

Determination 2013/026

Regarding the refusal to issue a code compliance certificate and the issue of two notices to fix for a 10-year-old house with monolithic cladding at 63A Marua Road, Ellerslie, Auckland



1. The matters to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ ("the Act") made under due authorisation by me, John Gardiner, Manager Determinations 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 owners of the house, R Bryant and J Pounder ("the applicants")
 - the Auckland Council² ("the authority"), carrying out its duties as a territorial authority or building consent authority.
- 1.3 I consider the builder of the house, Location Homes (North) Ltd (in liquidation) ("the builder"), is a person with an interest in this determination.
- 1.4 This determination arises from the decision of the authority to refuse to issue a code compliance certificate and to issue two notices to fix for a 10-year-old house because it was not satisfied that the building work complied with certain clauses³ of the Building Code (First Schedule, Building Regulations 1992). The authority's concerns regarding compliance relate to the weathertightness of the claddings.

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.dbh.govt.nz or by contacting the Ministry on 0800 242 243.

² Before the application was made, Auckland City Council was transitioned into Auckland Council. The term "the authority" is used for both.

³ 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 determined⁴ is therefore whether the authority was correct in its decisions to refuse to issue a code compliance certificate and to issue the notices to fix for the house. In deciding this, I must consider:

1.5.1 Matter 1: The external building envelope

Whether the external claddings ("the claddings") comply with Clause B2 Durability and Clause E2 External Moisture of the Building Code that was current at the time the consent was issued, along with any structural implications (Clause B1) associated with weathertightness. The claddings include the components of the systems (such as the flush-finished fibre-cement, the profiled metal and the fibre-cement weatherboards, the windows, the roof cladding and the flashings), as well as the way components have been installed and work together. I consider this matter in paragraph 6.

1.5.2 Matter 2: The remaining code requirements

Whether other items identified in the notices to fix comply with relevant clauses of the Building Code that was current at the time the consent was issued: namely Clauses E1 Surface Water and E3 Internal Moisture. I consider these in paragraph 7.

1.6 Matters outside this determination

- 1.6.1 The notices to fix cited a contravention of Clauses B1 Structure and I have taken this as relating to potential structural implications associated with weathertightness, which are considered within Matter 1.
- 1.6.2 The first notice to fix also cited H1 Energy Efficiency; however there are no specific items identified and I have received no evidence relating to this clause. Clause H1 is therefore not considered in this determination.
- 1.6.3 The first notice to fix also outlines requirements for durability of building elements and states that the owners may apply to the authority for a modification of the requirements to allow durability periods to commence from the date of substantial completion in 2003. I therefore leave this matter to the parties to resolve once the building work has been made code-compliant.

1.7 The building consents

- 1.7.1 The subject house was constructed under the following building consents:
 - AC/02/09347 issued on 24 January 2003 for 'new 2 storey dwelling with attached garage at single level'
 - AC/03/00958 issued on 18 February 2003 for 'amend AC/02/09347 revised floor slab & foundation design'.
- 1.7.2 I note that the authority's records for the house refer variously to both consent numbers and this determination therefore covers all building work carried out under the above building consent numbers.

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⁴ Under sections 177(1)(b), 177(2)(d) and 177(2)(f) of the Act

1.8 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.

2. The building work

- 2.1 The building work is a two-storey house with a single-storey attached garage on a level site located in a low wind zone for the purposes of NZS 3604⁵. The house is assessed as having a moderate to high weathertightness risk (see paragraph 6.2).
- 2.2 Construction is generally conventional light timber frame, with specifically designed concrete foundations and floor slab, monolithic, weatherboard and profiled metal wall claddings, aluminium joinery and low-pitched profiled metal roofing.
- 2.3 The expert noted no evidence of timber treatment and the specification calls for framing to be 'Radiata Kiln Dried'. However, I note that the building consents include conditions requiring treated timber, with the amended consent stating'H1 plus treated timber framing is required to exterior framing with H3 treated bottom plates'. Taking account of the lack of evidence and the date of framing in about April 2003, I am unable to determine whether the external wall framing is treated.

