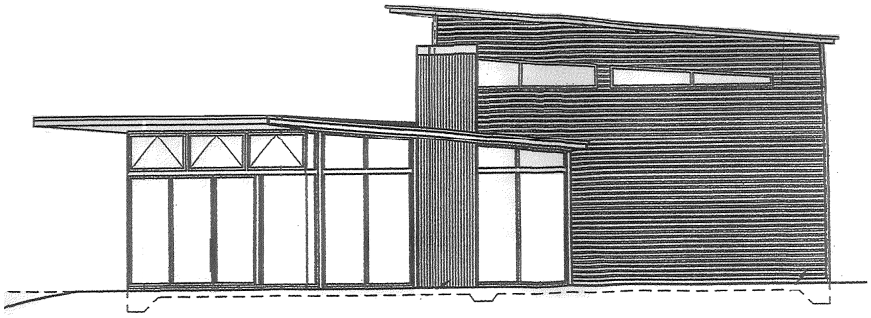
Determination 2011/001

Refusal to issue a code compliance certificate for a partly-completed house constructed under the supervision of a building certifier at 524 Lund Road, Katikati.



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. The applicant is the owner, the J F and J C Taylor Family Trusts Partnership ("the applicant") and the other party is the Western Bay of Plenty District Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.

1.2 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for a house shell that was partly completed ("the house shell") because it was not satisfied that it complied with certain clauses[2] of the Building Code (First Schedule, Building Regulations 1992). The refusal arose because the building work had been undertaken under the supervision of Bay 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 during the construction of the house shell. The authority was also concerned about the age of the house shell considering the work was completed four to six years ago.

[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.

[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.

1.3 The matter to be determined[3] is therefore whether the authority was correct to refuse to issue a code compliance certificate for the building work completed to date (refer paragraph 1.4.1). In making this decision, I must consider:

1.3.1 Matter 1: The external envelope

Whether the external claddings to the house shell ("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 monolithic and metal 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 in paragraph 7.

1.3.2 Matter 2: The remaining relevant clauses

Whether the house shell complies with Building Code Clauses B1 Structure, B2 Durability (as it applies to B1), G12 Water Supplies, G13 Foul Water and H1 Energy Efficiency. I consider this in paragraph 8.

1.3.3 Matter 3: The durability considerations

Whether the elements that make up the house shell comply with Building Code Clause B2 Durability, taking into account the age of the house shell. I consider this in paragraph 9.

1.4 The staging of the original building consent

1.4.1 The original building consent has been amended to cover only the house shell and the applicant has applied for a new building consent for the work to complete the house. Within this determination, these phases of the work are referred to as follows:

- The existing house shell ("Stage One"): amended consent No. 70683.
- The remaining building work ("Stage Two"): consent application No. 80557.

1.4.2 The authority has noted that its concerns about Stage One relate to Clauses B1, B2, E2, G12 and G13 of the Building Code; and has also questioned whether the glazed curtain wall cladding complies with Clause H1.

1.4.3 I leave other matters that relate to completion of the house to the parties to resolve as part of the building consent application for Stage Two. This determination is therefore restricted to those items relating directly to the compliance of the existing house shell with the clauses of the Building Code outlined in paragraph 1.3.

1.5 The evidence

1.5.1 Prior to the application for this determination, the applicant engaged a building surveyor to inspect and report on the building work completed to the house shell (see paragraph 3.6). With the agreement of the parties, the Department has commissioned that same expert to advise on this dispute ("the expert").

[3] Under sections 177(1)(b) and 177(2)(d) of the Act

1.5.2 In making my decision, I have considered:

- the applicant's submission
- the expert's report to the applicant ("the expert's first report")
- the expert's report to the Department ("the expert's second report")
- the other evidence in this matter.

1.5.3 Based on the information and records supplied, I consider there is sufficient evidence available to allow me to reach a conclusion as to whether Stage One will comply with the Building Code (refer paragraph 5). This determination therefore considers, once any outstanding items are repaired and inspected, whether it is reasonable to issue a code compliance certificate for Stage One of the house. I address this question in paragraph 10.

2. The building work

2.1 The building work in Stage One consists of the shell of a detached house that is two-storeys high in part and is situated in a high wind zone for the purposes of NZS 3604[4]. The structure is specifically engineered, with steel portals and timber infill framing, a concrete slab and foundations, monolithic and profiled metal wall claddings, glazed curtain walling, profiled metal roof cladding and aluminium windows. The house shell has been completed to an unlined stage and is assessed as having a moderate weathertightness risk (refer paragraph 7.2).

