

Determination 2006/59

Refusal of a code compliance certificate for a house with a monolithic cladding system at 1642 Dominion Road, Mount Roskill, Auckland

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 the previous owner, Mr A. Orsbourn (“the applicant”), and the other party is the Auckland City Council (“the territorial authority”). The new owner is Mr D. Pooley (“the new owner”) who is considered to be a person with an interest in the determination.
- 1.2 The dispute for determination is whether the territorial authority’s decision to decline to issue a code compliance certificate for a 6-year-old house because it was not satisfied that the monolithic cladding complied with clauses B2 “Durability” and E2 “External Moisture” of the Building Code² (First Schedule, Building Regulations 1992) is correct.
- 1.3 The question to be determined, therefore, is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to the timber-framed external walls of the house (“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 sheets, the flashings, the joints and the plaster and/or the coatings) as well as the way the components have been installed and work together.
- 1.4 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.

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

2 The building

- 2.1 The building work consists of extensive alterations to an existing detached house, situated on an excavated sloping site that is in a medium wind zone in terms of NZS 3604³. The resulting two-storey building is of a relatively complex shape on plan and the main pitched roof has hip, valley, and wall-to-roof junctions. A small hipped roof is constructed over bedroom 4 of the lower storey and this also has wall-to-roof junctions. The eaves and verge projections are generally 600mm wide, but the garage verge lacks a projection. The roof extends an additional 1500 mm over the entrance. The upper storey also projects over the lower storey along one full and one part elevation. The new and existing exterior walls are of conventional light-timber frame construction built on concrete block work foundation walls or intermediate timber-framed floors, and are sheathed with monolithic cladding.
- 2.2 A timber-framed deck is constructed adjacent to the upper-storey lounge and this has a metal and glazed balustrade. Apart from a small cantilevered section, the deck is supported on timber posts and beams. The deck is accessed by a set of timber steps with handrails. Another timber-framed deck is also constructed along two elevations at ground level. I note that the cantilevered section of the upper deck is not shown on the consented plans and the balustrade and access stairs also differ from the consented details. The territorial authority has raised concerns about these amendments to the consented plans.
- 2.3 I have not received any evidence as to the treatment, if any, of the external wall framing.
- 2.4 The new and existing timber-framed external walls of the house that are the subject of this determination are clad with a system that is described as monolithic cladding. In this instance it incorporates 7.5mm thick “Harditex” fibre-cement backing sheets fixed through the building wrap directly to the framing timbers. The sheets are finished with a proprietary textured finish, followed by a final flexible paint system.

3 Sequence of events

- 3.1 The territorial authority issued a building consent in August 2000.
- 3.2 The territorial authority carried out various inspections during the construction of the house and carried out a final site inspection of the house. The “Final Check List” dated 10 June 2002 relating to this final inspection passed all the relevant external elements of the house and commented on 3 issues. One of these stated:

Re: Deck Amended Drawing.

- 3.3 However, according to the territorial authority’s Inspection Records sheet the final inspection was a fail.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 3.4 Following a further final recheck on 13 December 2004, the territorial authority noted that all penetrations were to be sealed and that the monolithic cladding was to be referred to the cladding team.
- 3.5 The territorial authority carried out an inspection of the property on 11 January 2005. In a letter to the applicant dated 26 January 2005, the territorial authority regretted that the house might not comply with the Building Code in a number of respects. The territorial authority attached a Notice to Rectify also dated 26 January 2005 to this letter, together with a set of photographs illustrating items of non-compliance. The “Particulars of Contravention” attached to the Notice to Rectify listed requirements under the following headings:
1. Items not installed per the manufacturer's specifications.
 2. Items not installed per the Acceptable Solutions of the Building Code, (no alternative solutions had been applied for).
 3. Items not installed per accepted trade practice.
 4. Ventilated cavity system.
 5. Amended plans.
- 3.6 The applicant informed the Department in a letter dated 22 September 2005 that they had sold the property to the new owner.
- 3.7 The Department received this application for a determination on 3 June 2005. However, the Determination process was delayed due to the late payment of the determination fee, which was received by the Department on 26 September 2005.

4 The submissions

- 4.1 The applicant submitted a “timeline” relating to the final inspections and the recheck inspections undertaken by the territorial authority.
- 4.2 The applicant also forwarded copies of the:
- photographs showing various stages of the house construction
 - inspection documentation
 - Notice to Rectify
 - correspondence with the territorial authority.
- 4.3 In a covering letter to the Department dated 24 August 2005, the territorial authority described the Particulars of Contravention.
- 4.4 The territorial authority also forwarded copies of the:
- plans

- building consent documentation
- Notice to Rectify
- correspondence with the applicant.

4.5 Copies of the submissions and other evidence were provided to each of the parties. Neither the applicant nor the territorial authority made any further submissions in response to the submissions of the other party.

