



Determination 2009/55

Refusal of a code compliance certificate for a four-year-old house with a monolithic cladding system at 9 Rimu Street, New Lynn, 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, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicant is the owner, C Keane (“the applicant”), acting through her lawyer (“the applicant’s lawyer”), or her consultant (“the applicant’s consultant”). The other party is the Waitakere City Council (“the authority”), carrying out its duties as a territorial authority or building consent authority. I consider that the builder of the house, M Keane, (“the builder”) is a person with an interest in this determination.
- 1.2 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a four-year-old house (“Unit 2”) because it is not satisfied that it complies with Clause E2 of the Building Code² (First Schedule, Building Regulations 1992).

¹ The Building Act 2004 is available from the Department’s website at www.dbh.govt.nz.

² The Building Code is available from the Department’s website at www.dbh.govt.nz.

- 1.3 The matters for determination, in terms of sections 177(a) and 177(b)(i) of the Act³, are:
- whether the cladding as installed on the building (“the cladding”) complies with Building Code Clause E2 External Moisture and consequently Clause B2 Durability. By “the cladding as installed” I mean the components of the system (such as the backing sheets, the joints and the coatings), as well as the way the components have been installed and work together.
 - whether the authority was correct in its decision to refuse to issue a code compliance certificate.

1.4 In making my decision, I have considered:

- the submissions of the parties
- the reports of the consultant engaged by the applicant
- the report of the expert (“the expert”) commissioned by the Department to advise on this dispute (refer paragraph 5)
- the report of the industrial testing facility (“the first testing facility”) commissioned by the Department (refer paragraph 5.9)
- the report of the second expert (“the second expert”) commissioned by the Department to advise on this dispute (refer paragraph 6)
- the report of the second industrial testing facility (“the second testing facility”) commissioned by the Department (refer paragraph 6.6)
- the other evidence in this matter.

I have evaluated this information using a framework that I describe more fully in paragraph 7.

2. The building work

- 2.1 Unit 2 is a two-storey town house situated on an excavated slightly sloping site that is in a low wind zone in terms of NZS 3604⁴. Construction is of conventional light-timber framing built either on concrete ground floor slabs or intermediate timber framed floors.
- 2.2 The building is reasonably simple in plan and form. The steeply pitched roofs are at two main levels and have hip, valley, and wall-to-roof junctions, and 300mm wide eaves projections. A small cantilevered roof is constructed at two elevations over the main entrance. A low timber-framed close-boarded deck, which does not have a balustrade, is constructed at the ground floor level outside the north elevation of the house.
- 2.3 The expert took a sample from the external wall framing, which was then tested by a laboratory. The laboratory reported that there was no evidence of complete boron, copper or tin treatment in the tested sample. Accordingly, based on this report, I

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.

⁴ NZS 3604: 1999 “Timber framed buildings”.

accept that the external wall framing is unlikely to be treated to a level that is effective in helping resist decay if it absorbs and retains moisture.

- 2.4 The monolithic cladding is a system described as solid plaster over a rigid backing. In this instance the backing consists of 4.5mm fibre-cement sheets fixed through the building wrap directly to the framing timbers, and covered by a slip layer of building wrap, and reinforced solid plaster. The metal mesh within the plaster is a proprietary product that is crimped with 7.5mm projections to form “self-furring” reinforcing. The plaster is finished with a one-coat high-build paint system.

