

## Determination 2009/58

### Determination regarding the refusal to issue a code compliance certificate for four blocks of semi-detached townhouses at 42A Park Avenue, Papatoetoe



#### 1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004<sup>1</sup> (“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

1.2.1 The applicants are the unit-title holders (“the owners”) of 15 semi-detached townhouses (“the units”), which were constructed under a single building consent covering the following free-standing buildings (“the blocks”):

- Unit 1 to Unit 5: (“Block A”)
- Unit 8 to Unit 10: (“Block B”)
- Unit 11 to Unit 15: (“Block C”)
- Unit 16 and Unit 17: (“Block D”)

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<sup>1</sup> The Building Act 2004 is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

- 1.2.2 The applicants are acting through the chairman of the residents committee (“the owners’ representative”). The other party is the Manukau City Council (“the authority”) carrying out its duties and functions as a territorial authority or building consent authority.

### **1.3 The reason for the application for determination**

- 1.3.1 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for the 7-year-old buildings, because it is not satisfied that the building work complies with certain clauses of the Building Code<sup>2</sup> (First Schedule, Building Regulations 1992).
- 1.3.2 The refusal arose because the building work in the development had been undertaken under the supervision of Approved Building Certifiers Ltd (“the building certifier”), which was duly registered as a building certifier under the Building Act 1991, but which has since ceased operating as a building certifier.
- 1.3.3 Documents submitted with the application indicated the authority’s requirement for a weathertightness review as well as consideration of other Building Code Clauses (refer to paragraph 3.9)

### **1.4 Matters for determination**

- 1.4.1 In accordance with section 177(a) and 177(b)(vi) of the Act<sup>3</sup> I consider the matters for determination are whether:
- the buildings as constructed comply with the requirements of the Building Code that applied at the time the building consent was issued
  - the authority’s decision not to issue a code compliance certificate was correct.

Based on the above, I consider the following items are to be considered within the determination:

#### **1.4.2 Item 1: The claddings**

Whether the claddings as installed complies with Clauses B2 Durability and E2 External Moisture. By “the claddings as installed” I mean the components of the system (such as the backing materials, the flashings, the joints and the coatings) as well as the way the components have been installed and work together. (I consider this matter in paragraph 9.)

#### **1.4.3 Item 2: Compliance with the remaining Building Code clauses**

Whether certain building elements, other than the claddings, comply with the other relevant clauses of the Building Code. (I consider this in paragraph 10.)

- 1.5 In order to determine the code compliance of the buildings, I must address the following questions:

<sup>2</sup> The Building Code is available from the Department’s website at [www.dbh.govt.nz](http://www.dbh.govt.nz).

<sup>3</sup> 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.

- (a) Are there reasonable grounds to form a view that the buildings comply with the Building Code? If so, a code compliance certificate can be issued. (I consider this question in paragraph 5).
- (b) If the building work does not comply with the Building Code, are there sufficient grounds to conclude that, once any outstanding items are satisfactorily repaired and inspected, the buildings will comply with the Building Code? If so, can a code compliance certificate be issued in due course? (I consider this question in paragraph 11).

1.6 In making my decisions, I have considered the submissions of the parties, the building certifier records for the buildings, the report of the expert commissioned by the Department to advise on this dispute (“the expert”), and the other evidence in this matter. I have evaluated this information using a framework that I describe more fully in paragraph 8.1.

## 1.7 Matters outside this determination

1.7.1 The application for this determination raised other specific issues related to:

- the rubbish collection locations
- the car parks
- the common property playgrounds
- the unfinished common property.

1.7.2 The building consent may be subject to certain conditions that relate to these items. However, the items are planning matters that fall within the requirements of the Resource Management Act 1991 and, as such, are outside the ambit of the Building Act. The above items are therefore outside those matters that can be determined in terms of the Building Act.