2.4 The roofs

- 2.4.1 The two-storey part of the building has a 3° monopitched profiled metal roof with overhangs of more than 600mm and a monolithic-clad 'chimney' structure through the eaves on the east elevation. Verge extensions to the north and south ends of the roof are clad in membrane and the undersides of roof overhangs are framed to form soffits that slope towards the house walls on all elevations. Low-pitched lean-to roofs form a west entry canopy and a veranda along the north and west elevations.
- 2.4.2 The single-storey attached garage has weatherboard-clad walls, which extend to form roof parapets with monolithic-clad inner faces. The low-pitched profiled metal roof slopes away from house walls towards a membrane-lined internal gutter along the south parapet.

2.5 Wall claddings

- 2.5.1 The house has three different wall claddings. The garage walls and three corners of the house are clad in fibre-cement weatherboards, with horizontal corrugated steel full-height panels centrally positioned on the north and west elevations. These claddings are fixed through the building wrap directly to the framing timbers.
- 2.5.2 The remaining walls are clad in a form of monolithic cladding, which is a proprietary flush-finished fibre-cement cladding system consisting of 7.5mm thick fibre-cement sheets fixed fixed through 20mm timber battens and the building wrap to the framing, and finished with an applied textured coating system. The cavity battens form a cavity between the backing sheets and the building wrap.

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⁵ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

3. Background

3.1 On 24 January 2003 the authority issued building consent No. AC/02/09347 under the Building Act 1991 for a 'new 2 storey dwelling with attached garage at single level'. Construction commenced in February and an amended building consent (No. AC/03/00958) was issued on 18 February 2003 for 'amend AC/02/09347 – revised floor slab & foundation design'.

- The authority carried out various inspections during construction, including a preline building inspection on 12 May 2003 and postline inspections on 16 and 21 May 2003. A final drainage inspection was carried out and passed on 7 July 2003, with an as-built drainage plan subsequently provided.
- 3.3 The authority carried out a final inspection on 24 August 2004, which identified three cladding items requiring attention, noting:

Penetrations through cladding to be sealed.

Flashings to be taken up behind weatherboards, no sill flashings.

Ground clearance of cladding to GL and roof. Touching.

No ventilation to cavity.

No further inspection was carried out and the applicants purchased the house in 2007 without a code compliance certificate.

3.5 The final inspection

- 3.5.1 On 19 November 2008 the authority carried out an inspection which 'failed' a number of items, with the record noting 'issues regarding weathertightness' and also that a 'peer review' would be required.
- 3.5.2 The authority also produced a photo file of defects identified during the inspection, which included (in summary):
 - in regard to Clause E1
 - cesspit and driveway drainage
 - in regard to Clauses E2 and B2
 - o lack of control joints to stucco
 - o lack of drainage gap above window flashings
 - o lack of clearances to bottom of claddings
 - o lack of cavity closures
 - o unsealed edges of backing sheets
 - o deterioration to membrane gutters and flashings
 - o inadequate overflow to internal gutter
 - o lack of backing to roof membrane
 - o unconfirmed hidden flashings to roof junctions
 - o unconfirmed hidden flashings to inter-cladding junctions
 - o cracks to texture coated fibre-cement
 - exposed timber
 - o insufficient clearance from bottom plates to ground or paving

- o unsealed wall and roof penetrations
- o inadequate roof parapet cappings
- o oblique eaves changed from consent details
- o corrugated foam seals not confirmed
- in regard to Clause E3
 - o hand basins and shower booths not sealed to walls
 - o toilet pans not sealed to floors.

