

## Determination 2006/86

### Refusal of a code compliance certificate for a building with a monolithic cladding system at 32C McArthur Avenue, St Heliers



#### 1. The dispute to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“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 owner Robbrett Holdings Ltd. (“the applicant”) and the other party is the Auckland 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 clause E2 “External Moisture” of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992) is correct.

---

<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

- 1.3 The question to be determined is whether I am satisfied on reasonable grounds that the monolithic wall cladding as installed to some of 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 split-level detached house situated on a sloping site, which is in a medium wind zone for the purposes of NZS 3604. The house is two storeys high in part, with a long single-storey wing to the north and lean-to roofs against the upper walls to the other elevations. A basement garage is set into the slope, at an angle to the north wing, under the middle area of the house. Construction is conventional light timber frame, with concrete slabs, concrete block foundations and retaining walls, aluminium windows, cedar weatherboards to upper walls and west walls of the lean-tos, monolithic wall cladding and 23° profiled metal roofs. The house shape is moderately complex in plan and form, with a number of angled walls, hipped and gabled roofs over the upper level, a monopitched roof on the north wing and monopitched lean-to roofs over the lower projections. Eaves and verge projections are generally 200mm. There are a number of windows with raked tops in the upper walls, the north wing has oblique eaves on the west elevation and a monolithic-clad “chimney” structure rises through the verge projection at the north wall of the single-storey wing.
- 2.2 Two ground-level timber decks, with timber slat floors and stainless steel and glass balustrades, are sited on the west elevation. The decks are not attached to the house.
- 2.3 The expert has noted that he was advised by the applicant that the wall framing is predominantly untreated, as was permitted at the time of construction provided it remained, throughout its life, at a moisture content of less than 18%. Based on this evidence, I accept that the wall framing of this house is untreated.
- 2.4 The cladding system is what is described as monolithic cladding, and is a 40mm “Rockcote” polystyrene system fixed directly to the framing over the building wrap, and finished with an applied textured coating system. The system includes purpose-made flashings to windows, edges and other junctions.
- 2.5 Rockcote Architectural Coatings NZ Ltd provided a 15-year components warranty, and Simply Stucco provided a 5-year “Licensed Plasterer Warranty” for the workmanship. The warranties noted the completion of the cladding as November 2002.

### 3. Sequence of events

- 3.1 The territorial authority issued a building consent on 27 March 2002, based on a building certificate issued by Approved Building Certifiers Ltd (“the building certifier”) on 20 March 2002. The 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 prior to and following lining installation. The building certifier’s inspection record notes that a final inspection was undertaken on 5 December 2003 with a follow-up inspection “approved” on 24 May 2004.
- 3.3 The building certifier issued an interim code compliance certificate on 24 May 2004, which notes “ACC to inspect outer wall cladding outside scope of E2AS1”. The territorial authority subsequently inspected the wall cladding on 21 July 2004.
- 3.4 In a letter to the applicant dated 2 August 2004, the territorial authority outlined its concerns with regard to monolithic claddings and noted that it could not be satisfied on reasonable grounds that the cladding system complied with clause E2 of the Building Code. The territorial authority attached a photographic record of the cladding inspection and a notice to rectify dated 2 August 2004. The particulars of contravention attached to the notice identified items that were not installed in accordance with the manufacturer’s instructions, the acceptable solutions of the building code, or to accepted trade practice, and included a requirement to:
- Provide adequate ventilation to the monolithic cladding and into the wall frame space by means of either a ventilated cavity or alternate approved system...
- 3.5 The applicant sought advice from the cladding manufacturer on the items in the notice to rectify. In a letter to the applicant dated 20 August 2004, the manufacturer made recommendations on some of the items identified by the territorial authority, noting that the windows jambs appeared to be sealed correctly, the garage door head appeared adequate without a head flashing and a 6mm gap at the base of the cladding could not be achieved without major alteration. The manufacturer also noted that:
- Many methods, requirements and trade practices have changed from the time your house was completed until now as the notice to rectify clearly illustrates. It is Rockcote’s role as the cladding manufacturer to inform you on the best method to rectify the issues and comply with our current specifications and the rectification notice.
- 3.6 In a letter to the territorial authority dated 1 September 2004, the applicant proposed remedial work to be undertaken (based on the manufacturer’s advice). However, the requirement for a cavity was considered to be unreasonable as:
- ...at the time of issuance of the Building Consent and at the time of inspection of the exterior cladding on this building, it fully complied with all Council and BRANZ requirements.
- 3.7 In a letter to the owner dated 14 November 2005, the territorial authority explained that the building consent had been issued on the basis of available information at the time, but new information was now available that must be taken into account when

issuing the code compliance certificate. The territorial authority outlined the information and explained that it had introduced changes to the requirements for monolithic cladding, noting:

The introduction of ventilation to the timber framing is in Council's opinion a fundamental requirement to achieving ongoing compliance. This does not necessarily mean the installation of a ventilated cavity system, as Council is open to any suggestion that would achieve the same thing.

