



## Determination 2013/061

### Regarding the issuing of two notices to fix in respect of the code-compliance of a two-coat plaster cladding system to an 11-year-old motel complex at 23/25 Havelock Road, Havelock North



#### 1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“the current Act”) made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.
- 1.2 The parties to the determination are
  - the building owner, Veldport Properties Ltd (“the applicant”), acting through a legal adviser
  - Hastings District Council carrying out its duties and functions as a territorial authority or a building consent authority (“the authority”).
- 1.3 This determination arises from the decision of the authority to issue two notices to fix in regard to a motel complex (“the complex”). The authority issued the notices as it was not satisfied that the building work complies with certain clauses<sup>2</sup> of the Building Code (First Schedule, Building Regulations 1992).
- 1.4 The two notices to fix refer to non-compliance with Clauses B1 Structure, B2 Durability, C1-4 Protection from fire, E1 Surface water, E2 External moisture, F4 Safety from falling and H1 Energy efficiency. However the applicant limited the application for determination to compliance of the cladding, and in particular the weathertightness of the solid plaster system as installed.

<sup>1</sup> The Building Act, Building Code, Compliance documents, past determinations and guidance documents issued by the Ministry are all available at [www.dbh.govt.nz](http://www.dbh.govt.nz) or by contacting the Ministry on 0800 242 243.

<sup>2</sup> 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.

- 1.5 The matter to be determined<sup>3</sup> therefore is whether the authority correctly exercised its powers of decision when it issued two notices to fix in regard to building consent No ABA20020518 on the basis of non-compliance with Clauses E2 and B2 of the Building Code. In making this decision I must consider whether the two-coat plaster system applied to the walls of the complex (“the plaster system”) complies with Clauses B2—Durability and E2—External Moisture of the Building Code.
- 1.6 I have not considered any other building elements or other clauses of the Building Code in this determination.
- 1.7 In making my decision, I have considered the submissions of the parties, the report of the expert commissioned by the Ministry to advise on this dispute (“the expert”), and the other evidence in this matter.
- 1.8 The relevant section of the current Act is set out in Appendix A.

## 2. The building work

- 2.1 The building work in question relates to a motel complex situated on a flat urban site that is in a low wind zone and a low exposure zone for the purposes of NZS 3604<sup>4</sup>. The complex consists of the following three buildings, which the expert considers are of ‘simple complexity’:
- A two-storey detached residence (“the residence”) on a concrete ground floor slab with timber-framed walls, intermediate floor, and roof. A timber-framed deck is situated on the north elevation that is supported on concrete masonry columns and has a liquid applied membrane cladding and a top-fixed wrought-iron balustrade.
  - A single-storey three-unit accommodation block (“the 3-unit block”) on a concrete ground floor slab with timber-framed walls and roof. The roof extends out on the south elevation to form a veranda.
  - A two-storey 16-unit accommodation block (“the main block”) on a concrete ground floor slab with a concrete intermediate floor supported by concrete masonry columns and division walls. The remaining walls and roof are timber-framed. The roof extends out along the east elevation to provide cover to a tiled deck, which in turn forms a veranda to the ground level. The deck consists of part-height timber-framed and plastered balustrade walls and wrought iron railings.
- 2.2 The pitched roofs to all the blocks are covered with concrete tiles and the majority of the eaves projections are generally 450mm wide. All the blocks have recessed powder-coated aluminium exterior joinery.

## 2.3 The plaster system

- 2.3.1 According to the plastering contractor, the cladding to the exterior walls consists of a two-coat solid cement-lime plaster system, with a 13mm thick first coat and a 12mm thick second coat (“the plaster system”). The plaster was applied over proprietary netting fixed to a fibre-cement backing that is direct fixed to the wall framing over

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<sup>3</sup> Under sections 177(1)(b) and 177(2)(e) of the Act

<sup>4</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

breathable building paper. The plaster system is finished with a proprietary paint system.