1.7.3 I note that, while the collection of solid waste is provided for under the Building Code, the limits on application for the “Functional Requirement” of Clause G15 (as shown below) excludes this “multi-unit” complex from the requirement:

<b>FUNCTIONAL REQUIREMENT</b>	<b>Limits on application</b>
<b>G15.2</b> Buildings shall be provided with space and facilities for the collection, and safe hygienic holding prior to disposal, of solid waste arising from the intended use of the buildings.	Requirement G15.2 shall not apply to Detached Dwellings, household units of Multi-unit Dwellings, Outbuildings, or Ancillary buildings if there is independent access or private open space at ground level.

1.7.4 The building work considered in this determination was “Stage 1A” of a larger complex of 85 units, which was granted consent for subdivision in 2001. The remaining 70 units were constructed in stages under various building consents. Stage 1 was a block containing two units, which were constructed as “show homes” under a separate building consent. This determination does not consider the Stage 1 units and other buildings within the complex.

## 2. The building work

- 2.1 The building work is situated on a sloping site in a low wind zone in terms of NZS 3604<sup>4</sup>, and consists of 15 units in 4 free-standing blocks (“the blocks”) as shown in the following site plan:

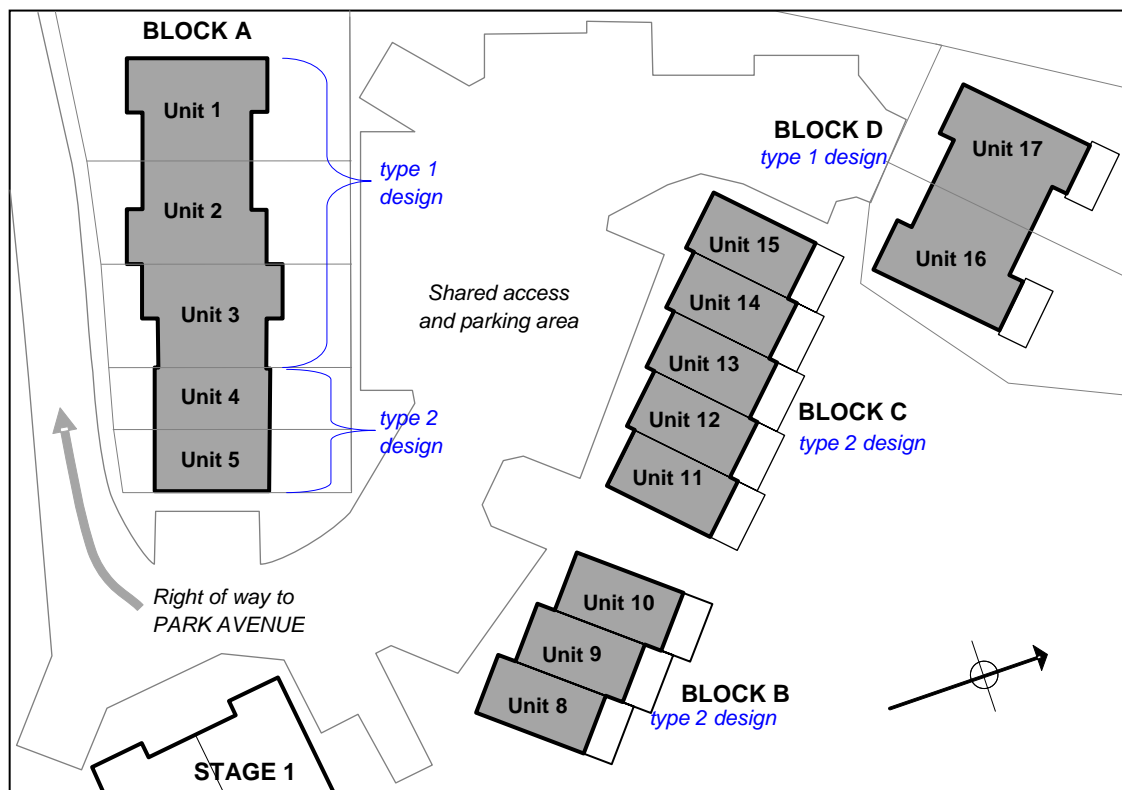


Figure 1: Site plan

## 2.2 The designs

- 2.2.1 There are two basic unit designs, with variations as follows:

