

Determination 2007/68

Refusal of a code compliance certificate for a house at 2 Rosses Place, Albany, North Shore



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 one of the joint-owners of the building, Mr G Wilkinson, acting through an agent (“the applicant”) and the other party is the North Shore 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 I understand that the principal matter to be determined is whether the cladding as installed on the building complies with clauses B2 and E2 (see sections 177 and 188 of the Act). By “the cladding” 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

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.

components have been installed and work together. In addition, the territorial authority has raised other matters that are set out in its letter to the applicant of 15 August 2006, and which also form part of this determination.

- 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. With regard to the cladding, 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 two-storey detached house situated on a gently sloping site, which is in a medium wind zone for the purposes of NZS 3604³. The house is relatively complex in plan and form. Construction is conventional light timber frame constructed on either concrete or timber-framed floors. The concrete tiled pitched roofs are at two main levels with hip, valley, and wall-to-roof junctions. The roofs have 700mm maximum wide eaves and verge projections at most locations.
- 2.2 The roof is extended to form a porch at the rear of the building and this has a monolithic-clad timber-framed corner support column. A full-height portico with a pitched roof is constructed over the main entrance and this is formed with monolithic-clad timber-framed columns and beams.
- 2.3 Based on a biodeterioration consultant’s analysis I am of the opinion that the external wall framing is likely to be H1 Boric treated (being the equivalent of the current H1.2 treatment).
- 2.4 The walls and columns of the house are clad with 40mm thick “Insulclad” polystyrene sheets fixed through the non-absorbent building wrap to the framing, and finished with a 3 to 4mm thick reinforced “Ezytex Sponge” texture coating.
- 2.5 Plaster System Ltd issued a “Producer Statement” dated 22 January 2004 for the cladding system and a 15-year “Material Components Guarantee” dated 14 January 2004 for the cladding material components. The cladding applicator issued a 5-year “Workmanship Guarantee”, also dated 14 January 2004, for the cladding installation.

3. Sequence of events

- 3.1 The territorial authority issued a building consent on 1 July 2002.

³New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 3.2 Approved Building Certifiers Ltd (“the first building certifier”) carried out some inspections in 2002 and approved the cladding after site visits on 24 and 25 September 2002.
- 3.3 Master Build Services Ltd wrote to the applicant on 6 January 2003, stating that following an inspection of the property it was noticed that a few minor issues required completion or rectification. Once these issues had been attended to, the company would re-inspect the building. It was also noted that there was no guarantee in place as at the date of the letter.
- 3.4 The first building certifier lost its approval as a building certifier on 22 October 2004.
- 3.5 City Certifiers Ltd (“the second building certifier”) took the job over from the first building certifier and issued an interim code compliance certificate, dated 12 July 2004, in relation to all the building work with the exception of the cladding. The interim code compliance certificate stated that it relied on “the certificate” issued by the first building certifier. I note that the second certifier was a separate entity to the first building certifier, but employed some of the same personnel as the first building certifier.
- 3.6 On 23 March 2005 the second building certifier informed the territorial authority that it was no longer able to continue to inspect any of the specified items under the building consent. The territorial authority was requested to accordingly amend the consent and carry out any appropriate inspections.
- 3.7 The second building certifier lost its approval as a building certifier on 30 June 2005.
- 3.8 The territorial authority carried out a final building inspection on 5 July 2006 and in an associated report listed a number of defects that required rectifying. The majority of these defects related to the cladding.
- 3.9 In a letter to the applicant dated 15 August 2006, the territorial authority explained that the Building Code required the durability of the cladding to be 15 years and that of the timber framing to be 50 years. The territorial authority outlined its concerns with regard to monolithic claddings and listed certain weathertightness risk factors, set out a list of identified defects and also a list of other requirements for compliance. The territorial authority stated that, due to the risk factors and defects, it could not be satisfied on reasonable grounds that the cladding system complied with clauses E2 and B2 of the Building Code. It was suggested that the applicant apply to the Building Industry Authority for a determination as to whether there was:
- “[c]ompliance of the installed wall cladding system with the relevant clauses of the New Zealand Building Code”.
- 3.10 The territorial authority did not issue a Notice to Rectify under the Building Act 1991 or a notice to fix as required under section 164(2) of the Act.
- 3.11 An application for a determination was received by the Department on 7 March 2007.

4. The submissions

4.1 The applicant forwarded copies of:

- the plans and specifications
- the building certifier's "Job Card"
- the correspondence from Master Build Services Ltd and the territorial authority
- the producer statements and guarantees relating to the cladding.

4.2 In a letter to the Department dated 1 May 2007, the territorial authority stated that the matter to be determined was:

Whether the installed wall cladding complies with clauses B2 and E2 of the New Zealand Building Code.

4.3 The territorial authority forwarded copies of:

- the building consent
- a carpentry material schedule
- the building certifier's and the territorial authority's inspection records
- the producer statements and guarantees relating to the cladding
- its letter to the applicant dated 15 August 2006.

