

Determination 2007/41

Refusal of a code compliance certificate for additions and alterations to a house at 13 Onehuka Road, Lower Hutt



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 applicants are the owners, Fiona Christeller and Nigel Oxley (“the applicants”) and the other party is the Hutt City Council (“the territorial authority”).
- 1.2 This determination arises from the decision of the territorial authority to refuse to issue a code compliance certificate for 13-year-old additions and alterations to an existing house because it is not satisfied that the work complies with clauses B2 “Durability” and E2 “External Moisture” of the Building Code² (First Schedule, Building Regulations 1992).

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.

1.3 The matters for determination are whether:

1.3.1 Matter 1: The cladding

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

1.3.2 Matter 2: The durability considerations

The elements that make up the building work comply with clause B2 “Durability” of the Building Code, 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 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.

1.5 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 building

2.1 The building work consists of additions and alterations to a two-storey detached house situated on a sloping site, which is in a moderate wind zone for the purposes of NZS 3604³. The original house appears to have been constructed in the 1920’s. The building work considered in this determination is to the northwest end of the house and consists of ground floor extensions and alterations with the addition of a partial upper floor that is generally accommodated within the existing roofline. The resulting house is conventional light timber frame, with a concrete foundation wall, timber-framed sub-floor, monolithic and weatherboard cladding and timber windows. The house shape is fairly simple in plan and form, with a 25° pitch concrete tile gabled roof that has eaves and verge projections of about 500mm overall.

2.2 The end of the main gable projects to the northwest, with part of the structure exposed as a timber pergola supported by four columns, which are formed from timber posts set above large stone plinths capped with brick. The centre two plinths form the corners of the new kitchen extension, while the end columns are freestanding.

2.3 A deck from the upper northwest bedroom is situated above the ground floor kitchen extension. The corner stone plinths extend up to the balustrade height with timber posts above to support the pergola. The front of the deck has open metal balustrades, while the sides are clad with timber weatherboards and cappings.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 2.4 Given the age of the original house, I consider that the original framing is likely to be mainly heart rimu. The expert has noted that the framing timber exposed during his inspection was stamped as “Treated 337 H1 Crighton Timber” (refer paragraph 5.4) and the specification calls for all wall framing in the new additions to be to “treated H1”. Accordingly, given the date of construction in 1994 and the timber specification, I consider that the external wall framing of the new alteration work is likely to be borax-treated to a level that will provide some resistance to fungal decay.
- 2.5 The monolithic cladding system to the new walls is a solid plaster system to match the original stucco cladding. The cladding consists of 10.5 mm “Triple-S” bitumen-treated cellulose fibre backing sheets fixed directly to the framing, and covered by a slip layer of building wrap, metal mesh-reinforced 20mm thick solid plaster and a flexible paint coating. Timber facings are used around the new timber windows to match the existing windows. The upper floor gable ends and the deck balustrades are clad in bevel-backed timber weatherboards.
- 2.6 I have received no evidence of producer statements or warranties for the cladding.

3 Sequence of events

- 3.1 The territorial authority issued a building consent (No. 1747) on 16 July 1993. I have received no records of any inspections undertaken by the territorial authority during construction.
- 3.2 According to the applicants, most of the building work was completed during 1994 (refer paragraph 4.1). In September 1999, it appears that the territorial authority approved an amendment to the building consent for minor design changes to the east walls of the family room. The territorial authority carried out a pre-line inspection of this newer work on 19 January 2000 and the work was substantially completed by 2001 (with some minor items outstanding).
- 3.3 In a pro-forma “Advice of completion of building work” to the territorial authority dated 29 March 2005, the applicants attached the required producer statements and certificates and requested a final inspection in order that a code compliance certificate could be issued. It appears that the applicants were verbally advised that the application for a code compliance certificate was too late.
- 3.4 In 2006, intending to market the house for sale, the applicants again sought a code compliance certificate under the transition provisions of the Act. During telephone discussions with the territorial authority, the applicants were advised that it was too late as a code compliance certificate was unlikely due to the age of the building work, and that a certificate of acceptance was the only option available.
- 3.5 In a telephone discussion with the Department on 20 September 2006, the applicants were advised that they were entitled to apply for a code compliance certificate based on the building code requirements in place at the time of construction, and the territorial authority should consider and process the application.