3.8 I have received no records of further correspondence between the territorial authority and the applicant. The applicant arranged for moisture testing of the house to be undertaken by a building inspection company ("the assessor"), who inspected the house on 26 April 2006 and produced a "Non-Invasive Moisture Assessment" report. The assessor noted no areas of non-compliance, recorded no elevated moisture readings and noted that he could "see no reasonable excuse for the Council to deny compliance on reasonable grounds".

3.9 An application for a determination was received by the Department on 8 June 2006.

#### **4. The submissions**

4.1 The applicant made a submission in the form of a letter to the Department dated 31 May 2006. The applicant commented on the items identified as defects by the territorial authority and concluded with the following points:

- Particular care was taken during construction to avoid any chance of leaking, and the report on moisture testing confirms that the house is dry.
- A ventilated cavity was not a requirement at the time of construction.
- All required inspections were properly carried out and approved.

4.2 The applicant forwarded copies of:

- the drawings
- some of the consent documentation
- some of the building certifier's inspection records, correspondence and the interim code compliance certificate
- the correspondence with the territorial authority
- the letter dated 20 August 2004 from the cladding manufacturer
- various warranties, producer statements and other statements.

4.3 The territorial authority made a submission in the form of a letter to the Department dated 15 June 2006, which noted that:

As detailed in the NTR the areas of contravention relate to one clause of the Building Code, namely

- E2 external moisture

4.4 The territorial authority forwarded copies of:

- some of the consent documentation
- some of the correspondence with the applicant
- the notice to rectify dated 2 August 2004
- various warranties, producer statements and other statements.

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 In a letter to the Department dated 15 August 2006, the territorial authority commented on aspects of the draft determination:

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.

4.7 In particular, the territorial authority was concerned that paragraph 6.3.1 and later reference to it in paragraph 8.2 (of the first draft determination) indicated a scope of work required to make the house code compliant. The territorial authority claimed that this is not part of the determination and is merely advice from the department that the territorial authority may accept or reject. I respond to the territorial authority's submission in paragraph 7.

4.8 The territorial authority also noted that the draft determination found that the cladding did not comply with clause E2 of the building code. However, I note that the draft determination found that the cladding did comply with clause E2, and this remains unchanged in this determination (refer paragraphs 8.1 and 9.1).

4.9 The applicant accepted the draft determination in a letter to the department dated 16 August 2006, with the exception that the area where a uPVC starter strip had been used as a vertical filler strip (refer paragraph 5.5) had subsequently been rebuilt and sealed following vehicle damage and was therefore no longer relevant.

## **5. The expert's report**

5.1 The expert inspected the claddings of the building on 5 July 2006, and furnished a report that was completed on 11 July 2006. The expert noted that the house was

generally in accordance with the consent drawings, the EIFS cladding appeared “to have been applied satisfactorily with good plaster and paint coatings thickness” and the weatherboards were “well secured and aligned and adequately sealed with timber stain”. The expert noted that cladding clearances were generally adequate, penetrations appeared adequately sealed and 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 junction of a window and noted that the window installation appeared to generally in accord with the manufacturer’s instructions, with uPVC jamb and sill flashings and sealant at the jamb to sill junction. I accept that the location opened is typical of similar locations around the building. The expert also noted aluminium head flashings to all windows and doors and commented that it was unlikely that air seals had been installed. (I note that air seals were not common practice at the time of construction.)
- 5.3 The expert removed a small section of cladding at a junction between the EIFS cladding and the weatherboards, and noted that a flexible flashing tape had been installed behind the junction with a scribe installed over the junction. I accept that the junction opened is typical of similar junctions around the building.
- 5.4 The expert took non-invasive moisture readings through linings of exterior walls throughout the house, and no elevated readings were noted. Several invasive moisture readings were taken through the wall cladding, below windows and below the fixing of the handrail to the cladding. The highest reading recorded was 14%.
- 5.5 The expert made the following specific comments on the cladding:
- The apron flashing to the weatherboards above the entrance lacks a kickout.
  - The cladding to the chimney structure has insufficient clearance above the roof cladding, and a “stick on” flashing has been applied to the upper junction.
  - The overlap of the chimney capping over the cladding is inadequate, as the top of the chimney is more exposed to wind-blown rain.
  - There is an exposed uPVC “starter strip” used as a vertical filler strip, which provides inadequate weatherproofing at the junction.
  - There are no drainage gaps under the sill flanges of the windows.
  - The timber fascias butt against the plaster of the cladding in some locations.
- 5.6 The expert also made the following comments:
- Although there are reduced clearances to paving below the cladding at the entrance areas and the garage doors, these areas are reasonably sheltered by overhangs and the paving is well drained.

