

## **Determination 2008/63**

### **Refusal by a territorial authority to issue a code compliance certificate for 12-year-old alterations to a house at 890 Waimea Valley Road, Gore**

#### **1. The matter to be determined**

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“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 applicants are the owners, C and G Toogood (“the applicants”), and the other party is the Southland District Council, in its role as a building consent authority (“the authority”).
- 1.2 The matter for determination is whether the territorial authority was correct in its decision to refuse to issue a code compliance certificate for 12-year-old alterations and additions (“the alterations”) to a house because it was not satisfied that the building work complied with various clauses of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992).
- 1.3 A notice to fix, issued on 9 January 2008, listed defects in the cladding which the applicants dispute. The notice to fix also listed other items which the applicants do not dispute; being various defects related to an ensuite bathroom and to Clause G12 Water supplies, the clearance of insulation from down lights, and the sealing of waste pipes to a gully trap (“the undisputed items”). The undisputed items are outside the scope of this determination.

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<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

1.4 I therefore consider that the matters for determination are:

**1.4.1 Matter 1: The cladding**

Whether the claddings as installed to the walls and roof of the house comply with Clauses B2 and E2 (see sections 177 and 188 of the Act). By “the 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.

**1.4.2 Matter 2: The durability considerations**

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

1.5 I also note that the notice to fix identifies unconsented work to an ensuite bathroom. I consider that the matter of whether that work could be covered by an amendment to the existing building consent or via an application for a new building consent is best left for the authority and the applicants to resolve.

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.

1.7 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.

## **2. The building**

2.1 The building work consists of extensive alterations to two elevations of an existing detached house situated on a flat site, which is in a high wind zone for the purposes of NZS 3604<sup>3</sup>. The original house was built during the 1950’s, and was a simple single-storey building with conventional light timber frame construction, concrete slab and foundations and a profiled metal gable roof. The eaves and verge projections to the original house were about 600mm overall.

### **2.2 The alterations**

2.2.1 The alterations include the plastering of the existing walls, extensive internal alterations, and extensions to the north elevation (“the north addition”) and the south elevation (“the south addition”).

2.2.2 The single-storey north addition extends the existing gable at a 45° angle that finishes as a hipped roof. The extension accommodates new living, dining and kitchen areas.

2.2.3 The south addition provides a new wing set at right-angles to the existing roof. The wing is single-storey to the west and 2-storey high at the eastern end. The ground

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<sup>3</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

floor provides a new garage, master bedroom, dressing room and ensuite, with another new bedroom and ensuite in the upper level.

- 2.3 The expert took a timber sample from exterior wall framing and forwarded it to a testing laboratory for analysis. The biodeterioration consultant's analysis confirmed the sample as boracic-treated (refer paragraph 5.3.5). Given the age of the original house, I consider that the original timber framing is also likely to be boracic treated.
- 2.4 The monolithic cladding is a system described as solid plaster over a solid backing. In this instance it consists of 4.5 mm "Hardibacker" sheets fixed through the building wrap directly to the framing timbers, and covered by a slip layer of building wrap, under metal-reinforced solid plaster finished with a flexible paint coating system. The windows are surrounded with a decorative plaster band applied over the base plaster.

### **3. Background**

- 3.1 Early in 1995 the territorial authority issued a building consent (No. 1994/1365/1) for the alterations. I have not seen that consent. Construction was managed by the applicants, with the builder employed on a "labour only" basis.
- 3.2 I have received no records of inspections (if any) carried out by the authority during construction, but it appears that the house was substantially completed and occupied by June 1996.
- 3.3 On 9 June 1997 the authority carried out an inspection which identified some outstanding items. It appears that the applicants understood that this was a final inspection, and were under the impression that a code compliance certificate would be "on file" with the authority once outstanding work was completed.
- 3.4 At some stage, an area designated in the consent drawings as a "future ensuite" in the upper bedroom of the south extension, was developed as a bathroom, without the authority being notified. I have no information as to when this work was carried out.
- 3.5 I am not aware of any correspondence between the applicants and the authority until late 2007, when the applicants sought a copy of the code compliance certificate and the authority inspected the building work.
- 3.6 In a letter to the authority dated 10 December 2007, the applicants noted that although the records for the building work appeared to be missing, they believed that the building work was "signed off" between November 1997 and January 1998. The applicants considered that the inspections carried out during construction must have been satisfactory, as no problems had occurred in the more than 10 years since.
- 3.7 The authority issued a notice to fix (refer paragraph 1.3) dated 9 January 2008, which identified the areas of non-compliance with respect to the cladding to be:
- lack of clearance from the stucco to the roof apron flashings
  - lack of a head flashing to the vent cover to the ensuite