3.6 The first notice to fix

3.6.1 The authority issued a notice to fix (No.3055) dated 19 January 2009. In the accompanying letter the authority stated that the house did not comply with the Building Code 'in a number of respects' and recommended that the applicants

...engage the services of a suitably qualified person to review the attached [notice to fix] and to develop a proposed scope of work, which in their view would address all the areas of contravention. [The authority] will then review this proposal and if it agrees with it, will then advise you as to whether a building consent needs to be applied for.

- 3.6.2 The notice identified a number of Building Code clauses that the building work was 'in breach of' and listed 'details of the contravention', which included items identified during the final inspection (see paragraph 3.5.2).
- 3.6.3 The notice also stated that the applicants may apply to the authority for a modification of the requirements to allow durability periods to commence from the date of substantial completion (refer paragraph 1.6.3).

3.7 The re-inspection and second notice to fix

3.7.1 On 9 October 2012, the authority re-inspected the cladding defects identified in the first notice to fix and the inspection record noted:

Re-check of previous [notice to fix]. This has not been addressed. Owner indicated that he intends to re-clad the eastern elevation, replace the membranes and address the FFL and cladding issues.

- 3.7.2 The authority issued a second notice to fix (No.4015) dated 24 October 2012, noting that this was required 'given the time lapse since the previous final inspection'. The authority referred to the 'additional final inspection of the house' and noted that the second notice should be read together with the notice issued on 19 January 2009.
- 3.7.3 The 'particulars of contravention or non-compliance' referred to the previous notice and stated:

As a result of this latest inspection, [the authority] identified that there is still building work which has not been undertaken in accordance with the requirements of section 17 (and section 40) of the building Act, and in particular breaches the following clauses of the New Zealand Building Code.

3.7.4 The notice then outlined the requirements of Clauses B1, B2 and E2, which the authority considered had not been achieved; and required the applicants to

...lodge with Council a proposed scope of works (in writing and prepared by a suitably qualified individual); outlining how each area of non-compliance is to be rectified.

3.8 The Ministry received an application for a determination on 27 November 2012.

4. The submissions

- 4.1 The applicants made no submission and forwarded copies of
 - the consent drawings
 - the first notice to fix (No.3055) dated 19 January 2009
 - the second notice to fix (No.4015) dated 24 October 2012.
- 4.2 The authority forwarded a CD-Rom, entitled 'Property File', which contained some additional documents pertinent to this determination including:
 - the building consent, with the consent drawings and specifications
 - the amended building consent
 - the inspection records
 - various certificates, producer statements, warranties and other information.
- 4.3 A draft determination was issued to the parties for comment on 25 March 2013.
- 4.4 The authority and the applicants accepted the draft without further comment in responses received on 9 April and 14 May 2013 respectively.

5. The expert's report

As mentioned in paragraph 1.8, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Architects and inspected the house on 7 and 22 February 2013, providing a report completed on 22 February 2013. A copy of the report was forwarded to the parties on 28 February 2013.

5.2 General

- 5.2.1 The expert noted that the standard of overall workmanship was 'good in much of the house', with the cladding systems 'generally reasonably straight and fair' and flashings generally 'competent'.
- 5.2.2 The expert noted that the only significant variation from the consent drawings observed were the omission of internal sliding doors.
- 5.2.3 On completion of his assessment of the house, the expert also concluded on the items of contravention listed in the first notice to fix. I have taken those comments into account in paragraph 8.1.

5.3 Moisture levels

- 5.3.1 The expert inspected the interior, observing that external wall linings were 'free from mould, cracks, swelling, discolouration or other signs of moisture ingress.' All non-invasive moisture readings were 'uniform and low'.
- 5.3.2 The expert also took invasive moisture readings using long probes from the inside at areas considered at-risk. The expert recorded readings between 10% and 15%, well

below levels where decay could occur. However, the expert also noted that the readings represented the 'dry end of the range of seasonal variation' and would be expected to increase during wetter seasons.