2.2 The plan is L-shaped, with the southwest leg providing a double garage and mezzanine level above ("the garage/mezzanine"). The bedrooms extend along the eastern elevation, with a passage to the west linking the garage/mezzanine to the living areas at the northern end.

2.3 The 4^{o} pitch monopitched roofs slope to the west, apart from east-sloping section of roof that intersects with the east wall of the garage/mezzanine. The roof to the garage/mezzanine has eaves and verge projections of about 1 metre. The remaining roof has 2 metre deep eaves to the east and eaves of about 400mm overall to the west, except for the canopy above the main entrance. Verge projections vary from about 300mm to 1 metre.

2.4 A free-draining timber deck, with no balustrades, extends the full length of the east elevation, past the bedrooms and living areas. Another small deck infills an internal corner at the laundry door, with a lean-to canopy above.

2.5 The drawings call for 'exterior wall framing min H1.2 with H3 bottom plates'. Two samples from timber studs were forwarded to a testing laboratory for analysis, which confirmed that these were boron treated to H1.2. Given the date of framing installation in 2005 and the other evidence, I consider that the wall framing is treated.

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

2.6 The wall claddings

2.6.1 The garage/mezzanine is clad in horizontal profiled metal, while a framed 'chimney' to the north is clad in vertical profiled metal. A proprietary curtain wall glazing system provides wall cladding that extends from the north chimney along the east elevation and around the southeast corner of the master bedroom. The curtain walling incorporates single glazing and a lower infill panel to the bathroom.

2.6.2 The remaining walls are clad in a monolithic cladding system described as stucco over a solid backing. In this instance it consists of 4.5mm fibre-cement backing sheets that are fixed over cavity battens and the building wrap to the framing timbers. The stucco extends from the garage along the west elevation around the northwest corner and around the southwest corner of the ensuite bathroom.

2.6.3 The plasterer has provided a producer statement dated 30 June 2007, which notes that the stucco was installed in May 2007 and states:

> Have applied 3 x coats solid plaster on fast fix wirenetting on building paper on [the fibre-cement backing sheets]. Includes fibreglass mesh embedded into 1st coat/scratch coat of plaster.

3. Background

3.1 The authority issued a building consent (No. 70683) to the original owners on 5 March 2004 under the Building Act 1991; based on a building certificate issued by the building certifier. Construction of the house shell generally took place from 2004 to 2006.

3.2 The certifier's inspections

3.2.1 According to the inspection summary dated 28 June 2006, the building certifier carried out the following inspections:

- Foundations on 5 August 2004 (which passed).
- Pre-pour slab inspection of the garage on 19 August 2004 (which passed).
- Pre-pour slab inspection of the house on 2 September 2004 (which passed).
- Drainage on 18 March 2005 (which passed, noting 'drain plan received').

3.2.2 I note that the roofer installing the internal gutter membrane provided a producer statement dated 19 January 2007, which stated that the work was completed in September 2004. It therefore appears that the steel and timber framing was substantially completed during 2004 and early 2005.

3.2.3 The building certifier ceased to operate as a building certifier on 30 June 2005 and became 'processing and inspections consultants' ("the contractor"). No further inspections were recorded, although a note was added to the building certifier's inspection summary stating 'final inspection reminder letter sent 27 January 2006'. I have not seen a copy of that letter.

3.3 The authority's pro-forma letter

3.3.1 In mid-2006, the authority sent out pro-forma letters to all owners of buildings with uncompleted building consents that had been constructed under the supervision of the certifier.

3.3.2 In a pro-forma letter to the original owners dated 31 August 2006, the authority explained that when the building certifier ceased operating, an agreement had been made with the contractor to complete outstanding inspections on the building certifier's projects and make recommendations regarding the issuing of code compliance certificates. The authority went on to explain that the liability for building work imposed by the Act meant that:

> ...before Council accepts such liability by issuing Code Compliance Certificates it must be satisfied inspections carried out by Bay Building Certifiers and Bay Inspections were satisfactory to confirm projects have been completed to the standards required by the Building Acts 1991 and 2004. Unfortunately our experience to date is that these inspections, supporting documentation and evidence are not satisfactory to support Council issuing Code Compliance Certificates. Regrettably, this lack of satisfactory inspection detail puts Council in the position where it is unable at this time to accept liability for these deficient projects or issue Code Compliance Certificates.