4.6 A draft determination was sent to the parties for comment on 31 May 2006.

4.7 In a letter to the Department dated 16 February 2006, the territorial authority responded to the draft determination saying:

Over the last year the Department has issued a number of determinations relating to the code compliance of cladding as installed. In Council's experience, the matter in dispute has been inaccurately documented. In practice the matter in dispute is whether the scope of work necessary to achieve code compliance is that documented in Council's Notice to Fix or as identified by the department's assessor. Council's view is that to provide clarity and certainty for the applicant, the matter in dispute should be amended to reflect this. This change would need to be approved by the applicant as well as Council.

4.8 In particular, the territorial authority is concerned that paragraphs (now 9.3 and 9.4) indicate a scope of work required to make the house code compliant. The territorial authority submitted this is not part of the determination.

4.9 The applicant accepted the draft determination on 6 June 2006. The applicant was pleased that remedial work would be carried out before the faults turned into major issues. However, he was critical of the fact that:

if the final inspection had been done within a reasonable timeframe of the job having been completed, the [code compliance] certificate would have been issued by ACC and we wouldn't be dealing with this issue.

The applicant also suggested legislative changes to ensure that owners of incomplete buildings would be notified of impending law changes and a limitation on the application of retrospective law changes.

4.10 The new owner of the house accepted the draft determination without comment on 12 June 2006.

5 The expert's report

5.1 The expert inspected the cladding of the building on 11 October 2005, 24 November 2005, and 2 December 2005 and furnished a report that was completed after the final visit. The expert noted that the cladding appeared to be fixed in a workmanlike manner and the textured finish is dense in nature with good coverage. The expert scraped away the textured coating at 3 of the jambs of the exterior joinery units and confirmed that the joinery was well face sealed back to the cladding. The expert

removed a small section of the polystyrene band applied to the perimeters of most of the external joinery units. I am prepared to accept that these examples apply to similar details throughout the house.

5.2 The expert made the following comments regarding the cladding:

- vertical control joints are not installed in the claddings of the southwest garage gable wall or in the southeast bedroom wall, which both exceed 5.4 meters in length
- the cladding to the southeast wall of bedroom 4 lacks an inter-storey control joint
- the cladding is not sealed behind some fascias and flashings, nor behind the polystyrene bands
- cracks are evident at some of the abutments of the polystyrene bands and the exterior joinery fittings
- the base of the cladding is embedded in the paving adjacent to the entrance and garage without a capillary break, and the building floor at these locations is only 30mm above the paving. However, the expert noted that there was a good fall away from the building, good eaves protection and a nominal sized drain is installed adjacent to the garage door
- the head flashings over the exterior joinery units terminate in line with the unit jambs and the polystyrene bands partially covering the flashing are not sealed at their bottom edges
- the sills of the exterior joinery units lack flashings
- the sill of the southwest elevation French doors lack bedding sealant or a sealing strip
- there is a gap in the flashing to the fascia return to the bedroom 4 roof
- there is inadequate sealing where some of the upper deck beams and fixings adjoin the cladding
- water is ponding at the northwest corner of the lower-level deck.

5.3 The expert took non- invasive readings through the interior linings of the exterior walls and no elevated moisture levels or evidence of water damage were found. The expert took further invasive readings and following elevated readings were obtained:

- 19% at the boundary joist to the upper cantilevered deck
- 19% and 20% at the base of the southwest elevation French doors.

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

- 5.4 A copy of the expert's report was provided to each of the parties on 14 February 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, which in this case is 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; and
- Usually when there is non-compliance with one provision of an Acceptable Solution, it may be necessary to add some other provision to compensate for that in order to obtain compliance 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 the previous Authority have also described weathertightness risk factors in previous determinations (refer to Determination 2004/0 *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 will need to be less robust. In any event, there is a need for both the design of the cladding system and the quality of its installation to be carefully carried out.

6.2 Weathertightness risk

6.2.1 In relation to the weathertightness characteristics, I find that the house:

- has generally 600mm wide eaves and verge projections plus the entrance roof and upper floor overhangs, all of which provide some protection to the cladding areas below them
- is in a medium wind zone
- is two storeys high

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.

- is of a relatively simple shape on plan, with several lower roofs intersecting with lower floors that add to its complexity
- has a cantilevered timber deck to the upper floor and a deck external to the occupied building to the ground floor level
- has external wall framing that is unlikely to have been treated to a level that is effective in helping resist decay if it absorbs and retains moisture.