**Type 1:** 3 bedrooms with concrete slab and internal garage, timber-framed floor and rear deck

**Type 2:** 2 bedrooms with no garage, timber-framed floor and rear deck

- 2.2.2 The blocks are made up of unit designs as follows:

**Block A:** five semi-detached units, comprising three type 1 units to the west and two type 2 units to the east

**Block B:** three semi-detached units of type 2 design

**Block C:** five semi-detached units of type 2 design

**Block D:** two semi-detached units of type 2 design

<sup>4</sup> New Zealand Standard NZS 3604:1999 Timber Framed Buildings

## **2.3 General construction**

- 2.3.1 The buildings are 2-storeys high and fairly simple in plan and form, with living and kitchen areas to ground floors and bedrooms and bathrooms in upper levels.
- 2.3.2 The units are of similar construction and materials. Construction is conventional light timber frame with profiled metal roof cladding and aluminium windows. The party walls between adjacent units are timber-framed, with fire-rated interior linings and sub-floor. The 22° pitch gabled and hipped roofs have no eaves or verge projections and walls are clad in monolithic cladding, with some panels of fibre-cement weatherboards.
- 2.3.3 The expert provided evidence from a technologist that timber samples extracted from the wall framing were not preservative treated. Given the date of construction in 2002 and the lack of other evidence, I consider that the wall framing is not treated.

## **2.4 Block A (Units 1-5)**

- 2.4.1 Block A faces south, with the building stepped down to accommodate the slope and a timber retaining wall along the rear boundary to provide flat yards to the south. The block has concrete slabs and concrete block foundations, with a retaining wall at the level change.
- 2.4.2 In Units 1 to 3, the garages are recessed back from adjacent walls, with lean-to roofs above the south garage doors. The garage walls and the walls above are clad in horizontal fibre-cement weatherboards. Units 4 and 5 (Type 2 units) have vertical panels of weatherboard to the front and east wall, with monolithic cladding elsewhere. Metal gable canopies are suspended above the entries.
- 2.4.3 The main gable roof has eaves projections of about 500mm and verges of 200mm. Part of the rear roof slope continues up as a monopitch, with no eaves or verge projections, to finish in line with the recessed front walls.

## **2.5 Block B and Block C (Units 8-10 and 11-15)**

- 2.5.1 Blocks B and C are adjacent buildings with similar design and construction. The blocks face the parking area to the southwest, with the units staggered in plan and the site sloping to the northeast.
- 2.5.2 The units have timber framed floors to both levels and timber decks, with open metal balustrades, to the rear. There are vertical panels of weatherboard to the front and end walls, with monolithic cladding elsewhere. Pre-formed metal canopies are suspended above the entries. The roof of each unit has a gable end at the front and hip at the rear, with membrane-lined internal gutters between.

## **2.6 Block D (Units 16 and 17)**

- 2.6.1 Block D is a duplex formed from mirror image Type 1 units, with the site sloping to the northeast. The adjacent garages are recessed back from adjacent walls, with a lean-to roof above the southwest garage doors. The upper roof is hipped.

- 2.6.2 The units have timber framed floors to both levels and timber decks, with open metal balustrades, to the rear. The garage walls and the walls above are clad in horizontal fibre-cement weatherboards, with monolithic cladding elsewhere.

## **2.7 The wall claddings**

- 2.7.1 The monolithic wall cladding to most of the walls consists of 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with an applied textured coating system. Horizontal bands of polystyrene cover the inter-storey junction, with the textured coating continued over the band.
- 2.7.2 The wall cladding to some walls and panels consists of 150mm x 9mm fibre-cement weatherboards fixed with 30mm laps through the building wrap to the framing, and finished with an acrylic paint system.

## **3. Background**

- 3.1 The authority issued a building consent (No. 02/0575) for the 15 units on 15 March 2002, based on a building certificate issued by the building certifier on 19 February 2002. The building certifier's scope of engagement included all inspections and the issue of a code compliance certificate.
- 3.2 The designer of the overall development was also the engineer for the buildings ("the engineer"), and it appears that the structural elements were reviewed by the engineer during construction, as the building certifier's inspection summary notes "producer statement" against the foundations, floor slabs and sub-floor framing and footings. However, I have seen no copies of producer statements from the engineer for that work.
- 3.3 The building certifier carried out inspections over the following periods:
- Pre-line building and plumbing from June to August 2002 (which passed).
  - Insulation, gibnail and firewalls from June to August 2002 (which passed).
  - Sanitary and storm water drainage in July and August 2002 (which passed).
  - Final inspections in October and November 2002 (which passed).