- 2.3.2 The expert made a series of cut-outs during his inspection and observed that the installed two-coat plaster system measured approximately 25mm thick overall, however the netting was observed as being installed at the back of the first coat of plaster rather than being centrally embedded.

## **2.4 Timber treatment**

- 2.4.1 The expert forwarded timber samples from each block to a testing laboratory for analysis. No treatment was detected in the samples taken from the single sample from the deck upstand of the residence, or the samples from the 3-unit block. The sample taken from the bottom plate of the main block stair indicated CCA treatment.
- 2.4.2 Given this evidence, and the date of construction in 2002, and the lack of other evidence to the contrary, I consider that the wall framing is unlikely to be treated.

## **3. Background**

- 3.1 The authority issued building consent No ABA20020518 dated 25 May 2002 for the complex under the Building Act 1991 (“the former Act”).
- 3.2 The authority carried out inspections of the complex during construction from 31 May 2002.
- 3.3 Following an inspection of the property on 20 November 2002, the authority wrote to the applicant on 28 November 2002, listing a number of items that required to be rectified, including the requirement that for all the buildings:
- Specific design required for two-coat stucco system.
- 3.4 On 27 November 2002, a firm of consulting engineers (“the engineer”) wrote to the authority stating that they had been engaged by the applicant to advise on the plaster system. The engineer’s investigation had shown that the plaster system applied to the complex had been used extensively throughout Hawkes Bay, including within the authority’s boundaries and was approved as an alternative system by most local authorities. It was noted that the plastering had been carried out to ‘a high standard of workmanship’ and a paint system with a high protection value had been applied over the plaster.
- 3.5 On 6 December 2002, the authority wrote to the engineer and said that:
- In order for [the authority] to approve the two coat plaster system as an alternative solution to the Building Code (*sic*) [the authority] need to be shown that the system meets the Code performance criteria of B2 Durability & E2 External Moisture. As such the appropriate performance criteria should be referenced against the two coat system as installed with particular emphasis on the coat thickness, curing & paint system used.
- 3.6 The authority’s field inspection record indicates the last inspection was carried out on 24 January 2003 and notes ‘stucco system still outstanding and maybe balustrade to check’. According to the applicant, the complex was completed by January 2003.
- 3.7 On 12 September 2003, the plastering contractor issued a statement that described the plastering materials used on the complex and their application, and confirmed

that flashings has been installed on sills, jambs and heads around all windows and doors.

3.8 On 30 September 2003, the authority wrote to an independent testing organisation for an opinion as regards the plaster system that had been applied. I have not seen a copy of any response from the testing organisation. It appears the matter remained unresolved between the parties.

3.9 On 4 September 2012 the authority carried out a final inspection of the building work. The authority then wrote to the applicant on 19 September 2012 identifying a number of areas of the building work it considered did not meet the requirements of the Building Code. In regards the plaster system the authority noted:

Clause E2

1. Major cracking to stucco cladding, particularly to NE wall of main block and control joints to upper wall control joints SW wall of main block.
2. Cladding clearances incorrect to other building components such as fascia ends and spouting as they are embedded into the plaster system.
3. Cladding flashing system have (*sic*) not been installed correctly
4. Vents cowls have not been sealed to cladding.

3.10 The authority issued the first notice to fix (NTF 20120039) dated 19 September 2012. The notice stated that the building work associated with the complex had not been carried out in accordance with the Building Code, and noted that ‘weather tightness issues have been identified in respect of the cladding’ along with non-compliance with other clauses of the Building Code. The remedy in respect of the weathertightness concerns was described as

Engage the services of a weather tightness expert, for further investigation of the buildings to the [relevant consent], to assess the buildings for weather tightness issues and supply a written report to [the authority] for review. ...

