Department of Building and Housing
Te Tari Kaupapa Whare

Determination 2010/023

The refusal to issue a code compliance certificate for a 6-year-old building at 514 Cashel Street, Linwood, Christchurch

1. The matters to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the Act") made under due authorisation by me, John Gardiner, Manager Determinations, 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 owners of the five units within an apartment complex:

- Unit 1: Y Chen and J Zhang
- Unit 2: K Smith and W Robilliard
- Unit 3: M Pfatt
- Unit 4: S Haslett
- Unit 5: Impulse Properties Ltd

1.2.2 The applicants are acting through the secretary of the body corporate for the apartment complex ("the agent"), and the other party is the Christchurch City Council ("the authority") carrying out its duties and functions as a territorial authority or building consent authority.

[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

1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for the 5-year-old apartment complex, because it is not satisfied that the building work complies with certain clauses of the Building Code (First Schedule, Building Regulations 1992).

1.4 I consider the matters for determination, in terms of section 177(b)(i) of the Act[2], are:

1.4.1 Matter 1: The external envelope

Whether the external claddings to the building ("the claddings") comply with Clause B2 Durability and Clause E2 External Moisture of the Building Code. The claddings include the components of the systems (such as the weatherboards, the sheet claddings, the windows, the roof cladding and the flashings), as well as the way the components have been installed and work together. (I consider this matter in paragraph 6.)

1.4.2 Matter 2: The durability considerations

Whether the elements that make up the building work comply with Building Code Clause B2 Durability, taking into account the age of the building. (I consider this matter in paragraph 7.)

1.5 The evidence

1.5.1 I note that the authority has not provided any evidence to me as to why they believe the building is not code compliant. Section 95A states:

> If a building consent authority refuses to issue a code compliance certificate, the building consent authority must give the applicant written notice of—
>
> (a) the refusal; and
>
> (b) the reasons for the refusal.

It is important that, should owners be declined a code compliance certificate, they be given clear reasons why. The owners can either then act on that notice to fix or apply for a determination if they dispute those reasons.

1.5.2 The authority has also been unable to locate consent document (including drawings and specifications), inspection records, correspondence or any other information relevant to the construction of this building. This determination must therefore be based solely on the limited evidence available to me.

1.5.3 In making my decision, I have considered the report of the expert commissioned by the Department to advise on this dispute ("the expert") and other evidence in this matter. I have evaluated this information using a framework that I describe more fully in paragraph 6.1.