3. Background

- 3.1 On 12 March 2001, the authority issued a building consent (No. 20010290), under the Building Act 1991, for the erection of two townhouses, Units 2 and 3. Unit 2 is the subject of this determination.
- 3.2 Supervision of the building work was carried out by two registered building certifiers; “building certifier A” and “building certifier B”. Building certifier A carried out various inspections of Unit 2 during construction.
- 3.3 According to a “Monthly Report” dated 17 May 2003, building certifier A had given the building a “pass” after a pre-line inspection on 18 September 2002. While the report noted that the plaster external lining complied, it also included a note dated 16 April 2002 that advice on external linings was required. On 4 May 2002 the plaster external lining failed an inspection, as the external mesh control joints were not installed.
- 3.4 On 16 May 2003, building certifier A advised the authority that it was no longer involved in the project and was handing the job back to the authority for completion under section 57(3)(b) of the Building Act 1991.
- 3.5 Building certifier B then carried out further inspections and issued a “Building Certificate” dated 26 May 2003, noting that it had been engaged to inspect specified building work and certifying that, relating to Stage 1 of the project (Unit 2), it was satisfied on reasonable grounds that:
- The proposed work would comply with the listed provisions of the Building Code if properly completed in accordance with the listed plans and specifications.
- 3.6 The scope of the work referred to noted:
- Nature of engagement:
Field inspections
Issue of code compliance certificate
- Comments: Drainage and final inspections only
Issue code compliance certificate
- 3.7 Building certifier B then issued a “Monthly Report” for progress as at 25 July 2003. This report noted that, after the final inspection, apart from the drainage, none of the other building elements complied. A further report issued on 10 December 2004 contained the same information with the amendment that the foundations and floor slabs were now compliant.

- 3.8 The building file was returned to the authority on 29 December 2004, as building certifier B's approval as a certifier expired on 30 December 2004.
- 3.9 The authority carried out a final building inspection on 2 March 2005 and then issued a Notice to Rectify dated 3 March 2005. The "Particulars of Contravention" attached to the notice included that the monolithic cladding was installed without a 20mm cavity, provision for adequate ventilation, drainage, or vapour dissipation. The applicant was required to either provide adequate ventilation of the monolithic cladding or remove and replace the cladding and apply for an amended building consent. It was also noted that there were hairline cracks in the cladding.
- 3.10 The authority carried out various other inspections up to 15 June 2005. On 12 July 2005 the authority wrote to the applicants and noted that:
- There are some areas of concern with regards to the monolithic cladding system that has been installed.
- On this basis, Council is unable to be satisfied that the cladding, as installed, complies with clause E2 (external Moisture) of the New Zealand Building Code and has to refuse to issue the Code Compliance Certificate, on the dwelling, "as is".
- The authority required the applicant to either address the areas of concern or apply for a determination.
- 3.11 The authority issued an undated notice to fix that stated that the dwelling did not comply with the objectives and functional requirements of clause E2 of the Building Code. The detailed particulars of "Contravention and Non Compliance" listed twelve items relating to the cladding.
- 3.12 The application for a determination received by the Department was dated 3 May 2006. The Department sought further information from the applicant's lawyer, which was received on 6 June 2006.

4. The submissions

- 4.1 In a letter to the Department dated 1 June 2006, the applicant's lawyer stated that, in its view, there was no question that a separate code compliance certificate is obtainable for the house and the authority will confirm that. The determination was sought in respect of Unit 2 only.
- 4.2 The lawyer forwarded copies of:
- the consent drawings and specifications
 - the Notice to Rectify dated 3 March 2005
 - the undated notice to fix.
- 4.3 The authority made a submission in the form of a letter to the Department dated 16 June 2006, which set out the history of the building process and the inspection procedures. The authority noted that the building had not been subject to the changed inspection processes implemented by the authority. Consequently, and also as the cladding lacked a cavity, the authority could not be satisfied, on reasonable

grounds, that the cladding could comply with the functional requirements of clause E2.2 or the performance of clause E2.3.2 of the Building Code.

4.4 The authority forwarded copies of:

- the building consent
- the building certifiers' inspection records
- some of the authority's inspection records
- the Notice to Rectify dated 3 March 2005
- the undated notice to fix
- the letter dated 16 May 2003 from building certifier A to the authority.

4.5 Copies of the submissions and other evidence were provided to each of the parties

4.6 The first draft determination

4.6.1 A copy of a draft determination ("the first draft determination") was forwarded to the parties for comment on 31 August 2006. The authority accepted this draft on 7 September 2006.

4.6.2 The applicant's lawyer responded to the first draft determination on behalf of the applicant in a letter to the Department dated 27 September 2006. The letter advised that this draft was not accepted because:

... the dwelling was completed in accordance with the Building Act 1991 which was the relevant Act in force at the time that the house was built. It is only equitable to judge the house on the standards which applied at the time.