3.11 The applicant engaged a building consultant to inspect the complex and report on the weathertightness of the exterior plaster system and the fire rating of walls separating the units. The building consultant produced a report dated 17 October 2012 noting that extensive moisture readings were carried out on external walls and indicated ‘that moisture is not penetrating through the cladding to the framing’. (I note here that the report gives no indication of where the readings were taken or confirmation of whether they were non-invasive or invasive readings). I summarise the building consultant’s comments and conclusions regarding the plaster system as follows:

- The building consultant understood that while a three-coat plaster system had been applied, the third coat had been applied simultaneously with, or immediately after the flanking coat had been applied. The cladding and the control joints, openings, and penetrations had been formed in accordance with NZS 4251<sup>5</sup>
- While some minor cracking was evident, it appeared to be related to movement and associated only with the finishing coat.
- The exterior joinery window heads had the correct aluminium flashings and the roof flashings had a partial “shoe” at the ends with a small sealed return.

<sup>5</sup> NZS 4251 Part1:1998 Solid Plastering—Cement plasters for walls and ceilings.

- The beam junction at the head of the square column at the end of the main block showed evidence of excessive movement.
  - The wrought iron balustrade to the upper deck of the residence is set into the stucco cladding at fixing points, but no distress was observed around the fixing and this indicates the solid backing and possibly scratch coat is taken behind the balustrade.
  - Some timber fascias were slightly embedded in the plaster but were not showing any signs of distress or affecting the integrity of the plaster cladding.
  - There was evidence of some breakdown of the paintwork applied over the plaster, however the paint surfacing has exceeded its life of 7 – 10 years given by the manufacturers.
- 3.12 The building consultant was of the opinion that the complex at the time of his inspection was not showing any signs of abnormal distress, and was compliant with the performance requirements of Clause E2.3.2. The consultant noted that without adequate maintenance the cladding was vulnerable to failure with the breakdown of paint surfacing and is ‘possibly’ reliant on the building wrap as a secondary line of defence to maintain weathertightness.
- 3.13 On 23 April 2013 the authority issued the second notice to fix (NTF 20130011) which referred to and repeated the details of the first notice to fix. The covering letter noted the second notice had been issued as remedial work listed on the first notice to fix had not yet been completed
- 3.14 The plastering contractor who installed the plaster system provided a statement dated 26 April 2013 noting that a two-coat plaster system had been used on two or three other contracts that had previously been given code compliance certificates issued by the authority. One such job was a school, and the contractor attached the code compliance certificate for this project. The plasterer stated that it was not until two of the three buildings making up the complex had been finished that the authority informed the plasterer that three coats were required.
- 3.15 The Ministry received an application for a determination on 2 May 2013.

## **4. The submissions**

- 4.1 An undated submission made on behalf of the applicant was attached to the application for a determination. The submission set out the background to the dispute, and referred to aspects of the current and former Acts. I summarise the points raised by the applicant as follows:
- The applicant considered that the decision of the authority to issue the code compliance certificate to the school (refer paragraph 3.14) was relevant and indicated that the authority was not consistent in making its decisions.
  - The building consent for the project had not referred to the number of plaster coats that were required, and at the time the plastering was carried out the 1998 “Code of Plastering” was current.
  - There was no evidence of a response to the letter sent by the authority on 30 September 2003 to the independent testing organisation (refer paragraph 3.8).