6.2.2 When evaluated using the E2AS1 risk matrix, these weathertight features show that all elevations of the building demonstrate a low weathertightness 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 according to reasonable trade practice, but some junctions and edges are not well constructed. The areas of concern are described in paragraph 5.2, and in the expert's report, as being:

- the lack of vertical control joints at the southwest garage gable wall and in the southeast bedroom wall
- the lack of an inter-storey control joint to the southeast wall of bedroom
- the unsealed cladding behind some fascias, flashings, and the polystyrene bands
- the cracks evident at some of the abutments of the polystyrene bands and the exterior joinery fittings
- the base of the cladding being embedded in the paving adjacent to the entrance and garage without a capillary break and the building floor at these locations is only 30mm above the paving
- the head flashings over the exterior joinery units terminating in line with the unit jambs in the walls not protected by eaves and the polystyrene bands partially covering the flashing not being sealed at their bottom edges
- the lack of bedding sealant or a sealing strip to the sill of the southwest elevation French doors
- the gap in the flashing top the fascia return to the bedroom 4 roof
- the inadequate sealing where some of the upper deck beams and fixings adjoin the cladding

- the water ponding at the northwest corner of the lower-level deck.
- 6.3.2 The expert notes the absence of sill flashings. The manufacturer's requirements at the time did not mandate sill flashings and the windows are generally installed in accord with these requirements. I also note that the windows in this low risk house are well protected by eaves and currently meeting code requirements. Accordingly, I consider the manufacturer's requirements will be adequate in this case.
- 6.3.3 The head flashings to windows not immediately protected by eaves will require modification to provide the extra protection afforded by flashings with the specified overhang.
- 6.3.4 Notwithstanding the fact that the backing sheets are fixed directly to the timber framing, thus inhibiting drainage and ventilation behind the cladding sheets, I have noted certain compensating factors that assist the performance of the cladding in this particular case:
- the cladding generally appears to have been installed according to reasonable trade practice
 - the house has generally 600mm eaves and some additional roof and floor projections that provide good protection to the cladding areas below them.
- 6.3.5 These factors can assist the house to comply with the weathertightness and durability provisions of the Building Code.

7. My response to the parties' submissions on the draft determination

- 7.1 In response to the territorial authority's letter to the Department of 16 February 2006, I consider that I am entitled to determine whether proposed building work complies with the Building Code, and in fact I have done so in this case. However, as noted in paragraph 9.2, my concern in this case is also that the work described in paragraph 6.3.1 may not turn out to be sufficient to achieve compliance, and in any event whether the work has been properly completed and is code compliant is a matter that can only be determined after careful inspection. I note that the territorial authority's inspection, described in a "Final Checklist" dated 10 June 2002, passed all the relevant external elements of the building. In addition, none of the items that required attention after this final inspection related to the exterior cladding.
- 7.2 The Notice to Rectify issued on 26 January 2005 listed Particulars of Contravention that included numerous references to elements of the external cladding that did not, in the opinion of the territorial authority, comply with the requirements of the Building Code.
- 7.3 It can be seen that the expert's report provides the comprehensive description of the building's outstanding shortcomings. Most of these could have been have been detected during the territorial authority's original inspection process.

7.4 The applicant has commented on the delay in carrying out the final inspection. The Building Act 1991 (the Act in force at the time) placed responsibility on the owner to request both a final inspection and the code compliance certificate. A final inspection was carried out in June 2002, however, a further final recheck was not carried out until December 2004.

8 Conclusion

8.1 I am satisfied that the current performance of the monolithic cladding on the house is not adequate because it is allowing water penetration into the building at several locations, which could affect the cladding. Consequently, I am not satisfied that the cladding system as installed on the house complies with clause E2 of the Building Code.

8.2 In addition, the house 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 monolithic cladding faults on the building have already allowed the ingress of water, or will allow the ingress of moisture in the future, it does not comply with the durability requirements of clause B2 of the Building Code.

8.3 Subject to further investigations that may identify other faults, I consider that, because the faults with this cladding that have been identified by the expert occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.3.1 is likely to result in the building being weathertight and in compliance with clauses B2 and E2.

8.4 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.

8.5 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.

8.6 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.

- 8.7 I decline to incorporate any waiver or modification of the Building Code in this determination.
- 8.8 The territorial authority has noted that amendments, including the cantilevered upper deck, the deck balustrade and the deck access stairs have not yet been approved by the territorial authority. As the structural integrity and safety of the deck structure may be in question, I urge the territorial authority to carry out an immediate inspection of the upper deck to satisfy itself that it is code compliant. This is an urgent matter taking into account the risk of moisture ingress combined with the possible use of untreated timber for the cantilevered joists. I also note that the Building Industry Authority previously issued a public warning regarding external decks and balconies.

9 The decision

- 9.1 In accordance with section 188 of the Act, I hereby determine that the cladding system as installed on the building does not comply with clause E2 of the Building Code. There are also a number of items to be remedied to ensure that it remains weathertight and thus meet the durability requirement of the Building Code. Consequently, I find that the external walls of the house do not comply with clause B2. Accordingly, I confirm the territorial authority's decision to refuse to issue a code compliance certificate.
- 9.2 I also find that rectification of the items outlined in paragraphs 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 not yet apparent. All rectification work is to be completed to the approval of the territorial authority
- 9.3 I note that the territorial authority has issued a Notice to Rectify for the house requiring provision for adequate drainage and vapour dissipation. A new notice to fix should be issued requiring the owners to bring the house into compliance with the Building Code. The notice to fix may list the items to be rectified but it should not specify how compliance is to be achieved as this is 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.
- 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 the notice to fix, listing all the items that the territorial authority considers 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 29 June 2006.

John Gardiner
Determinations Manager