

Determination 2006/76

Refusal of a code compliance certificate for a building with a monolithic cladding system at 24 Cliff Road, Torbay



1. The dispute 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, for and on behalf of the Chief Executive of that Department. The applicant is Mr Johnson (“the applicant”) of MaxBuilt Ltd (“the builder”), who is the agent for the owners, Mr and Mrs Gilmore (“the owners”) and the other party is the North Shore City Council (“the territorial authority”).
- 1.2 The dispute for determination is whether the territorial authority’s decision to decline to issue a code compliance certificate for a 3-year-old house because it was not satisfied that the monolithic cladding to the walls of the house complied with clauses

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

B2 “Durability” and E2 “External Moisture” of the Building Code² (First Schedule, Building Regulations 1992) is correct.

- 1.3 The question to be determined is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the walls of the building (“the cladding”), complies with the Building Code (see sections 177 and 188 of the Act). By “the monolithic wall 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. I have not considered any other aspects of the Act or the Building Code.

2. The building

- 2.1 The building work consists of a large detached house situated on a flat site, which is adjacent to a cliff side and is in a very high wind zone for the purposes of NZS 3604³. The house is two storeys high, except for several single-storey ground floor projections. Construction is conventional light timber frame, with a concrete slab, piles and foundations, aluminium windows and monolithic wall cladding. The house shape is moderately complex, with 22° pressed metal tile hip roofs over upper and lower roofs, and eaves projections of 525mm. The west corner of the upper roof projects out to form a 2-storey high entrance canopy which is supported by a timber post with decorative stone veneer to the lower part. The same veneer is used at the base of walls on the front elevation. Decorative plastered polystyrene sills are used below the windows.
- 2.2 The applicant has submitted copies of quotations and invoices from the timber supplier, which note that the external wall framing supplied for the house was “H1+ (H3 Btm Plate)”. Based on this evidence, I accept that the framing of this house is H1 treated, with the bottom plates H3 treated.
- 2.3 The cladding system is what is described as monolithic cladding, and is a 40mm “Rockcote” polystyrene system that is finished with an applied textured coating system. The backing sheets are fixed to the framing over 20mm timber battens, which form a cavity between the cladding and the building wrap. The system includes purpose-made flashings to windows, edges and other junctions.
- 2.4 Rockcote Architectural Coatings NZ Ltd provided a 15-year components warranty, and Tui Plastering provided a 5-year “Licensed Plasterer Warranty” for the workmanship. The warranties note the completion of the cladding as 14 March 2003.

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

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

3. Sequence of events

- 3.1 The territorial authority issued a building consent on 28 August 2003, based on a building certificate (dated 8 August 2002) issued by Approved Building Certifiers Ltd (“the building certifier”). The building certifier’s scope of engagement included all inspections and the issue of a code compliance certificate.
- 3.2 The building certifier made various inspections during the course of construction, including “Pre-line (Pre Exterior)” on 18 February 2003. The inspection record notes that all final inspections were undertaken and approved on 9 June 2004.
- 3.3 The building certifier issued an interim code compliance certificate dated 11 June 2004, which noted that “cladding outside E2/AS1” was excluded. I note that EIFS claddings over a 20mm drained cavity are generally within the scope of E2/AS1.
- 3.4 The territorial authority wrote to the builder and the owners on 7 July 2004, noting that an interim code compliance certificate had been received from the building certifier, but added that there was no obligation to issue a code compliance certificate as the territorial authority had not undertaken any inspections.
- 3.5 The territorial authority visited the site on 16 September 2004, and the inspection summary notes “no cladding inspection carried out”. A “Weathertightness” inspection was subsequently carried out on 4 November 2004, and the inspection report notes “no defects to be remedied”.
- 3.6 In a letter to the owners dated 11 November 2004, 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 identified with the building, together with three items of outstanding documentation. 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. I am not aware of any further correspondence.
- 3.7 The territorial authority did not issue a notice to fix as required under section 164(2) of the Building Act 2004.
- 3.8 The applicant applied for a determination on 9 February 2006, and authority for the applicant to act on the owners’ behalf was received by the Department on 21 February 2006.

4. The submissions

- 4.1 Within the application, the applicant explained that, as the builder, “MaxBuilt Ltd has an obligation to help the owner above to gain a code of compliance...”, and noted that the “Matter of doubt or dispute” was that “NSCC will not issue a code of compliance until determination is completed”.

4.2 The applicant forwarded copies of:

- the drawings, specifications and consent documentation
- the building certifier's inspection summaries
- the technical information on the cladding
- photographic records of the installed cavity behind the wall cladding
- the correspondence from the territorial authority
- various invoices, warranties, producer statements and other statements.

4.3 The territorial authority made a submission in the form of a letter to the department dated 11 April 2006, which outlined the history of the project (including that the building certifier's registration did not allow him to inspect claddings outside E2/AS1 after 4 December 2002) and noted that the matter in doubt is:

Whether the installed cladding system complies with clauses B2.3.1 and E2.3.2 of the New Zealand Building Code.

4.4 The territorial authority forwarded copies of:

- some of the consent documentation
- the building certifier's inspection summary
- the territorial authority's inspection records
- the letter to the builder dated 7 July 2004.

4.5 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.

4.6 The draft determination was issued to the parties for comment on 3 July 2006. The applicant accepted the draft on 14 August 2006.

4.7 In a submission to the Department dated 17 July 2006 the territorial authority said that the draft determination did not appear to address two matters in the expert's report:

The areas of unsealed plaster and unprotected polystyrene . . . paragraph 6.11 of the report.

