

Determination 2007/72

Determination regarding a code compliance certificate for a house at 1 Haven Place, Ngunguru, Whangarei



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 applicants are the owners J & E Hickman (“the applicants”) and the other party is the Whangarei District Council (“the territorial authority”).
- 1.2 The matter for determination is whether the territorial authority’s decision to refuse to issue a code compliance certificate for a 6 year old house and an approximately 10 year old garage, because it was not satisfied that they complied with clauses B2 “Durability” and E2 “External Moisture” of the Building Code² (First Schedule, Building Regulations 1992) was correct. The notice to fix (refer paragraph 3.2) also refers to non-compliance with clauses E1 and G13, but I have assumed those matters

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

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

are not in dispute and have been or will be fixed to the satisfaction of the territorial authority.

- 1.3 The initial questions to be resolved are whether:

Matter 1: The cladding (House and Garage)

the claddings as installed to the walls of the buildings (“the cladding”) and the long run profiled steel roofing (“the roofing”) complies with clause E2 (see sections 177 and 188 of the Act). By “the cladding and roofing 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 durability considerations (Garage only)

the elements that make up the building work in the Garage comply with clause B2, taking into account the age of the building.

- 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. In regard to the cladding and roofing, I have evaluated this information using a framework that I describe more fully in paragraph 6.1.
- 1.5 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 buildings

- 2.1 The building work consists of a single-storey detached house and connected garage situated on a level site which is in a high wind zone for the purposes of NZS 3604³. The buildings are relatively straightforward in plan and form. The construction is conventional light timber frame constructed on concrete slabs and timber-framed floors. The house and garage both have monolithic cladding with deep parapets to all walls within which are flat shallow pitched roofs supported by timber framing. The parapets overhang the walls by 500mm except for the north wall. The garage was constructed in 1994 and the house was completed after 2001.
- 2.2 I have not received any information as to the treatment, if any, of the external wall framing timber used in the house and the garage, but I have assumed that the timber in the garage was boracic treated in accordance with the usual practice at the time it was constructed. In the absence of evidence to the contrary I have to assume that the timber framing in the house, which was constructed after 2001, is not treated.
- 2.3 The external walls of the house are clad with a direct fixed external insulation and finishing system (EIFS) and the garage is clad with direct fixed wire-reinforced stucco plaster. The plaster on the garage has a rigid backing known as “Triple S”.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

Both claddings have a painted finish and are fixed through the building wrap to the framing.

3. Sequence of events

- 3.1 The territorial authority issued a building consent (No BC15376) for the garage in 1996 and subsequently another building consent (No BC46737) for the house in 2001. The two building consents were issued under section 35 of the Building Act 1991 (“the former Act”).
- 3.2 I have not seen any inspection records, for either the house or the garage, before the final inspection completed in February 2007. Following this inspection, the territorial authority wrote to the applicants, on or about 13 February 2007, listing 16 items that required attention. The territorial authority enclosed a notice to fix in respect of both the garage and the house which contained a Statement of Particulars of Contravention that said:
1. Building works on BC15376 & BC46737 in contravention of the NZ Building Code B2 (Durability), E1 (Surface Water), E2 (External Moisture), G13 (Foul Water) as per Field Advice Notice 10730CC.
 2. Roof cladding on the garage is not as per plan therefore doesn't comply with section 40 of the NZ Building Act 2004.
- 3.3 The notice to fix said that in order to remedy the contravention or non-compliance the owner must:
1. Apply for and obtain a building consent for re-cladding of the building or apply for and obtain a determination from [the Department]
- 3.4 An application for a determination was received by the Department on 23 February 2007.

4. The submissions

- 4.1 The applicant forwarded copies of:
- one drawing only for the house (I have seen no drawings for the garage)
 - the final inspection record
 - the Field Advice Notice in which 16 items were noted that needed attention
 - the notice to fix which set out the Particulars of Contravention.
- 4.2 Copies of the submission and other evidence were provided to each of the parties.
- 4.3 A copy of the draft determination was sent to the parties on 4 May 2007. The draft was issued for comment and for the parties to agree a date when the building elements installed in the garage, under building consent No BC15376, complied with the Building Code Clause B2 Durability.

- 4.4 Both parties accepted the draft determination and agreed that compliance with B2 Durability, in respect of the garage only, was achieved on 15 June 1996.

