



Determination 2013/031

Regarding the issuing of code compliance certificates for the recladding of a house at 7A Seymour Street, St Mary's Bay, 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:

- joint-owners of the building, G Anderson and A Weaver (“the applicants”)
- Auckland Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.

1.3 The determination arises from the failure of stone veneer cladding installed under two consents issued to remediate weathertightness defects to a monolithic-clad house. Code compliance certificates have been issued for both consents. The applicants are of the view that the work was not correctly detailed in the applications for consent, the building work was not compliant with the Building Code, and that the code compliance certificates should not have been issued. Remedial work has since been carried out in respect of the stone veneer cladding.

1.4 The matters to be determined² are therefore whether the authority correctly exercised its powers in issuing the building consents and the code compliance certificates for the 2006 recladding. In deciding these matters, I must consider:

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

1.4.1 Matter 1: The issue of the building consents

Whether the consent documentation provided reasonable grounds to be satisfied that the stone veneer cladding system proposed for the 2006 alterations would comply with Clause E2 External Moisture and Clause B2 Durability of the Building Code when completed in accordance with the plans and specifications.

1.4.2 Matter 2: The issue of the code compliance certificates

Whether the 2006 building work as constructed complied with the building consents issued for that building work.

1.5 Matters outside this determination

1.5.1 This determination is limited to the 2006 recladding work and does not consider other areas altered as part of the subject building consents.

1.5.2 The applicants also raised concerns regarding the processing of recent applications for building consents for remedial work to the house. This determination is limited to the building work covered by the consents issued for the 2006 alterations and does not consider any recent disputes with the authority.

1.6 In making my decisions, I have considered

- the submissions from the applicants, in particular
 - the reports by the building surveyor (“the consultant”) engaged by the applicant to investigate the stone cladding
 - photographic records provided by the applicant
- 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 the re-cladding of a two-storey detached house situated on a north-sloping site in a low wind zone for the purposes of NZS 3604³. The expert has taken the garage doors as facing east and this determination follows that convention.

2.2 The ground floor is a part basement set into the slope of the site, which provides the main entry and three bedrooms. A curved staircase leads up to living and dining areas together with a master bedroom and ensuite bathroom. The south garage and kitchen single-storey, with doors opening onto a southwest courtyard. A large new deck has replaced two original upper level decks on the north elevation of the house.

2.3 Construction is generally conventional light timber frame, with concrete foundations and floor slab, concrete block retaining and boundary walls, monolithic and stone veneer cladding, aluminium windows, a flat membrane roof to the garage and a 10° pitch hipped copper roof with deep eaves to the house.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.4 Wall claddings

- 2.4.1 The 2006 amended drawings call for timber-framed external walls to include a proprietary batten and backing sheet system⁴ fixed through the building wrap to the framing timbers. In two-storey walls, 20mm timber battens and 9mm thick fibre-cement backing sheets extend full height, with two different claddings applied.
- 2.4.2 The lower walls are clad in natural stone (“the stone slips”) adhered to what is believed to be a liquid-applied membrane that was applied to the backing sheets. The stone extends up to balustrade and window sill height on the west, north and part of the east walls of the upper level, with decorative stone ‘sills’ planted against the backing sheets at inter-cladding junctions.
- 2.4.3 The manufacturer of the batten and backing sheet system recommends a limit of 50kg/m² for stonework adhered to the fibre-cement backing sheets. The amended drawings describe the stone cladding as:
- ‘Niwala’ medium weight slip stone veneer adhesive fixed to eterpan with ‘Flexi-wall ‘n floor’ adhesive. Stone veneer to be sealed with ‘Aqua mix penetrating sealer’.
- 2.4.4 Walls above the stone cladding are clad in a monolithic cladding system described as stucco over a solid backing. Backing sheets extend from behind the stone veneer and are covered by a slip layer of building wrap, metal-reinforced solid plaster and a flexible paint coating. For the stucco to single-storey-high walls, the drawings call for backing sheets to be 4.5mm fibre-cement sheets fixed over a drained cavity.

