



Determination 2011/059

The refusal of a code compliance certificate for a 10-year-old residential care facility completed under supervision of a building certifier at 11 Messines Road, Karori, Wellington



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.

1.2 The parties to the determination are:

- the owner of the residential care facility, Maddison Gardens Ltd (“the applicant”), acting via a commercial project management company (“the project manager”), and
- Wellington 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 code compliance certificates for the buildings in a 10-year-old residential care facility (“the development”). The refusal arose because:

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

- the authority is not satisfied that the building work complies with certain clauses² of the Building Code (First Schedule, Building Regulations 1992); in particular in regard to its age and to the weathertightness of the cladding
- the building work had been undertaken under the supervision of Nationwide Building Certifiers (“the building certifier”), which was duly registered as a building certifier under the former Building Act 1991, but which ceased operating as a certifier before it had issued code compliance certificates for the building work.

1.4 The matter to be determined³ is therefore whether the authority was correct to refuse to issue code compliance certificates for the building work. In deciding this matter, I must consider:

1.4.1 **Matter 1: The external envelope**

Whether the external claddings to the buildings (“the claddings”) comply with Clauses B2 Durability and Clause E2 External Moisture of the Building Code. The claddings include the components of the systems (such as the monolithic and sheet claddings, the brick veneer, the windows, the tiled decks, the roof claddings and the flashings), as well as the way the components have been installed and work together. I consider this in paragraph 7.

1.4.2 **Matter 2: The remaining Building Code clauses**

Whether the development complies with the remaining clauses relevant to this care facility. I consider this matter in paragraph 8.

1.4.3 **Matter 3: The durability considerations**

Whether the building elements comply with Clause B2 Durability of the Building Code, taking into account the age of the alterations. I consider this in paragraph 9.

1.5 **Matters outside this determination**

1.5.1 The consent conditions for Stage 2 of the development state:

ITEM: FIRE – C2, C3, C4, F6, F7 & F8.1(a)

[The authority’s] inspectors under a separate consent will carry out all inspections for the above Sections of the N.Z Building Code.

1.5.2 A separate building consent for fire protection services (No. SR 61122) was issued on 31 January 2000, based on a fire safety design report from the fire engineer. It appears that the authority is awaiting a certificate from the fire engineer before issuing a code compliance certificate for this building consent.

1.5.3 I leave this matter to the parties to resolve; and this determination is therefore limited to:

- Stage 1 building consent (No. SR 58067) issued on 12 October 1999 to cover partial demolition of existing buildings, new foundations and ground floors
- Stage 2 building consent (No. SR 61453) issued on 7 February 2000 to cover the remaining building work in the development.

² 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.

³ Under sections 177(b)(i) of the Act (prior to 7 July 2010)

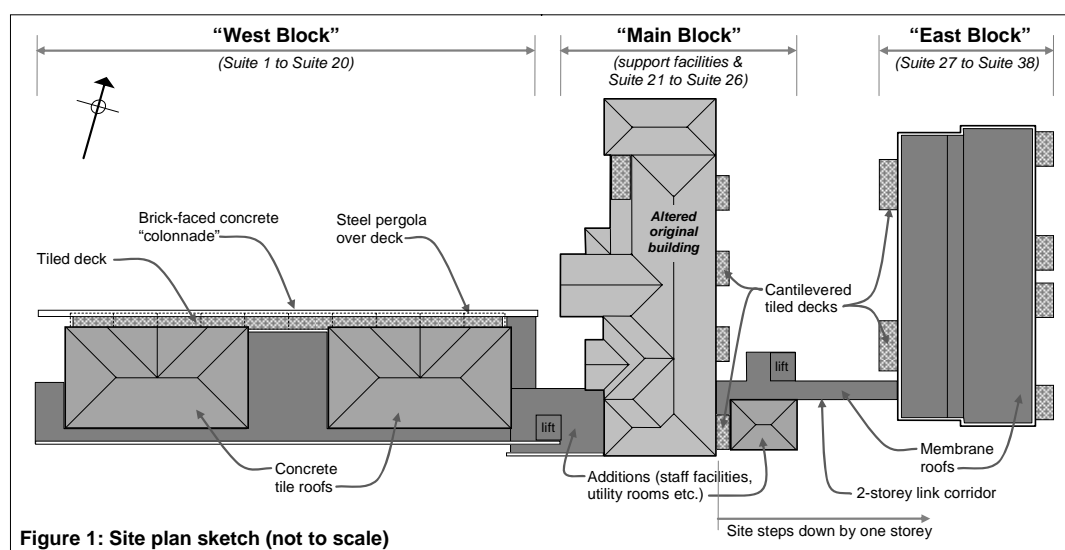
- 1.6 This determination therefore considers, based on the information and records supplied, whether it is reasonable to issue code compliance certificates. In order to determine that, I have addressed the following questions:
- Is there sufficient evidence to establish that the building work as a whole complies with the Building Code? I address this question in paragraph 5.
 - If not, are there sufficient grounds to conclude that, once outstanding items are repaired and inspected, the building work will comply with the Building Code? I address this question in paragraph 10.
- 1.7 In making my decision, I have considered the submissions of the parties, the report of the applicant's building inspection company ("the consultant"), the report of the expert commissioned by the Department to advise on this dispute ("the expert"), and the other evidence in this matter.