- lack of window sill flashings
  - lack of clearance from paving to the dining/lounge floor level
  - lack of clearance from the cladding to the paving outside the dining/lounge areas.
- 3.8 In a letter to the applicants dated 29 January 2008, which followed email correspondence, the authority confirmed that no code compliance certificate had been issued for the building work.
- 3.9 In a further letter to the applicants dated 12 February 2008, the authority stated that the earlier inspection on 9 June 1997 had not been a final inspection, as it had highlighted only the more obvious defects. The authority stated that the recent inspection in late 2007 had been the final inspection, and also noted that the upper floor ensuite bathroom had not been included in the consent documents (refer paragraph 1.5). I note that I have received no copies of the inspection records of the inspection on 9 June 1997 or of the inspection carried out in late 2007.
- 3.10 The applicants discussed the authority's version of the inspections in a letter dated 15 February 2008. The applicants also stated that the ensuite had been noted in the consent documents as a "future ensuite", and therefore did not require a new building consent.
- 3.11 The applicants engaged a specialist building inspection company ("the inspection company") to assist in resolving issues identified in the notice to fix. In a letter to the authority dated 17 March 2008, the inspection company stated that plumbing items would be remedied and noted that the windows had been weatherproofed using a traditional malthoid system. The inspection company proposed moisture testing to confirm satisfactory performance of the 11-year-old cladding.
- 3.12 In a letter to the authority dated 11 April 2008, the inspection company attached a "comprehensive moisture testing report" recording the results of testing that used probes inserted about 5mm into the interior linings and into the underside of the plaster band around the windows. The inspection company concluded:
- Based on evidence gleaned from three hours of testing, I can conclude that there is no obvious ingress of water through the plaster system as a direct consequence of any lack of visible window flashings or from areas where the plaster is in contact with apron flashings.
- 3.13 In a letter to the inspection company dated 1 May 2008, the authority acknowledged the resolution of the minor items identified in the notice to fix, but advised the owners to make an application for a determination in regard to the cladding system as:
- The main problem in being able to issue a final Code Compliance Certificate on this project is going to be the compliance issues with the Stucco Plaster cladding system. As you may or may not be aware, this type of cladding system was identified as being responsible for a significant number of failures nationally as a result of the leaky building crisis. Any Council is going to be very hesitant in approving any such system since then and even more so where there are compliance issues such as identified in this instance.

3.14 The Department received an application for a determination on 8 May 2008.

## **4. The submissions**

4.1 In a statement on behalf of the applicants, the inspection company outlined the history of the project, noted that “appropriate inspections” had been carried out during construction and the building work had been completed in June 1996 and lived in since, with no signs of moisture problems. The inspection company noted that the plumbing items in the notice to fix would be attended to, and the areas of contention were limited to the cladding issues, which were argued to be satisfactory in the circumstances, concluding:

Another point we wish to be considered is the Building Act 1992[sic] being performance based, requires a cladding system such as this to last for 15 years. We maintain that 12 years of this has been successfully completed and request consideration be given to backdating the performance requirement to the date in which a Code of Compliance should have been issued in 1996.

4.2 The applicants forwarded copies of:

- the notice to fix dated 9 January 2008
- the inspection company’s moisture testing report
- the correspondence with the territorial authority

4.3 The authority forwarded the notice to fix dated 9 January 2008.

4.4 The draft determination was sent to the parties on 18 June 2008. The draft was issued for comment and for the parties to agree a date when the building complied with Building Code Clause B2 Durability.

4.5 Both parties accepted the draft without comment and agreed that compliance with Clause B2 was achieved on 14 June 1996.

## **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 27 May 2008, and furnished a report that was completed on 6 June 2008.

5.2 The expert noted that, with the exception of the items outlined in paragraph 5.5, the general standard of workmanship to the interior and exterior were of a good standard “using trade normal systems and finishes”, and the roof construction appeared to be “without defect”.