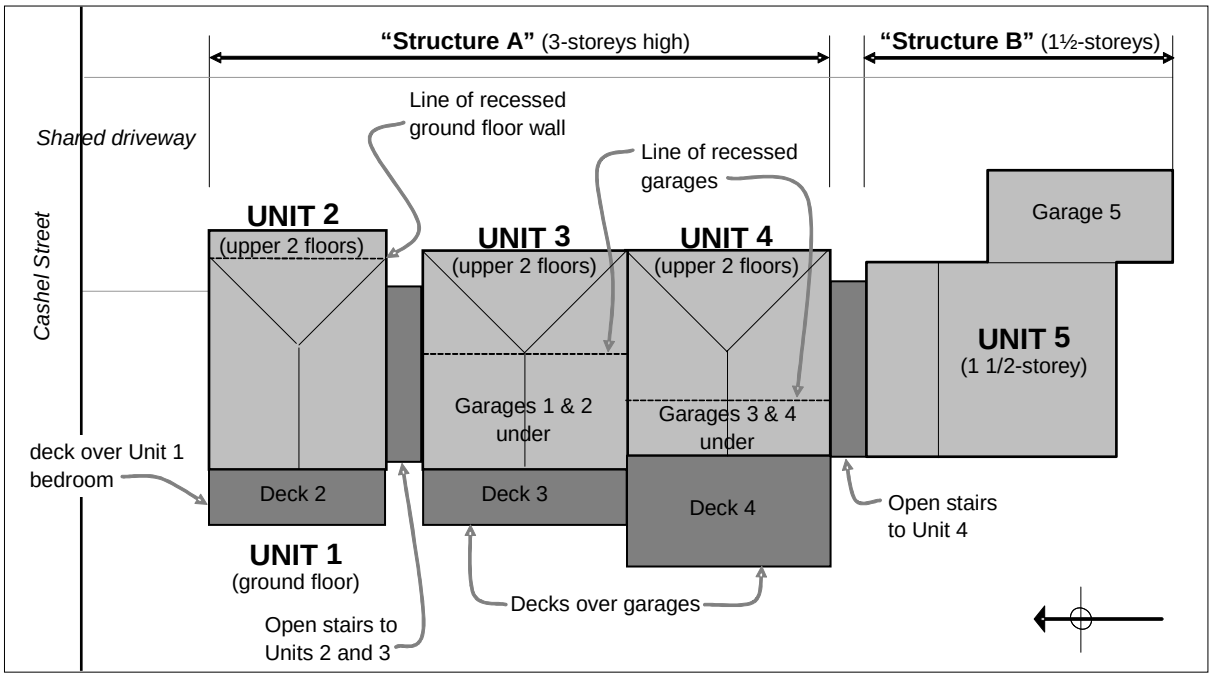
2. The building work

2.1 The complex is situated on a flat site in a medium wind zone in terms of NZS 3604[3], with access from the street provided by a shared driveway. The building is made up

[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.

of two distinct structures ("Structure A" and "Structure B"), which are linked by an open staircase with canopy above.

2.2 The site plan generally appears to be as shown in the following sketch:



2.3 Structure A

2.3.1 Structure A is three-storeys high and accommodates Units 1 to 4, with garages to these units recessed under the upper floors. Unit 1 occupies the northern section of the ground floor, with Units 2 to 4 ("the upper units") in the two upper floors.

2.3.2 Part of the construction of Structure A appears to be specifically engineered, with a concrete slab and foundations, concrete block ground floor exterior and party walls, and a suspended concrete first floor slab. The two upper floor levels appear to be conventional light timber frame construction, with a mix of flat sheet and weatherboard wall claddings, profiled metal roofing and aluminium windows.

2.3.3 The upper units include decks from the living areas to the west, which have open metal balustrades and membrane floors over the concrete floor slab. The deck to Unit 2 sits above a ground floor bedroom of Unit 1, while the decks to Units 3 and 4 sit above the enclosed ground floor garages.

2.3.4 The separated roofs to each unit have eaves and verge projections of about 150mm. Each roof is hipped to the east and gabled to the west, with weatherboard cladding to the gable end walls and fibre-cement sheet cladding to the other walls (including to the walls adjoining the open staircases).

[3] New Zealand Standard NZS 3604:1999 Timber Framed Buildings

2.3.5 Access to upper units is provided by two open staircases. The canopy to the north staircase connects the exterior walls of Units 2 and 3. The south staircase separates Structure A and structure B, with a sloping glazed roof leading to a flat membrane canopy above the landing to Unit 4.

2.4 Structure B

2.4.1 Structure B accommodates Unit 5 at the south of the site; and is essentially a separate house linked to Structure A by the open staircase. The house is two storeys in part, with an attached single-storey garage at the south east corner.

2.4.2 The construction of Structure B appears to be conventional light timber frame, with concrete slabs and foundations, fibre-cement sheet and weatherboard claddings, profiled metal roofing and aluminium windows.

2.4.3 The upper floor of the house is accommodated beneath the asymmetrical gable to the north, with the southern roof slope extended over the single-storey living areas. The garage has a separate monopitched roof at a lower pitch. Eaves and verge projections are generally about 150mm, excluding gutter widths. The west and east walls of the house are clad in fibre-cement weatherboards, with fibre-cement sheet cladding to the south elevation, the garage and the open staircase walls.

2.5 The wall claddings

2.5.1 The sheet cladding comprises 9mm fibre-cement sheets fixed through the building wrap directly to the wall framing. The system includes expressed or visible joints between the sheets, with proprietary butyl rubber backing strips behind the horizontal and vertical joints.

2.5.2 The horizontal weatherboard cladding comprises 16mm fibre-cement bevel-backed weatherboards fixed through the building wrap directly to the wall framing. A mixture of timber and fibre-cement facings and scribers are used at corners and around the aluminium windows and doors. Additional remedial metal flashings have been installed to some areas on the upper west walls by individual owners.

2.6 The expert noted that the timber he was able to observe appeared to be untreated. Given the date of construction during 2003 and 2004, I consider that the framing is unlikely to be treated.

3. Background

3.1 The following is based solely on the content of an undated email from the authority to the agent, following a site meeting on 11 June 2009.