3.3.3 The authority explained that further inspections were therefore required in order to determine:

- If a Code Compliance Certificate could be issued or whether more building work and inspections are necessary, or
- If a Certificate of Acceptance could be issued or whether more building work and inspections are required, or
- If a Certificate of Acceptance is not appropriate or a Code Compliance Certificate cannot be issued to advice owners of their right to seek a Determination from [the Department].

3.4 The authority's assessment

3.4.1 No further inspections were carried out until 2007; and the framing appears to have been left exposed to the weather for more than two years (see paragraph 3.2.2). Based on the plasterer's producer statement (see paragraph 2.6.3), the windows and fibre-cement backing sheets were apparently installed in early 2007.

3.4.2 The authority carried out a pre-plaster inspection on 4 April 2007, which did not pass. The inspection record noted that a drained cavity had been installed, identified a number of unsatisfactory items and stated 'drip has been found at inside edge of soffit around the whole building'.

3.4.3 On 10 April 2007, the authority subsequently met with the original owners on site to discuss the situation. In a letter dated 13 April 2007, the authority confirmed the meeting and the pre-plaster inspection, noting that:

- as the building 'is of specific design', control joints are to be installed where shown in the consent drawings.
- the cavity above the west door is to be drained as per the manufacturer's instructions.

- a further inspection is required prior to plastering.

(I note that plastering was completed the following month, without the required additional pre-plaster inspection.)

3.4.4 The authority listed the remaining inspections that would be needed:

1. Prelining when all bracing has been installed, structure, fixings and plumbing pipe out completed and under test.
2. Wall and ceiling insulation installed.
3. Solid fuel heater cavity before installation when manufacturers installation instructions are on site with an additional copy for Council's files.
4. Final inspection.

3.4.5 The authority stated that, on satisfactory completion of the project, a certificate of acceptance could be issued for the work it was able to inspect. However, it would:

> ...not issue a Code Compliance Certificate at the end of the project, as to do so would make Council liable for any defects which may arise in work that we have not inspected or had any control over. This includes foundations, floor slab, direct fix profiled metal wall cladding and flashings, drainage and disposal of effluent as well as the design of the building which the Council has not checked.

3.5 The amendment of the building consent

3.5.1 There was no further communication with the authority until the applicants purchased the house shell in February 2009, and sought advice about completing the house. The authority visited the house on 10 March 2009, noting that all 'internal walls are unlined and plumbing evident'. The inspection record also notes control joints in the stucco walls but no flashing tape installed to windows.

3.5.2 The applicant was advised to apply for an amendment to the original consent to cover the existing house shell only, which could then be separately assessed for compliance as Stage One of the house. A new application could then be made for completing the house as Stage Two.

3.5.3 The applicant engaged a building surveyor (refer paragraph 1.5.1) to assess the existing house shell, to identify any deficiencies and to advise on the best approach for completion of the house.

3.6 The expert's first report (to the applicant)

3.6.1 The expert inspected the visible elements of the house shell and provided a report to the applicant dated 16 July 2009. The expert identified various items that would need to be included within the documentation for a new building consent for Stage Two. As explained in paragraph 1.4.3 Stage Two is not considered in this Determination.

3.6.2 The expert removed two timber samples from dark stained studs and forwarded them to a biodeterioration consultant for analysis. The analysis confirmed that the samples were boron treated to an equivalent of H1.2. The report noted that the condition of the samples were consistent with exposure 'to at least 2 – 3 years of moisture elevation' as the samples:

> ...contained mould fungi, sapstain fungi/soft rot fungi and yeasts. No established decay and no definitive incipient brown rot were detected.

I note that the biodeterioration consultant also warned that 'serious decay' could be present in nearby wood.

3.6.3 Taking account of the timber sample analysis, the expert identified various items in the house shell that he considered needed attention, including:

The structure

- inspection and assessment of bracing and fixings throughout the house shell
- verification that the steel structure has been installed in accordance with the engineer's specific design
- repair of any corrosion to the steel members
- the lack of concrete cover and corrosion to reinforcing rods in the shower area
- incomplete metal straps to window and door lintels

The framing timber

- dark water staining to the exposed framing
- application of timber preservative to all exposed framing

The claddings

- lack of weathertightness of louvre window in ensuite shower
- lack of flashing tape and air seals to the conventional windows
- uncoated fibre-cement soffits and lack of control joints
- unsealed penetrations, nail holes and small cracks to west elevation

Plumbing and drainage

- request pre-line inspection of plumbing, arrange for standard pressure test and locate as-built drainage plan
- insufficient downpipes for the areas of roofing.