The adequacy of the weathertightness of the garage door/jam junction for the conditions . . . paragraph 8.2(a) of the report.

I have taken these comments into account and amended the determination accordingly.

5. The expert's report

- 5.1 The expert inspected the claddings of the building on 16 May 2006, and furnished a report that was completed on 22 May 2006. The expert noted roof flashings appeared well constructed and the wall cladding appeared to be “generally good” with no visible cracking and generally adequate clearances. The expert noted that the wall areas present in this house are of dimensions that do not require control joints in order to comply with the manufacturer’s instructions.
- 5.2 The expert scraped away a small section of coating at the sill to jamb and head to jamb junctions of several windows, to inspect the window flashings. I accept that the locations opened are typical of similar locations around the building.
- 5.3 The expert also removed a small section of cladding at the junction with the stone veneer, and noted that the detail appeared satisfactory, with uPVC bottom flashings and heavy-duty membrane behind the veneer.
- 5.4 The expert took non-invasive moisture readings through linings of exterior walls throughout the house, and noted one elevated reading beside the garage door. A number of invasive moisture readings were taken through the wall cladding, at window sills, bottom plates and other risky areas, and 3 slightly elevated (when adjusted for timber treatment) readings were recorded as follows:
- 22% at the right side of the garage door
 - 19% below the pipe penetration on the southeast garage wall
 - 19% below the roof to wall junction on the southeast study wall.

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

- 5.5 The expert made the following specific comments on the cladding:
- in some of the windows, the uPVC jamb flashings have not been sealed to the sill flashings as shown in the manufacturer’s instructions
 - water has entered and is trapped in the plaster of the polystyrene sills
 - the kickouts at the bottom of the apron flashings lack a properly formed drip edge, and there are unsealed gaps at some locations
 - there is loose membrane at one end of the deck gutter, and some exposed polystyrene at the other end
 - the wall cladding does not appear to be paint-sealed behind spouting ends
 - the timber garage door jambs touch the paving and there is a recess between the back of the door framing to the 50mm slab rebate that fills with damp

wind-blown leaf debris – allowing moisture to penetrate from the inside into the adjacent linings and into the bottom plate

- water is entering around the garage door jamb under certain conditions
- the timber balustrade uprights penetrate the deck tiles, with poorly fabricated metal flashings at the base and uncapped tops with exposed end grain
- there are poorly sealed penetrations through the cladding in some locations.

5.6 A copy of the expert's report was provided to each of the parties on 24 May 2006.

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 (refer to Determination 2004/1 *et al*) 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.

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.

6.2 Weathertightness risk

6.2.1 In relation to these characteristics I find that this house:

- is built in a very high wind zone
- is a maximum of two storeys high
- is moderately complex in plan and form
- has eaves projections of 525mm above most walls
- has an exposed deck at the upper level
- has monolithic cladding which is fixed to the framing over a drained cavity
- has external wall framing that is treated, so providing some resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, one elevation of this house demonstrates a medium weathertightness risk and three a high 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. 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

6.3.1 Generally the cladding appears to have been installed in accordance with good trade practice. However, several junctions, penetrations and edges are not well constructed, and these areas are as described in paragraph 5.5 and in the expert's report as being the:

- lack of sealing of the jamb to sill flashings at some windows
- moisture trapped in the plaster of the decorative polystyrene window sill trims
- lack of drips to the apron flashing kickouts and gaps at some locations
- loose membrane and exposed polystyrene at the ends of the deck gutters
- apparent absence of paint-seal on the cladding behind spouting ends
- lack of clearance to the garage door jamb, and the recess behind the wall
- entry of water around the garage door jamb under certain conditions

- poorly capped and flashed top and base of the timber posts to the deck balustrades
- poorly sealed penetrations through the cladding in some locations.

6.3.2 I note that the monolithic cladding of this house has been installed over a cavity that (while not strictly in accordance with E2/AS1) appears to include gaps at the ends of the horizontal fixing battens, which provides adequate drainage behind the cladding. I therefore consider that the cladding on this high-risk house falls generally within the scope of E2/AS1.

7. Conclusion

7.1 I am satisfied that the current performance of the cladding is not adequate because it is allowing some water penetration into the building 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 allow the ingress of moisture in the future, the house does not comply with the durability requirements of clause B2.

7.3 Subject to further investigations that may identify other faults, I consider that, because the faults that have been identified with the cladding system occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 should be expected to result in the building becoming and remaining weathertight and in compliance with clauses B2 and E2.

7.4 Effective maintenance of claddings (in particular of 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.

7.5 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 shall 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.

- 7.6 It is emphasised 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 In the circumstances, I decline to incorporate any waiver or modification of the Building Code in this determination.

8. The decision

- 8.1 In accordance with section 188 of the Act, I hereby determine that the monolithic cladding system as installed does not comply with clause E2 of the Building Code. There are several items to be remedied to ensure that the house becomes and remains weathertight and thus meets the durability requirements of the code. Consequently, I find that the house does not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue a code compliance certificate.
- 8.2 I also find that rectification of the items outlined in paragraph 6.3.1 will consequently result in the house being weathertight and in compliance with clauses B2 and E2. Work to correct these items may expose additional associated defects that are not yet apparent. All rectification work is to be completed to the approval of the territorial authority.
- 8.3 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 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.
- 8.4 I would suggest that the parties adopt the following process to meet the requirements of paragraph 8.3. Initially, the territorial authority should issue a 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 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 21 August 2006.

John Gardiner
Determinations Manager