3.2 The authority issued a building consent (No. 20029598) to the developer on 27 November 2002, under the Building Act 1991. Although I have not seen a copy of the building consent, a receipt indicates that the consent was in fact issued.

3.3 From December 2002 to early February 2003, inspection of the building work was carried out by a registered building certifier, and it appears that inspection records

were provided to the authority (although these have since been misplaced). In February 2003, the building certifier handed the project back to the authority for completion of inspections. Based on these dates, the building certifier appears to have been involved only with the inspections of the foundation work.

3.4 According to the authority, it carried out various 'appropriate inspections' during construction. Following final inspections, the authority apparently issued interim code compliance certificates for Units 4 and 5 on 4 June 2004, and for Unit 1 on 16 July 2004. I have no information regarding the completion of Units 2 and 3.

3.5 The expert noted that the owner of Unit 2 had apparently sought a code compliance certificate and a 'building inspector' had required some remedial work, which had subsequently been completed.

3.6 I am not aware of other correspondence or discussions between the parties until an on-site meeting with the authority on 11 June 2009. The authority's summary of the meeting indicates that the owners were seeking a code compliance certificate, which the authority refused. The summary set out a brief history of the project and stated:

> With the introduction of the 2004 Building Act there is no reference to Interim Code Compliances. This unfortunately creates a problem for all units, for example a Code Compliance Certificate will now have to be issued covering all the units, this means when a certificate is issued the durability clock only starts ticking from that time.
>
> The Council now has to consider if the external cladding systems will achieve 15 years from the date of certification and indeed if durability has been compromised.
>
> To be satisfied on reasonable ground that compliance has been achieved the Council recommends that you jointly apply for a Determination...

3.7 The Department received an application for a determination on 20 July 2009. The Department sought further information from the authority on the matters to be determined and, on 27 July 2009, the authority verbally advised that it was also concerned about the weathertightness of the building. Copies of the consent documentation were also sought and, on 14 August 2009, the authority advised that these documents had been misplaced.

4. The submissions

4.1 The agent made no submission, and forwarded copies of:

- the authority's summary of a meeting on 11 June 2009
- the site survey plan.

4.2 The authority made no submission and provided no information (see paragraph 1.5).

4.3 The draft determination was issued to the parties on 29 October 2009. The draft was issued for comment and for the parties to agree a date when the building complied with Building Code Clause B2 Durability. The authority accepted the draft without comment.

4.4 The agent did not accept the draft and in an email to the Department dated 11 November the following matters were noted. The email also included a copy of the authority's final inspection report dated 10 July 2007.

- It was considered unacceptable that the authority did not have records relating to the property. The authority's liability with respect to the work was questioned.
- The authority had issued an interim code compliance certificate for the work but had refused to issue the final code compliance certificate.
- Rectification work had been completed on the basis of the findings of the authority's final inspection. The final inspection did not include matters now raised by the expert.

4.5 In a subsequent email the agent requested that any notice to fix not include unit 2 or 3 as the owners for both units 'have both been advised by the council that they are up to standard and have been fixed'. I note that I have not seen this advice.

4.6 Following further correspondence with the parties, the parties agreed that compliance with Clause B2 was achieved in October 2004. I have therefore taken 1 November 2004 as the dated compliance with Clause B2 was achieved.

5. The expert's report

5.1 As mentioned in paragraph 1.5.3, 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 building on 18 August 2009 and provided a report that was completed on 12 September 2009. Due to the lack of documentation, the expert was unable to compare the building as constructed with the consent drawings.

5.2 The expert noted that the construction quality generally showed that parts of the weatherboard installation were 'not carried out to trade practices or standards of the day'. The expert also observed some 'areas of poor workmanship' and some flashings that were 'not durable or effective'.

5.3 The windows

5.3.1 The windows in the fibre-cement sheet walls are generally sized to suit the sheet layout, with the jambs in line with the vertical joints between the sheets. Windows are face-fixed, with metal head and sill flashings and the sheet joint backing strips extended under the window flanges as butyl rubber jamb seals.

5.3.2 The expert noted that the installation of the aluminium joinery in the fibre-cement weatherboard cladding did not accord with the manufacturer's instructions. There is a mix of fibre-cement and timber facings and scribers, with metal flashings above the top facing boards and traditional timber sills.