4.6.3 I acknowledge the above response, but it is important to note that while the Building Act has changed from 1991 to 2004, the requirements of the Building Code have remained substantially unchanged. I acknowledge that the non-mandatory Approved Document E2/AS1 has been amended since the enactment of the 2004 Act. However, E2/AS1 establishes only one method of how code-compliance can be obtained, and in no way amends the Building Code.

4.6.4 In a letter to the Department dated 30 November 2006, the applicant's consultant commented in detail on the first draft determination. I considered these comments when preparing the second draft determination.

4.6.5 The applicant's consultant summarised his comments on the first draft determination by stating:

1. The dwelling has been shown to be in compliance with E2 even if this evidence was in excess of that reasonably available to [the authority's] inspector.
2. The dwelling has been shown to be in accordance with B2AS1 and B2VM1 and thus deemed to comply with clause B2.
3. The evidence is the [authority] did have (or should have had) available, sufficient evidence for reasonable grounds to issue a CCC.
4. The [Department] certainly does have reasonable grounds (and by virtue of the DBH expert has evidence beyond reasonable grounds) and therefore the

only reasonable decision by the [Department] is that the [authority] should be directed to issue the CCC.

4.6.6 In addition, the applicant's consultant was of the opinion that the engagement of the expert was 'not lawful' and that the expert's evidence 'should be set aside'. I do not accept that opinion. In *Auckland CC v NZ Fire Service* [1996] 1 NZLR 330, it was held that the predecessor to the Department (the Building Industry Authority under the Building Act 1991, now the Chief Executive) was entitled to obtain reports from experts, so long as the rules of natural justice were followed.

4.6.7 In response to the above, I make the following comments:

- In order to determine that the house complied with Clause E2, more evidence was required than provided by the parties. This included the necessary removal of a section of cladding.
- The first expert found that the cladding had a range of defects which meant that the cladding would not, as required by Clause B2, continue to comply with Clause E2 throughout its minimum expected life.
- The authority stated that it did not have sufficient evidence to issue a code compliance certificate and a determination was sought by the applicant; and the Department is obliged under section 177 of the Act to determine the matter. If the authority had had the same evidence available to it as the Department, it would have likely reached the same conclusions as the Department.
- The draft determination found reasonable grounds to conclude that the cladding complied with Clause E2 and that, providing identified defects were properly fixed, the cladding would also become compliant with Clause B2.

4.7 The second draft determination

4.7.1 Following the response of the applicant's consultant to the first expert's report (see paragraph 5.7) and to the first draft determination, I decided that the best approach regarding the technical issues that were raised was to appoint a second expert to examine the house and report back to the Department. The second expert's report is outlined in paragraph 6.

4.7.2 A second draft determination was forwarded to the parties for comment on 13 April 2007. The authority accepted the draft on 21 May 2007.

4.7.3 In a series of letters to the Department the applicant's lawyer requested that progress on the determination be delayed until advised by the applicant. The Department was advised on 20 February 2009 that the lawyer was no longer acting on behalf of the applicant.

4.7.4 No response to the second draft determination was received from the applicant. Following discussions to clarify the situation, the Department emailed the applicant on 4 June 2009 to confirm that, as requested, the determination would be completed.

4.8 In view of the two years elapsed, the draft was updated and a third draft determination was forwarded to the parties, and the builder, for comment on 25 June 2009.

- 4.9 The authority accepted the third draft without comment.
- 4.10 The applicant's consultant accepted the third draft determination subject to clarification of the following:
- The comments with respect to the maintenance of the plaster cladding were considered 'onerous'.
 - The conclusions reached about the durability of the plaster was 'unsupported by tests and the 2nd experts opinion'.
 - The draft contained apparently contradictory statements about the durability of the plaster cladding.
 - It was claimed that the analysis of the plaster mix with respect to the lack of fines 'can only be attributable to [the] finish coat'.

The expert noted other discrepancies. I have amended the determination as appropriate.