- The applicant considered that the authority had no grounds to reject the report of the building consultant, who had not found any evidence of moisture ingress into the building.
- 4.2 The applicant also noted that they had engaged the services of the plastering contractor and other contractors to rectify defects in the cladding system and were getting quotations for exterior painting, sealing around joinery, etc.
- 4.3 The applicant supplied copies of
- some of the plans
  - the building consent
  - the authority's inspection reports
  - the two notices to fix
  - the building consultant's report
  - the manufacturer's technical information for the fibre-cement backing
  - the engineers' report
  - correspondence with the authority.
- 4.4 The authority did not make a formal submission.
- 4.5 A draft determination was issued to the parties for comment on 6 August 2013.
- 4.6 The applicant's agent responded to the draft in a letter dated 22 August 2013. The applicant 'generally accepted' the draft but submitted that the applicant's expectation was that the determination would provide for a more thorough investigation of the whole building(s) and clearly outline the steps required to be taken to bring the building work into compliance in order for a code compliance certificate to be issued.
- 4.7 The authority responded by email on 30 September 2013, noting that it had no further comment to make on either the draft determination or the applicant's submission.
- 4.8 In response to the applicant's submission, I note here that a determination does not require a 'full investigation' of all of the building work to be carried out in order for me to form a view as to whether the building work is compliant and whether the authority correctly exercised its powers of decision. What is required for the purposes of a determination is sufficient evidence of the compliance of the building work that contradicts or corroborates the authority's decision, and accordingly to confirm, modify or reverse the authority's decision.

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

### **5.1 General**

- 5.1.1 As described in paragraph 1.7, I engaged the services of an expert, who is a member of the New Zealand Institute of Building Surveyors, to assist me. The expert examined the complex on 19 and 20 June 2013 and produced a report completed on 1 July 2013. The expert also attached the full report from the biodeterioration consultant (refer paragraph 5.2). Copies of the expert's report were forwarded to the parties on 3 July 2013.

- 5.1.2 The report described the buildings making up the complex in general terms and gave some of the background to the dispute. In the expert's opinion, the overall construction was of a reasonable quality, although with poor detailing that allowed moisture ingress at several locations. The buildings generally appeared to be well presented and maintained but external redecoration was overdue.
- 5.1.3 The expert noted discrepancies between what had been constructed as compared with the consented plans. These were:
- two additional false chimneys had been constructed on the main accommodation block
  - an additional window had been installed on the west elevation of the main accommodation block
  - the side window on the south elevation of the residence as detailed had not been installed.

## 5.2 Moisture testing and destructive investigations

- 5.2.1 The expert carried out both non-invasive moisture readings as well as a series of invasive moisture readings using long probes from the outside at areas considered at-risk and short probes at cut-outs. The following elevated readings were recorded:

### The residence

- 95% at the deck nib on the west elevation
- 60% in the framing below the chimney gutter apron junction on south elevation
- 21% in the framing below the chimney gutter apron junction on north elevation
- 20% at the deck beam on the east elevation

### The 3-unit block

- 21% in the beam below the gutter apron junction (east end)
- 33% at the soffit plate below the previous item

### The main block

- 23% in the framing below the gutter apron junction (south end)
- 22% in the balustrade bottom plate at the south stairs (right hand side)

(I note that moisture levels above 18%, or which vary significantly from the equilibrium levels, generally indicate that external moisture is entering the structure and investigation is needed, and readings over 40% indicate that the timber is saturated and decay will be inevitable over time.)

- 5.2.2 The expert carried out a series of invasive tests to ascertain construction details and timber conditions, and I am prepared to accept that the results obtained would be indicative of other similar details throughout the complex. The expert removed timber samples from locations where such inspections had been carried out and these samples were forwarded to a biodeterioration consultant for analysis to determine the type of preservative treatment and the condition of the wood in the samples.
- 5.2.3 The locations of the invasive inspections and the resultant test results were as follows:

Sample No.	Location	Results
1	3-unit block: South beam	No treatment detected. Decay present.
2	Main block: Bottom plate stair	Indication of CCA treatment. Early soft rot but no decay.
3	Residence: Deck upstand	No treatment detected. Decay present.

### 5.3 Observations

5.3.1 The expert observed that the following details had resulted in leaks:

- The lack of apron flashing turn-outs and poor sealing at the cladding/gutter junction (all three buildings).
- Flat top-fixed cap flashings and lack of end upstands to the deck nibs (the residence).
- The failure to properly seal one corner of a false chimney cap-flashing (main block).
- The lack of adequate clearance from the plaster cladding to the deck and poor detailing (main block, near the east stair junction).

