

Determination 2007/122

Determination regarding a code compliance certificate for a house at 13 North Way, Oratia, Waitakere City



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, J Dillon, acting through a legal adviser (“the applicant”) and the other party is the Waitakere City Council (“the territorial authority”).
- 1.2 This determination arises from the decision of the territorial authority not to approve the cladding installed on a house because it was not satisfied that it complied with 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 matter to be determined is whether the cladding and roofing as installed on the building, comply with clauses B2 and 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.
- 1.4 In making my decision, I have considered the submissions of the parties, the report of the independent expert (“the expert”) commissioned by the Department to advise on this dispute (refer 5.0 below), and the other evidence in this matter. I have evaluated this information using a framework that I describe more fully in paragraph 7.1.
- 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 an excavated slightly sloping site, which is in a high wind zone for the purposes of NZS 3604³. The house is complex in plan and form, and is semi-circular in shape. Construction is conventional light timber frame constructed on concrete floors. The low-pitched roof has a parapet around its perimeter and the edge cantilever of the roof provides a 450mm wide eaves projection.
- 2.2 A large timber-framed pergola is constructed around the circular face of the building, the rafters of which penetrate the cladding at approximately 60 locations.
- 2.3 The expert has noted that the external wall framing appears to be H1 treated.
- 2.4 The walls of the house are clad with a EIFS system that has been assessed by the expert in terms of the 1996 “Insulclad” data. The cladding is directly fixed through a building wrap onto the timber framing and has a textured and painted finish. The roofing is “Butynol” applied over a plywood substrate.

3. Sequence of events

- 3.1 The territorial authority issued a building consent on 2 February 1995, under the Building Act 1991.
- 3.2 According to the applicant, the construction of the house took place from 1996 to 2003.
- 3.3 I have not received any evidence regarding inspections that may have taken place during the construction of the building. However, the territorial authority carried out an inspection of the property in early 2004. Following this inspection, the territorial authority wrote to the applicant on 22 April 2004, listing certain matters that required attention. The territorial authority made specific reference to the cladding, noting that, since December 2003, more rigorous council inspection regimes were

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

introduced. It was suggested that the applicant obtain an independent building consultant report on the condition and compliance of the cladding. The territorial authority would further assess the cladding when it received such a report.

3.4 The applicant engaged a building consultant to undertake a “moisture assessment of the dwelling to establish the performance of the cladding to date”. The consultant provided an assessment that was dated 27 February 2006 and was based on a non invasive investigation, which concluded that there was no visual evidence of moisture ingress or cladding failure. It was recommended that the cladding be re-painted, the pergola rafter junctions with the cladding be sealed, and cap flashings be installed on the parapets.

3.5 In a letter to the applicant dated 17 May 2007, the territorial authority acknowledged receipt of the report but stated that it could not accept it as it was not comprehensive enough. The territorial authority stated that before it could sign off the house it would require either:

- a determination from the Department, or
- the installation of an approved moisture detection early warning system, or
- the replacement of the cladding using a cavity system.

The territorial authority also noted that the three other items listed as requiring attention in its letter of 22 April 2004 were still outstanding.

3.6 On 6 June 2007, the Department received an application for a determination.

4. The submissions

4.1 In a covering letter dated 31 May 2007, the applicant’s legal adviser noted that a determination was required in respect of the territorial authority’s refusal to issue a code compliance certificate.

4.2 The applicant forwarded copies of:

- the plans
- some consent documentation
- the building consultant’s report dated 27 February 2006
- the correspondence from the territorial authority.

4.3 Copies of the applicant’s documentation were forwarded to the territorial authority.

5. The expert's report

5.1 As mentioned in paragraph 1.4, I engaged an independent expert, who is a member of the New Zealand Institute of Building Surveyors, to provide an assessment of the condition of those building elements subject to this determination. In this instance and with the approval of the parties, the independent expert I engaged was the building consultant who provided the initial report that was requested by the territorial authority.

5.2 The expert inspected the cladding of the house on 4 July 2007 and furnished a report that was completed on 7 July 2007. The expert noted that, in general, the cladding had been well installed and the quality of finish is sound. The cladding had been recently re-painted. The expert removed sections of cladding at two window sill/jamb junctions and 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 all readings were within an acceptable range. Subsequently, a number of invasive moisture readings were taken around the exterior of the building. Readings of 23% and 40% were obtained beneath pergola rafter junctions where they penetrate the cladding. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure. The expert also noted that moisture had penetrated the roofing at one location and had damaged the boxed parapet framing and adjoining soffit linings.

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

- there is cracking in the cladding on the parapet tops, which also have inadequate cross-falls
- no flashings are installed to the heads and jambs of the external joinery units
- the front pergola stringer is not spaced away from the cladding
- the pergola rafter penetrations into the cladding are inadequately sealed
- there are “peaks” evident in the Butyl roofing at the plywood substrate junctions and fixings
- there is a split in the Butynol at one location where it adjoins a parapet.

