MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2013/054

Regarding the refusal to issue a code compliance certificate for an 11-year-old house with monolithic cladding at 37B Harrowfield Drive, Hamilton

1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("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, S and J Friar ("the applicants")
- Hamilton City Council ("the authority"), carrying out its duties as a territorial authority or building consent authority

1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for an 11-year-old house because it was not satisfied that the building work complies with certain clauses[2] of the Building Code (First Schedule, Building Regulations 1992). The authority's concerns about the compliance of the building work relate to the weathertightness and durability of the wall cladding.

1.4 The matter to be determined[3] is therefore whether the authority correctly exercised its powers of decision when it refused to issue a code compliance certificate. In deciding this, I must consider whether the solid plaster wall cladding ("the stucco") to the house complies with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The stucco includes the components of the system (such as the plaster, the backing sheets and the flashings), as well as the way the components have been installed and work together.

[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] In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.
[3] Under sections 177(1)(b) and 177(2)(d) of the Act

1.5 In making my decision, I have considered:

- the submissions of the parties
- the report of the consultant engaged by the applicant ("the consultant")
- the report of the expert commissioned by the Ministry to advise on this dispute ("the expert")
- the other evidence in this matter.

2. The building work

2.1 The building work consists of a single-storey detached house situated on a level site in a low wind zone[4] for the purposes of NZS 3604[5]. The house occupies the rear section of a subdivided site, with a driveway providing access from the street to the south. The house is fairly simple in plan and form; and is assessed as having a low weathertightness risk.

2.2 Construction is generally conventional light timber frame, with concrete block foundations and a concrete floor slab, monolithic cladding, profiled metal roofing and aluminium windows. The 27.5° pitch gabled roof has eaves greater than 600mm overall and verges of about 400mm.

2.3 The cladding

2.3.1 The consultant and the expert were unable to confirm the type of stucco system used without destructive testing. However, I note that the consent drawings call for 'solid plaster over [proprietary fibre-cement sheet]' and the repaired horizontal crack photographed by the consultant appears to align with a joint to underlying backing sheets.

2.3.2 I therefore consider that the cladding system is likely to be stucco over a solid backing, which consists of fibre-cement sheets fixed through the building wrap directly to the framing timbers, and covered by a slip layer of building wrap, metal-reinforced solid plaster and a flexible paint coating.

2.4 Timber treatment

2.4.1 The stamped consent drawings include no reference to timber treatment and the expert made no comment on the matter. However, in a statement provided to the consultant (see paragraph 3.5.3), the builder noted:

> The pre-cut and pre-nail were carried out on site. The framing to the best of my knowledge was treated timber. It was definitely NOT the dry frame untreated timber that had been used around that time. The timber was a full 90x45 thickness and untreated dry frame at the time was only 35mm thick.

2.4.2 However, given the date of construction of the house in 2001, I am unable to determine the particular level and type of treatment of the timber described by the builder. I therefore consider that the wall framing of this house is unlikely to be treated to a level that will provide resistance to fungal decay.

[4] According to the bracing calculations
[5] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

3. Background

3.1 The authority issued building consent No. 2386/2000 to the applicants on 27 April 2001 under the Building Act 1991. The main construction of the house shell was apparently undertaken by way of a labour only contract during 2001.

3.2 The authority carried out various inspections from May to November 2001, including a pre-line inspection on 2 November 2001 and a post-line inspection on 9 November 2001. Electricity and gas were connected on 10 December 2001 and it appears that the house was sufficiently completed to be occupied early in 2002.

3.3 The protracted completion of the house

3.3.1 The remaining finishing work was gradually organised or completed by the owners and the authority carried out a further post-line inspection on 11 October 2004, which was the last inspection recorded for the construction.

3.3.2 In a letter to the applicants dated 12 June 2006, the authority noted that it had received no advice of completion of the house and suggested that a 'Code of Compliance inspection' be requested.

3.3.3 The applicants responded by email on 26 June 2006, explaining the delay finishing the house and requesting an extension of two months. The authority agreed to that extension, but no further inspections were carried out.