3. Background

- 3.1 The original house was built in 1998 with monolithic cladding fixed directly to the timber framing. A code compliance certificate was issued in 1999 but the house subsequently developed problems related to moisture ingress.
- 3.2 The authority issued building consent No. BC/2005/24516/01 (“the original recladding consent”) to the former owner on 29 November 2005 under the Building Act 2004 for the removal of upper level decks, construction of a new roof and installation of new wall claddings over drained cavities. The original drawings included
- stone slips applied over 9mm backing sheets and 50mm cavity battens
 - stucco cladding, applied over 6mm backing sheets and 20mm cavity battens
 - sloping stone sills that bridge and separate upper and lower cavities.
- 3.3 Prior to construction commencing, the authority issued a new consent on 27 January 2006 (No. BC/2005/24516/02) for a new deck and incorporated an amended cavity and backing sheet system (“the amended consent”). The amended drawings included a change from two separate cavities to a single continuous cavity system with 9mm backing sheets and 20mm cavity battens.
- 3.4 Both building consents included the following requirement:
- When the Niwala Cladding is completed – using FLEXI-WALL-n-FLOOR ADHESIVE --- then all the Face surface of the Stone cladding MUST be treated with AQUA MIX PENETRATING SEALER.

⁴ Part of a proprietary stone veneer system

- 3.5 The authority carried out various inspections which were recorded under the original recladding consent number, including seven inspections during wall cladding installation in February and March 2006.
- 3.6 The authority carried out a final inspection of the work on 8 June 2006, which identified one item requiring attention. The re-inspection on 26 June recorded ‘final pass’ and noted ‘sealer on stone seems OK.’ Producer statements were subsequently provided for the cavity battens and backing sheet system, the stucco cladding, the copper roofing, and the deck and wall membranes.
- 3.7 The authority issued separate code compliance certificates for the original recladding consent and the amended consent on 16 October 2006.
- 3.8 It appears that stone began dislodging from some areas shortly after completion and stone slips were refixed (some with screw fixings through the cavity). Some other remedial work was apparently carried out and the current owners purchased the house in September 2007.
- 3.9 Stone continued to dislodge from many wall areas and in 2011 the applicants engaged the consultant to investigate the stone cladding and some other cladding defects and to provide recommendations for repair.
- 3.10 The consultant carried out a series of visual inspections from July to October 2011 and submitted a report dated 20 December 2011 (“the consultant’s first report”). The first report included an extensive photographic record (including video footage) of the condition of the stone slips prior to removal of the stone, which I have considered as evidence in this determination.
- 3.11 The remaining stone was subsequently removed and the stone-clad areas were reclad for the second time as part of alterations and extensions carried out under new building consents in 2011 and 2012. I record here that the recent work is not considered in this determination. However, I have referred to the photographic and video records of stone removal as evidence in this determination, notwithstanding that as the house is now reclad.
- 3.12 During removal of the original stone and completion of other remedial repairs, additional information was gathered and the consultant provided an addendum report dated 30 November 2012 (“the consultant’s second report”), which concluded that the primary reason for the failure was a defective membrane under the stone.
- 3.13 The Ministry received an application for a determination on 1 March 2013.

4. The submissions

- 4.1 The applicants provided a submission dated 28 February 2013, which set out the background to the 2006 recladding work and described investigations undertaken on the problem. The applicants also outlined items which they considered did not comply with the amended building consent.

- 4.2 The applicants forwarded copies of
- the building consent documentation for the two building consents
 - the inspection records
 - the two code compliance certificates dated 16 October 2006
 - the consultant's first and second reports
 - photographic and video records of the 2006 cladding
 - various certificates, producer statements and other information.
- 4.3 The applicants made a second submission dated 5 March 2013 setting out the issues the applicants sought a determination on in respect of the authority's issuing of the consents and code compliance certificates and whether specific items comply with the Building Code.
- 4.4 The authority made no submission in response to the application.
- 4.5 The applicants made a further submission on 6 May 2013 in response to the expert's report (refer paragraph 5.9).
- 4.6 A draft determination was issued to the parties for comment on 13 May 2013.
- 4.7 The applicants provided a response to the draft determination on 16 May 2013, noting that
- 'stone was also on the southern wall from west side going east until garage west wall across the kitchen rear wall area' (refer paragraph 2.4.2)
 - the amended drawings included the following notation
9mm Eterpan fibre cement board with horizontal joints Z-flashed
And waterproofed with Flexi-Seal Licensed waterproofing system
 - no producer statement was received for the membrane to the garage roof
 - the determination decision in respect of the unsatisfactory documentation for the amended building consent (BC/2005/24516/02) should also apply to the original recladding consent (BC/2005/24516/01).
- 4.8 The authority accepted the draft determination in an email on 6 June 2013.
- 4.9 Both parties noted a typographical error in paragraph 7.4 that has subsequently been corrected.