5.5 Copies of the expert's report were provided to each of the parties on 9 July 2007.

6. The draft determination

6.1 I forwarded copies of a draft determination to the parties on 31 August 2007 and the applicant accepted the draft.

6.2 In a letter to the Department dated 14 September 2007, the territorial authority stated that, while it was satisfied with the findings of the expert and the draft determination, it required clarification of the following matters:

- That the remedial work carried out may require a building consent.
- That the territorial authority has the option not to issue a code compliance certificate if it is not satisfied, on reasonable grounds, that the remedial work has made the building code-compliant.
- The determination should point out that the expert appointed by the Department had previously provided the applicants with an inspection report. In addition, there were differences in the two reports prepared by the expert.

6.3 I have noted the territorial authority's concerns and have made those amendments to the draft determination that I consider to be appropriate.

7. Evaluation for code compliance

7.1 Evaluation framework

7.1.1 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.

7.1.2 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

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.

risk factors in previous determinations⁵ (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

- 7.1.3 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.

7.2 Weathertightness risk

- 7.2.1 In relation to these characteristics I find that the house:

- is built in a high wind zone
- is single-storey
- is relatively complex in plan and form
- has 450mm wide eaves projections
- has an extensive pergola around its perimeter
- has external wall framing that may not be treated to a level that provides resistance to the onset of decay if the framing absorbs and retains moisture.

- 7.2.2 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 to provide a risk rating that can range from 'low' to 'very high'. The risk rating is applied to determine how claddings can be used on a building in order to comply with E2/AS1. A higher risk rating will require more rigorous weatherproof detailing; for example, a higher risk rating is likely to require a particular type of cladding to be installed over a drained cavity

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

7.3 Weathertightness performance

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

- The cracking in the cladding on the parapet tops and the inadequate cross-falls
- The lack of jamb flashings to the external joinery units. The window heads being well protected by the eaves.
- The front pergola stringer not being spaced away from the cladding

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

- The inadequately sealed pergola rafter penetrations into the cladding
- The “peaks” evident in the Butyl roofing at the plywood substrate junctions and fixings
- The split in the Butynol at one location where it adjoins a parapet
- Any other building elements associated with the above that are consequentially discovered to be in need of rectification

7.3.2 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 reasonable trade practice
- The house is single-storey and has no attached decks or balconies
- The house has 450mm wide eaves projections that provide some protection to the cladding and the exterior joinery units below it

7.3.3 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.

8 Discussion

8.1 I consider the expert’s report establishes that the current performance of the cladding and roofing is not adequate because they are 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.

8.2 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 and roofing faults on the building allow the ingress of moisture, the house does not comply with the durability requirements of clause B2.

8.3 Because the faults identified with the cladding and roofing systems occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 7.3.1 will result in the building remaining weathertight and in compliance with clauses B2 and E2.

8.4 I emphasize 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.

- 8.5 I decline to incorporate any waiver or modification of the Building Code in this determination.
- 8.6 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.
- 8.7 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.
- 8.8 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.
- 8.9 The territorial authority should also ensure that the additional items, listed in its letter of 22 April 2004 to the applicant as also requiring attention, are properly attended to.
- 8.10 As set out in paragraph 6.2 the territorial authority has requested that some aspects of the determination be clarified. Accordingly, I respond as follows:
- 8.11 In determination 2006/116, which was issued on 30 November 2006, I discussed the matter of whether a building consent was required for the re-cladding of a house and I recommend that the parties refer to that determination. I note that in that determination I stated that a building consent would not be required when a replacement cladding is made of “similar materials and similar configuration” and when its performance is “equivalent to or as good as that of the original”. On the other hand, the replacement of cladding elements outside these parameters may require that a building consent be issued. At this stage, as the new notice to fix has yet to be issued, it is unclear which of the alternatives set out above applies to the cladding rectification.
- 8.12 It is abundantly clear to me that should the territorial authority consider, on reasonable grounds, that remedial work has not made the building code-compliant, then it is not in a position to issue a code compliance certificate for that work.
- 8.13 The Department engaged the expert as he was qualified to carry out an inspection and already familiar with the house in question. The initial report, prepared by the expert on behalf of the applicant, relied only on non-invasive testing. As the Department required a more rigorous inspection, and after obtaining the parties

agreement on the matter, it requested the building consultant assume the role of expert for the department and carry out a full invasive investigation of the house. This produced additional information to that set out in the first report, and the differing result that was ultimately obtained. I also note that the territorial authority did not object to the expert being engaged to carry out the investigation requested by the Department.

9. The Decision

- 9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the cladding and the roofing of the building do not comply with clauses B2 and E2 of the Building Code. Accordingly, I confirm the territorial authority's decision that the building does not comply with the Building Code.
- 9.2 I note that the territorial authority has not issued a notice to fix. A notice to fix should be issued that requires the owners to bring the cladding and roofing 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 elements 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.
- 9.3 I would suggest that the parties adopt the following process to meet the requirements of paragraph 9.2. Initially, the territorial authority should issue the notice to fix, listing all the items that the territorial authority considers to be non-compliant. The owner should then produce a response to this in the form of a 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 24 October 2007.

John Gardiner
Manager Determinations