5. The first expert's report

- 5.1 As mentioned in paragraph 1.4, I engaged an independent expert to provide an assessment of the condition of those building elements subject to the determination. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 26 and 27 June 2006 and furnished a report that was completed on 3 July 2006.
- 5.2 The expert removed areas of the plaster to examine the construction, including a large section from the southern wall of the garage. The expert considered that the external plaster had been 'installed poorly,' noting that the plaster appeared weak and badly cracked. I am prepared to accept that the plaster areas removed are representative and apply to similar situations elsewhere in the house.
- 5.3 The expert took non-invasive moisture readings through interior linings of the exterior walls and no elevated readings were recorded. The expert then took 12 invasive moisture readings at the exterior of the cladding, and again, no elevated readings were recorded.
- 5.4 Commenting specifically on the wall cladding, the expert noted that:

The walls

- the plaster is soft and crumbly, indicating a systemic failure of this element
- the mesh reinforcing to the plaster lacks furring spacers and insufficient mesh fixings are installed
- the required inter-floor control joints are not installed
- the cladding is extensively cracked on all elevations
- the metal guttering finishes hard against the cladding.

Windows and doors

- the plaster is finished hard onto the head flashings of the exterior joinery units
- the sill flashings of the exterior joinery units lack turned-up ends and the plaster is finished hard onto the flashings
- there are no sill trays or air seals installed to some of the exterior joinery units.

Penetrations through the cladding

- an external air vent lacks a hood
- some penetrations are not properly sealed.

5.5 The expert also noted that the location of the deck ribbon board resulted in the deck planking being too close to the bottom edge of the cladding.

5.6 A copy of the expert's report was provided to each of the parties on 7 July 2006. The authority made no submission in response.

5.7 The consultant's response to the first expert's report

5.7.1 The applicant engaged the consultant to comment on the expert's report. The consultant furnished a report dated 27 July 2006. The consultant, in general terms, queried the expert's comments regarding the:

- quality of the plaster
- reinforcing of the plaster
- horizontal control joints
- cracking in the plaster
- external joinery flashings
- deck ribbon board (although it is acknowledged that the deck cladding will be modified).

5.7.2 The applicant's consultant also queried the Department's interpretation of clause B2.7.1 and claimed that the expert's invasive investigation of the plaster was 'an excessive investigation and reasonably beyond the scope of invasive investigation'. It was also claimed that the first expert's opinion was subjective and unsupported. (I address these comments in paragraph 7.4.1 and 7.4.2).

5.7.3 The consultant emailed the Department on 28 July 2006. The consultant's comments can be summarised as follows:

- The horizontal joint is not absent and, in the consultant's opinion, is properly formed and seems to be working well.
- The plaster from the section that was removed is not crumbly or indicative of a poor mix and the hairline cracks do not relate to the mix.
- Taking into account the type of plaster and the age of the building, the cracks evident in the plaster are not unusual and are to be expected.

- The horizontal joint is not a B2 issue and will not degrade to allow the ingress of moisture. Compliance with NZS 4251⁵ is deemed compliance in terms of Clause B2.

5.8 In response to the applicant's consultant's comments regarding the horizontal control joints, the first expert e-mailed the Department on 22 August 2006. The expert had noted a saw cut but no conventional control joint at these locations. I have considered this particular issue in the light of the second expert's report (refer paragraph 7.3.3).

5.9 The first testing facility report

5.9.1 The Department forwarded a sample of the plaster from the section that was removed to an independent testing facility. The first testing facility commented on the sample in a letter to the Department that was received on 22 August 2006.

5.9.2 The first testing facility noted that, while the sample appeared sound, the adhesion between the two coats was poor and they were easily prised apart. An analysis of each of the two plaster coats indicated that the 'total' sand/cement/lime content of the inside coat was acceptable but the second coat is 'unaccountably on the low side'. The cement content of both coats was lower than might be expected but was not excessively low.

6. The second expert's report

6.1 As explained in paragraph 4.7.1, I engaged a second independent expert to examine the cladding. The expert is a member of the New Zealand Institute of Building Surveyors. The second expert inspected the cladding on 7 February 2007, in the presence of the applicant and her consultant, and provided a report that was completed on 5 March 2007.