3.3.4 In 2007 the authority developed a policy for managing building consents issued under the Building Act 1991; and its 'Building Unit Policy' dated 25 May 2007[6] outlined the policy as (in summary):

- Code compliance certificates will not be issued for consents issued under the former Act.
- Consent records will be removed from circulation and stored.
- Applications for code compliance certificates will be refused and owners given options to:
  - apply to the Department for a determination, or
  - obtain a building report from an independent expert to lodge on the file.
- Any information on the property file will be made available on the LIM.

3.3.5 The applicants were not aware of any changes to policies or procedures and 'believed we could finish the house off over time and then apply for the [code compliance certificate] and have it issued.' Finishing work was finally completed by 2012.

3.4 The final inspections

3.4.1 The applicants applied for a code compliance certificate and the authority carried out a final building inspection on 14 March 2012. According to the applicants, the authority identified several minor issues to be completed and the inspection record noted that some documentation was outstanding.

3.4.2 The final plumbing inspection was carried out and passed on 3 August 2012 and the required documentation was provided. The applicants then approached the authority for guidance on what needed to happen next and were apparently told that the

[6] Sourced from another determination for a house inspected by the same authority

authority was refusing to issue a code compliance certificate and that 'we would have to go through the Determination process if we wanted to advance the matter.'

3.5 The consultant's report

3.5.1 After investigating the process of seeking a determination, the applicants decided to commission a weathertightness report on the monolithic cladding and engaged a weathertightness consultant. The consultant inspected the house on 10 November 2012 and 27 February 2013, providing a 'Cladding Report' dated February 2013.

3.5.2 The consultant noted that the scope of his investigation was restricted to a 'visual only, non-invasive inspection in areas of the building which were readily accessible at the time of inspection' and did not include concealed areas or components.

3.5.3 The consultant noted the stucco appeared to be in good condition. A statement from the builder dated 7 January 2013 confirmed that framing was not untreated and that the builder had observed that plasterers:

> ...had fixed side and bottom flashings to all windows. The head flashings supplied by the window manufacturer were also fixed in place. This procedure was discussed at the time with the plasterers, as at that time only foam based monolithic cladding had these side and bottom flashings fixed routinely and it was unusual to see with solid plaster.

3.5.4 The consultant noted no visible signs of moisture internally and carried out non-invasive moisture testing on both site visits. Most readings varied from about 8% to 12% (classified as 'green zone readings'), with four from 16% to 18% considered to be 'borderline' (classified as 'yellow zone'). The latter were taken below windows sheltered by 600mm eaves and remained constant despite the prolonged dry weather during the three months between visits. The consultant therefore considered that adjacent metal bracing was the probable cause of the higher readings.

3.5.5 The consultant commented on the following stucco areas (in summary):

- invasive moisture readings are recommended for the borderline readings
- there is no visual evidence of control joints to the stucco
- a small horizontal crack to the east elevation has been sealed and painted over
- although concealed flashings cannot be confirmed, the builder has confirmed that jamb and sill flashings were installed by the plasterers
- although cladding clearance to the southwest garage corner is insufficient, the area is well-drained, sheltered under eaves and moisture readings are very low
- the apron flashing to the entry canopy has been cut and modified to provide a kick out at the bottom, which is reliant on sealant
- the gate bolt plate is fixed through the cladding
- although well maintained, the stucco is due for a repaint.

3.6 The applicants met with the authority and provided a copy of the consultant's report. However they were apparently told that no code compliance certificate would be issued without a determination.

3.7 The Ministry received an application for a determination on 22 April 2013 and sought further information from the parties on reasons for the authority's refusal to issue a code compliance certificate. The applicants responded on 29 April, stating

that the authority had not provided any written explanations, noting that 'it has all been verbal from a variety of sources' within the authority.

4. The submissions

4.1 The applicants made a submission dated 30 March 2013; describing the background to the situation and the protracted completion of finishing work on the house. The applicants explained that there had been no indication that the authority would not consider issuing a code compliance certificate when all work was finished. They understood that the certificate could apply from the time the house was substantially complete in 2002, but all verbal advice from authority staff was that no code compliance certificate would be issued without a determination.