2. The building work

2.1 The building work is situated on an east-sloping site in a high to very high wind zone for the purposes of NZS 3604⁴. It consists of three two-storey buildings that are connected via two-storey links to provide a residential care facility with 38 studio and one-bedroom units ("the suites"). Studio suites include ensuite bathrooms, tea-making cupboards and wardrobes, while one-bedroom suites include a separate living room. The buildings are assessed as having a high weathertightness risk (refer paragraph 7.2).

2.2 The development

2.2.1 The upper level of the site accommodates a new building ("the West Block"), the original building ("the Main Block") and a car park. East of the original building, the site steps down and the third building ("the East Block") is set one storey lower than the ground floors of the other buildings as shown in Figure 1:



⁴ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 2.2.2 Construction of the new work is conventional light timber frame and some specifically engineered elements, with concrete foundations and floor slabs, timber framed first floors, fibre-cement and brick veneer claddings and aluminium windows.

2.3 The West Block (Suite 1 to Suite 20)

- 2.3.1 The West Block is a long narrow building that accommodates Suite 1 to Suite 20. Rear corridors to the south provide access on each floor to ten units set out in a hotel-style mirror-image layout. As shown in Figure 1, the roof includes two raised concrete tile hipped roofs to match the original building, with central, side and rear areas of low-pitched multi-level membrane roofs bordered by roof parapets.
- 2.3.2 The east and west end walls are clad mainly in full height brick veneer. The remaining walls are clad in fibre-cement sheet fixed directly through the building wrap to the framing; with flush-finished joints and textured coating to some walls and expressed joints with flush external corners elsewhere.
- 2.3.3 Specifically engineered brick-faced reinforced concrete columns, with a framed brick-clad 'beam' above, form a colonnade along the north of paved terraces to ground floor units. First floor units open onto a tiled membrane deck, with glazed balustrades and a steel pergola extending from the exterior wall to fix through a precast concrete capping to the framed colonnade beam.

2.4 The Main Block (Suite 21 to Suite 26)

- 2.4.1 The building appears to have been originally constructed as a large private house, but has been operating as a charitable residential facility since about 1915, with common facilities on the ground floor, bedrooms on the first floor and some basement storage and utility areas. The building is cavity brick construction, with timber doors and windows and a concrete tile hipped roof.
- 2.4.2 Development work included the demolition of outbuildings and earlier alterations along with new additions to the south to provide staff and utility facilities. Interior alterations provide six units on the first floor, with common living and support areas on the ground floor. New timber windows and doors were installed to match the existing.
- 2.4.3 On the ground floor, paved terraces extend to the east above the original sub-floor. The north end of the terrace extends above the original basement storage area and a new cleaners' room is situated under the south end of the terrace. Four new decks, with tiled floors and open balustrades, cantilever from the units above the terraces. The deck framing provides deep floors clad in flush-finished fibre-cement.
- 2.4.4 Most exterior walls of the new south additions are clad in fibre-cement sheet fixed directly through the building wrap to the framing; with flush-finished joints and textured coating to some areas and expressed joints elsewhere. Most roofs are low-pitched membrane at varying levels, linking to the West Block at the southwest and to the East Block via a two-storey corridor link to the southeast.
- 2.4.5 The south east addition is set one-storey lower than the western level, with concrete block retaining walls, some brick veneer cladding and a raised concrete tile hipped

roof to the southeast corner. The addition is linked to the East Block with a two-storey corridor as shown in Figure 1.

2.5 The East Block (Suite 27 to Suite 38)

- 2.5.1 The East Block accommodates Suites 27 to 38, which are one-bedroom units with a separate living room. Ground floor and first floor layouts are the same, with a central corridor providing access to four units to the east and two to the west.
- 2.5.2 Panels of brick veneer cladding extend full height between decks to the east and west elevations. Remaining walls are clad in fibre-cement sheet fixed directly through the building wrap to the framing; with flush-finished joints and textured coating to some walls and expressed joints with flush corners elsewhere. Walls extend up to form parapets around a membrane ‘butterfly’ roof, which falls toward a 1.5m wide gutter above the central corridor and rainwater heads at the north and south walls.
- 2.5.3 Cantilevered decks, with tiled membrane floors and open balustrades extend from the living rooms of all first floor units. The deck framing provides deep floors clad in flush-finished fibre-cement, including at soffit junctions.
- 2.6 The expert removed six timber samples from new framing for analysis which confirmed that three samples were boron treated to H1.2 while the remaining were either untreated or the boron had leached from prolonged exposure to moisture. Given the date of construction in 2000 and the apparent timber damage, I consider the external wall framing is likely to be a mix of untreated and treated timber.

