

Determination 2007/54

Refusal of a code compliance certificate for a house at 3 Taepa Close, Papamoa, Tauranga



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 applicant is the owner of the building, S Campbell (“the applicant”) and the other party is the Tauranga 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 a 5-year-old house because it was not satisfied that it complied with clauses B2 “Durability” and E2 “External Moisture” of the Building Code² (First Schedule, Building Regulations 1992).
- 1.3 The matter to be determined is whether the cladding as installed to the walls of the building (“the cladding”), complies with clauses B2 and E2 (see sections 177 and

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.

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 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 a single-storey detached house situated on a level site that is in a medium wind zone for the purposes of NZS 3604³. The house is relatively simple in plan and form, but with some complex features. Construction is conventional light timber frame constructed on concrete floors. The concrete tiled pitched roofs have hip, valley, and wall-to-roof junctions and 600mm wide eaves and verge projections. Timber-framed slatted decks are situated at ground level at two locations.
- 2.2 I have received no written evidence as to the treatment, if any, of the external wall framing timber.
- 2.3 The walls of the house are clad with 7.5mm thick Harditex sheets fixed through the building wrap to the framing, and finished with a texture coating and a paint system. Polystyrene bands are fitted to the sills of the garage and master bedroom windows and these are finished as for the cladding.
- 2.4 The cladding applicator has provided a producer statement as described in paragraph 3.4.

3. Sequence of events

- 3.1 The territorial authority issued a building consent in 2002.
- 3.2 Bay Building Certifiers (“the building certifier”) carried out some inspections of the building work as it progressed and on 17 January 2003 carried out a final inspection. The house did not pass inspection due to two items noted in an “Inspection Record/Requirements” document. These were:
1. Provide producer statement for the textured claddings
 2. Confirm fixing of hoseclip to dishwasher waste when completed.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 3.3 I note that Bay Building Certifiers is no longer approved as a building certifier but operates as Bay Inspections, a contractor providing building regulatory services to the territorial authority (“the territorial authority’s contractor”).
- 3.4 The cladding applicator provided a producer statement dated 19 January 2003, which stated that the system was applied in accordance with the manufacturer’s installation/application requirements. The statement also expressed satisfaction with the substrate preparation and the installation of “required flashings and waterproof fittings”.
- 3.5 Following a request from the applicant for a code compliance certificate, the territorial authority’s contractor carried out an inspection of the building on 22 September 2006, and wrote to the applicant in a letter dated 25 September 2006. The letter noted that, while only one minor issue remained to be addressed after the 2003 inspection, new information produced since that inspection necessitated a re-appraisal of the cladding. The 2006 inspection revealed that:
- there was cracking of the cladding on the sides of the house exposed to the sun, and this may be attributed to the dark paint colour applied to the walls
 - no vertical control joints had been installed to walls where these were required
 - the decorative sills installed to some windows posed a weathertightness risk
 - the fillet seals to the windows may be unsatisfactory
 - the ground levels in relation to floor levels were satisfactory
 - the building is protected by generous soffit projections.
- 3.6 The territorial authority did not issue a notice to fix as required under section 164(2) of the Act.
- 3.7 An application for a determination was received by the Department on 19 January 2007.

4. The submissions

- 4.1 The applicant set out the background to the dispute and described the areas illustrated by some attached photographs.
- 4.2 The applicant forwarded copies of:
- the plans
 - the “Inspection Record/Requirements” document of 17 January 2003
 - the cladding installer’s producer statement
 - the letter from the territorial authority’s contractor dated 25 September 2006.

- a set of photographs showing some aspects of the cladding.

4.3 The territorial authority did not make a submission.

4.4 A copy of the draft determination was sent to the parties for comment on 28 March 2007. The territorial authority accepted the draft. The applicant, in turn, forwarded the draft to the builder.

4.5 Both the applicant and the builder forwarded comments after receiving the draft, which were generally comments in terms of the expert's report that I have described in paragraphs 5.6 and 5.7. I have carefully considered these comments, and amended the determination accordingly, but did not find them sufficiently compelling so as to change my decision.

5. The expert's report

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

5.2 The expert inspected the claddings of the house on 14 February 2007 and furnished a report that was completed on 26 February 2007. The expert noted that, while the workmanship is generally acceptable, the cladding is not installed to the manufacturer's instructions. The texture coating is "generally satisfactory" but the paintwork is patchy where repairs to joints have been carried out. The expert removed a section of textured finish at one window sill and at a garage window. I am prepared to accept that the details exposed at these situations apply to other similar locations throughout the building.