4.2 The applicant forwarded copies of

- the consent drawings
- the building consent and inspection records
- the email from the authority dated 12 June 2006
- the consultant's 'Cladding Report' dated February 2013
- various certificates, producer statements and other information.

4.3 The authority made no submission in response to the application. I sought clarification from the authority as to its reasons for refusing to issue a code compliance certificate

4.4 The authority responded three months later in an email dated 27 June 2013, stating that it had explained to the applicants that:

> ...in order to issue a code compliance certificate we must be satisfied on reasonable grounds that the building complies... ...with the building code given the building consent and inspections were generally carried out under the Building Act 1991.

4.5 The authority confirmed that it considered it had insufficient grounds to verify that the house complied with Building Code clauses E2 and B2, without further investigation and remediation in regard to compliance of the following (in summary):

- the age and the nature of the direct fixed stucco cladding
- reliance on the paint finish and on-going maintenance of the stucco
- items identified in the consultant's report needing investigation/remediation:
  - the borderline non-invasive moisture readings
  - the lack of cladding clearance
  - the kick out to the bottom of the apron flashing
  - the lack of evidence of sill and jamb flashings
  - penetrations through the cladding.

4.6 The applicants responded to the above on 3 July 2013, expanding on issues within the consultant's report and including the following comments (in summary):

- Stucco cladding has been around for many decades without problems, and this house has 'wider than normal eaves' The house 'was built soundly', is weathertight and conformed to the requirements of the day.

- Any issues identified by the consultant should have been identified by the authority in the final inspections; instead it relied totally on the consultant's report to justify a decision made prior to that report.
- Because the house does not comply with 'current requirements' the authority adopted a pre-determined position and had no intention of issuing a code compliance certificate.
- The authority has failed to comply with the Act by not providing written notice of the refusal and the reasons for that refusal.

4.7 A draft determination was issued to the parties for comment on 15 August 2013.

4.8 The applicants and the authority accepted the draft without further comment in responses received on 28 August and 9 September 2013 respectively.

5. The expert's report

5.1 As mentioned in paragraph 1.5, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Architects. The expert inspected the house on 3 July 2013, providing a report dated 16 July 2013 which was provided to the parties on 17 July 2013.

5.2 The expert noted that the house appeared to be well maintained. The stucco appeared 'well installed' and in good condition, with one repaired horizontal crack. The expert noted that the scope of his assessment was to investigate and comment on the results in the consultant's report (see paragraph 3.5.5).

5.3 Moisture testing

5.3.1 The expert inspected the interior of the house and noted no evidence of moisture ingress. The expert noted that the consultant's moisture meter took 'indicative type' readings on wall surfaces, four of which were elevated. (I note that the consultant's lower level readings were from about 8% to 12%, which appeared to the equilibrium range readings, in contrast to the four elevated readings from 16% to 18%.)

5.3.2 In order to assess the consultant's elevated readings, the expert took invasive moisture readings through internal linings and trim into the bottom plates of walls in the same locations. These readings varied from13% to 17%, which the expert considered were 'within normal limits with no suggestion of water ingress present'.

5.3.3 The expert also took two further invasive moisture readings as follows:

- 15% at the reduced cladding clearance to the southwest corner of the garage
- 13% directly beneath the bottom of the apron flashing to the entry canopy.

5.3.4 The expert noted that, in contrast to the consultant's summer readings, his inspection was undertaken during winter after a spell of wet conditions, including heavy rain and wind. I consider that the expert's readings are therefore likely to represent the higher level of seasonal variation.

5.4 The stucco

5.4.1 The expert noted that he was unable to verify the solid plaster thickness, number of layers and reinforcing within the stucco. However he observed that

- the stucco is in good condition and appears well installed and maintained

- the fine textured surface is consistent over the whole of the building
- the plaster surface shows no evidence of problems such as:
  - stress cracks to corners (from faulty reinforcing)
  - surface crazing (from incorrect plaster mix and/or inadequate curing)
  - 'drumminess' in the plaster (from loss of adhesion between coats).