3. Background

- 3.1 The authority issued the following building consents under the Building Act 1991, based on building certificates issued by the building certifier:
- Stage 1 (No. SR 58067) on 12 October 1999
 - Stage 2 (No. SR 61453) on 7 February 2000.

3.2 The inspections

- 3.2.1 Construction of Stage 1 and Stage 2 proceeded concurrently. All of the building certifier’s inspections were recorded against the Stage 1 building consent, with no inspections recorded under the Stage 2 consent. The certifier’s handwritten inspection summary refers to the different parts variously as:
- The West Block: noted as ‘west wing’ or ‘front block’.
 - The Main Block: (including additions and links) noted as ‘main house’, ‘existing block’, ‘kitchen utility’, ‘link’ and the ‘walkway’.
 - The East Block: noted as ‘east wing’, ‘rear block’ or ‘back block’.

3.2.2 The building certifier's 'monthly inspection reports' record the following:

Building elements	Number of inspections	Dates undertaken
Foundations	4	November 1999 to February 2000
Sub-floor	1	October 1999
Masonry (retaining wall)	1	February 2000
Pre-pour floor slab (including plumbing and drainage)	6	November 1999 to March 2000
Pre-lining	7	February 2000 to April 2000
Plumbing (supply and wastes)	3	November 1999 to February 2000
Insulation	6	February 2000 to March 2000
Fire/acoustic	5	February 2000 to March 2000
Drainage and surface water	6	November 1999 to May 2000
Final inspections	3	June 2000 to July 2000

3.2.3 The first final inspection noted 'a lot of items outstanding'. A facsimile from the building certifier dated 4 July 2000 lists 8 items remaining to be completed (with no items referring to claddings), along with a list of the documentation required. The facsimile also noted that as Suite 27 was incomplete, any certificate 'will be an interim certificate only'.

3.2.4 Certificates and producer statements provided included a:

- 'Producer Statement – PS4 – Construction Review' dated 20 July 2000
- 'Gasfitting Certification Certificate' dated 2 June 2000
- 'Certificate of Compliance for Commercial or Industrial Electrical work' dated 14 May 2000.

3.2.5 The building certifier issued a single interim code compliance certificate on 18 July 2000 for 'part only' of the building work. This single certificate was issued for building consent SR 58067 only, although it is apparent that the certificate applied to building work under both consents. The attached 'scope and conditions' stated:

Scope
For all completed work excluding Unit 27
Conditions
Subject to completion of Unit 27

3.3 No further inspections were carried out and the building certifier's approval as a certifier expired on 30 December 2004.

3.4 The authority's refusal to issue code compliance certificates

3.4.1 The authority attended a site meeting on 20 September 2007 to 'discuss outstanding building consent SR 61122' (the fire safety systems) and the meeting record noted:

Building consents SR 58607 and SR 61453 which were approved and monitored by [the building certifier] are also outstanding.

3.4.2 In a letter to the nurse manager dated 8 October 2007, the authority confirmed the site meeting and outlined the situation regarding outstanding building consents, noting that the building certifier 'can no longer certify the work' and stating:

After reviewing the documentation, I found that although the [authority] has copies of [the building certifier's] inspection records for one of the building consents, the [authority] has not received a building certificate issued pursuant to section 56 of the Building Act 1991 certifying that the work [the building certifier] inspected complies with the Building Code. Without this building certificate the [authority] has insufficient grounds on which to be satisfied that the building work complies with the requirements of the Building Code and so is unable to issue code compliance certificates for these consents.

3.4.3 The authority outlined options for consideration, including (in summary):

- Option 1: the applicant to review records to check whether code compliance certificates have already been issued.
- Option 2: the applicant to apply for a determination from the Department.
- Option 3: the applicant to apply for a certificate of acceptance for those parts of the work that the authority is able to inspect.
- Option 4: the applicant to address the warrant of fitness issues and any fire protection matters and take no further action on the [building certifier's] building consents.

3.4.4 With regard to Option 4, the authority pointed out that 'you may wish to consult your insurer and/or mortgagor to discuss the implications of this'. The authority also noted that information about the status of the consents would be included in Land Information Memorandum reports and stated:

Please note: Sections 363 B of the Building Act 2004 may apply to 11 Messines Rd if these matters are not resolved by 31 March 2010. These sections relate to the occupation of premises that are intended to be open to members of the public where building work has been carried out for which a code compliance certificate or certificate of acceptance has not been issued.

3.5 The consultant's report

3.5.1 I am not aware of further correspondence or inspections until the project manager engaged the consultant to carry out a weathertightness inspection in 2009. The consultant inspected the buildings on 21 August 2009 and provided a 'report on outstanding construction issues' dated 26 August 2009. The consultant described the development, noting that the aim was to 'inspect the buildings in the complex to identify features/areas where weathertightness may be an issue'.

3.5.2 The consultant inspected the interior and exterior of the buildings, noting some evidence of moisture penetration. Non-invasive moisture testing revealed some elevated readings, although no 'excessive moisture content was identified'.

