 - the cladding of the north columns has insufficient clearance above the paving, with the fibre-cement in contact with water ponding at the base of one of the columns where the moisture in the timber framing was measured at over 40%

- the ends of the roof apron flashings lack adequate kickouts, and there are unsealed gaps in some locations – including the areas of high moisture at the sides of the entry projection and the family room east wall
- the apron flashings have inadequate overlap over the roof tiles
- there are a number of leaking joints in the guttering, including above the area of decay in the cutout section of cladding at the family room corner
- the cladding at the sides of the garage door touches the paving, and elevated moisture levels were recorded in the bottom plates
- the garage door does not have a head flashing, although the head is well sheltered under a 700mm roof overhang
- the penetration of the hose tap through the cladding is unsealed.

5.6 A copy of the expert's report was provided to each of the parties on 19 May 2006.

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 Solution⁴, in this case E2/AS1, which will assist in determining whether the features of this house 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 solutions 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 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 determinations⁵ (refer to Determination 2004/1 *et al*) 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.

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.

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

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 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 moderately complex in plan and form
- has eaves projections of 700mm and 550mm above all walls
- has monolithic cladding which is fixed directly to the framing
- have external wall framing that is untreated so will provide no resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, the elevations of this house demonstrate a medium weathertightness risk. The matrix is an assessment tool that is intended to be used at the time of application for consent, before the building work has begun and, consequently, before any assessment of the quality of the building work can be made. Poorly executed building work introduces a risk that cannot be taken into account in the consent stage but must be taken into account when the building as actually built is assessed for the purposes of issuing a code compliance certificate.

6.3 Weathertightness performance

6.3.1 Generally the cladding appears to have been installed in accordance with good trade practice. However, some junctions, penetrations and edges are not well constructed, and these areas are as described in paragraph 5.5 and in the expert's report. Taking account of the expert's report, I conclude that remedial work is necessary in respect of the following:

- lack of drainage gaps at the window sills
- inadequate clearance of the cladding of the north columns above the paving
- lack of adequate kickouts and gaps at the ends of the apron flashings
- inadequate overlap of the apron flashings over the roof tiles
- leaking joints in the guttering
- inadequate clearance of the cladding at the sides of the garage door

- unsealed penetration of the hose tap through the cladding
- any other building elements associated with the above that are consequently discovered to be in need of rectification.

6.3.2 I note the elevated moisture readings recorded at the bottom of the northeast corner of the family room (with decay present) and below the bow window above the south entry, and consider that further investigation is necessary to determine the cause of moisture penetration into these areas.

6.3.3 I observe that the expert's comment on "signs of past repairs" (see clause 5.1 in the expert's report) is of concern given that the house is only 5 years old.

6.3.4 I note the expert's comments on the lack of a head flashing to the garage door, but accept that the head is well sheltered by the roof overhang, which in this case compensates for the lack of that flashing.

6.3.5 Notwithstanding the fact that the cladding is fixed directly to the timber framing, thus limiting drainage and ventilation behind the cladding, I have noted certain compensating factors that assist the performance of the cladding in this particular case:

- The monolithic cladding has generally been installed to good trade practice and to the manufacturer's instructions.
- The house has eaves projections that provide good protection to the monolithic cladding areas below them.

6.3.6 I consider that these factors help compensate for the lack of a ventilated cavity and can assist the building to comply with the weathertightness and durability provisions of the Building Code.

7. Conclusion

7.1 I am satisfied that the current performance of the cladding is not adequate because it is allowing water penetration into the building at present. Consequently, I am satisfied that the building does not comply with clause E2 of the Building Code.

7.2 In addition, the building is also required to comply with the durability requirements of clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the house to remain weathertight. Because the cladding faults on the building are currently allow the ingress of moisture in the future, the house does not comply with the durability requirements of clause B2.

7.3 I consider that, because the faults that have been identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 and 6.3.2 should be expected to result in the

building becoming and remaining weathertight and in compliance with clauses B2 and E2.

- 7.4 Effective maintenance of claddings (in particular of monolithic cladding) is important to ensure ongoing compliance with clauses B2 and E2 of the Building Code and is the responsibility of the building owner. Clause B2.3.1 of the Building Code requires that the cladding be subject to “normal maintenance”, however, that term is not defined in the Act.
- 7.5 I take the view that normal maintenance is that work generally recognised as necessary to achieve the expected durability for a given building element. With respect to the cladding, the extent and nature of the maintenance will depend on the material, or system, its geographical location and level of exposure. Following regular inspection, normal maintenance tasks should include but not be limited to:
- where applicable, following manufacturers’ maintenance recommendations
 - washing down surfaces, particularly those subject to wind-driven salt spray
 - re-coating protective finishes
 - replacing sealant, seals and gaskets in joints.
- 7.6 As the external wall framing of this building is untreated, it is recommended that periodic checking of its moisture content be carried out as part of normal maintenance.

Matter 2: The durability considerations

8. Discussion

- 8.1 As set out in paragraph 4.3, the territorial authority has concerns about the durability, and hence the compliance with the building code, of all the building elements installed in the house taking into consideration the completion date of the building in 2001.
- 8.2 The territorial authority’s concerns are due to the fact that the building was substantially completed in 2001, three years before the territorial authority carried out its “Weathertightness” inspection on 8 June 2004.
- 8.3 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).
- 8.4 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.

8.5 It is not disputed, and I am therefore satisfied that all the building elements installed in the house, apart from items that have to be rectified as described in paragraphs 6.3.1 and 6.3.2, complied with clause B2 on 1 July 2001. This date has been agreed between the parties, refer paragraph 4.8.

8.6 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.

8.7 I continue to hold the views expressed in the previous related determinations, and therefore conclude that:

- (a) the territorial authority has the power to grant an appropriate modification of clause B2 in respect of all of the elements of the building, excepting those elements that are to be rectified, if the applicant applies for such a modification
- (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 had been issued in July 2001.

8.8 I strongly recommend that the territorial authority record this determination and any modification resulting therefrom, on the property file and also on any LIM issued concerning this property.

9 The decision

9.1 In accordance with section 188 of the Act, I hereby determine that the monolithic cladding system as installed does not comply with clause E2 of the Building Code. There are a number of items to be remedied to ensure that the house becomes and remains weathertight and thus meets the durability requirements of the code. Consequently, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue a code compliance certificate.

9.2 I also find that rectification of the items outlined in paragraph 6.3.1 and 6.3.2 will consequently result in the house being weathertight and in compliance with clauses B2 and E2. Work to correct these items may expose additional associated defects that are not yet apparent. I draw the attention of the territorial authority to paragraph

6.3.3 concerning the expert's report of signs of past repairs. All rectification work is to be completed to the approval of the territorial authority.

9.3 I also determine that:

(a) all the building elements installed in the house, apart from items that are to be fixed as described in this determination, complied with clause B2 at 1 July 2001

(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 July 2001 instead of from the time of issue of the code compliance certificate for all building elements provided that this modification does not apply to the elements that have been altered or modified as set out in paragraphs 6.3.1 and 6.3.2 of Determination 2007/18.

(c) that, once the defects set out in paragraph 6.3.1 and 6.3.2 of this determination have been fixed to its satisfaction, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended.

9.4 I note that the territorial authority has not issued a notice to fix. A notice to fix should be issued that requires the owners to bring the cladding 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 that 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.

9.5 I would suggest that the parties adopt the following process to meet the requirements of paragraph 9.4. Initially, the territorial authority should issue a notice to fix, listing all the items that the territorial authority considers to be non-compliant. 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 14 February 2007.

John Gardiner
Determinations Manager