6.2 The second expert took one invasive reading in a bottom plate under the end of an apron flashing and obtained a reading of 12%. The expert also noted that the bored shavings were clean and the timber was also clean at this location.

6.3 The second expert also commented on certain aspects of the construction, noting that many of the details were consistent with good trade practice and that the care taken in sealing the edges of the backing sheets and the application of the sheet joint sealants was 'exceptional'.

6.4 The expert removed two sections of plaster to examine the mid-height horizontal band details, also examining the plaster that was removed. The expert found that, while the removed plaster was quite hard when tested with a knife, it broke up quite easily. The expert removed another section of plaster for the purposes of laboratory testing and forwarded the sample to the second testing facility for investigation. The results of those tests are outlined in paragraph 6.6.

⁵ New Zealand Standard NZS 4251: Solid plastering; Part 1: 1998 Cement plasters for walls, ceilings and soffits

6.5 The second expert made specific comments on the cladding elements, which were generally in line with those made by the first expert. I list below only those comments that differ from those made by the first expert:

- The ends of three sloping apron flashings are not effectively finished.
- There is a metal flashing present at the majority of the mid-height horizontal band locations, and while the detail cannot accommodate compression movement, it does allow the plaster to shrink and crack in a controlled manner.
- There is still evidence of some cracking in the plaster, but some are at different locations from those described by the first expert.
- Some of the ‘self-furring’ reinforcing mesh is only minimally buried in the plaster.

6.6 The second testing facility report

6.6.1 As outlined in paragraph 6.4, the expert forwarded a sample of the plaster to the second independent testing facility, which provided a report dated 2 March 2007.

6.6.2 The second testing facility made a petrographic examination of the sample. This microscopic evaluation has provided me with more significant information than the first chemical analysis outlined in paragraph 5.9. It provided an explanation for, and the nature of, the porous bond coat, and also confirmed the nature of the final two coats.

6.6.3 The findings of the second testing facility’s examination are summarised as follows:

- The plaster is a three-coat system.
- The grading of the sand used in the plaster is poor ‘with a relatively small proportion of fines’. However, this did not appear to have affected the quality of the finish coat.
- The bond coat is neither strong nor durable and is highly porous.
- The flanking and finishing coats are hard and durable; however the flanking coat is locally, in very small areas, de-bonding from the bond coat.
- It is suggested that the outer coats provide protection for the inner coat.

6.7 A copy of the second expert’s report was provided to the parties on 5 March 2007.

6.8 The consultant’s response to the second expert’s report

6.8.1 The applicant’s consultant responded to the second expert’s report in an email to the Department on 16 March 2007. The consultant’s comments can be summarised as follows:

- The petrography results and the second expert’s report largely support the contention that the stucco complies with B2.
- As these further investigations generally show accordance with NZS 4251, this should support compliance in terms of B2, together with the in-service history.

- The sample testing suggests durability is being achieved, despite any possible deficiencies, with no indication of failure after four years of in-service history.
- There is no evidence of premature degradation, which indicates that B2 will be met with, given ‘normal maintenance’, including repairs as required.
- An amendment of the starting date for the required durability period could assist in finding the cladding compliant with B2.
- The body of evidence now supports compliance so the cladding should be ‘given the benefit of any doubt and passed as compliant with B2’.

6.8.2 The consultant’s comments were taken into account during the preparation of the second draft determination.

7. Evaluation for code compliance

7.1 Weathertightness evaluation framework

7.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions⁶, which will assist in determining whether the features of this house are code compliant. However, in making this comparison, the following general observations are valid:

- Some Acceptable Solutions cover the worst case, so that they may be modified in less extreme cases and the resulting alternative solution will still comply with the Building Code.
- Usually, when there is non-compliance with one provision of an Acceptable Solution, it will be necessary to add one or more other provisions to compensate for that in order to comply with the Building Code.