3.6 In a memo to the territorial authority dated 20 September 2006, the applicants set out the history of the building work and concluded:

...that HCC still should be able to issue a CCC. I suggest that a visit to the property is arranged and a solution found.

3.7 During a telephone discussion on 28 September 2006, the territorial authority informed the applicants that it was concerned about the durability of the stucco cladding, which would need an independent assessment and a waiver of the durability requirements. It was agreed that the applicants should apply for a code compliance certificate and, in a memo to the territorial authority dated 29 September 2006, the applicant attached a pro-forma "Application for Code Compliance Certificate" with supporting documentation.

3.8 In a letter to the applicant (received on 17 October 2006 and incorrectly dated as 15 August 2006), the territorial authority noted that:

In this instance, it was not satisfied that the cladding complied with clauses B2.3.1 and E2.3.2 of the Building Code...

The territorial authority suggested the options available were:

- an application for a determination
- the provision of a property report for attachment to the property file
- an application for a certificate of acceptance.

3.9 The applicants made an application for a determination, which was received by the Department on 24 October 2006.

4 The submissions

4.1 In the letter dated 20 October 2006 accompanying the application, the applicants outlined the history of the building work and stated that that they were confident that the work was done in accordance with the requirements at the time of construction as there was no evidence of deterioration or leaks. The applicants also noted:

The Council seems to be using the issue of cladding durability and weathertightness: Clauses B2.3.1 and E2.3.2 as their "reason" for refusal. We are surprised that they have declined our application for a CCC without an onsite visit and feel that they are unreasonably circumventing the intention of the Building Act 2004 which has transition provisions under Section 436. We believe that the work should be inspected and assessed for compliance against the building code that applied at the time the consent was issued (ie. Under the provisions of the 1991 Building Act).

4.2 The applicants also forwarded copies of:

- a floor plan and specification
- the building consent documentation

- a record of the pre-line inspection dated 19 January 2000
- the correspondence and records of telephone calls with the territorial authority
- various producer statements and other statements.

4.3 The territorial authority made no submission.

4.4 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other party.

4.5 A copy of the first draft determination was issued to the parties on 24 January 2007. The draft was issued for comment and for the parties to agree a date when the building elements complied with Building Code Clause B2 Durability.

4.6 The applicants responded in a letter to the Department dated 14 February 2007, and noted plans to consult with the territorial authority on most of the defects identified in the draft determination. The applicant also noted that the unpainted timber balustrade capping noted in paragraph 6.3.1 was decorative only, as it had been adhesive-fixed over a membrane capping (the applicants also said the capping was not flat, as stated by the expert, but had a peaked cross-section). I consider that this matter should be left to consultation with the territorial authority, and have therefore made no change to the draft determination.

4.7 The applicants also debated the need for a vertical control joint in the northwest family room wall, as the wall area is sheltered beneath roof projections of 1600mm or greater. I have reconsidered this matter in paragraph 6.3.5, and have amended the draft determination accordingly.

4.8 The territorial authority accepted the draft determination in an email to the Department dated 22 February 2007, which also noted that a proposal for remedial work had been received from the applicants on 21 February 2007.

4.9 With respect to the date when compliance with B2 was achieved, both parties agreed that compliance with Clause B2 was achieved on 1 November 1995.

5 The expert's report

5.1 As discussed in paragraph 1.4, I engaged an independent expert capable of providing an assessment of the condition of those building elements subject to the determination. The expert is a member of the Institute of Building Surveyors.

5.2 The expert inspected the claddings of the extensions on 7 December 2006, and furnished a report that was completed on 19 December 2006. The expert noted that the building work appeared to conform to the consent drawings, with the cladding generally “of a good standard with few distortions in the cladding system”. The expert noted that the junctions of the new stucco with the original were situated at sheltered corners and appeared satisfactory. The expert also noted that, apart from

the items outlined in paragraph 5.4, the new stucco appeared to comply with the description within the acceptable solution applicable at the time of construction (E2/AS1 dated July 1992).