3.6.4 The expert recommended that the applicant seek an amendment to the original consent 'so that it covers only the items which have been completed up till this date and then apply for a Code Compliance Certificate.' He also recommended that Stage Two documents be prepared for the work necessary to complete the house.

3.7 The amendment of the original building consent

3.7.1 The applicant engaged a designer to prepare amended drawings with the aim of achieving a code compliance certificate for Stage One and also meeting the authority's requirements for Stage Two. On 23 November 2009, the applicant's designer submitted some amended floor plans showing:

- new wall bracing and ceiling diaphragms
- new structural drawings to stiffen existing portal frames.

3.7.2 The authority responded to the amended drawings on 26 November; stating that it considered 'the best way forward' would be to (in summary):

- formally apply for a variation to the original building consent to cover all work inspected by the building certifier and the external claddings (Stage One)
- book an inspection of Stage One, although it would 'not issue a CCC for the works both because of the age of the consent and the fact that Council supervision has been minimal'
- apply for a determination in regard to the refusal to issue a code compliance certificate for Stage One
- apply for a new consent for Stage Two.

3.8 The Stage One application

3.8.1 On 3 December 2009, the designer applied for a variation to the original building consent to cover 'the partial construction of the residence as completed at 16 July 2009'. The designer noted that elements excluded from the original building consent would include all wall and ceiling insulation, all linings, and all bracing to timber framed walls and to the ceilings.

3.8.2 In an undated letter to the authority, the applicant also applied for an amendment and asked the authority to inspect Stage One and issue a code compliance certificate for the work carried out to date. The original building consent was then amended to cover Stage One only.

3.8.3 In a letter to the applicant dated 21 January 2010, the authority refused to issue a code compliance certificate for Stage One as the project had not been inspected since March 2005 and the authority considered that reasonable progress had not been made since that time.

3.8.4 In response to the application for a new building consent for Stage Two, the authority wrote to the applicant on 15 January 2010 and listed 15 areas where additional information was required. In regard to the existing house shell and the matters considered in this determination, the authority's requirements included the following:

- additional information about the durability of the existing timber framing, the extent of site-applied preservative treatment required and the cause(s) of the fungal growth in the timber samples
- confirmation of various fixing and bracing details
- implementation of the recommendations in the expert's first report
- compliance of the curtain wall glazing with current insulation requirements.

3.8.5 The designer responded on 15 March 2010, attaching amended drawings for Stage Two and answering various queries about the proposed building work. The designer noted that it was not possible for the existing curtain wall glazing to comply with the current code requirements that limit the amount of glazed area to these walls.

3.8.6 In a letter to the designer dated 3 May 2010, the biodeterioration consultant noted that he had spoken to the authority and confirmed the following (in summary):

- The existing framing will be durable if the causes of the moisture ingress have been adequately addressed.
- In-situ treatment is a 'compromise top up step, applied after more important remediation that addresses moisture exclusion, has been carried out.'
- The framing is treated to an equivalent of H1.2, so any additional remedial treatment is less significant than it would be for untreated framing.
- No toxigenic moulds were detected in the samples tested.

4. The submissions

4.1 The Department received an application for a determination on 12 July 2010 in respect of the refusal to issue a code compliance certificate for Stage One.

4.2 The applicant forwarded copies of:

- the consent drawings
- the building certifiers inspection summary dated 28 June 2006
- the expert's first report
- the correspondence with the authority
- various photographs, producer statements, certificates, and other information.

4.3 In a submission dated 7 July 2010, the applicant outlined the background to the current situation and described recent efforts to resolve the dispute. The applicant noted that there was no feasible way of complying with the current insulation requirements due to the amount of curtain wall glazing. The applicant concluded:

> We maintain that as we have taken every practical step possible to comply with the present building code, we should have the present work approved thus enabling us to finish the project with the end result of a CCC.