I note that there are separate inspection summaries for 15 units, consecutively numbered from 1 to 15, in lieu of 1 to 5 and 8 to 17. From the types of foundation inspections noted, it appears that summaries 6 to 15 apply to Units 8 to 17.

- 3.4 The code compliance certificate was not issued in 2002, and it appears that the purchasers of the units were not aware of this until a lawyer acting for the owner of Unit 12 ("the lawyer") sought documentation from the building certifier.
- 3.5 On 18 September 2003, the building certifier faxed the lawyer, and stated that its building file had been handed back to the authority on 4 December 2002. The lawyer then requested the authority to check its records and issue a code compliance certificate for Unit 12.

- 3.6 In a letter to the lawyer on 22 September 2003, the authority noted that the building certifier had provided the authority with a progress report on the complex, but this did not provide sufficient information for a code compliance certificate to be issued.
- 3.7 Also on 22 September 2003 the building certifier formally advised the authority that the work was no longer covered by the certifier's insurance and it was therefore handing the work to the authority.
- 3.8 The building certifier's approval as a building certifier was suspended on 6 September 2004. I am not aware of further correspondence, but it appears that the applicants subsequently attempted to resolve the situation with the authority.
- 3.9 In an email to the owner's representative dated 25 July 2007, the authority referred to past discussion and outlined the history of the project, noting (in summary):
- The authority had no responsibility for the work of the building certifier.
  - The owners were responsible for making an application for a code compliance certificate.
  - The certifier returned the documentation to the authority without issuing a code compliance certificate.
  - If a certificate were issued, all the responsibility would rest with the authority.

The authority stated that, in order to assess 'if it is willing to take on this liability' it had specific requirements as follows:

1. A full weathertightness report on all buildings, this report will have to include invasive testing to check durability of the framing and substrates.
2. Full documentation is required of all sub-trades and certification e.g. electrical certs, cladding manufacturers warranties, applicators certificates, truss manufacturers as-builts, drainage as-builts.
3. Compliance with any conditions placed on the Building Consent.

You need to make the owners aware that there is also a very high chance due to the type of structures and building method and circumstances around the private certifier that [the authority] will refuse to issue a CCC and this will mean that the owners will need to apply for a determination from the Department of Building and Housing as to whether a CCC should be issued.

- 3.10 The Department received an application for a determination from the owners' representative on 22 January 2009.

#### **4. The submissions**

- 4.1 The applicants provided a joint submission dated 20 January 2009, which was divided into two sections. The first section related to the code compliance certificate and questioned why the authority had not issued the certificate.
- 4.2 The second section was in regard to the items that I have described in paragraph 1.7. As stated, I am of the opinion that these matters cannot form part of this determination and I do not comment further on this section of the submission.

The owners' representative forwarded copies of:

- the building consent and some consent documentation
- the building certifier's documentation
- some of the site plans
- documentation relating to the resource consent negotiations
- correspondence with the authority and other organisations.

4.3 The authority acknowledged the application but made no submission. Copies of the applicants' submissions were forwarded to the authority.

4.4 The draft determination was issued to the parties for comment on 20 April 2009.

4.5 The authority accepted the draft without comment. The owners' representative initially made informal comments about process, but later accepted the draft without comment on 22 June 2009.

## **5. Grounds for the establishment of code compliance**

5.1 In order for me to form a view as to the code compliance of the building work, I need to establish what evidence is available and what can 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 this case the available evidence consists of the summary of inspections carried out by the building certifier (refer paragraph 3.3).

5.3 Before deciding whether or not to rely on the building certifier having carried out satisfactory inspections during construction, I consider it important to look for evidence that corroborates those inspections. In this particular case, corroboration comes from the expert's inspection, which can be used to verify whether the certifier's inspections were properly conducted.