5.3.2 The expert also observed several poorly installed and un-flashed cladding penetrations that the expert considered some of which would be allowing moisture entry.

5.3.3 I summarise below the other observations made by the expert in regard to the external envelope of the three buildings in the complex:

- The body of the two-coat plaster exposed at the cut-out looked in good condition and there was no evidence of in-situ de-bonding or failure related to the installation of the two-coat system.
- The base of the plaster system at the manager's garage entry was only 10mm above the paved surface and the overfilled gardens had also reduced clearances at this location. However, there was no visual evidence of moisture ingress relating to inadequate ground clearances.
- No plaster clearance or drip edges were evident at the heads of the exterior joinery and the plaster was finished into window sill flanges. Cracking was evident at various sill/jamb junctions.
- Extensive cracking was evident throughout the plaster systems, but apart from the defective apron flashing junctions, no significant water entry appeared to be associated with these.
- Poor curing was probably the reason why there was a high occurrence of cracking on the lower east elevation of the north wing of the main accommodation block.



- No sealant was present in the vertical control joint that was subject to an invasive inspection and where a crack in the plaster was observed. In addition, a drip edge had not been provided to the metal flashing at the horizontal control joint at this location. However, there was no evidence of moisture ingress.
- No sealant had been installed between the plaster and a masonry column at the residence.
- The deck to the residential block had a single drainage outlet and lacked an overflow, and this could result in leakage should the drain become blocked.
- Inspections of most of the internal spaces showed that there were some cracks in the plasterboard linings below the window sills. However, the expert found no evidence of moisture ingress at these locations.

5.3.4 The expert concluded that the identified defects had allowed moisture ingress into all three blocks, and had caused undue dampness or damage to the building elements. Durability of the cladding had also been compromised, however the expert was of the opinion that there had not been a systemic failure of the plaster system and the deficiencies were localised and repairable.

## 6. Discussion

### 6.1 The two-coat plaster system

6.1.1 Given the authority's concern expressed as to the two-coat plaster system being installed (as opposed to three-coats), I have considered whether the two-coat plaster system that was applied to the walls of the complex could, in principle, meet the requirements of the Building Code.

6.1.2 The appropriate New Zealand standard that is referenced in the Acceptable Solution E2/AS1, and which was current at the time the building consent was issued, is NZS 4251. Clause 3 of this standard references "Solid Substrates" and Clause 3.3.2.3 notes that the surface to which the plaster is to be applied is defined into two categories:

- If little or no water is absorbed, it is defined as a non-porous surface;
- All other surfaces are defined as porous.

6.1.3 Based on these definitions, I am of the opinion that the fibre-cement backing, over which the plaster has been applied, is a "porous" surface.

6.1.4 Clause 3.4 of the standard states that the plaster applied to all substrates shall consist of two or more separate coats and the attached table notes:

(b) Porous dependent on finish required: Textured finish only	2 coat system	1 – Scratch 2 - Finishing
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6.1.5 Based on the requirements of NZS 4251 and the expert's observations that there has not been a systemic failure of the two-coat plaster system installed, I am of the opinion that in general terms the two-coat plaster system satisfies the requirements of Clause E2 External Moisture.