5. The expert's report

5.1 General

- 5.1.1 As mentioned in paragraph 1.6, I engaged an independent expert to assist me who is a member of the New Zealand Institute of Architects. The expert inspected the house on 3 and 5 April 2013, and provided a report completed on 23 April 2013.
- 5.1.2 The expert explained that his report was intended to provide an assessment of whether the authority was correct to issue code compliance certificates for the 2006

recladding work. In considering this, the expert also considered whether the amended documentation supplied with the application for certification provided the authority with sufficient evidence to issue the amended building consent.

- 5.1.3 The expert noted that the amended building consent should have been issued as an amendment to the original recladding consent rather than as a separate consent, as the effect of issuing two code compliance certificates simultaneously 'was to incorrectly certify that work altered and omitted' from the original recladding consent was in fact carried out.
- 5.1.4 As all stone cladding had been replaced by the time of his inspection, the expert relied on the photographic records provided by the applicants and included in the consultant's first report, and samples of the 2006 cladding materials.

5.2 The amended building consent

- 5.2.1 The expert noted that many details submitted during the original consent process were superseded when the amended building consent was issued. In regard to the amended consent documentation, the expert noted that the stone specification was not properly edited, with blanks not filled in and alternative optional clauses left in place.
- 5.2.2 The expert also noted that the stone slip cladding system originally specified was an alternative solution, which was supported by limited evidence of compliance in the form of
- description of the stone by the supplier
 - technical information, including references to BRANZ appraisals, for
 - the proprietary backing sheet and cavity system
 - the specified waterproofing membrane, adhesive and stone sealer
 - engineers' general advice on the proposed system (dated prior to the issue of the original consent), in response to the authority's queries and limited to consideration of weatherproofing the fibre-cement backing sheets.
- 5.2.3 Discussions with the supplier of the specified adhesive and proposed waterproofing membrane identified that the only prior consultation 'on design issues' had been on the compatibility of the specified waterproofing membrane and adhesive. The supplier raised concerns about
- lack of support for the stones
 - weight of the stones
 - insufficient coverage by the adhesive
 - incorrectly installed control joints
 - application of the membrane not carried out by a licensed applicator.
- 5.2.4 The expert concluded that when the amended building consent was issued, the authority did not have 'reasonable or adequate evidence' to conclude that the stone cladding as designed would meet the performance requirements of Building Code clauses B1 and B2.

5.3 The waterproofing membrane

- 5.3.1 A sample of the installed membrane was submitted to the specified membrane manufacturer for assessment. An 'Ash Test' was carried out, which weighed the membrane before and after burning; comparing the loss of weight with tests of known materials/mixes. Although tests cannot identify actual polymers used in a product, the manufacturer was able to conclude that either the installed membrane was not the specified product, or if it was then it was incorrectly mixed and too thin.
- 5.3.2 The expert concluded that it is 'reasonably clear' that the specified waterproof membrane was not applied to the fibre-cement backing sheets for the following reasons:

The specified membrane	The installed membrane
2-coat system, with a pale gray topcoat	Dark gray in colour
Recommended thickness 1.0mm to 1.2mm	Thickness approximately 0.4mm
Uses stencil marking to identify it as a 'licensed waterproofing system'	No marking found during removal of 2006 stone slips
Applicators provide standard 'Licensed applicators producer statement'	No record of standard producer statement
Manufacturers product warranty provided	No record of standard warranty