5.4 In this case, I have concluded that the following sources of evidence will assist me in forming a view as to the code compliance of the building work, either in full or in part.

- The summary of inspections carried out by the building certifier, which indicates satisfactory inspections of the inaccessible components.
- The expert's report as outlined below.

5.5 I also have the benefit of the fact that the building work is now 7 years old and the performance in use can be assessed against the performance requirements of the Building Code. Over this 7-year period, the building work has been subject to extremes of climatic conditions.

5.6 Once I have formed a view as to the code compliance of the building work I will assess whether this evidence is sufficient, in the context of the reasonable grounds test I must apply, to allow me to direct that a code compliance certificate be issued,



or if it is not sufficient, what remedial work might be sufficient to remedy any shortfall in compliance.

## **6. The expert's report**

6.1 As mentioned in paragraph 1.6, 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 units on 25 February and 3 March 2009 and provided a report that was received on 20 March 2009.

6.2 The expert noted that the construction and layout generally appeared to follow the drawing, although some variations were noted, including:

- The wall cladding is flush-finished fibre-cement.
- The deck balustrades have been changed to metal
- The metal entry canopies have changed
- The sub-floor bracing and firewalls have changed.

6.3 The expert noted that the overall standard of workmanship was 'variable', with some details correctly done in some locations and not in others. The expert also noted that repairs had been undertaken to the tops of the inter-storey bands in various units.

6.4 The expert removed small sections of cladding to investigate nine areas where past repairs were apparent, where moisture readings were elevated or where past moisture penetration was reported. Timber samples were taken from five locations and forwarded to a biodeterioration laboratory for analysis of treatment and decay. Cut-outs were made at:

- the heads of four ranch sliders
- at three of horizontal bands over the inter-storey junction
- at the bottom plate at the rear of Block A
- at the bottom plate beside the deck to the rear of Block D.

6.5 The expert noted that the windows and doors are face-fixed over the backing sheets with the textured coating subsequently applied and metal head flashings that project sufficiently beyond the jambs. The expert removed two small sections of cladding at the head flashings of two ranch sliders where past moisture problems were reported. I accept that the head junctions exposed are typical of similar locations in the complex.

### **6.6 Moisture**

6.6.1 The expert inspected the interiors of the units and noted creasing and minor cracking to linings around windows in some areas. The expert was informed that some units had a history of moisture ingress to the rear (north) elevations – around ranch sliders and at the inter-storey band.

6.6.2 The expert took 35 invasive moisture readings through the cladding at areas considered at risk, and 15 of these were elevated as follows:

**The bottom plates**

- 22% near an inter-cladding junction at the west wall of Unit 1
- 21% at the entry corner to Unit 3
- more than 50% at the rear of Unit 3, with decay confirmed
- 20% beside the garage door to Unit 17

**The inter-storey bands**

- 17% above and 28% below the previously repaired band to the rear of Unit 17
- 17% at the cut-out to the band at the rear of Unit 15, with damp fibre-cement apparent

**The windows and doors**

- 16% at the head cut-out of the north ranch slider to Unit 17
- 18% at the head cut-out of the north ranch slider to Unit 15, with the wrap crinkled from moisture ingress
- 18% in the sill to jamb junction of an upper rear window to Unit 9

**The bottom of the apron flashings**

- 22% at the upper roof to wall junction at Unit 2 to 3 party wall
- more than 50% and soft timber at the lower garage roof to entry wall of Unit 3
- more than 50% and soft timber at the lower garage roof to entry wall of Unit 17

**The deck to wall junctions**

- 17% in the bottom plate at the deck of Unit 15
- 22% in the framing at the cut-out to the deck of Unit 17, with confirmed decay

6.6.3 While moisture levels above 18% generally indicate that external moisture is entering the structure, the expert noted that the “in service” moisture content of the units varied from 8% and 12%, and considered that moisture levels significantly above 12% suggested moisture ingress and that further investigation would be required.

6.6.4 The expert also noted that the inspections were carried out at the end of summer, and considered that moisture levels would differ at other times of year, with more areas likely to be at elevated levels during periods of wet weather.