4.4 In an email to the authority dated 12 July 2010, the Department sought further clarification from the authority as to the particular matters in dispute. The Department noted that the consent is still 'live' and would have lapsed only if the work had not commenced after the granting of the building consent. The Department also noted that the building consent had been issued under the Building Act 1991, so the building work

> ...is to comply with the requirements of the Building Code that were in force at the time the consent was issued in March 2004, as provided for in Section 436 of the Building Act. The owner cannot be compelled to comply with current code requirements – and this includes the current requirements for Clause H1 which did not come into effect until November 2007.

4.5 The authority responded in an email dated 13 July 2010, noting that its concerns related to the inspections by the building certifier and the required pre-plastering inspection not requested by the original owners (see paragraph 3.4.4). The authority noted that the building work has now become two projects, Stage One and Stage Two, and its concerns about Stage One were therefore limited to Clauses B1, B2, E2, G12 and G13. The authority also stated:

The Department may well determine that compliance with the conditions of H1 in effect at the time the consent was issued would be sufficient.

4.6 The authority made no further submission in relation to the matters in dispute.

4.7 A draft determination was issued to the parties on 29 November 2010. The draft was issued for comment and for the parties to agree a date when the house complied with Building Code Clause B2 Durability.

4.8 Both parties agreed compliance with Clause B2 was achieved on the following dates:

- 1 April 2005 for the structure and roof cladding
- 1 June 2007 for the stucco, curtain walling and metal wall claddings.

4.9 The authority submitted in a letter dated 20 December 2010 that the building certifier did not become processing and inspections consultants operating on the authority's behalf, but that the certifier carried out those functions for a different territorial authority. The authority also noted an error in the wording of the decision in the draft. I have amended the determination accordingly.

4.10 In a letter received on 20 December 2010, the applicant commented on the expert's findings (refer paragraphs 6.7 and 6.9) and submitted that:

- prior to the expert's second inspection control joints were installed to the soffit, and in the applicant's view the cracking is not 'extensive'
- the area of soffit that is unpainted is being closed in during Stage Two
- the unsealed pipe has been temporarily sealed with silicone awaiting plumbing
- the cable penetrations are provision for soffit lighting which will be sealed when the lights are installed
- the storm water is dispersed to the water course with one down pipe discharging onto the ground at present.

5. Grounds for the establishment of code compliance

5.1 In order for me to form a view on the code compliance of Stage One, 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. In the case of Stage One, I note that the framing and structure is exposed and able to be 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 consider that the level of that reliance is influenced by the information available to me and also by my evaluation of the house. I note that the building certifier did not carry out any cladding inspections.

5.3 In summary, I find that the following evidence will allow me to form a view as to the code compliance of Stage One as a whole:

- The record of inspections carried out by the building certifier, which indicates satisfactory inspections of parts of the building work (refer paragraph 3.2.1).
- The drawings, photographs, producer statements and technical information.
- The export's reports on the exterior building envelope.

6. The expert's second report

6.1 As outlined in paragraph 1.5.1, the applicant had previously engaged the expert to inspect and report on the building work completed to date on the house shell and with the agreement of the parties I engaged the expert to assist me in the evaluation of Stage One and some other matters identified by the authority. The expert is a member of the New Zealand Institute of Building Surveyors.

6.2 The expert inspected Stage One on 6 October 2010, completing a report on 8 November 2010. The expert took into account his previous assessment of the house shell and limited his inspection to assessing weathertightness aspects.

6.3 The expert noted that some sections in the consent drawings have references to expanded details not included in the authority's drawings, which made it difficult to assess the adequacy of some junctions.

6.4 General

6.4.1 The expert considered that the roof and wall claddings had generally been installed satisfactorily, apart from the items identified in paragraph 6.7. As Stage One was unlined, he could observe the structural members, timber framing, the building wraps and various other aspects of the construction.

6.4.2 The stucco was generally installed satisfactorily, with vertical control joints fitted and no signs of cracking. The expert was able to observe the uPVC cavity closure at the bottom of the cladding and could feel the cavity battens through the building wrap from the inside.

6.4.3 The profiled metal cladding also appeared to have been 'properly installed', with the visible parts of flashings appearing satisfactory, apart from the areas identified in paragraph 6.7.

6.4.4 The expert also considered that the general design and installation of the roof cladding was satisfactory, apart from the hip junction at the change of direction at the northern end of the lower roof. The membrane-lined internal gutter at the roof to wall junction appeared satisfactory, as did the flashings over the change in roof pitch.