5.4 The failure of the stone cladding

- 5.4.1 The expert studied the photographs and the video footage provided by the applicants and also photos in the consultant's first report, noting that
- in areas of dislodged stone, membrane is visible and free of adhesive, showing that most separation was between the membrane coats
 - when remaining stone was removed, separation was generally at membrane inter-coat boundary, with the video footage showing the ease of removal
 - the only stones with sound adhesion were over a small repaired area where membrane had been ground off and stones adhered directly to backing sheets.
- 5.4.2 The expert also commented on other defects referred to in correspondence and reports, which could have contributed to stress leading to separation at the 'weakest element' of the membrane. I have added comments from the expert where appropriate (in summary):

Defects in the stone cladding	The expert's comments
Defective waterproofing membrane	Photographic records show insufficient inter-coat adhesion and/or cohesion.
Lack of support at the base	No solid support provided at the base.
Lack of coverage of adhesive	Although coverage was not 100%, adhesive remained attached to stone after removal.
Stonework overweight	A sample of stone with adhesive weighed about 64kg/m ² compared to the limit of 50kg/m ² (see paragraph 2.4.3).

Defects in the stone cladding	The expert's comments
Defective control joints	Joints were not carried through stonework.
Lack of ventilation/weep holes	Lack of sealing to mortar joints, provided some pathways for moisture to escape.

5.4.3 The expert concluded that definitive conclusions could not be provided without identifying the actual membrane used and undertaking further study to evaluate the interplay of issues in order to advise whether the cladding would have performed adequately 'if the stone had been lighter, solid support provided at the base, control joints installed and adhesive coverage 100%'.

5.5 The garage wall cladding

5.5.1 Although consent drawings called for east and west walls of the garage to be reclad with stucco over a drained cavity, the expert observed that

- the plaster texture was uniform at the junction with the plastered masonry boundary wall to the garage, which was not altered during 2006 recladding
- electrical fittings had not changed
- the original fibre-cement backing sheets fixed directly to framing were visible in photos taken during recent alterations.

5.5.2 The expert concluded that the east and west garage walls had not been reclad in accordance with the consent. Therefore, the courtyard doors installed in 2006 were likewise not weathertight or in accordance with the consent, with

- the bottom of the original plaster buried below the paving
- no drained cavity installed
- no wrap and tape at the framing opening
- no air seals installed.

5.6 The garage roof

5.6.1 The consent documents call for the new membrane to be 'Nuraply 3P', which is a reinforced polymer-modified bitumen sheet that is cold glued or heat welded to the substrate with heat welded joints.

5.6.2 The expert observed that the installed membrane was a smooth-finished bituminous sheet which appeared similar to several types of torch-on membrane. The expert contacted the suppliers, who advised that no application for a warranty had been received for the roof. A producer statement had been provided by the roofer, though its scope was limited to the deck and wall membranes.

5.6.3 The consent drawings show that the original garage roof was laid to fall towards a membrane gutter at the junction with the kitchen wall. That gutter continued along the parapet to an outlet at the southwest corner. The drawings also showed the deep eaves of the new copper roof overhanging the garage roof and the original gutter.

5.6.4 The expert inspected the garage roof, noting that a clad upstand closed off the area under the eaves of the 2006 copper roof, which blocked off the original gutter. The expert noted

- evidence of ponding against the eaves upstand
- membrane rucking where a lap was located over an original lap
- sealants applied at sheet laps in lieu of melted bitumen
- cracks at some laps against the eaves upstand
- membrane not taken up sides of a roof vent, with cracks at the junction.

5.7 Other issues

5.7.1 The expert also noted the following items in regard to other photographs and areas:

- A galvanised vent outlet is installed on the copper roof and rain splash off the copper is contributing to corrosion of the vent.
- The reclad chimney incorporated a cavity without replacing the chimney capping leading to open mitres at the flashing corners.
- A drainage channel had been installed outside the entrance doors but the level was too high, which had lead to ponding and decay in adjacent timber (shown in photos taken by the owner before the 2011/2 remedial work).

5.8 Conclusions

5.8.1 The expert concluded that

- the two building consents had been issued for ‘incompletely specified work and for alternative solutions for which there was inadequate evidence of adequate performance’
- the two code compliance certificates incorrectly certified that the work complied with the building consents.