5.4 Moisture levels

5.4.1 The expert noted that the owners of Unit 2 and Unit 3 had carried out some remedial work to address past leaks associated with the west gable end walls. Occasional leaks through a west concrete block wall into Unit 4's garage were also reported.

5.4.2 The expert removed a sheet of the fibre-cement cladding at a first floor wall to the north elevation of Unit 2, and noted no evidence of moisture or visible damage to the timber framing, which appeared to be untreated.

5.4.3 The expert inspected the interiors of the units, taking non-invasive moisture readings internally, and noted elevated readings and evidence of past or present moisture penetration to all units except for Unit 2. Moisture damage included:

- soft timber and decay to the bottom of some deck door reveals
- swelling and decay to skirtings in a number of areas.

5.4.4 The expert carried out limited invasive moisture readings through the cladding at areas where damage or defects were observed and noted the following elevated readings at the bottom of walls:

- 20% in the east wall of Unit 5's garage
- 24% under the south west junction of the garage roof with the roof to Unit 5
- 25% in the east wall of a bedroom in Unit 3
- wet timber and decay to the timber reveal of the deck door to Unit 3
- 29% and decay to the timber reveal of the deck door to Unit 4.

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

General

- further investigation is required to establish the causes and extent of leaks, with identification of all timber framing damage that may have resulted from past and present moisture penetration
- in Unit 1, the clearances from the ground floor slab to the ground levels are insufficient on the north and west elevations
- in Unit 5, the clearances from the bottom of the sheet cladding to the ground or paving are insufficient in some areas, and the paving falls towards the garage door area
- a section of guttering is missing on the west elevation, and gaps are apparent at the junction of the fascia with the wall
- there are gaps in the claddings in various areas, and some butyl rubber strips behind sheet joints do not extend to the bottom of the sheets which leaves timber exposed at the gaps
- the paintwork is inadequate or has deteriorated in some areas, with damage apparent to some timber sills and facings, some edges of the sheet cladding exposed and deteriorating, and some areas unfinished

- the corners of the fibre-cement claddings are not weatherproof in some areas, with flashings missing or inadequate
- the deck floors are finished flush with the ground floor concrete block walls, with no turndown and drip edge to edges of the deck membrane

The windows and doors

- the facings to fibre-cement the weatherboards are not installed in accordance with manufacturer's instructions, and some facings are deteriorating
- the timber sills lack falls and weathergrooves, and are deteriorating
- the windows and doors in the weatherboard walls are not installed in accordance with manufacturer's instructions, and moisture penetration with decay is apparent in some areas
- some windows in the flat sheet walls have deformed jamb gaskets and sill flashings nailed through the gasket
- the garage door to Unit 5 lacks a head flashing

The external staircases

- the junctions of the stair landings with the exterior walls lack flashings, both at the landing floor level and at the canopy levels, with gaps apparent
- the glazed roof to the south staircase lacks an adequate apron flashing at the junction with the exterior wall Structure A, with no kickout at the bottom and a downpipe discharging directly over the junction
- the flashing to the edge of the south staircase canopy is fixed through the top and the flashing corner is loose and not weathertight
- the underside of the south staircase has been enclosed with untreated framing used, no DPC below the bottom plate and no building wrap behind the cladding, and decay in the framing is apparent

The roof cladding

- in Unit 5, the south west junction of the garage roof and the roof is not weatherproof, with moisture penetrating into the framed wall below
- a section of guttering is missing on the west elevation, and gaps are apparent at the junction of the fascia with the wall.

5.6 A copy of the expert's report was provided to the parties on 16 September 2009.

Matter 1: The external envelope

6. Evaluation framework

6.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions[4], which will assist in

[4] 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.

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 some other provision to compensate for that in order to comply with the Building Code.

6.2 Weathertightness

6.2.1 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. Weathertightness risk factors have also been described in previous determinations[5] (for example, Determination 2004/1) relating to cladding and these factors are also used in the evaluation process.

6.2.2 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.

6.3 Weathertightness risk

6.3.1 The building 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.

6.3.2 This building has the following environmental and design features which influence its weathertightness risk profile:

Increasing risk

- Structure A is three storeys high
- the building is in a medium wind zone
- the building is complex in plan and form, and includes some complex junctions
- there are decks situated above garage areas and a bedroom
- there are three types of wall claddings, with two types fixed directly to the framing

[5] Copies of all determinations issued by the Department can be obtained from the Department's website.