5.4.2 The expert noted that cladding clearances to adjacent paving and ground levels were satisfactory, with planting well maintained and clear of plaster surfaces, except for an area of paving extending from the garage door around the southwest corner. However, the expert considered that limited area was acceptable, given that

- the BRANZ 'Good Practice Guide' current at the time of construction noted that clearances could be lowered to 35mm above well drained paving
- the bottom of the plaster is sheltered beneath the roof overhang and the paving slopes rapidly away – reducing the risk of ponding water wicking into plaster
- there is no evidence of moisture penetration in the past 11 years, with an adjacent invasive moisture reading of 15% well within 'normal limits'.

5.4.3 The expert observed no visual evidence of vertical control joints at 4 metre minimum centres in accordance with NZS 4251[7], but also noted that finish coats of plaster are able to cover and disguise such joints from view (I consider this in paragraph 6.3.2).

5.4.4 The expert observed that the cladding penetrations noted in the consultant's report and by the authority are all on the western end of the south wall of the garage, noting

- there is no evidence of moisture penetration associated with the penetrations
- the electrical meter box is not flashed (I note that the 400mm deep verge provides reasonable shelter to the top, given the low wind zone)
- fixings to the gate bolt socket plate penetrate the stucco (I note that sealant has been applied and the projecting sill offers shelter in addition to the verge)
- the gas meter box is a removable shelter over the meter and is not fixed.

5.5 The windows and doors

5.5.1 Windows and doors are recessed, with visible head flashings and sloping sill projections. Except in gable end walls, joinery is sheltered beneath eaves and appear to be installed satisfactorily in accordance with NZS 4251, which was operative at the time of construction. (I note that openings include drip edges at the head, plastered jamb reveals and sloping plastered sills, which appear similar to details shown in NZS 4251 for recessed windows.)

5.5.2 However the expert was unable to verify the installation of concealed jamb and sill flashings without significant destructive investigation; he did not consider destructive testing reasonable or necessary given the lack of visible signs of leaking inside the house, and the low invasive moisture reading beneath a window exposed on the gable end wall.

[7] New Zealand Standard NZS 4251: Solid plastering; Part 1: 1998 Cement plasters for walls, ceilings and soffits

5.6 The apron flashing to the entry canopy

5.6.1 The expert assessed the bottom of the apron flashing, noting that

- the bottom has been modified to form a kick out to direct water away from the wall into the gutter
- although 'rather roughly formed', the detail appears satisfactory
- an invasive moisture reading of 13% into framing directly below the kick out indicates that there is no associated moisture penetration

  (I also note that the apron flashing is short in length and sheltered by the 400mm verge above, so is unlikely to be subject to heavy rainfall.)

5.7 Conclusions

5.7.1 The expert considered that as the house is not leaking it is meeting the performance requirements of Clause E2. Given the lack of comment in inspection records in regard to concerns about durability, the expert also considered that the house would also have met durability provisions at the time it was constructed.

5.7.2 The expert's opinions on the authority's list are summarised as follows:

Items per authority's email	Expert's opinion	Relevant paragraphs
4 borderline moisture readings	Invasive readings confirmed as low.	Paragraph 5.3.2
Cladding clearance	Satisfactory in circumstances	Paragraph 5.4.2
Kick out to apron flashing	Satisfactory in circumstances	Paragraph 5.6.1
Sill and jamb flashings not visible	Likely to have been installed	Paragraph 5.5
Penetrations through claddings	Satisfactory in circumstances	Paragraph 5.4.4

6. The compliance of the external envelope

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:

Increasing risk

- the stucco cladding is fixed directly to the framing
- the 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 single-storey and fairly simple in plan and form
- there are few complex junctions and penetrations through the cladding
- there are roof overhangs to shelter the stucco.

6.2.2 Using the E2/AS1 risk matrix to evaluate these features, the elevations are assessed as having a low risk rating. If details shown in the current E2/AS1 were adopted to show code-compliance, a drained cavity would be required for the stucco cladding at all risk levels, although this was not a requirement for solid plaster over rigid backings at the time of installation.