6.7 Commenting specifically on the wall cladding, the expert noted that:

**The bottom of the cladding**

- the clearances from the bottom of the cladding to the paving are insufficient at the garage and entry areas, with the bottom edge of the cladding below the paving in some areas

- the overlap at the bottom of the cladding past the concrete slab is insufficient in some areas
- the timber framing does not extend beyond the concrete slab in Block A, resulting in the lack of a capillary gap at the bottom of the cladding
- at the cut-out to the rear of Block A, the building wrap is folded up and timber is exposed, with decay confirmed in the bottom plate

#### **The inter-storey bands**

- the bands are glued to unsealed fibre-cement backing sheets to the upper and lower cladding, allowing no movement or drainage of moisture, with saturated fibre-cement apparent at the cut-out to Unit 15
- the top of the bands are sloped, but a back fall is created at the cladding which allows moisture to pond at the junction and enter via cracks in the coating
- the uPVC 'h' jointer at the cut-out is butt-jointed, allowing moisture to enter

#### **The windows and doors**

- the cut-outs at the ranch slider heads revealed that the building wrap extends under the head flashing instead of overlapping the upstand
- some windows lack a drainage gap under the sill flanges and the upper cladding is sealed against the head flashing, with no allowance for drainage, and water damage to the building wrap is apparent at the cut-outs
- the joinery is face fixed over unsealed backing sheets and lacks seals behind the jamb flanges, with a fillet of sealant applied to the edge of the flange

#### **The deck to wall junctions**

- there is no or inadequate drainage gaps between the timber decking and the cladding and signs of moisture penetration was apparent, with decay confirmed in the adjacent bottom plate at the cut-out to Unit 17
- the fibre-cement backing sheets are exposed beneath the ranch slider sills

#### **The sub-floor firewalls**

- firewalls are installed in Blocks B, C and D, and the fire linings are unsealed and butt-jointed, with black surface mould apparent on the fibre-cement sheet

#### **The bottom of the apron flashings**

- the apron flashings in Blocks A and D lack kickouts at the bottom, with unsealed gaps and high levels of moisture recorded in the timber framing below, together with very soft timber indicating severe decay

#### **The rainwater heads**

- the membrane-lined internal gutters between the units in Blocks C and D discharge into rainwater heads, with no formed drip edge, and gaps and loose membrane is apparent in some areas
- some light fitting penetrations through the cladding are unsealed.

- 6.8 The expert made the following additional comments on the claddings:
- A number of penetrations rely on sealant for weathertightness, rather than flashings, and this may not prove to be durable in the longer term.
  - The projections at the ends of the head flashings have gaps to the cladding, which are filled with exposed paintable sealant that is likely to deteriorate with thermal movement and exposure to the sun.
  - Sealant is used to fill the gaps between the fibre-cement weatherboards and the window jamb flanges in lieu of compressible foam seals.
  - The metal canopies at the entries of units in Blocks B and C are suspended and fixed through the weatherboard cladding, with penetrations reliant on sealants.
- 6.9 A copy of the expert's report was provided to the parties on 23 March 2009.

## **7. The expert's addendum report**

- 7.1 At the Department's request, the expert revisited the units on 6 April 2009 and provided an addendum report on 8 April 2009, which assessed compliance with other relevant building code clauses.
- 7.2 The expert made the following comments on those clauses relevant to Blocks B, C, and D.

### **B1 Structure**

For Blocks B, C and D:

- some subfloor timbers used for bracing and bearers have insufficient clearance above the ground (B2 non-compliance only, insofar as it relates to Clause B1)
- the strip footing under the inter-unit firewalls appears inadequate.

### **C Fire safety**

The inter-unit sub-floor firewalls to Blocks B, C and D are lined with unsealed fibre-cement, with black surface mould apparent, and:

- the sheets are butt-jointed and not continuous
- the sheets are damaged in places
- the strip footing under the firewalls is not extended into the ground as designed

### **D1 Access routes**

The stairs and handrails appeared to comply with the requirements for secondary private stairways.