- there are limited eaves and verge projections to shelter the walls
- the external wall framing is not treated to resist decay

Decreasing risk

- Structure A has a concrete floor slab to the first floor and the decks
- Structure B is two storeys high in part.

6.3.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.3.2 show that all elevations of the building demonstrate a high weathertightness risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the wall claddings to the two upper levels would require a drained cavity. Neither cladding was included in E2/AS1 at the time of construction. However, while timber weatherboards was included but E2/AS1 at the time did not require a drained cavity.

6.3.4 It is clear from the expert's report that some areas of the external envelope have not been constructed in accordance with good trade practice. Taking into account the expert's report, I conclude that the areas outlined in paragraph 5.5 require further investigation. While the faults to the claddings are numerous I note that:

- identified defects are generally restricted to some junctions and intersections
- most defects are relatively minor and able to be rectified
- moisture penetration seems limited to areas where defects have been identified.

6.4 Weathertightness conclusion

6.4.1 I consider the expert's report establishes that the current performance of the cladding is not adequate because it is allowing water penetration at present. Consequently, I am satisfied that the building does not comply with Clause E2 of the Building Code. While the cladding faults appear to be discrete in nature, the faults are sufficiently numerous to require further investigation to determine their full extent and the appropriate means of rectification.

6.4.2 In addition, the building work is 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 building are likely to allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.

6.4.3 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.

6.4.4 The expert has identified areas that indicate a lack of maintenance of the building. Effective maintenance of claddings and other elements 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).

Matter 2: The durability considerations

7. Discussion

7.1 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 work during 2004.

7.2 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).

7.3 These durability periods are:

- 5 years if the building elements are easy to access and replace, and failure of those elements would be easily detected during the normal use of the building
- 15 years if building elements are moderately difficult to access or replace, or failure of those elements would go undetected during normal use of the building, but would be easily detected during normal maintenance
- the life of the building, being not less than 50 years, if the building elements provide structural stability to the building, or are difficult to access or replace, or failure of those elements would go undetected during both normal use and maintenance.

7.4 In this case the delay between the completion of the building work in 2004 and the applicants' request for a code compliance certificate has raised concerns that various elements of the building are now well through or beyond their required durability periods, and would consequently no longer comply with Clause B2 if a code compliance certificate were to be issued effective from today's date.

7.5 It is not disputed, and I am therefore satisfied, that all the building elements complied with Clause B2 on 1 November 2004. This date has been agreed between the parties, refer paragraph 4.6.

7.6 In order to address these durability issues when they were raised in previous determinations, I sought and received clarification of general legal advice about waivers and modifications. That clarification, and the legal framework and procedures based on the clarification, is described in previous determinations (for example, Determination 2006/85). I have used that advice to evaluate the durability issues raised in this determination.

7.7 I continue to hold that view, and therefore conclude that:

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

(b) it is reasonable to grant such a modification, with appropriate notification, because in practical terms the building is no different from what it would have been if a code compliance certificate for the house had been issued in 2004.

7.8 I strongly suggest that the authority record this determination and any modifications resulting from it, on the property file and also on any LIM issued concerning this property.

8. What is to be done now?

8.1 A notice to fix should be issued that requires the owners to bring the building into compliance with the Building Code, identifying the investigations required and defects listed in paragraph 5.5 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.

8.2 I suggest that the owners and the authority adopt the following process to meet the requirements of paragraph 8.1. 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, based on a full weathertightness investigation and 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.

8.3 Once the matters set out in in paragraph 5.5 have been rectified to its satisfaction, the authority may issue a code compliance certificate in respect of the building consent as amended.

9. The decisions

9.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the external claddings do not comply with Clauses E2 and B2 of the Building Code, and accordingly confirm the authority's decision to refuse to issue a code compliance certificate.

9.2 I also determine that:

(a) all the building elements installed in the building, apart from the items that are to be rectified as described in Determination 2010/023, complied with Clause B2 on 1 November 2004.

(b) the building consent is hereby modified as follows:

The building consent is subject to a modification to the Building Code to the effect that, Clause B2.3.1 applies from 1 November 2004 instead of from the time of issue of the code compliance certificate for all the building elements, except the items to be rectified as set out in paragraph 5.5 of Determination 2010/023.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 10 March 2010.

John Gardiner
Manager Determinations