- 5.3 The expert noted that the new and re-used timber windows had been installed in a traditional manner to match the original windows, with metal head flashings, timber facings and solid timber sloping sills.
- 5.4 In the unlined externally accessible storage cupboard beside the entry, the expert removed the insulation, and noted that the backing sheets were “Triple S” and the framing was stamped as “Treated 337 H1 Crighton Timber” (refer paragraph 2.4). I accept that the materials exposed are typical of those used in the external walls of the extensions. The expert also noted wet timber and decay at the bottom of the framing and signs of moisture penetration and damage in the “Triple S” backing sheets.
- 5.5 The expert took non-invasive moisture readings through linings of exterior walls throughout the house, and no elevated readings or evidence of moisture were noted. A further 22 invasive moisture readings were taken through the wall cladding at areas considered risky, and the following elevated readings were recorded (I have corrected the moisture readings to allow for the boric treatment of the framing):
- 19% and 21% on the northeast wall of the family room (below the right side of the left window).
 - 19% at the junction of the kitchen extension with the family room wall.
 - More than 30% at the bottom plate of the northeast wall of the kitchen (adjacent to the corner stone column).
 - More than 30% at the bottom plate of the northwest wall of the kitchen (near the right corner stone column).
 - More than 40% and decay in the bottom plate of the northwest wall of external cupboard (adjacent to the right corner stone column).
 - More than 40% and decay in the bottom plate of the southwest wall of external cupboard (beside the doors, adjacent to the corner stone column).

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

- 5.6 Commenting specifically on the cladding the expert said:
- there is no vertical control joint in the (approximately) 5.6m long northwest family room wall, where the dimension exceeds the 4m length limit recommended in NZS 4251:1974⁴, or in NZS 3604:1990⁵ (which applied at the time of construction)
 - there is no drip edge provided at the base of the cladding, and the stucco finishes hard against the foundation wall (with no anti-capillary gap) in some areas

⁴ New Zealand Standard NZS 4251:1974 Code of Practice for Solid Plastering

⁵ New Zealand Standard NZS 3604: 1990 Code of practice for light timber frame buildings not requiring specific design

- the ends of the timber capping over the deck side balustrades (above areas of high moisture) butt against the stone corner columns, with no evidence of flashings at the junctions
- the timber capping over the deck side balustrades is unpainted, and splits are apparent
- the timber posts at the deck corners (above areas of high moisture) are embedded into the stone corner columns, with no evidence of flashings at the junctions
- there were a small number of minor hairline cracks in the stucco (which I note may indicate the need for repainting).

5.7 The expert also noted that, while the 120mm step up from the exterior paving to the interior floor level is less than the 150mm usually required, the paving is well drained and sheltered by the eaves.

5.8 A copy of the expert's report was provided to each of the parties on 21 December 2006.

6 Evaluation for code compliance

6.1 Evaluation framework: exterior cladding

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions⁶, which will assist in determining whether the features of these houses 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 determinations⁷ (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

⁶ 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.

⁷ 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 these additions and alterations:

- are built in a medium wind zone
- are a maximum of two storeys high
- are fairly simple in form, but incorporate several complex features
- have solid plaster cladding that is fixed directly to the framing
- have eaves and verge projections of 500mm or more above all walls
- have a new deck, with weatherboard clad balustrades, which is situated over a living area
- have external wall framing to most walls that is likely to be treated to a level that is effective in helping resist decay if it absorbs and retains moisture.

- 6.2.2 When evaluated using the E2/AS1 risk matrix, these weathertightness features show that three walls of the additions demonstrate a moderate weathertightness risk and the other wall demonstrates a low risk rating. 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.

- 6.2.3 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: the exterior cladding

- 6.3.1 Generally the cladding appears to have been installed in accordance with good trade practice, but some junctions are not well constructed; and these areas are described in paragraph 5.6 and in the expert's report. I accept the expert's opinion that work is necessary to fix the following:

- The lack of a drip edge and anti-capillary gap at the base of the cladding.
- The flat unpainted timber capping (which is splitting), and lack of adequate weatherproofing at the junctions with the stone corner columns or walls.
- The lack of adequate weatherproofing at the junctions of the timber posts with the stone corner columns at the deck corners.
- The minor hairline cracking in the stucco indicating a need for repainting.