6.3 Weathertightness performance

6.3.1 Taking account of the expert's report, the stucco cladding appears to have been installed in accordance with good trade practice and the standards at the time, with no evidence of moisture penetration into the walls.

6.3.2 With regard to the lack of evidence that control joints have been installed in plastered walls beyond 4m wide, I note the following:

- the stucco appears to have been installed according to good trade practice onto framing above rigid concrete foundations
- all drying shrinkage in the plaster and supporting framing would have occurred during the early part of the period since construction
- some minor cracking is to be expected in response to environmental factors such as imposed temperature and moisture effects, wind, earthquake forces and seasonal movements
- the stucco shows no signs of significant cracking or associated moisture entry after more than eleven years, which may be due either to the inclusion of control joints below the top coat of plaster or an indication that the stucco is adequate despite their omission.

6.3.3 I also note the expert's conclusions in regard to the other items identified by the authority (see paragraph 5.7.2), and accept that these areas are adequate in these particular circumstances.

6.3.4 Notwithstanding that the stucco is fixed directly to timber framing, thus inhibiting drainage and ventilation behind the cladding, I note certain factors that assist the performance in this case:

- The stucco cladding is installed according to good trade practice and has been well maintained.
- The cladding is generally sheltered by generous roof overhangs.
- After 11 years, there is no evidence of moisture penetration.

6.4 Weathertightness conclusion

6.4.1 The expert's report together with the consultant's report provides me with reasonable grounds to conclude that the current performance of the stucco is adequate because it is preventing water penetration at present, and also that there are no cladding faults likely to allow the ingress of moisture in the future. Consequently, I am satisfied that the house complies with Clauses E2 and B2 of the Building Code.

6.4.2 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.

6.4.3 Effective maintenance of claddings is important to ensure on-going 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, including examples where the external wall framing of the building may not be treated to a level that will resist the onset of decay if it gets wet (for example, Determination 2007/60).

6.5 Durability

6.5.1 The relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods ("durability periods") "from the time of issue of the applicable code compliance certificate" (Clause B2.3.1).

6.5.2 In this case the delay since the completion of the building raises concerns that many elements of the building are now well through or beyond their required durability periods, and would consequently no longer comply with Clause B2 if a code compliance certificate were to be issued effective from today's date.

6.5.3 I have considered this issue in many previous determinations and I maintain the view that

(a) the authority has the power to grant an appropriate modification of Clause B2 in respect of all the building elements, if requested by an owner

(b) it is reasonable to grant such a modification, with appropriate notification, as in practical terms the building is no different from what it would have been if a code compliance certificate for the building work had been issued at the time of substantial completion.

6.5.4 I therefore leave the matter of amending the building consent to modify Clause B2.3.1 to the parties.

7. The authority's actions

7.1 As noted in paragraphs 3.6 and 3.7, the authority did not provide reasons for its refusal to issue the code compliance certificate. I do not believe that this is acceptable; the authority is obligated to do so under section 95A of the Act. It is important that an owner be given clear reasons why an authority considers compliance has not been achieved so the owner can either then act on those reasons, or apply for a determination if the reasons are disputed.

7.2 The authority's inspection of 3 August 2012 (refer paragraph 3.4.2) raised no specific matters of non-compliance and it appears that the authority continues to apply a 'blanket policy' to the house in response to its age and construction despite previous determinations involving this authority that have addressed this matter.

7.3 I consider the authority incorrectly exercised its powers in respect of its obligations under section 95A when it refused to issue the code compliance certificate without providing reasons to the applicant.

7.4 I also note the period of time taken by the authority to respond to the Ministry's request for clarification of the reasons for refusing to issue the code compliance certificate. I would not expect that it should take this long for the authority to explain a decision it had already made.

8. The decision

8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the external building envelope complies with Building Code Clause B2 and E2, and the authority incorrectly exercised its power of decision in refusing to issue a code compliance certificate; accordingly I reverse the authority's refusal.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 20 September 2013.

John Gardiner
Manager Determinations and Assurance