3.5.3 The consultant noted:

- evidence of moisture penetration in the form of:
 - peeling paint and staining to the stairwell and corridor in West Block
 - cracked joints in soffit linings to West Block deck (where deck membrane was being replaced)

- cracks at junctions with brickwork and staining at soffit corners to Main Block cantilevered decks

Wall claddings

- lack of cladding clearance at north and east walls of East Block
- lack of seals behind window jamb flanges in fibre-cement walls
- lack of flashings/hoods to extract vents
- cracks in fibre-cement at sheet joints, and internal and external corners
- cracks at junctions of fibre-cement with brickwork
- efflorescence in brick columns to the colonnade, below the concrete capping and the unsealed pergola posts
- ineffective sealing of pergola rafter penetrations through walls
- lack of drip edges at soffit to vertical cladding corners
- various other more minor maintenance items

The decks

- lack of weatherproofing of deck upstands to Main Block decks, including at junctions with brickwork and joinery
- deteriorating seals under doors to cantilevered decks

The roofs

- cracked and missing mortar to hip and ridge ties on original building
- exposed fascia at corners of West Block hipped roofs
- inadequate overflow provisions and scupper drip edges to rainwater heads
- lifting joints, bubbling and loose turndowns into outlets in membrane roofs
- some minor pooling of water to roofs and gutters
- lack of spreaders to downpipes discharging onto lower roofs
- possible lack of membrane upstand to upper cladding at west lift shaft
- lack of weatherproofing at ends of some parapet cappings.

3.5.4 It appears that some surface remedial work was subsequently completed; and in a letter to the project manager dated 16 November 2009, the weathertightness consultant noted that re-inspection had confirmed that ‘action has been taken to attend to the maintenance tasks’ identified in the report and he considered that:

...the building envelope complies reasonably with the requirements of B2 Durability and E2 External Moisture in terms of the NZ Building Code applying as at time of construction in 2000.

3.6 The application for determination

3.6.1 The Department received the initial application for a determination on 24 December 2009, which was accepted on 14 January 2010. The expert’s report was forwarded to the parties on 25 February 2010. The applicant subsequently indicated that the application might be withdrawn and progress on the determination ceased.

3.6.2 On 24 May 2010, the project manager advised the Department that the applicant had engaged an architect to prepare a remedial proposal for a building consent; and asked

for the determination to be put ‘on hold’ pending completion of that work. I have not seen any information about that remedial proposal.

- 3.6.3 On 21 January 2011, the Department asked the project manager whether the applicant wished to continue with the application; and on 18 February 2011 the project manager requested the Department to proceed with a draft determination.

4. The submissions

- 4.1 The project manager made a submission on behalf of the applicant, which summarised the background to the situation. The project manager noted that the building certifier’s inspection summaries made it ‘clear that the entire building was inspected’ and the interim code compliance certificate was obviously intended to cover all work not specifically excluded. That certificate also demonstrated that ‘the project was completed under inspection and met the requirements of the Building Code at the time of issue.’ The project manager also proposed that code compliance certificates be dated from the date of the interim code compliance certificate.

- 4.2 The project manager provided copies of:

- the drawings for Stage 1 and Stage 2
- the engineer’s producer statements
- the building certifier’s inspection summary
- the interim code compliance certificate dated 18 July 2000
- the authority’s letter dated 8 October 2007
- the consultant’s weathertightness report dated 26 August 2009
- various other producer statements, certificates and other information.

- 4.3 The authority’s submission dated 1 February 2010 explained the building consents for the development and noted that no inspections were recorded under the Stage 2 consent number. The authority considered that ‘the matter to be determined should include all code clauses and all the work carried out under building consents SR 58067 and 61453.’ The authority did not accept that a code compliance certificate could be ‘backdated’ as it considered there was no legal basis to do so and also:

- the interim code compliance certificate was issued when work was incomplete
- problems identified in the weathertightness report raised questions about whether the interim code compliance certificate should have been issued
- the interim code compliance certificate was issued for only one consent.

- 4.4 The draft determination was issued to the parties for comment on 15 March 2011. The authority accepted the draft without comment.

4.5 The applicant’s comments on the draft determination and my response

- 4.5.1 The applicant responded to the draft determination in an undated letter to the Department received on 1 June 2011. I have considered the specific comments and have amended the determination as I consider appropriate.

4.5.2 The following matters were raised (in summary):

- Information was provided in respect of the wind zone being high to very high.
- '[The Department] had no facts before it' that demonstrated that the tiled showers did not comply with Clause E3.
- The determination should be more specific and provide more clarity about what remedial work is required to achieve compliance.
- The decision on the compliance of the external envelope in paragraph 12.1 is 'too broad', as only some specific elements do not comply. The decision should be amended to identify only the non-compliant elements.
- The determination should suggest that a separate consent be obtained for the remedial work, so that the 'likelihood of ... compliance ... is addressed before the work commences, and a separate Code Compliance Certificate can be issued for it on completion'.
- The requirement for further investigations in paragraph 7.4.3 'is ... limiting and may result in requiring work that is additional to or more onerous than that required to comply with the requirements of the Building Code.'
- The applicant sought to have the Department confirm that the interim code compliance certificate issued by the building certifier 'cover[ed] the work carried out under both consents'.