### 5.3 Windows and doors

- 5.3.1 The expert noted that the windows and doors were face-fixed, with no visible head, jamb or sill flashings, and with a band of decorative plaster sitting proud of the surrounding plaster and the window flanges.
- 5.3.2 The expert removed a small section of cladding at the jamb to sill junction of the east window to bedroom 1 (where a high moisture reading was recorded), and noted that the installation did not include jamb or sill malthoid flashings, and the window had been installed without sealing behind the jamb flange.
- 5.3.3 The expert noted that the plaster in the band was saturated and delaminating, with green moss staining apparent. A “black sooty fungus” was apparent on the building wrap, the timber framing and the backing sheets, and the timber appeared to be severely decayed.
- 5.3.4 The expert concluded that similar installation methods used for other windows in the building would indicate that other windows with high invasive moisture readings would have similar underlying damage.
- 5.3.5 The expert forwarded a sample of the timber, together with a sample of building wrap and Hardibacker, to a testing laboratory for analysis. The biodeterioration consultant’s analysis included the following conclusions:
- The sound part of the timber contained a moderate level of boron treatment.
  - The unsound part of the timber exhibited advanced soft rot and light brown rot.
  - The condition of the timber indicated that it had been exposed to sustained high moisture levels for 2 to 3 years or longer.
  - The building paper tested positive for *Stachybotrys atra* (a toxigenic fungus).

### 5.4 Moisture observations

- 5.4.1 The expert inspected the interior of the house and noted “extreme condensation damage” to the timber window reveals, with very elevated non-invasive moisture readings recorded at a number of windows.
- 5.4.2 The expert took invasive moisture readings through the cladding at the sill to jamb junctions for a number of exposed windows around the additions. All readings taken were elevated as follows:
- 23% and 24% at the cut-out to the bedroom 1 window on the east elevation.
  - 26% at another window on the east elevation.
  - 21% and 28% at two windows on the west elevation.
  - 23% at a window on the north elevation.

Moisture levels over 18%, or which vary significantly after cladding is in place, generally indicate that external moisture is entering the structure.

5.5 Commenting specifically on the wall claddings, the expert noted that:

- there are no vertical control joints in walls where dimensions exceed the 4m length limit between such joints recommended in NZS 4251<sup>4</sup>
- there are no horizontal control joints in the 2-storey high walls
- there are a number of cracks to the plaster window bands
- the windows and doors lack flashings or other means of underlying weatherproofing, and associated moisture penetration and decay is apparent
- condensation from the windows has damaged the interior timber reveals
- the plaster is not continuous behind downpipes
- the cladding butts against the tiles at some areas of the northern addition, with no anti-capillary break to prevent moisture “wicking up” the plaster
- the timber pergola on the east elevation is fixed under the gutter to the single storey section, with no separation gap and the final plaster coat butting against the bottom of the stringer
- the section of the pergola against the 2-storey wall has a flat-topped metal flashing over the stringer, with plaster finished hard against the flashing
- there is no clearance from the bottom of the upper wall cladding to the roof cladding, with plaster finished hard against the apron flashing and moss growth apparent in some areas
- a downpipe dropper directs water against the apron flashing, with no bend provided to divert the water away from the roof to wall junction
- the bottom of apron flashings are not weathertight, with unsealed plaster and no kickouts, and the ends of gutters are buried in the plaster cladding.

5.6 The expert also noted that there are insufficient floor and cladding clearances at the patio areas in the north addition. However, the expert considered that, providing an anti-capillary break in the plaster is provided, these junctions should be adequate as the areas are well drained and sheltered beneath roof overhangs of about 1200mm.

5.7 The expert noted that some of the items in the notice to fix (not related to the cladding) were not yet completed. (As outlined in paragraph 1.3, these issues are not addressed in this determination).

5.8 A copy of the expert’s report was provided to each of the parties on 9 June 2008.

## **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<sup>5</sup>, which will assist in

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<sup>4</sup> New Zealand Standard NZS 4251: Solid plastering; Part 1: 1998 Cement plasters for walls, ceilings and soffits

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.

6.1.2 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<sup>6</sup> (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 In relation to these characteristics I find that the building extensions:

- are built in a high wind zone
- are two storeys high in part
- are fairly complex in plan and form
- have solid plaster cladding that is directly fixed to the framing
- have limited eaves and verge projections above most walls
- have external wall framing that is likely to be treated to a level that will provide some resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 The building 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

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<sup>5</sup> 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](http://www.dbh.govt.nz).