- 6.3.2 I also note the elevated moisture readings recorded under the family room window (refer paragraph 5.5), and consider that this window should be further investigated to establish the cause of the apparent moisture penetration into the framing below.
- 6.3.3 I also note the moisture levels recorded in the expert's report and, while levels of 18% to 20% (after adjustment for timber treatment) may not endanger the boric-treated framing, I am concerned about the effect of the presence of moisture on the Triple S backing sheets. As a reconstituted wood product, the material is absorbent and the information available on the product indicates that it must be kept dry at all times to prevent swelling and moisture damage. I therefore consider that, in areas where high moisture levels were recorded, the backing sheets should be carefully investigated to confirm their current condition and durability.
- 6.3.4 I note the expert's comment in paragraph 5.7, and accept that the step up from the paving to the floor level is adequate in the circumstances.
- 6.3.5 I note the lack of evidence of a vertical control joint in the northwest family room wall, where the dimension exceeds the 4m length limit recommended for solid plaster, but accept that the wall area is well sheltered beneath a deep roof overhang and is therefore unlikely to allow moisture penetration should movement cracking occur. I also note that the applicant recalls control joints being installed within the underlying plaster layers, and that the cladding has been in place for some 12 years without evidence of movement cracking. Given these particular circumstances I accept that the stucco plaster system as installed to the northwest family room wall is adequate in this instance, without the retrofitting of the possibly omitted control joint that was required in the general case by NZS 4251⁸.
- 6.3.6 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:
- Apart from the noted exceptions, the cladding is installed to good trade practice.
 - The extensions have roof projections that provide good protection to the cladding areas below them.
- 6.3.7 I consider that these factors help compensate for the lack of a drained cavity to the walls, and can assist the building work to comply with the weathertightness and durability provisions of the Building Code.

Matter 1: The cladding

7 Discussion

- 7.1 I consider the expert's report establishes that the current performance of the cladding is not adequate because it is allowing water penetration into the house at present.

⁸ New Zealand Standard NZS 4251: Solid plastering; Part 1: 1998 Cement plasters for walls, ceilings and soffits

Consequently, I am satisfied that the extensions do not comply with clause E2 of the Building Code.

- 7.2 In addition, the building work 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 a building to remain weathertight. Because the cladding faults on the additions and alterations are likely to continue to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of clause B2.
- 7.3 Because the faults identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification and/or investigation of the items outlined in paragraph 6.3.1 to paragraph 6.3.3 (inclusive) will result in the additions and alterations becoming and remaining weathertight and in compliance with clauses E2 and B2. I have given further consideration to the question of B2 compliance under Matter 2 of this determination.
- 7.4 It is emphasized 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.
- 7.5 Effective maintenance of claddings (in particular of monolithic claddings) 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.
- 7.6 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.

Matter 2: The durability considerations

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 additions and alterations taking into

consideration the completion of most of the building work by the end of 1994. (However I note that I have received no copies of the territorial authority's inspection records to verify compliance with clause B2 in 1994.)

- 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 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 November 1995. This date has been confirmed by the applicant and the territorial authority, refer paragraph 4.9.
- 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 building.
 - (b) it is reasonable to grant such a modification, with appropriate notification, because in practical terms the house is no different from what it would have been if a code compliance certificate for the house had been issued in 1995.
- 8.7 I strongly recommend that the territorial authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning these properties.

9 The decision

- 9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the cladding on the extensions and alterations does not comply with clauses B2 and E2 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 extensions and alterations, apart from the items that are to be rectified, complied with clause B2 on 1 November 1995
 - (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 November 1995 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 to 6.3.3 of Determination 2007/41.
 - (c) once the defects and investigations set out in paragraphs 6.3.1 to 6.3.3 of this determination have been completed to its satisfaction, the territorial authority is to issue a code compliance certificate in respect of the building consent as amended.
- 9.3 I note that the territorial authority has not issued a notice to fix as required by section 435. A notice to fix should be issued that requires the applicants to bring the building work into compliance with the Building Code, identifying the defects and investigations listed in paragraph 6.3.1 to paragraph 6.3.3 (inclusive), 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 a 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.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 18 April 2007.

John Gardiner
Manager Determinations