4.5.3 I have considered the specific comments and have amended the determination as I consider appropriate. In response to the general comments, I note the following:

- The applicant has expressed the view that the Department should clarify the remedial work required. Under the Act I am required to gather sufficient evidence in order to decide whether the authority's decision with respect to the refusal to issue the code compliance certificate was correct. The expert's report has provided that evidence. I do not believe I am required to identify and provide a comprehensive list of a building's defects.
- In my view, and as noted in paragraph 7.3.1, the items outlined in paragraph 6.6 are unlikely to constitute a comprehensive list of the building's defects. A more thorough investigation is therefore needed to establish the full extent of moisture penetration, damage and remedial work required
- Questions regarding separate remedial consent(s) and the associated compliance of the original consents are for the authority to resolve with the building owner. I note that if the remedial work was to be carried out under a new consent, but code compliance certificates were still sought for the existing consents, the original consents would need to be modified to exclude the work carried out under the new consent.
- I do not accept that further investigations will result in work that is more onerous than that required by the Building Code. Under section 18 of the Act, an authority cannot require 'performance criteria ... additional to, or more restrictive than ... [the Building Code]'.

4.5.4 The interim code compliance certificate appears to have been issued in respect of work contained in both consents. In my view the interim code compliance certificate was issued in error, as a separate certificate should have been issued in respect of each consent. However, irrespective of what work the interim code compliance

certificate covered, the expert's report shows the work concerned is not code compliant. I have considered the matter of interim code compliance certificates issued in instances where the building work may not comply with the Building Code in a previous determination (Determination 2011/015) and I consider the reasoning that applied in that determination also applies in this case. In the period since the issue of the interim code compliance certificate, the knowledge and understanding of how compliance can be achieved with respect to some Building Code clauses may have changed. In addition, the actual performance of the building against the requirements of the Building Code can be determined by inspection. In such circumstances I believe it may be prudent to verify the ongoing compliance of the completed work, particularly work with a high consequence of failure.

5. Grounds for the establishment of code compliance

- 5.1 In order for me to form a view on the code compliance of this development, I established what evidence was available and what could be obtained considering that the building work is completed and some of the elements are not able to be cost-effectively inspected.
- 5.2 In the absence of any evidence to the contrary, I take the view that I am entitled to rely on the building certifier's inspection records, but I consider it important to look for evidence that corroborates or contradicts these records. I also consider that the level of that reliance is influenced by the information available to me and also by my evaluation of the buildings.
- 5.3 Due to the complexity of the junctions associated with many features of these buildings and the items listed in the property weathertightness consultant's weathertightness report (see paragraph 3.5.3), I considered it important to verify that the building certifier's inspections of the external envelope were properly carried out.
- 5.4 In summary, I find that the following evidence will allow me to form a view as to the code compliance of the building work as a whole:
- The record of inspections carried out by the building certifier, which indicates satisfactory inspections of the building work (refer paragraph 3.2.2).
 - The building certifier's interim code compliance certificate dated 18 July 2000.
 - The consultant's weathertightness report dated 26 August 2009.
 - The drawings, producer statements, certificates and other information.
 - The expert's report on the exterior building envelope as outlined below.

6. The expert's report

- 6.1 As mentioned in paragraph 1.7, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the buildings on 10, 11 and 12 February 2010, providing a report dated 23 February 2010. The expert noted that the development had a current building warrant of fitness, which was due to expire in September 2010.

6.2 Variations

6.2.1 The expert noted some significant variations from the consent drawings including:

The West Block

- Suites 1 and 2 in the drawings constructed as one double-size unit, which were being sub-divided into two units

The Main Block

- cantilevered deck added to Suite 21
- east doors to original basement changed to windows
- west conservatory glazing changed
- fireplace to the ground floor library not constructed
- cladding to south utility rooms changed from brick veneer to fibre-cement
- fully glazed south walls to east link changed to fibre-cement cladding

The East Block

- changes to first floor east windows
- two south windows to Suite 27 not constructed.

6.3 General

6.3.1 The expert noted that, although the interior of the buildings appeared to be finished in a 'competent and professional manner', the exterior showed a lack of attention given to appropriate weathertight construction for this specific design wind zone. (I note here that the applicant has submitted that the wind zone is high to very high)

6.3.2 The expert noted that extensive maintenance had been carried out to the exterior, which included new parapet cappings, channel drains at the bottom of claddings, deck repairs and 'extensive face-applied sealants'. However, this work had generally not appropriately resolved problems relating to the long-term durability of 'poorly designed details'; and the exterior claddings had significant detailing issues that had lead to failure or were likely to do so in the future.