### **E1 Surface water**

No signs of problems related to surface water drainage were noted, with falls away from the building. However, the expert noted that as-built drainage plans should be provided.

**E3 Internal moisture**

The bathrooms have extract fans to the outside, although the expert noted that the shower to one unit had been subject to previous leaks.

**F2 Hazardous building materials**

The glazed doors and shower doors appeared to comply with the relevant standard<sup>5</sup>.

**F4 Safety from falling**

No problems were noted, with deck balustrades installed at satisfactory heights.

**F7 Warning systems**

No domestic smoke alarms are installed.

**G1 Personal hygiene, G2 Laundering, and G3 Food preparation**

No problems were noted.

**G4 Ventilation**

The units are ventilated with sufficient opening windows from habitable rooms, with fans vented to the outside from the upper bathrooms.

**G5 Interior environment, G6 Airborne and Impact Sound**

No problems were noted, although the expert noted that the construction of the party walls could not be confirmed as compliant.

**G7 Natural light and G8 Artificial light**

No problems were noted.

**G12 Water Supplies and G13 Foul Water**

No problems were noted, but an as-built drainage plan should be provided.

**H1 Energy Efficiency**

The expert observed 100mm ceiling insulation within an accessible ceiling space, but could not confirm insulation in skillion roofs. The expert also noted that the draped foil under the timber framed floors in Blocks B, C and D does not meet the requirements of the Building Code that applied at the time of construction.

**8. Evaluation for code compliance****8.1 Evaluation framework**

8.1.1 I have evaluated the code compliance of this complex by considering the following two broad categories of the building work:

- The weathertightness of the external building envelope (Clause E2) and durability (Clause B2 in so far as it relates to Clause E2).
- The building's performance against the remaining relevant code requirements.

8.1.2 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions<sup>6</sup>, which will assist in

<sup>5</sup> NSZ 4223:Part 3 1999 Glazing in Buildings Human Impact Safety Requirements

<sup>6</sup> 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](http://www.dbh.govt.nz).

determining whether the features of these buildings 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.

## 9. Matter 1: The cladding

### 9.1 Weathertightness

9.1.1 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. The Department and its antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations<sup>7</sup> (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

9.1.2 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.

### 9.2 Weathertightness risk

9.2.1 The buildings have the following environmental and design features which influence their weathertightness risk profile:

#### **Increasing risk**

- the buildings are two storeys high
- there are open decks from the lower levels of Blocks B, C and D
- the walls have monolithic cladding fixed directly to the framing
- the walls have more than one type of cladding
- the buildings have no eaves or verge projections
- the external wall framing is not treated to a level effective in resisting decay if it absorbs and retains moisture.

#### **Decreasing risk**

- the buildings are built in a low wind zone
- the buildings are fairly simple in shape, with limited complex junctions.

<sup>7</sup> Copies of all determinations issued by the Department can be obtained from the Department's website.

- 9.2.2 The buildings have 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.
- 9.2.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 9.2.1 show that the elevations of the buildings demonstrate weathertightness risk ratings that range from moderate to high. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the monolithic cladding to these buildings would require a drained cavity. However, I note that E2/AS1 did not describe the types of cladding used on this project, and that a drained cavity was not a requirement of E2/AS1 at the time of construction.

### **9.3 Weathertightness conclusion**

- 9.3.1 I consider the expert’s report establishes that the current performance of the monolithic cladding is not adequate because it is currently allowing water penetration through the cladding, which has resulted in decay to the untreated timber in a number of areas. Consequently, I am satisfied that the building work does not comply with Clause E2 of the Building Code, and I conclude that remedial work is necessary in respect of the matters outlined in paragraph 6.7.
- 9.3.2 There are some compensating risk factors that assist the performance of the cladding including the low wind zone, and the non-complex nature of the buildings themselves. However, while the cladding faults appear to be discrete, the faults are sufficiently numerous to require further investigation to determine their full extent and the means of rectification. The full extent of decay in the timber framing will also need to be determined.
- 9.3.3 In addition, 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 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.