6.5 The windows and doors

6.5.1 The expert noted that the conventional joinery had been installed prior to the general use of flashing tape and air seals at the framed openings, but incorporated metal head, jamb and sill flashings. The site is exposed and in a high to very high wind zone and the expert was able to feel drafts around the inside face of joinery units.

6.5.2 The base of the curtain walling was set within a rebate at the edge of the floor slab. Although a damp proof membrane coating to the rebate could not be obseved, the expert considered that any moisture reaching the bottom could drain to the outside without causing any damage.

6.6 Moisture levels

6.6.1 The expert had previously noted the water staining on the timber framing and had arranged for testing of two samples taken from studs (see paragraph 3.6.2) and therefore did not arrange for further testing during this inspection.

6.6.2 The expert noted that moisture levels in the timber framing could only be assessed on a relative basis, as framing was exposed on the inside and moisture was therefore able to dissipate. The expert therefore used the moisture level recorded on an interior wall as the reference; to compare with readings of exterior wall framing.

6.6.3 The reference moisture level was recorded as 10%. The expert took invasive moisture readings using 50mm long probes into the framing at 37 other locations around the exterior walls; at bottom plates, under sill/jamb junctions and at other areas considered at risk. 34 of those readings (from 9% to 12%) varied little from the reference level.

6.6.4 However there were three readings of about 14% at two areas on the south elevation – one area clad in profiled metal and the other in stucco. The expert considered these locations should be further investigated due to the significant moisture variation from the reference level. The elevated readings were from:

- the sill trimmer under the ensuite window
- the bottom plate under the south window of the garage (I note that moisture levels at the sill trimmer are lower at 9% to 11%).

Moisture readings that vary significantly after the exterior claddings are installed generally indicate that external moisture is entering the structure and further investigation is required.

6.7 Commenting specifically on the claddings, the expert noted that:

The windows and doors

- the conventional windows lack air seals, with drafts apparent around the window area
- in the curtain wall glazed areas, there are some small gaps under head flashings at infills between windows and at the ends of some head flashings

- in the west stucco cladding, the sill flashing to the strip windows has insufficient overlap to the plaster, an excessive gap and the edge is able to be easily lifted indicating that it is unlikely to resist wind-driven rain
- on the south elevation, the jamb flashing at the junction of the curtain wall glazing with the stucco has insufficient cover to the plaster
- the sill flashing to the south ensuite window requires further investigation, as moisture levels are elevated in the framing below and the sill may lack a turn-up at the junction with the jamb flashing
- the full-length louvre window in the ensuite shower is unlikely to be weatherproof, and the owner has undertaken to replace the louvres with either a solid panel or appropriate toughened glass

The roof cladding

- the hip flashing at the change in roof direction lacks soft edges to dress into the roof profile, with gaps apparent, is made of two pieces without a cover flashing over the joint and appears unlikely to remain weatherproof in high winds
- there are gaps at junctions with the apron flashing around the chimney

General

- some stucco wall cladding and fibre-cement soffit cladding is unpainted
- the soffits are clad in flush-finished fibre-cement with no control joints installed and there is extensive cracking where the cladding has moved
- ground clearances beneath claddings are insufficient in some areas
- the elevated moisture levels in the garage bottom plate may be due to the lack ground clearances, but further investigation is needed to establish the cause(s)
- there are unsealed pipe and cable penetrations in some areas.

6.8 The expert also noted that the small timber deck at the south laundry door butts against the claddings, with no allowance for drainage at the junction. However, I note that this area is sheltered beneath a 2 metre deep canopy and is likely to be adequate in these circumstances.

6.9 Surface water

6.9.1 The expert assessed the number of downpipes provided against the roof areas, and confirmed that adequate provision had been made. However, some of the downpipes discharge directly onto the ground.

6.9.2 The expert also noted that a suitable stormwater disposal system needs to be provided as soak holes are not permitted in this location. (It is assumed that this will be included in the Stage Two building consent, as the drainage plan notes ‘disperse stormwater to water course’).

6.10 A copy of the expert’s report was provided to the parties on 17 November 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 Stage One house shell has the following environmental and design features which influence its weathertightness risk profile:

Increasing risk

- the building is in a high to very high wind zone
- the building is two-storey in part, with multiple wall claddings
- although fairly simple in plan and form, their are some complex junctions
- some walls have horizontal profiled cladding fixed directly to the framing
- the wall framing has been left exposed to moisture for more than two years

Decreasing risk

- the stucco wall cladding is fixed over a drained cavity
- although some eaves are oblique, the roof pitch is very low
- there are deep roof projections to shelter most of the walls
- the free-draining ground level decks are sheltered beneath deep eaves
- the external wall framing is treated to a level that provides resistance to decay if it absorbs and retains moisture.