4.4 Copies of the submissions and other evidence were forwarded to each of the parties.

4.5 A copy of the draft determination was sent to the parties for comment on 11 May 2007. The applicant accepted the draft.

4.6 In a letter to the Department, dated 28 May 2007, the territorial authority said it :

[accepted] the expert's comments that the finished ground levels appear to be comply with the mandatory performance requirements of the . . . Building Code (based on invasive moisture testing).

. . . the draft determination makes no comment on ground levels.

The draft determination did discuss ground levels, however, I have been more specific about the areas that I considered do not comply with the Building Code and further discussed the mitigating factors where the levels do not comply fully with E2/AS1.

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 23 April 2007 and furnished a report that was completed on 25 April 2007. The expert noted that the plaster was finished to a high standard and the flashing details were all neatly formed and finished. Overall, the building work is to a higher than average standard. The expert was of the opinion that control joints were not required on this house. The expert also noticed that the kick-outs that had been retrofitted to the ends of the apron flashings were effectively installed and that there was now no evidence of cracking in the cladding.
- 5.3 The expert removed a section of plaster at one window sill and found that appropriate jamb and sill flashings are installed. The expert also removed an area of cladding at the base of a portico column. I am prepared to accept that the details revealed by these inspections apply to other similar locations throughout the building.
- 5.4 The expert took non-invasive moisture readings internally around the house and two slightly elevated readings were found. Subsequently a number of invasive moisture readings were taken through the cladding. Elevated readings were noted at the rear porch corner post (22%), at a portico column (17 to 28%), and at the soffit above the garage (38%). The soffit framing was soaked at the latter location. Moisture levels above 18% recorded after cladding is in place generally indicate that external moisture is entering the structure.
- 5.5 The expert took a timber sample from the bottom plate of a portico column and forwarded it to a testing laboratory for analysis. In summary, the sample showed a boron retention approximating to a H1.2 treatment but no signs of decay.
- 5.6 Commenting specifically on the cladding, the expert noted that:
- the rebate at the garage doors is only 30mm deep but the concrete slopes away rapidly
 - the base of the cladding, including that to the portico columns is too close to the ground at some locations
 - the garage door opening lacks a flashing. However, there is a 700mm wide eaves projection just above it and the cladding is well sealed to the door frame head
 - the ends of the flashing to the circular head of one window lack kick-outs
 - the gable end internal gutter/flashing above the garage stops short of the main valley flashing
 - some penetrations are inadequately sealed or flashed
 - the timber fence posts are not adequately fixed or sealed.
- 5.7 The expert also commented on some of the items listed by the territorial authority under “other requirements” as follows:
- Based on the sample of timber that was tested, the expert is of the opinion that the timber framing is at least Boron treated.

- The seal to the top of two showers was effective but that to the children's shower top is defective.
- A liquid applied waterproofing membrane had been applied to the particle board flooring in the bathrooms prior to the floor tiles having been laid.
- The roof internal gutter is well formed and constructed, and has good falls in each direction.

5.8 Copies of the expert's report were provided to each of the parties on 27 April 2007.

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 Solution, 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 determinations⁴ (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 two storeys high

⁴ Copies of all determinations issued by the Department can be obtained from the Department's website.

- is relatively complex in plan and form
- generally has 700mm wide eaves and verge projections
- has a roofed-over rear porch and a portico at the front entrance
- has no decks or balconies
- has external wall framing that may not be treated to a level that provides much 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 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, based on the expert's opinion, I accept that remedial work is necessary in respect of the following:

- There is insufficient clearance between the cladding and the finished ground at the cladding at the garage door and the portico columns.
- There is insufficient clearance between the cladding and the garden areas.
- The lack of kick-outs to the ends of the flashing to the circular head of one window.
- The gable end internal gutter/flashing above the garage stopping short of the main valley flashing.
- The inadequately sealed or flashed penetrations.
- The timber fence posts not being adequately fixed or sealed.

6.3.2 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 good trade practice.
- The house generally has 700mm wide eaves and verge projections and an extended roof over the rear porch that protect the linings below them.
- The finished surfaces slope away from the cladding and are well serviced by drains.

- The house has no decks or balconies.
- The external wall framing may be treated, but not to a level that will fully resist the onset of decay if it gets wet and cannot dry 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 cladding is not adequate because it is allowing some water penetration into the building at some 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 The inadequately sealed shower top in the children's bathroom also needs to be rectified.

7.5 Based on the observations made by the expert, I am prepared to accept that the narrow rebate to the garage doors and the lack of a head flashing over the garage door opening do not diminish the weathertightness of the cladding. Likewise, I agree with the expert as to the efficiency of the rectification work with regard to cracking and flashing kick-outs and the acceptability of the items as set out in paragraph 5.7.

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 I decline to incorporate any waiver or modification of the Building Code in this determination.

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 fully 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 hereby 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 applicants to bring the building into compliance with the Building Code, identifying the defects listed in paragraphs 6.3.1 and 7.4, and any associated defects discovered in the course of that work, but not specifying how those defects are to be fixed. That is a matter for the owner 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.
- 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 26 June 2007.

John Gardiner
Manager Determinations