7.1.2 The approach in determining whether building work is weathertight and durable and is likely to remain so, is to apply the principles of weathertightness. This involves the examination of the design of the building, the surrounding environment, the design features that are intended to prevent the penetration of water, the cladding system, its installation, and the moisture tolerance of the external framing. Weathertightness risk factors have also been described in previous determinations⁷ (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

7.1.3 The consequences of a building demonstrating a high weathertightness risk is that building solutions that comply with the Building Code will need to be more robust. Conversely, where there is a low weathertightness risk, the solutions may be less robust. In any event, there is a need for both the design of the cladding system and its installation to be carefully carried out.

⁶ An Acceptable Solution is a prescriptive design solution approved by the Department that provides one way (but not the only way) of complying with the Building Code. The Acceptable Solutions are available from The Department’s Website at www.dbh.govt.nz.

⁷ Copies of all determinations issued by the Department can be obtained from the Department’s website.

7.2 Weathertightness risk

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

Increasing risk

- the house is two-storeys high
- the house has monolithic wall cladding fixed directly to the framing
- the external wall framing is not treated to a level that is effective in helping resist 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
- the house has 300mm wide high level eaves projections that provide some limited protection to the cladding beneath them.

7.2.2 The house has been evaluated using the E2/AS1 risk matrix. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting level of risk can range from 'low' to 'very high'. The risk level is applied to determine what claddings can be used on a building in order to comply with E2/AS1. Higher levels of risk will require more rigorous weatherproof detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.

7.2.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 7.2.1 show that two elevations of the building demonstrate a low weathertightness risk rating and the remaining two elevations demonstrate a medium rating. I note that although a drained cavity is now required by E2/AS1 for solid plaster cladding at all risk levels this was not a requirement at the time the house was constructed.

7.3 Weathertightness performance: exterior cladding

7.3.1 While the cladding generally appears to have been installed in accordance with good trade practice, taking account of the first and second experts' reports, there are some items that require fixing. Apart from the matter of the plaster quality, which I address in paragraph 7.4, I conclude that remedial work is necessary in respect of:

- the cracking that requires sealing and painting
- the lack of drainage gaps between the plaster and the window head flashings to the exposed ground floor windows in full height walls
- the ends of three sloping flashings that do not have kick outs
- metal guttering that finishes up against the cladding
- the external vent that lacks a hood
- some penetrations that are not properly sealed.

- 7.3.2 I consider the heads of the upper-level windows are sufficiently sheltered beneath the eaves for me to accept the lack of a drainage gap to these particular windows.
- 7.3.3 Based on the second expert's report regarding the horizontal control joints, I am now satisfied that, while the flashing at this joint is unconventional and cannot fully accommodate compression movement, it is adequate as a control joint. I note that a horizontal joint is required to accommodate cross-grain drying shrinkage in the timber floor that separate the upper and lower floor wall framing. I also accept that the second expert has noted that the horizontal joint as installed cannot accommodate such movement. However in this instance, as I am of the opinion that most of the movement demand has dissipated at this time, no further compression movement accommodation is now required.
- 7.3.4 Notwithstanding the fact that the cladding is fixed directly to the timber framing, thus limiting drainage and ventilation behind the cladding, I have noted the following compensating factors that assist the performance of some of the cladding in this particular case:
- Apart from the noted exceptions the cladding is installed to good trade practice.
 - There is no evidence of moisture penetration in the 5 years following completion of the cladding.

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

7.4 The quality of the plaster

- 7.4.1 I acknowledge the applicant's consultant's comments on the first expert's report. However, I do not accept the consultant's comments that the first expert's investigation of the plaster was excessive, was beyond the scope of any investigation, and was subjective. I note the experts appointed by the Department are independent of any of the parties and are instructed to carry out sufficient inspections to satisfy the needs of the Department as to code compliance.
- 7.4.2 I also consider that both of the laboratory tests have shown that the concerns that the first expert had about the quality of the plaster were justified. Both of the laboratory tests carried out on the removed plaster specimens do bring into doubt the quality of the plaster applied to this building.
- 7.4.3 While the majority of the faults identified with the cladding system occur in discrete areas, I am particularly concerned about the durability of the plaster mix. The question to be considered is whether the bond coat will be sufficiently protected by the outer coats to achieve the durability requirements of the code. In the case of the cladding the required durability period is a minimum of 15 years. The plaster has been in place approximately five years and in that time has met the requirements of the code and is now unlikely to be affected by further shrinkage.
- 7.4.4 However, the fact that the plaster has performed satisfactorily for 5 years does not mean that factors other than shrinkage, such as the ongoing effects of temperature and moisture changes will not adversely affect its future performance. Careful