- There is no anti-capillary gap at the junction of the cladding and the concrete foundation wall, but there is no evidence of moisture penetration and the overlaps appear adequate.
- The end of the deck handrail is fixed through sealant to the cladding, with additional sealant applied around the bracket (and the framing below is dry).
- Although the garage door lacks a head flashing, a drip edge is provided and the door head is protected beneath the 300mm overhang of the upper floor.

5.7 Copies of the expert's report were provided to each of the parties. The applicant replied in a letter dated 27 July 2006. The issues noted therein have been addressed in the determination.

## 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<sup>3</sup>, 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 determinations<sup>4</sup> (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.

<sup>3</sup> 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](http://www.dbh.govt.nz).

<sup>4</sup> 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 medium wind zone
- is a maximum of two storeys high
- is moderately complex in plan and form, with two different claddings
- has eaves projections of about 300mm and verge projections of 200mm
- has monolithic cladding to some walls of the house, which is fixed directly to the framing
- have external wall framing that is untreated so will provide no resistance to the onset of decay if the framing absorbs and retains moisture.

6.2.2 When evaluated using the E2/AS1 risk matrix, 3 elevations of this house demonstrate a medium weathertightness risk and one 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, some 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 a kickout at the end of one apron flashing above the entrance
- inadequate clearance of the chimney cladding above the roof cladding
- inadequate overlap of the chimney cap flashing
- inadequate weatherproofing of the vertical junction where a uPVC starter strip is used
- lack of drainage gaps at the window sills
- the junctions of the ends of the timber fascias with the plastered EIFS.

6.3.2 I note the expert's comments in paragraph 5.6, and accept that these items are adequate in the circumstances.



6.3.3 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:

- The monolithic cladding has generally been installed to good trade practice and to the manufacturer's instructions.
- There is no evidence of moisture penetration into the framing in the three years since the house was constructed.

6.3.4 I consider that these factors help compensate for the lack of a ventilated cavity and can assist the building to comply with the weathertightness and durability provisions of the Building Code.

## **7. My response to the territorial authority's submission on the draft determination**

7.1 In response to the territorial authority's letter outlined in paragraphs 4.6 to 4.8, 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. I consider that the expert's report provides me with a comprehensive description of the building's outstanding shortcomings, which is sufficient to allow me to reach a decision.

7.2 In paragraph 6.3.1, I have described the scope of work that I consider necessary to achieve compliance with clause B2, but whether that work has been properly completed and is code compliant is a matter that can only be determined after careful inspection by the territorial authority (as indicated in paragraph 9.2).

7.3 In paragraph 6.3.2, I have also found that some of the items listed in the territorial authority's notice to rectify dated 2 August 2004 are acceptable in terms of compliance with the building code in the circumstances of this house as described by the expert and as outlined in paragraph 5.6.

## **8. Conclusion**

8.1 I am satisfied that the current performance of the cladding is adequate because it is preventing water penetration into the building at present. Consequently, I am satisfied that the building complies 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 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.

- 8.3 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 paragraph 6.3.1 should be expected to result in the building remaining weathertight and in compliance with clauses B2 and E2.
- 8.4 Effective maintenance of claddings (in particular of monolithic claddings) 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 As the external wall framing of this building is untreated and will provide no resistance to fungal decay, periodic checking of its moisture content should also be carried out as part of normal maintenance.
- 8.7 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.
- 8.8 In the circumstances, I decline to incorporate any waiver or modification of the Building Code in this determination.

## **9. The decision**

- 9.1 In accordance with section 188 of the Act, I hereby determine that the monolithic cladding system as installed complies with clause E2 of the Building Code. There are a number of items to be remedied to ensure that the house 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.
- 9.2 I also find that rectification of the items outlined in paragraph 6.3.1 will consequently result in the house remaining 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.

- 9.3 I note that the territorial authority has issued a notice to rectify. This should be withdrawn and a new notice to fix (restricted to the items outlined in paragraph 6.3.1) should now be issued requiring the owner 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 that 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 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 11 September 2006.

John Gardiner  
**Determinations Manager**