5.4 Windows

- 5.4.1 Windows in flush-finished fibre-cement cavity walls are face fixed, with metal head flashings and no sill flashings. The expert compared the installation with the manufacturer's details⁶, noting the following:
 - no drainage gap provided above the head flashing
 - drainage gap provided under the sill flanges
 - jamb flanges fitted tight against the cladding, which did not allow confirmation of seals behind jamb flanges.
- 5.4.2 Windows and doors in the direct-fixed fibre-cement weatherboard cladding are face fixed, with metal head flashings, no sill flashings and scribers against jamb flanges. The expert compared installation with the current applicable E2/AS1 details, noting:
 - no drainage gap provided above the head flashing
 - no sill flashings installed (in accordance with the 2004 E2/AS1 detail, although not with the current detail).
- 5.4.3 The single window in the profiled metal cladding, appeared to generally accord with the building consent details, with jamb flanges tight against the jamb flashing and a fillet of sealant applied at the junction. The expert removed a fixing at the bottom of the corrugated steel and confirmed that profiled foam seals were correctly installed.
- 5.5 Commenting specifically on the external envelope, the expert noted:

The textured cladding

- there are no horizontal control joints installed in the two-storey-high walls
- there are cracks in the cladding; in narrow sections around windows and in the roof side cladding of the garage parapets
- there are no vermin strips at the bottom of cavities
- recent work to create a 20mm gap above the apron flashing is incomplete, with
 - o some cladding strips not removed
 - o unsealed bottom edges of cladding
 - o some cavity battens exposed at the gap

Clearances

• there is insufficient cladding clearance beside the garage door

The chimney

- the chimney vent is not sealed to the cladding
- the capping is top fixed, risking leaks at the fixings
- water is ponding in the flat gutter and the membrane has deteriorated

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⁶ James Hardie 'Harditex Cavity Construction: General Specification: 2003

Roof claddings and junctions

- the barge flashing to one end of the veranda is not sealed to the top hat flashing
- the metal flashing is corroding at the butted junction of the profiled metal upper roof with the membrane to the north and south verge overhangs
- the top-fixed parapet capping is corroding at the junction with the membrane
- a plumbing penetration located in a trough of the profiled roofing risks leaking via the adjacent lap, with water ponding against the rubber boot flashing
- some areas of membrane to the garage internal gutter lack solid backing.
- 5.6 The expert made the following additional comments:
 - Although clearances to bottom plates and wall claddings are limited, junctions beneath verandas are sheltered with paving sloped away from walls and no evidence of moisture penetration into bottom plates.
 - Fine cracks at weatherboard joints do not appear abnormal, but will require regular maintenance to prevent deterioration of the fibre-cement.
 - Areas of unpainted fibre-cement sheet are restricted to small areas of unpainted bottom edges, and are unlikely to result in moisture penetration.
 - Although cladding butts against the head flashing to the meter box, this is likely to be adequate given its sheltered position.
 - Although 'not elegant', adequate saddle flashings appear to have been installed at parapet/wall junctions in accordance with consent details.
 - Although the barge flashing at the end of the veranda lacks a saddle flashing at the junction with the wall, the continuous 'top hat' flashing protects the wall and well-sealed sealant joints should be adequate for the limited exposure.
 - Although the flashing is omitted at the junction of sloping soffits with walls, the wall cladding extends above the junction so any water will drain back out.
 - The 65mm diameter overflow and the main outlet from the internal gutter is considered adequate, given the apparent lack of problems after 10 years.

5.7 Other Building Code clauses

- 5.7.1 The expert assessed the other items identified in the notice to fix, noting:
 - hand basin and shower booth to wall junctions are unsealed (E3)
 - toilet pan to floor junctions are unsealed (E3).
- 5.7.2 In regard to Clause E1, the expert also noted that the drain to collect surface water from the driveway was inspected and 'signed off' by the authority after installation, and is shown on the as-built drainage plan. (I also note there is no evidence of failure of the cesspit after some ten years.)