6.4 Moisture levels

6.4.1 The expert inspected the interiors of the buildings, noting signs of moisture including:

West Block

- water stains to first floor corridor ceiling
- peeling paint to northwest corner of first floor stairwell ceiling
- wet framing under ground floor northwest corner of stairwell
- wet and damaged carpet to ground floor southwest corner of stairwell

Main Block

- water damage and peeling paint to ceiling of west link corridor
- peeling paint on south laundry ceiling
- peeling paint east of drawing room fireplace

- swelling skirting in north wall of east link ground floor corridor
- swelling of ceiling to basement cleaner's room under paved terrace
- water damage to existing north basement under paved terraces
- water stains and swelling skirting near east basement lift

East Block

- water damage to ceiling of upper corridor link
- damaged skirting, wall and ceiling in southwest ground floor stairwell
- damaged skirting and kickboard to west wall of Suite 30.

6.4.2 The expert also took 24 invasive moisture readings into framing at areas considered at risk, recording elevated moisture readings of:

West Block

- 40% below the north window to the west stairwell
- 22% at fibre-cement to brick junction at first floor joist level at northwest corner, with 28% in the bottom plate below
- 40% at both fibre-cement to brick junctions to west end of north deck
- 21% beside window on south wall (sample 4), with 40% in bottom plate below
- 26% beside window on south wall, with 40% in bottom plate below
- three readings of 40% in bottom plate along south wall (sample 5)
- 40% in top of a parapet within membrane roof area

Main Block

- 40% in bottom plate on south wall

East Block

- 32% under south window to link, with 21% in bottom plate below
- 21% and 24% under north window to Suite 30
- 32% and 40% beside east door to Suite 30
- 40% under corner of deck upstand, with 40% at soffit below
- 40% beside west door to Suite 38, with 40% in bottom plate below.

I note that there was only one reading of 17% and, taking account of the readings being taken in February, I consider that this and other readings will be higher during winter months.

6.5 Cut-outs and decay analysis

6.5.1 The expert removed small sections of cladding, trim or lining from some areas to inspect underlying construction, the condition of framing and to take timber samples. Samples (with moisture readings in brackets) were taken from the following areas:

- the bottom plate and stud of wet and blackened framing at north west corner of West Block stairwell beneath staircase (samples 1, 2)
- bottom plates (32% and 40%) at north east corner of East Block (samples 3, 6)
- drillings (40%) from stud 1.8m up south wall to the West Block (sample 4)

- drillings (40%) from bottom plate to West Block south wall (sample 5).

6.5.2 Samples were forwarded to a testing laboratory for decay and preservative analysis. The laboratory's report dated 18 February 2010 detected preservative treatment in three samples only (see paragraph 2.6) and found that:

- samples 1, 3 and 5 contained well established fungal decay which had 'caused loss of the bulk of the original structural integrity'
- samples 2, 4 and 6 contained earlier stages of decay
- sample 6 contained traces of early soft rot
- further investigation is needed to establish the limits and causes of damage.

6.6 Commenting specifically on the external envelope, the expert noted that:

General

- there are numerous areas where timber framing has high moisture levels and likely damage, and further investigation is needed
- there are sealant-repaired cracks to flush-finished cladding, and the expressed joints to the fibre-cement are not weatherproof
- junctions of fibre-cement with brick veneer are unflushed and cracking
- there are insufficient weep holes to the brick veneer walls
- installation of mesh-covered drainage channels at bottom of cladding includes a planted timber plate, which has trapped moisture in the fibre-cement beneath

The roofs

- new cappings to roof parapets are ineffective, with insufficient overlaps, no saddle flashings at junctions with walls, high moisture levels, and investigation under a parapet revealed that underlying membrane was loose
- rainwater heads to the parapets are not weatherproof, with loose membrane, exposed substrate and water stains on ceilings adjacent to three of the five outlets

Windows and doors

- windows are not weatherproof, with high moisture levels recorded under all windows where moisture readings were taken
- windows in fibre-cement cladding are face-fixed, with gaps at head flashing ends, no seals beneath jamb flanges, coatings applied after installation, no drainage gaps under sill flanges and cracks at the junctions with frames
- new brickwork between vertically-aligned windows in the East Block lacks any drainage, allowing water to be trapped within the cavity above lower windows
- some doors fitted into original brickwork lack head flashings
- at the east terrace to the Main Block, floor clearance is limited to 20mm to 50mm at the door sills, with no evidence of sill flashings installed

The decks

- the cantilevered clad deck floor structures are not weathertight, with ineffective cappings, fixings through cappings, no saddle flashings, no inter-cladding flashings and obvious signs of moisture penetration into framing
- deck upstands have no provision for overflow drainage

- despite repairs and the replacement of deck membrane to West Block deck, brick efflorescence indicates that further investigation is needed, with high levels of moisture at the west end of the deck
 - terraces to Main Block are not weatherproof, with no underlying membrane and evidence of damage to basement and new cleaners' room below.
- 6.7 The expert noted that the above defects were unlikely to be a complete list as extensive invasive investigation of the external envelope is needed, including the removal of wall claddings and the re-design of junctions.
- 6.8 The expert also visually assessed compliance with other relevant code clauses and I have included these comments within paragraph 8.
- 6.9 A copy of the expert's report was provided to the parties on 25 February 2010.

Matter 1: The external envelope

7. Weathertightness

- 7.1 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).