## **6.2 Compliance of the installed cladding**

- 6.2.1 The expert was of the opinion that apart from the peripheral defects that he identified, there was no evidence of a systemic failure of this plaster system, which has been in place for some 11 years.
- 6.2.2 However, I consider the expert's report clearly establishes that the current performance of the building envelopes of all three blocks that make up the complex are not adequate because there is evidence of moisture penetration and damage of the building elements. Consequently, I am satisfied that the complex does not comply with Clause E2 of the Building Code.
- 6.2.3 In addition, the buildings are 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 buildings to remain weather tight. Because the cladding faults on the complex will continue to allow the ingress of moisture in the future, and as there is already damage and decay present in some areas of the framing, I consider that the complex does not comply with Clause B2.
- 6.2.4 Given the non-compliance with Clause E2, the likelihood of a lack of treatment to the external framing, and the expert's limited investigation, the building's current and on-going compliance with Clause B1 should be considered in any further investigation. The rectification of the building will require careful investigation into the causes, extent, and significance of moisture ingress, and the possible effects on the building's structure.
- 6.2.5 Given the above, I am satisfied that the complex does not comply with the Building Code that was current at the time the consent was issued. Based on this conclusion, and taking into account section 436 of the current Act, I am of the opinion that the authority made the appropriate decision when it issued the notice to fix in respect of Clause E2 and B2.

## **6.3 The durability of the stucco cladding**

- 6.3.1 I also accept that when the issue of a code compliance certificate is being considered, concerns may be raised regarding the durability, and hence the compliance with the Building Code, of certain elements of the various buildings, taking into consideration the age of the building work. I note that this issue has also been considered in previous discussions held between the agent and the authority.
- 6.3.2 Clause B2 requires that a building continue to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the stucco cladding to remain weathertight for a period of 15 years from the date a code compliance certificate is issued.
- 6.3.3 I continue to hold the views expressed in previous relevant determinations that an authority, following the appropriate application from the owner, has the power to grant a modification to the requirements of Clause B2.3.1 of the Building Code for an existing building consent without a determination (refer also to the article titled 'Modification of durability periods' in Codewords Issue 39, August 20096). I leave this matter to the parties to resolve in due course.

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<sup>6</sup> Codewords articles are published by the Ministry and are available on the Ministry's website at [www.dbh.govt.nz/codewords-index](http://www.dbh.govt.nz/codewords-index)

- 6.3.4 I strongly suggest that the authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning this property.

## **7. What happens next?**

- 7.1 In respect of Clauses E2 and B2, the notice to fix is to be modified to require the applicant to bring the building into compliance with the Building Code, including the defects identified and investigation referred to in this determination and referring to any further defects that might be discovered in the course of investigation and rectification. The notice to fix should not specify how those defects are to be fixed. It is not for the notice to stipulate directly how the defects are to be remedied and the house brought to compliance with the Building Code; that is a matter for the owner to propose and for the authority to accept or reject. It is important to note that the Building Code allows for more than one means of achieving code compliance.
- 7.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 7.1. The applicant should produce a response to the notice in the form of a detailed proposal, produced in conjunction with a competent and suitably qualified person as to the investigation and rectification or otherwise of the specified matters in respect of the consented building work. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 7.3 I also note that the expert has identified changes from the consent drawings, and I leave these to the parties to resolve once the appropriate remedial work is satisfactorily completed.

## **8. The Decision**

- 8.1 In accordance with section 188 of the Building Act 2004 I hereby determine that the complex does not comply with Clauses B2 and E2 of the Building Code, and accordingly the authority correctly exercised its powers when it issued two notices to fix in respect of Clauses E2 and B2 of the Building Code, and I confirm the decision to issue the notices to fix.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 1 October 2013.

John Gardiner  
**Manager Determinations and Assurance**

## Appendix A

### A.1 The relevant sections of the Building Act 2004

#### **436 Transitional provision for code compliance certificates in respect of building work carried out under building consent granted under former Act**

- (1) This section applies to building work carried out under a building consent granted under section 34 of the former Act.
- (2) An application for a code compliance certificate in respect of building work to which this section applies must be considered and determined as if this Act had not been passed.
- (3) For the purposes of subsection (2), section 43 of the former Act—
  - (a) remains in force as if this Act had not been passed; but
  - (b) must be read as if—
    - (i) a code compliance certificate may be issued only if the territorial authority is satisfied that the building work concerned complies with the building code that applied at the time the building consent was granted; and
    - (ii) section 43(4) were omitted.