Matter 1: The external envelope

6. Weathertightness

6.1 The evaluation of building work for compliance with the Building Code and the risk factors considered in regards to weathertightness have been described in numerous previous determinations (for example, Determination 2004/1).

6.2 Weathertightness risk

6.2.1 This house has the following environmental and design features, which influence its weathertightness risk profile:

Increasing risk

- the house is generally two-storeys-high
- the monopitched main roof includes oblique eaves
- the single-storey attached garage includes roof parapets
- there are three different wall claddings, with inter-cladding junctions
- corrugated metal cladding and fibre-cement weatherboards are fixed directly to the framing
- external wall framing may not be treated to a level that provides resistance to decay if it absorbs and retains moisture

Decreasing risk

- the house is in a low wind zone
- the house is fairly simple in plan and form
- wall claddings on the house section are sheltered by verandas or eaves
- the monolithic cladding is fixed over a cavity.
- 6.2.2 Using the E2/AS1 risk matrix to evaluate these features, the elevations are assessed as having a moderate weathertightness to high risk rating. If details shown in the current E2/AS1 were adopted to show code compliance, a drained cavity would be required for the corrugated metal and fibre-cement weatherboards claddings. However, this was not a requirement at the time of construction.

6.3 Weathertightness performance

- 6.3.1 Generally the claddings appear to have been installed in accordance with good trade practice and the manufacturer's instructions at the time. However, taking account of the expert's report, I conclude that remedial work is necessary in respect of the areas identified in paragraph 5.5.
- 6.3.2 I also note the expert's comments as outlined in paragraph 5.6 and accept that these areas are adequate in these particular circumstances.

6.4 Weathertightness conclusion

6.4.1 I consider the expert's report establishes that the current performance of the building envelope is adequate because there is no evidence of moisture penetration at present. I am therefore satisfied that the house currently complies with Clause E2 of the Building Code.

- 6.4.2 However, the building envelope 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 are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 6.4.3 Because the identified cladding faults occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 5.5 will result in the external envelope being brought into compliance with Clauses B2 and E2 of the Building Code.
- 6.4.4 Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building owner. The Ministry has previously described these maintenance requirements (for example, Determination 2007/60).

Matter 2: The remaining Building Code clauses

7. Discussion

- 7.1 Taking account of the expert's report, as outlined in paragraph 5.7, I consider that the following items require attention or completion (associated code clauses are shown in brackets):
 - unsealed hand basin and shower booth to wall junctions (E3)
 - unsealed toilet pan to floor junctions (E3).
- 7.2 I concur with the expert's comment that the driveway drainage system was inspected by the authority and passed as satisfactory, with the as-built drawings showing the installation (see paragraph 3.2). I am therefore satisfied that the building work complies with Clause E1 of the Building Code.

8. The notice to fix

8.1 Taking into account the expert's comments and the authority's photo file, the following table summarises my conclusions on items in the notice to fix dated 19 January 2009, referring also to relevant code clauses and related paragraphs within this determination:

Notice to fix		My conclusions	Code	Paragraph
	Summarised requirements	my conclusions	Clauses	references
2.0	Issues relating to the cladding			
2.1	Not to manufacturer's specifications			
a)	Lack of control joints to harditex	Remedial work required	E2, B2	Paragraph 5.5