<sup>6</sup> Copies of all determinations issued by the Department can be obtained from the Department's website.



detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.

- 6.2.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.2.1 show that all of the elevations of these extensions demonstrate a moderate weathertightness risk rating.
- 6.2.4 Under the Building Act I am required, as is the territorial authority under section 436, to consider the Code Clause E2 requirements applicable at the date of the building consent in 1995 and I note that, at that time, the relevant Acceptable Solution E2/AS1 permitted direct-fixed solid plaster on a rigid backing, without the incorporation of a cavity. In contrast, the current E2/AS1 requires a drained cavity irrespective of the risk rating.

## **Matter 1: The cladding**

### **7. Discussion**

- 7.1 Taking into account the expert's report, I am satisfied that the current performance of the cladding is inadequate because significant parts of it have 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 key defects listed in paragraph 5.5 and is allowing significant moisture penetration into the walls through these defects, with severe decay identified at one sample window junction which is likely to be repeated at other similar windows.
- 7.2 I have also identified the presence of a range of known weathertightness risk factors in these extensions. 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 Clause E2 of the Building Code.
- 7.3 In addition, the extensions are 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 are allowing moisture penetration in some locations now, or are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 7.4 I find that, because of the extent and apparent complexity of the faults that have been identified with the cladding together with the likely level of associated decay in the framing, I am unable to conclude, with the information available to me, that fixing the identified faults, as opposed to partial or full re-cladding, could result in compliance with Clauses B2 or E2.
- 7.5 I consider that final decisions on whether code compliance can be achieved by particular repairs, partial re-cladding, full re-cladding, or a combination of these, can

only be made after a more thorough investigation of the cladding, the moisture penetration and the extent of decay to the underlying framing. Such investigation is beyond the scope of the expert's inspection, and 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.

- 7.6 I note that the Department has produced a guidance document<sup>7</sup> on weathertightness remediation. I consider that this guide will assist the owners 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 extensions.
- 7.7 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 owner. The Department has previously described these maintenance requirements, including examples where the external wall framing of the building 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 applicant has raised the issue of the durability, and hence the compliance with the building code, of certain elements of the alterations taking into consideration the completion of the building during 1996.
- 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 between the substantial completion of the alterations 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

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<sup>7</sup> External moisture – A guide to weathertightness remediation – a copy is available from the Department's website at [www.dbh.govt.nz](http://www.dbh.govt.nz), or by calling Freephone 0800 242 243

any evidence that, with the exception of the cladding, the territorial authority did not accept that those elements complied with Clause B2 when the building work was substantially completed in June 1996.

8.5 It is not disputed, and I am therefore satisfied, that all the building elements in the alterations complied with Clause B2 on 14 June 1996. This date has been agreed between the parties, refer paragraph 4.5.

8.6 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.

8.7 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 alterations had been issued in 1996.

8.8 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 fix, dated 9 January 2008, that includes some, but not all, of the defects now identified in the cladding system, together with the undisputed items, (refer paragraph 1.3). I suggest that the authority should withdraw that notice to fix and issue two new notices to fix; one in respect of the cladding, and the other in respect of the undisputed items.

9.2 With regard to the cladding, the new notice to fix should require the owners to bring the cladding into compliance with the Building Code, identifying the items listed in paragraph 5.5 and referring to any further defects that might be discovered in the course of investigation and rectification. The notice to fix should not specify how those defects are to be fixed, that is a matter for the owners to propose and for the authority to accept or reject.

9.3 I would 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 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 matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

## 10. The decision

10.1 In accordance with section 188 of the Building Act 2004, I determine that:

- (a) all the building elements installed in the alterations, apart from the items that are to be rectified as described in this determination plus the undisputed items, complied with Clause B2 on 14 June 1996.
- (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 14 June 1996 instead of from the time of issue of the code compliance certificate for all the building elements, except the items as set out in paragraph 5.5 in Determination 2008/63.
- (c) the authority is to issue a code compliance certificate in respect of the building consent as amended, once the matters set out in paragraph 5.5 plus the undisputed items have been fixed to its satisfaction.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 15 July 2008.

John Gardiner  
**Manager Determinations**