7.2 Weathertightness risk

- 7.2.1 The development has the following environmental and design features which influence its weathertightness risk profile:

Increasing risk

- the two-storeys high development is sited in a high to very high wind zone
- the buildings incorporate multiple claddings, parapets and complex junctions
- most walls have fibre-cement cladding fixed directly to the framing
- there are first floor timber-framed decks with tiled floors and upstands, and most of these are cantilevered
- there are few roof projections to shelter the cladding
- the external wall framing may not all be treated to a level that provides resistance to decay if it absorbs and retains moisture

Decreasing risk

- some walls are brick veneer and include a cavity.

- 7.2.2 When evaluated using the E2/AS1 risk matrix, these features show that the elevations of the building demonstrate a high to very high weathertightness risk rating. I note that if the details shown in the current E2/AS1 were adopted to show code compliance the fibre-cement cladding would require a drained cavity. However, this was not a requirement at the time of construction.

7.3 Weathertightness performance

- 7.3.1 It is clear from the expert's report that the building envelope is unsatisfactory in terms of its weathertightness performance, which has resulted in moisture penetration in numerous areas and extensive decay likely in the wall, roof and deck framing. The new timber-framed cantilevered decks are of particular concern. Taking into account the expert's report, I conclude that areas outlined in paragraph 6.6 require rectification, although I note that this list is unlikely to be comprehensive.
- 7.3.2 Considerable work is required to make the building envelope weathertight and durable. Further investigation is necessary, including the systematic survey of all risk locations. Such a survey will need to incorporate extensive invasive moisture testing and the removal of claddings where moisture is elevated, in order to fully determine causes and the full extent of moisture penetration, timber damage and the repairs required.

7.4 Weathertightness conclusion

- 7.4.1 I consider the expert's report establishes that the current performance of the external envelope of this development is not adequate because there is evidence of extensive moisture penetration and decay in the timber framing. Consequently, I am satisfied that the development does not comply with Clause E2 of the Building Code
- 7.4.2 In addition, the external envelope is also required to comply with the durability requirements of Clause B2. Clause B2 requires that a building continues to satisfy all the objectives of the Building Code throughout its effective life, and that includes the requirement for the building work to remain weathertight. Because the cladding faults on the buildings are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.
- 7.4.3 I consider that final decisions on whether code compliance can be achieved by either remediation or re-cladding, or a combination of both, can only be made after a more thorough investigation of the cladding and the condition of the underlying timber framing. This will require a careful analysis by an appropriately qualified expert, and must include a full invasive investigation of the extent, level and significance of the moisture levels and timber decay to the framing. Once that decision is made, the chosen remedial option should be submitted to the authority for its approval.
- 7.4.4 I note that the Department has produced a guidance document on weathertightness remediation⁵. I consider that this guide will assist the owner in understanding the issues and processes involved in remediation work to the buildings, and in exploring various options that may be available when considering the upcoming work required to the development.

⁵ Weathertightness: Guide to remediation design. This guide is available on the Department's website, or in hard copy by phoning 0800 242 243

Matter 2: The remaining Building Code clauses

8. Discussion

8.1 In assessing the compliance of this development with the other relevant clauses of the Building Code, I have taken into account:

- the certifier's inspection summary and interim code compliance certificate
- the producer statements and other certificates
- the [then] current building warrant of fitness for the facility
- the expert's comments on compliance after ten years.

8.2 B1 Structure

8.2.1 Most of the construction is conventional timber frame; and the inspection summary notes satisfactory inspections of the foundations, retaining walls, floor slabs, bracing and other structural elements. The engineer's producer statement has confirmed the compliance of the specifically designed structural elements.

8.2.2 However, although the expert noted no visible signs of structural problems, decay revealed in the limited sampling of timber framing leads me to conclude that the timber framing does not comply with Clause B2 insofar as it relates to Clause B1.

8.3 E3 Internal moisture

8.3.1 Although the expert did not view every bathroom in the development, he noted that areas observed showed no evidence of non-compliance with Clause E3 Interior moisture, with vanities and bench tops well sealed to walls.

8.3.2 However, the expert removed cover plates from a shower mixer and outlet, and could see no sign of a waterproof membrane under the tiles. Although the bathrooms appear to comply with Clause E3 at this time, I consider further investigation is required to determine whether the bathrooms will remain compliant with Clause E3 with respect to the requirements of Clause B2 Durability.

8.4 F4 Safety from falling

8.4.1 The balustrades to the decks and stairs appear adequate and the expert noted that corridor ramps and all external sloped and stepped areas include handrails. The expert also noted that exterior pathways are fitted with a 90mm high timber barrier to restrict wheel chair movement over edges. I also note that the warrant of fitness regime should ensure monitoring of particular safety issues relevant for this facility.

8.4.2 However, the expert noted that the unfenced decorative pool to the east of the original building was 600mm deep, rather than 400mm minimum needed to comply with safety requirements.