Notice to fix		My conclusions	Code	Paragraph
	Summarised requirements	My conclusions	Clauses	references
b)	Lack of drainage gap above head flashings:	Remedial work required Adequate in circumstances	E2, B2	Paragraph 5.5 Paragraph 5.6
c)	Lack of clearances to bottom of cladding:	Remedial work required Adequate in circumstances	E2, B2	Paragraph 5.5 Paragraph 5.6
d)	Lack of vermin strip to bottom of cavity	Remedial work required	E2, B2	Paragraph 5.5
e)	Exposed bottom edges of cladding	Adequate in circumstances	E2, B2	Paragraph 5.6
f)	Unpainted fibre-cement	Adequate	E2, B2	Paragraph 5.6
2.2	Not to relevant acceptable solutions			
a)	Condition of membrane	Remedial work required	E2, B2	Paragraph 5.5
b)	Insufficient size of internal gutter overflow	Adequate		Paragraph 5.6
c)	Internal gutter membrane lacks solid backing	Some remedial work required	E2, B2	Paragraph 5.5
d)	Lack of/inadequate flashings to:	Remedial work required Adequate Adequate in circumstances Remedial work required Adequate	E2, B2	Paragraph 5.5 Paragraph 5.6 Paragraph 5.6 Paragraph 5.5
e)	Inadequate inter-cladding junctions:	Remedial work required Adequate in circumstances	E2, B2	Paragraph 5.5 Paragraph 5.6
f)	Cracks to harditex cladding	Remedial work required	E2, B2	Paragraph 5.5
g)	Inadequate cladding/roof clearances	Completion of remedial work required	E2, B2	Paragraph 5.5
h)	Exposed timber	Completion of remedial work required	E2, B2	Paragraph 5.5
i)	Hand basins, showers and pan s not sealed to walls or floor	Remedial work required	E3	Paragraph 5.7.1
j)	Inadequate clearances to bottom plates	Adequate in circumstances	E2, B2	Paragraph 5.6
k)	Inadequate drain to driveway	Adequate	E1	Paragraph 3.2 Paragraph 5.7.2
2.3	Not to accepted trade practice			
a)	Unflashed and/or unsealed penetrations	Remedial work required	E2, B2	Paragraph 5.5
b)	Inadequate parapet cappings	Remedial work required	E2, B2	Paragraph 5.5
c)	Top-fixed cappings to parapet and chimney	Remedial work required	E2, B2	Paragraph 5.5
d)	Inadequate roof penetration	Remedial work required	E2, B2	Paragraph 5.5
2.4	Drainage and ventilation			
a)	Lack of cladding drainage & ventilation	Adequate in circumstances if remedial work completed	E2, B2	Paragraphs 5.2.2 and 6.2.2
3.0	Other building related issues			
a)	Soffits not in accordance with consent details	Adequate in circumstances	E2, B2	Paragraph 5.6
b)	Unknown installation of corrugated foam	Confirmed – adequate	E2, B2	Paragraph 5.4.3

8.2 I am satisfied that the house does not comply with the Building Code that was in effect at the time the building consents were issued and that the authority made appropriate decision to refuse to issue the code compliance certificate. However, I am also of the view that some items identified in the notice are likely to be adequate and I have also identified additional items that need to be addressed, so the notice should be modified accordingly (refer to paragraphs 9.1 and 9.2).

9. What happens next?

9.1 The notice to fix should be modified to take account the findings of this determination, identifying the items listed in paragraph 5.5 and paragraph 7.1 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying 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 owners 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.

- 9.2 Alternatively the authority may elect to withdraw the notice to fix and deal with the matter via a notice issued under section 95A of the Act.
- 9.3 The applicants can then produce a response, to either the modified notice to fix or the notice issued under section 95A, in the form of a detailed proposal for the house as a whole, produced in conjunction with a competent person with suitable experience in weathertightness remediation, as to the rectification or otherwise of the specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.

10. The decision

- 10.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:
 - the external building envelope does not comply with Clause B2 of the Building Code that was in effect at the time the building consents were issued insofar as Clause B2 relates to Clause E2
 - some interior fittings do not comply with Building Code Clause E3 and accordingly, I confirm the authority's decision to refuse to issue a code compliance certificate.
- I also determine that if the notice to fix dated 19 January 2009 is not withdrawn the authority is to modify the notice to fix to take account of the findings of this determination.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 16 May 2013.

John Gardiner

Manager Determinations and Assurance