## **10. Matter 2: Compliance with remaining code clauses**

- 10.1 Taking account of the expert’s comments as outlined in paragraph 7.2, I consider that remedial work or documentation, is necessary in respect of the following (the applicable clauses are shown in brackets):
- the clearances to the sub-floor bracing (Clause B2)
  - the footing depths beneath the sub-floor firewalls (Clauses B1 and C)
  - the linings to the sub-floor firewalls (Clause C)
  - the insulation to the sub-floors (Clause H1)

- verification of the insulation to the skillion roofs (Clause H1)

10.2 As outlined in paragraph 3.9, the authority has stated that ‘full documentation is required of all sub-trades and certification’ and the expert’s comments on these items are not included in the above. I also note that I have not seen the engineer’s producer statements indicating satisfactory construction review of the floor slab and foundations for these units. However, I note there are no signs of the failure of the foundations in the seven years since and after the completion of the buildings.

10.3 I also note the expert’s comments regarding the lack of smoke alarms. Although these were not a requirement of the Building Code at the time the consent was issued, I strongly suggest they now be installed.

10.4 I have come to the view that with the exception of those clauses in paragraph 10.1, and the items in paragraph 6.7, the buildings comply with the other relevant clauses of the Building Code.

## **11. The appropriate certificate to be issued**

11.1 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. However, I note that the applicants are seeking a code compliance certificate for the buildings.

11.2 I consider the building work falls into three categories, being:

- 1 The work that I accept as being code-compliant (refer paragraph 10.4).
- 2 The discreet faults, apart from those to the cladding, that require remediation, but that in my view can be fixed (refer paragraph 10.1).
- 3 The extensive remedial work required to the cladding (refer paragraph 6.7).

11.3 I am of the opinion that a code compliance certificate is the appropriate certificate to be issued once, when all the remedial work is completed, the work fully complies with the building Code. I note that all remedial work is to required to be completed to the satisfaction of the authority.

## **12. The durability provisions of the Building Code**

12.1 Consideration of a code compliance certificate will raise the matter of when all the elements of the building complied with Clause B2, given the age of the building work. The authority has the power to grant an appropriate modification to the Building Code to the effect that Clause B2.3.1 applies from the date when all the building elements were installed in the house, apart from the items that are to be rectified as described in this determination. A date on or about November 2002 would appear to be appropriate (refer paragraph 3.3).



### **13. Maintenance**

- 13.1 Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code. Maintenance is the responsibility of the building owner. The Department has previously described maintenance requirements, including requirements 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).
- 13.2 Given that the external wall framing is untreated, periodic checking of its moisture content should also be carried out as part of normal maintenance.
- 13.3 I note the expert's comments in paragraph 6.8 regarding the reliance on sealant for weathertightness in a number of areas. I consider that, providing the sealants are subject to a maintenance programme which requires that they be regularly monitored and maintained, these areas will be adequate in the circumstances.

### **14. What is to be done now?**

- 14.1 A notice to fix should be issued that requires the owners to bring these buildings into compliance with the Building Code, identifying the defects listed in paragraph 6.7 and paragraph 10.1 and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. It is not for the notice to 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.
- 14.2 I suggest that the owners and the authority adopt the following process to meet the requirements of paragraph 14.1. Initially, the authority should issue the notice to fix. The owners should then produce a response to this in the form of a detailed proposal, together with suitable amendments to the plans and specifications, produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified matters. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 14.3 I note that the expert has identified various items of documentation that have not been supplied and I have not seen the engineer's producer statements indicating satisfactory construction review of the floor slab and foundations for these units. While I accept the provision of this information is ideal in this case, I do not believe the information is necessary to establish code compliance. As outlined in paragraph 3.9, the authority has stated that 'full documentation is required of all sub-trades and certification' and I leave this matter to the authority to resolve with the owners.
- 14.4 I also note that changes from the consent drawings have been identified and I leave the matter of appropriate documentation of these changes for the authority to resolve with the owners.

## **15. The decision**

- 15.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building work does not comply with Clauses B1, B2, C, E2, and H1 of the Building Code, and accordingly 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 31 July 2009.

John Gardiner  
**Manager Determinations**