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, with particular emphasis on the roof and wall claddings. The expert is a member of the New Zealand Institute of Building Surveyors.
- 5.2 The expert inspected the house on 21 February 2007, and furnished a report that was completed on 28 March 2007. The expert noted that the property is well presented, the general standard of workmanship is good and regular maintenance has been carried out.
- 5.3 The expert removed plaster at the jamb to sill joint in the EIFS cladding to observe the construction. I am prepared to accept that the exposed details are typical of those used in other similar situations throughout the building.
- 5.4 The expert took internal non-invasive moisture readings throughout the house and garage and no comparatively elevated readings were recorded. The expert took invasive readings into the exterior walls and no elevated readings were recorded. However two comparatively elevated readings of 25% and 28% were recorded inside the house adjacent to the shower.
- 5.5 The expert made the following specific comments on the building envelope:

The Stucco plaster

- The stucco cladding to the garage shows no signs of failure although there are no control joints and the ground clearance is inadequate in some areas. The only sign of cracking is at the join of the two claddings but there are no signs of any leaking through that joint. The windows have head flashings only, and the two rear windows in the garage are not protected by the parapet overhang but there are no signs of moisture ingress.
- The drip edges are inadequate where the parapets overhang the walls.
- The parapet tops are relatively flat and are not well capped. Consequently they are a potentially high risk area for potential leaks.
- The ground clearance to the plaster on the north wall is inadequate.

The EIFS cladding

- The EIFS system to the main house is in good condition with good ground clearances. There are no jamb flashings, contrary to the manufacturer's specification, but a 500mm overhang offers protection to the windows in all walls except the north wall. There are no signs of leaking.
- The parapet tops are relatively flat and are not well capped. Consequently, they are potentially a high risk area for potential leaks.

The roofing systems

- The roofing on the garage is low profile corrugated steel laid at a pitch of 3°. This is not in accord with E2/AS1 which recommends a minimum pitch of 8°. However, since maintenance work has been carried out this roof has shown no signs of leaking as a result of the shallow slope. The flat parapet tops are potentially a greater leak risk.
- Roofing on the house is specified as “trimline” roofing with a deeper profile than that used on the garage roof, and is also laid at a pitch of 3° which is the minimum pitch recommended by E2/AS1.
- Both roofs have been well maintained and shows no signs that they are currently leaking.

5.6 I observe here that the garage and the house were constructed under building consents issued under the former Act (see paragraph 3.1). It is therefore required to comply with the Building Code, rather than necessarily with the building consent. For that reason the territorial authority’s reference to Section 40 of the Act in its notice to fix, (refer paragraph 3.2) is incorrect.

5.7 Copies of the expert’s report were provided to each of the parties on 2 April 2007.

Matter 1: The cladding (House and Garage)

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

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.

- 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 house and garage:

- are built in a high wind zone
- are single story buildings with monolithic cladding features
- are relatively simple in plan and form
- have 500mm overhangs of the parapets which afford good protection to the walls under them except for the north wall
- have external wall framing (in the case of the house) that is unlikely to be treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture. The framing in the garage is likely to be treated and to have resistance to decay.

- 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.

- 6.2.3 When evaluated using the E2/AS1 risk matrix, all elevations of the house demonstrate a moderate weathertightness risk.

6.3 Weathertightness performance

- 6.3.1 Generally the cladding appears to have been installed in accordance with good trade practice. However, I accept the expert's opinion that remedial work is necessary in respect of the following:

The stucco plaster cladding to the Garage

- The lack of adequate drip edges where the parapet overhangs the walls.
- The base of the plaster at the balcony being finished hard onto the paving along the north wall.
- The parapet tops have an adequate slope and lack capping flashings.

The EIFS cladding to the house

- The parapet tops have an adequate slope and lack capping flashings.

- 6.3.2 Notwithstanding the fact that the claddings are 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. These features are that:
- apart from the noted exceptions, the cladding is installed to good trade practice
 - the house generally has wide eaves projections that provide good protection to the cladding below them
 - maintenance has been carried out.
- 6.3.3 I consider that these factors help compensate for the lack of a drained cavity and can assist the building to comply with the weathertightness and durability provisions of the Building Code.