7.2.2 When evaluated using the E2/AS1 risk matrix, these features show that all elevations of the house demonstrate a moderate weathertightness risk rating. I note that, if the details shown in the current E2/AS1 were adopted to show code compliance, the metal wall cladding would require a drained cavity. However, I also note that this was not a requirement when the building consent was issued for this house.

7.3 Weathertightness performance

7.3.1 Generally the claddings appear to have been installed in accordance with good trade practice and to the manufacturer's recommendations at the time. However, taking account of the expert's comments in paragraph 6.7, I conclude that remedial work is necessary in respect of the following:

The windows and doors

- the lack of air seals to the conventional windows
- the small gaps in some areas of the curtain wall glazed areas
- the sill flashings to the strip windows in the west stucco cladding

- the jamb flashing at the south stucco to curtain wall glazing junction
- the sill flashing to the south ensuite window
- the full-length louvre window in the ensuite shower

The roof cladding

- the hip flashing at the change in roof direction
- the gaps to the apron flashing around the chimney

General

- the unpainted stucco and fibre-cement soffits
- the extensive cracking to the flush-finished fibre-cement soffits
- the inadequate ground clearances beneath claddings in some areas
- the unsealed pipe and cable penetrations

Further investigations needed

- the elevated moisture levels in the south garage bottom plate
- the elevated moisture levels in the ensuite window sill framing.

7.4 Weathertightness conclusion

7.4.1 I consider the expert's report establishes that the current performance of the building envelope may not be adequate because there are indications there is water penetration into several areas at present. Consequently, I cannot be satisfied that the building envelope complies with Clause E2 of the Building Code.

7.4.2 In addition, the building envelope 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 addition to remain weathertight. Because the cladding faults 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 Because the faults identified with the claddings occur in discrete areas, I am able to conclude that satisfactory rectification of the minor items outlined in paragraph 7.3.1 will result in the building envelope being brought into compliance with Clauses B2 and E2 of the Building Code.

7.4.4 Effective maintenance of claddings is important to ensure ongoing compliance with Clauses B2 and E2 of the Building Code and is the responsibility of the building owner. The Department has previously described these maintenance requirements, including examples where the external wall framing of the building may not be treated to a level that will resist the onset of decay if it gets wet (for example, Determination 2007/60).

Matter 2: The remaining Building Code clauses

8. Discussion

8.1 The timber framing (B2 as it relates to B1)

8.1.1 I note the results of the timber sample testing carried out during the expert's first assessment of the house shell for the applicant in July 2009 (see paragraph 3.6.2) and the letter dated 3 May 2010 from the biodeterioration consultant.

8.1.2 However, I make the following observations on the timber framing:

- From the expert's photographs, the timber framing in the exterior walls is extensively water-stained.
- The roof was installed in about September 2004 (see paragraph 3.2.2), while the windows and stucco cladding was not installed until early 2007 (see paragraph 3.4.1). This sequence of events indicates that the timber framing was likely to have been exposed to wind-blown rain for more than two years.
- Only two timber samples have been tested. However, the biodeterioration consultant's report warns that 'serious decay' could be present in nearby wood.

8.1.3 While I accept that, on the basis of the two samples tested, the treated framing with added site-applied preservative is likely to be adequately durable; taking account of the above observations I am of the opinion that the limited sample testing is not sufficient to give me reasonable grounds to conclude that the timber framing will comply with the durability provisions of the Building Code.

8.1.4 I therefore consider that additional sample testing of the water stained framing is required to ensure that the condition of the remaining framing is confirmed as at least as good as the areas from which the two tested samples were taken. Sufficient samples should be taken from water stained timbers throughout the house shell to allow an adequate representation of the condition of the external wall framing.

8.2 The curtain wall glazing (H1 Energy Efficiency)

8.2.1 The authority questioned compliance with Clause H1 of the glazed curtain wall cladding (refer paragraph 3.8.4). As outlined in paragraph 4.4, Stage One is required to comply with the insulation requirements at the time that the house shell was constructed. In regards to the curtain wall glazed areas, I am satisfied that the house shell complied with the requirements of Clause H1 at the time of construction.