5.3 The expert took non-invasive moisture readings internally around the house and no elevated readings were recorded. Subsequently, a number of invasive moisture readings were taken and elevated readings of more than 27% and 28% were recorded at the east elevation and readings of more than 21% and 24% at the north elevation. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.

5.4 Commenting specifically on the cladding, the expert noted that:

- there are cracks visible at the vertical cladding joints and some repaired cracks are also failing
- no control joints have been provided as required by the manufacturer's instructions
- no sill or jamb flashings are installed to the external joinery units and there is no sealant provided between the flanges of the units and the cladding
- the apron flashings between the roof and wall junctions are poorly detailed

- the light-reflectance value of the paint colour is less than the recommended value.
- 5.5 A copy of the expert's report was provided to each of the parties on 8 January 2007.
- 5.6 The applicant wrote to the Department on 2 May 2007, setting out the background to the matter at issue and commenting on the expert's report. In summary, the applicant:
- was of the opinion that the cladding complied with the manufacturer's instructions that were current at the time the cladding was installed
 - noted that the house did not leak
 - stated that the colour of the textured finish was approved by the territorial authority at the time of construction
 - interpreted the report as requiring the house to be re-clad, which would be very expensive and unacceptable given that the house was "only four years old" and was "was signed off at time of construction".
- 5.7 The builder also commented on the expert's report in a letter to the Department dated 30 April 2007. In summary the builder stated that:
- the plastering contractor had been contracted to "seal all windows, mesh and flush all joints, supply and fix polystyrene window sills and moulding to the gable end . . ."
 - he proposed a method to provide seals behind the aluminium joinery should this be required
 - the territorial authority had approved the polystyrene bands and its only concern about the cladding was the provision of a producer statement in respect of the cladding. This was forwarded on 17 February 2003
 - the cracks in the plaster can be remedied
 - Clauses E2 and B2 "did not even exist when the building was being constructed so obviously it would not comply"
 - there are no cracks in the wall that the expert noted as requiring a control joint
 - ". . . a re-clad of this building is over the top when direct maintenance of the problem areas would achieve the same result"
 - "[The] building was constructed according to the Tauranga City Council bylaws and no faults were found by building inspectors during the course of construction".

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 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.

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:

- is built in a medium wind zone
- is single storey
- is relatively simple in plan and form but with some complex elements
- has 600mm wide eaves and verge projections
- has no external balconies

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.

- has external wall framing that is not likely to be treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture.

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 All elevations of the house demonstrate a low weathertightness risk. As a consequence the fibre-cement cladding is not required to be installed over a drained cavity in order to comply with E2/AS1.

6.3 Weathertightness performance

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

- the cracks at the vertical cladding joints
- the lack of control joints
- the lack of sill or jamb flashings to the external joinery units and the lack of sealant between the flanges of the units and the cladding
- the poorly detailed apron flashings between the roof and wall junctions
- the low light-reflectance value of the paint colour
- any other building elements associated with the above that are consequently discovered to be in need of rectification.

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 some water penetration into the building at several locations 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 likely to continue to allow the ingress of moisture in the future, the house 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 of the items outlined in paragraph 6.3.1 will result in the building remaining weathertight and in compliance with clauses B2 and E2.
- 7.4 In light of the comments made by the applicant and the developer after receiving the expert's report, I emphasise that this determination does not include a requirement for the building to be re-clad.
- 7.5 I note that the builder is of the opinion that clauses B2 and E2 did not exist when the building was constructed. I note that clauses B2 and E2 are part of the Building Regulations 1992 that came into force on 1 June 1992. The builder may, in fact, be referring to the Acceptable Solution for E2 (E2/AS1), which did also exist at the time of construction, although a significant amendment to E2/AS1 came into effect on 1 July 2005.
- 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.
- 7.8 Effective maintenance of claddings (in particular 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.
- 7.9 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.
- 7.10 As 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, periodic checking of its moisture content should also be carried out as part of normal maintenance.

8 The Decision

- 8.1 In accordance with section 188 of the Building Act 2004, I determine that the building work 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.

- 8.2 I note that the territorial authority has not issued a notice to fix. A notice to fix should be issued that requires the owner to bring the cladding into compliance with the Building Code, without specifying the features that are required to be incorporated. It is not for me to decide directly how the defects are to be remedied and the cladding brought to compliance with the Building Code. That is a matter for the owner to propose and for the territorial authority to accept or reject.
- 8.3 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.2. Initially, the territorial authority should issue the notice to fix. The owner should then produce a response to this in the form of a technically robust 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 28 May 2007.

John Gardiner
Manager Determinations