8.5 The remaining clauses

8.5.1 Taking account of the evidence outlined in paragraph 8.1, I note the following:

C Fire Safety

These clauses are covered by the separate building consent, which is not considered within this determination. I also note that the warrant of fitness regime should ensure regular monitoring of the active fire protection services.

D1 Access routes

The facility was specially designed and approved as a residential care facility and the as-built facility complies with the consent drawings in regard to access routes. I also note that the interim code compliance certificate includes these clause requirements and the warrant of fitness regime should ensure regular monitoring of the access routes for the special needs of the residents.

E1 Surface water

The inspection summary indicates satisfactory inspections of drainage, and the expert observed no visual signs of problems with surface water disposal.

F2 Hazardous building materials

Although the expert was unable to inspect every glazed area, he observed safety markings in the glass shower screens and on full height glazed areas in walkways.

G1 to G8 (Personal hygiene, Laundering, Food preparation, Ventilation Interior environment, Natural light, Electricity and Artificial light

The development generally complies with consent drawings, interiors were inspected by the building certifier and drawings show adequate provision to comply.

An electrical compliance certificate for the development has been provided. The expert observed no problems, with all services operating as expected; noting also that the kitchen in the Main Block had a current Certificate of Hygiene.

G12 Water Supplies and G13 Foul Water

The inspection summary indicates satisfactory inspections of plumbing and drainage; and the expert observed no problems, with all services operating as expected.

H1 Energy Efficiency

The building certifier's inspection summary indicates that satisfactory preline inspections were undertaken, with insulation noted in walls and ceilings. The expert also observed fibreglass insulation installed in exterior walls under staircases etc.

8.6 Other clauses: conclusion

8.6.1 Taking account of the expert's report and the other evidence, I consider that the following areas require investigation (applicable clauses are provided in brackets):

- the damaged timber framing (Clauses B1 and B2)
- the waterproof membrane to the tiled shower areas (Clauses E3 and B2)
- the decorative pool east of the Main Block (Clause F4).

- 8.6.2 Based on my assessment as outlined in paragraph 8.5, I consider that the expert's report, the building certifier's inspection records and the other documentation, allow me to conclude that the building work complies with Clauses D1, E1, F2, G1 to G8, G12, G13 and H1 of the Building Code.

Matter 3: The durability considerations

9. Discussion

- 9.1 The authority has concerns about the durability, and hence the compliance with the Building Code, of certain elements of the building taking into consideration the completion of the building during 2000.
- 9.2 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 ("durability periods") "from the time of issue of the applicable code compliance certificate" (Clause B2.3.1).
- 9.3 In previous determinations (for example Determination 2006/85) I have taken the view that a modification of this requirement can be granted if I can be satisfied that the building complied with the durability requirements 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.
- 9.4 Because of the extent of further investigation required into the condition of the timber framing and therefore to parts of the buildings' structures, and the potential impact of such an investigation on the external envelope, I am not satisfied that there is sufficient information on which to make a decision about this matter at this time.

10. The appropriate certificate to be issued

- 10.1 Section 437 of the Act provides for the issue of a certificate of acceptance where a building certifier is unable or refuses to issue either a building certificate under section 56 of the former Act, or a code compliance certificate under section 95 of the current Act. In such a situation, a building consent authority may, on application issue a certificate of acceptance. In the case of this development, the applicant is seeking code compliance certificates for the two building consents.
- 10.2 I am of the opinion that considerable investigation and remedial work is required to make the external building envelope of this development weathertight and durable. Because of the extent of work required, I do not yet have reasonable grounds to conclude that the building envelope can be brought into compliance with the Building Code. At this time, I am therefore unable to determine whether the authority will be able to issue a code compliance certificate in due course.

11. What is to be done now?

- 11.1 A notice to fix should be issued that requires the applicant to bring the buildings into compliance with the Building Code, including the defects identified in paragraph 6.6 and the matters requiring further investigation noted in paragraph 8.6.1, but not specifying how those defects are to be fixed. It is not for the notice to fix to specify how the defects are to be remedied and the building brought to compliance with the Building Code. That is a matter for the owners to propose and for the authority to accept or reject.
- 11.2 In addition, the notice to fix should include the requirement for a full investigation into the extent of defects and causes of moisture penetration and decay in the timber framing; referring also to the need for invasive moisture testing, cladding removal and laboratory testing of framing samples to establish the full extent, levels and structural significance of decay to the framing.
- 11.3 I suggest that the parties adopt the following process to meet the requirements of paragraph 11.1. 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 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.

12. The decision

- 12.1 In accordance with section 188 of the Building Act 2004, I hereby determine that:
- the timber framing does not comply with Building Code Clauses B2 insofar as it relates to Clause B1
 - the external building envelope of the buildings in the development do not comply with Building Code Clauses E2 and B2
 - the decorative pool does not comply with Building Code Clause F4
- and accordingly I confirm the authority's decision to refuse to issue a code compliance certificate.
- 12.2 In addition I consider there is insufficient evidence to determine whether the tiled shower areas comply with Building Code Clause B2 insofar as it relates to Clause E3.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 13 June 2011.

John Gardiner
Manager Determinations