8.2.2 While I accept that the building work in Stage Two is covered by a new building consent, and is therefore required to comply with current requirements (as alterations to the existing house shell), that does not change the compliance requirements of the existing Stage One building work, which does not require to be upgraded to meet the current requirements of Clause H1.

8.3 Other relevant requirements

8.3.1 With respect to other clauses identified by the authority, I make the following observations:

- **B1 Structure**

I note that Stage Two of the house will incorporate additional structural elements that are intended to be included in the building work for Stage Two. I therefore leave this to the parties to resolve.

In regard to the condition of the timber framing, I have addressed this matter in paragraph 8.1 above. Providing the additional testing described in paragraph 8.1.4 proves satisfactory, I am also satisfied that the structure will comply with Clause B2 (insofar as it applies to B1).

- **G12 Water Supplies and G13 Foul Water**

The inspection summary indicates satisfactory inspections of drainage up to the house shell stage, with an as-built drainage plan submitted. The expert's first report recommended that a pre-line inspection of plumbing be requested, along with a standard pressure test, and the as-built drainage plan should also be located. I concur with these recommendations and assume that these will be included as part of the building work for Stage Two. I therefore leave this to the parties to resolve.

8.4 Based on the above observations, I consider that the expert's two reports, the building certifier's inspection summary, the authority's assessments and the other documentation, allow me to conclude that the building work in Stage One will comply with the remaining relevant clauses of the Building Code.

Matter 3: The durability considerations

9. Discussion

9.1 There are concerns regarding the durability, and hence the compliance with the building code, of certain elements of Stage One taking into consideration the age of the building work completed from 2004 to 2007.

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 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.

9.4 In this case the protracted construction and the delay between the completion of the house shell and the applicant' 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. I have not been provided with any evidence that the authority did not accept that those elements complied with Clause B2 at a date in 2003.

9.5 It is not disputed, and I am therefore satisfied, that all the building elements installed in the house shell, with the exception of the items that are to be rectified, complied with Clause B2 on:

- 1 April 2005 for the structure and roof cladding
- 1 June 2007 for the stucco, curtain walling and metal wall claddings.

This date has been agreed between the parties, refer paragraph 4.8.

9.6 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.

9.7 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, as in practical terms the building is no different from what it would have been if a code compliance certificate for the building work had been issued in 2007.

9.8 I strongly recommend 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.

10. What is to be done now?

10.1 I note that some of the work referred to in the expert's two reports is intended to be included within the new building consent for Stage Two. I leave it up to the parties to resolve which areas listed in paragraph 7.3.1 should be completed under the amended original building consent for Stage One, and which may be more appropriately left for completion as part of Stage Two.

10.2 The authority should inspect Stage One and issue a notice to fix for the amended original building consent that requires the owner to bring the building work into compliance with the Building Code. Taking account of paragraph 10.1, the notice to fix should identify the remaining areas listed in paragraph 7.3.1 and the testing outlined in paragraph 8.1.4; referring to any further defects that might be discovered

in the course of investigation, testing and rectification without specifying how those defects are to be fixed.

10.3 Taking account of any matters to be included as part of Stage Two, once the matters set out in paragraph 7.3.1 and paragraph 8.1.4 have been completed to its satisfaction, the authority may issue a code compliance certificate for the building consent for Stage One, amended as outlined in paragraph 9.

11. The decision

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

- the external envelope does not comply with Building Code Clauses E2 and B2 (insofar as it relates to Clause E2)
- pending the results of further sample testing, I am unable to confirm whether the timber framing complies with Building Code Clause B2 (insofar as it applies to Clause B1)

and accordingly, I confirm the authority's decision to refuse to issue a code compliance certificate.

11.2 I determine that Stage One complies with the remaining relevant clauses of the Building Code

11.3 I also determine that:

(a) the building elements installed in Stage One complied with Clause B2 on 1 April 2005 for the structure and roof cladding, and 1 June 2007 for the stucco, curtain walling and metal wall claddings.

(b) the building consent for Stage One 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 the following dates, instead of from the time of issue of the code compliance certificate for all the building elements, with the exception of those items that are to be rectified as set out in Determination 2011/001:
>
> - 1 April 2005 for the structure and roof cladding
> - 1 June 2007 for the stucco, curtain walling and metal wall claddings.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 10 January 2011.

John Gardiner
Manager Determinations