7 Discussion

- 7.1 I consider the expert's report establishes that the current performance of the monolithic cladding and roofing is adequate because it is not allowing water penetration into the buildings. Consequently, I am satisfied that the cladding and roofing as installed on the buildings complies with clause E2 of the Building Code.
- 7.2 In addition, the buildings are also required to remain weathertight 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 buildings to remain weathertight.
- 7.3 The following two items, observed by the expert, require further consideration:
- The inadequate ground to plaster clearance on the north wall of the garage could result in moisture getting into the bottom plate and framing, and as the wall is lined, the moisture would be retained. If the wall lining was removed any moisture that was drawn into the framing would dry out.
 - The minimal slope of the garage roof is a matter for concern. However, despite the age of the garage there are no signs that the slope has resulted in water ingress. This could have been because the parapet up-stand at the lower end may have prevented water being blown up under the roofing edge. For whatever reason, this demonstration of in-service performance provides reasonable grounds on which to form a view that the roof will continue to be weathertight and comply with B2.
- 7.4 Nonetheless, the other faults observed by the expert are likely to allow the ingress of moisture in the future. Consequently, the buildings overall do not comply with the durability requirements of clause B2.
- 7.5 However, I conclude that, because the other faults identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 6.3.1 will result in the buildings remaining weathertight and in compliance with clause B2. I have given further consideration to the question of B2 compliance under issue 2 of this determination.

- 7.6 I emphasise that each determination is conducted on a case-by-case basis. Accordingly, the fact that a particular cladding system has been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding system will be code compliant in another situation.
- 7.7 Effective maintenance of claddings (in particular monolithic cladding) is important to ensure ongoing compliance with clauses B2 and E2 and is the responsibility of the building owner. Clause B2.3.1 requires that the cladding be subject to “normal maintenance”, however that term is not defined in the Act.
- 7.8 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.
- 7.9 As the external wall framing of the buildings, particularly the house, may not be treated to a level that will resist the onset of decay if it gets wet, periodic checking of its moisture content should also be carried out as part of normal maintenance.
- 7.10 The elevated moisture noted in the shower area is likely to be the result of internal moisture finding its way into the walls. This is probably a maintenance matter which should be resolved between the applicant and the territorial authority.

Matter 2: The durability considerations (Garage only)

8 Discussion

- 8.1 The territorial authority has concerns about the durability, and hence the compliance with the building code, of certain elements of the garage, which I calculate, in the absence of any evidence to the contrary, must have been completed in 1996 or 1997. I also note that the territorial authority’s inspection records indicate compliance with clause B2 at the time of those inspections, including the final inspection undertaken in April 2007.
- 8.2 The relevant provision of clause B2 of the Building Code (clause B2.3.1) 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”
- 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 It is not disputed, and I am therefore satisfied that all the building elements installed in the garage, apart from items that have to be rectified as described in paragraph 6.3.1, complied with clause B2 in June 1996. This date has been confirmed by the applicant and the territorial authority, refer paragraph 4.4.
- 8.5 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.
- 8.6 I continue to hold that view, 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 garage
 - (b) it is reasonable to grant such a modification, with appropriate notification, because in practical terms the garage is no different from what it would have been if a code compliance certificate had been issued at completion.
- 8.7 I strongly recommend that the territorial authority record this determination, and any modification resulting from it, 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 Building Act 2004, I hereby determine that the claddings on the house and garage do not comply with clause B2 of the Building Code, and accordingly confirm the territorial authority's decision to refuse to issue a code compliance certificate.
- 9.2 I also determine that:
- (a) all the building elements installed in the garage, apart from the items that are to be rectified, complied with clause B2 on 15 June 1996
 - (b) building consent No. BC15376 for the garage is modified as follows:

The building consent is subject to an modification to the Building Code to the effect that, clause B2.3.1 applies from 15 June 1996 instead of from the time of issue of the code compliance certificate for all building elements except those elements set out in paragraph 6.3.1 of Determination 2007/72.

- (c) once the defects in the garage set out in paragraph 6.3.1 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 No. BC15376 as amended.

9.3 I note that the territorial authority has issued a notice to fix. The territorial authority should now withdraw that notice and issue a new notice to fix that requires the applicants to bring the buildings into compliance with the Building Code, identifying the defects listed in paragraph 6.3.1, including any associated defects discovered during the course of that work, but not specifying how those defects are to be fixed. That is a matter for the applicants 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.

9.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 9.3. Initially, the territorial authority should issue the new notice to fix. This notice may include items listed in the Field Advice Notice (see paragraph 4.1 that have not already been fixed. 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 9 July 2007.

John Gardiner
Manager Determinations