5.9 A copy of the report was forwarded to the parties on 1 May 2013. The applicants responded on 6 May 2013, expanding on various items in the expert’s report and including the following comments (in summary):

- The drawings also called for new entrance joinery, which was not installed.
- Although other defects may have caused ‘serious consequences’ in the longer term, evidence points to the defective membrane being the sole reason for the stone cladding failure shortly after it was installed.

6. Matter 1: The issue of the building consents

6.1 Section 49(1) of the Act requires an authority to:

... grant a building consent if it is satisfied on reasonable grounds that the provisions of the building code would be met if the building work were properly completed in accordance with the plans and specifications that accompanied the application.

- 6.2 In order for the authority to form a view as to code compliance of the proposed 2006 recladding, it needed to consider the evidence that was available at the time and to seek further information as required to allow it to be satisfied, on reasonable grounds, that the building would comply with the Building Code if built in accordance with the plans and specifications submitted.
- 6.3 The Act allows the authority to set reasonable requirements for the documentation that accompanies applications for building consents. The authority is entitled to set minimum requirements to ensure that the proposed building work is clearly documented and to require the applicant to clearly demonstrate and document how compliance is to be achieved for those areas it considers unclear.
- 6.4 For the original recladding consent, the authority assessed the information it had received with the building consent application and appropriately sought further information prior to issuing that consent. Although the amended documentation accompanying the new application made significant changes to the proposed recladding system, the authority sought little further information on the cladding.
- 6.5 I therefore concur with the expert's conclusion that the building consents were issued for incompletely specified building work and for alternative solutions for which there was insufficient evidence of adequate performance.
- 6.6 I am of the view that the authority did not have sufficient evidence to conclude that the stone cladding system would comply with the performance requirements of the Building Code.

7. Matter 2: The issue of the code compliance certificates

- 7.1 Section 94 of the Act requires an authority to issue a code compliance certificate only if it is satisfied on reasonable grounds that the building work complies with the building consent. Notwithstanding that, there may be some instances where as-built work does not comply with the consent but still complies with the Building Code, in which case consent amendments may be the most appropriate regulatory action to correct the matter. However, that does not apply to the subject work.
- 7.2 In particular, the significant early failure of the stone cladding clearly demonstrates that the stone cladding fell short of the durability requirements of the Building Code. In addition to the stone cladding, the expert's report identifies other items that did not comply with Clauses B2 and E2 of the Building Code at the time the code compliance certificates were issued.
- 7.3 Taking account of the expert's report I consider that the building work did not comply with the building consents in respect of the following:
- The lack of evidence that the waterproofing membrane to the fibre-cement backing sheets was the product specified in the consent documentation.
 - Stone slips installed with

- defective waterproofing membrane to the backing sheets
- lack of solid support at the base
- the weight of stone and adhesive beyond recommended limits
- inadequate control joints.
- Two walls of the garage not reclad as called for in the drawings.
- The courtyard doors not installed in accordance with the drawings.
- Changes to the garage roof membrane.
- Closing in the overhang to the upper roof, leading to ponding on the garage roof.
- The re-use of the original capping to the re-clad chimney, with open mitres.
- Installation of a defective drainage channel to the entrance doors.
- Entrance door joinery not replaced as called for in the drawings.

7.4 At the time of the issue of the two code compliance certificates, I conclude that the authority did not have reasonable grounds to be satisfied that the subject building work had been completed in accordance with the building consents. The recorded failure of the cladding after the work had been completed provided clear evidence that compliance had not been achieved. I consider the authority did not exercise its powers correctly in terms of section 94(1) of the Act.

8. The decision

8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:

- the documentation in the original recladding consent (BC/2005/24516/01) and the amended building consent BC/2005/24516/02 did not provide reasonable grounds to be satisfied that the stone veneer cladding proposed for the 2006 alterations would comply with Clause E2 External Moisture and Clause B2 Durability of the Building Code when completed in accordance with the plans and specifications
- the authority incorrectly exercised its powers in issuing code compliance certificates for building consents BC/2005/24516/01 and BC/2005/24516/02 because the work as built did not accord with the approved building consents

accordingly, I reverse the authority's decision to issue code compliance certificates for building consents BC/2005/24516/01 and BC/2005/24516/02.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 10 June 2013.

John Gardiner
Manager Determinations and Assurance