maintenance (see paragraphs 7.5.5 and 7.5.6) and the avoidance of paint finishes with low-reflectance (ie avoid darker colours) will be necessary throughout the life of the building.

7.5 Conclusion

- 7.5.1 I consider that both of the experts' reports establish that the current performance of the cladding is adequate because it is preventing water penetration into the house at present. Consequently, I am satisfied that the building complies with Clause E2 of the Building Code.
- 7.5.2 However, the building work is also required to comply with the durability requirements of Clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the house to remain weathertight. Because the cladding faults on the house may allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 7.5.3 Because the faults identified with the cladding occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraph 7.3.1 will result in the building remaining weathertight, and therefore in compliance with Clause B2.
- 7.5.4 It is emphasised that each determination is conducted on a case-by-case basis. Accordingly, the fact that particular cladding systems have been established as being code compliant in relation to a particular building does not necessarily mean that the same cladding systems will be code compliant in another situation.
- 7.5.5 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 Department 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).
- 7.5.6 In this instance the cladding exhibits inherent defects (the weakness of the bond coat, refer paragraph 6.6.3), and careful consideration of the maintenance requirements for the cladding is required to ensure ongoing code-compliance.
- 7.5.7 In addition, as the external wall framing of the building is not likely to be treated to a level that will resist the onset of decay if it gets wet, periodic checking of its moisture content should also be carried out as part of normal maintenance.

8. Modification of the Durability periods

- 8.1 I note that the applicant's consultant has raised the question of the durability requirements for the cladding under the Building Code, taking into consideration the substantial completion of the building work in 2003. However, the consultant did not propose a date when the cladding, or the remaining building elements, complied with Clause B2 Durability.

- 8.2 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 'from the time of issue of the applicable code compliance certificate' (Clause B2.3.1).
- 8.3 In previous determinations (for example Determination 2006/85) I have taken the view that a modification of Clause B2.3.1 can be made if it can be shown that the building elements complied with Clause B2 at a date earlier than the date of issue of the code compliance certificate, that is agreed to by the parties and that, if there are matters that are required to be fixed, they are discrete in nature.
- 8.4 This modification of Clause B2.3.1 has not been included as a matter in this determination. In my opinion the modification of the durability periods can be made by the authority upon application, or if this application is declined, by referring the matter to the Chief Executive for a further determination.

9. What is to be done now?

- 9.1 I note that the authority has issued a notice to fix that also required provision for adequate ventilation, drainage and vapour dissipation. Under the Act, a notice to fix should not specify how compliance is to be achieved. A new notice to fix should be issued that requires the owner to bring the cladding, and the other elements at issue, into compliance with the Building Code, taking account of paragraph 7.3.1. The notice to fix may list the items to be rectified, but how that rectification is done 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 method of achieving compliance.
- 9.2 I would suggest that the parties adopt the following process to meet the requirements of paragraph 9.1. Initially, the authority should issue the notice to fix. The owner should then produce a response to this in the form of a detailed proposal, based on further investigation as necessary and produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified issues. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 9.3 I note that the Unit 2 was built with Unit 3 under a single consent. Before the code compliance certificate can be issued, either both Units need to be code-compliant or the consent needs to be split into two.

10. The decision

- 10.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:
- the cladding complies with Building Code Clause E2
 - the cladding does not comply with Building Code Clause B2 insofar as it relates to Clause E2
- and accordingly I confirm the authority's decision to refuse to issue a code compliance certificate.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing
on 30 July 2009

John Gardiner
Manager Determinations