



Determination 2008/124

Dispute regarding two notices to fix issued in respect of an 11-year-old house with 4-year-old additions, at State Highway 1, Kamo, Whangarei



1. The matters to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, John Gardiner, Manager Determinations, Department of Building and Housing (“the Department”), for and on behalf of the Chief Executive of that Department. The applicants are the owners, J and J Luiten (“the applicants”), and the other party is the Whangarei District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.2 The determination arises from the decision of the authority to issue two notices to fix in respect of two building consents because it was not satisfied that the building work complied with certain clauses of the Building Code² (First Schedule to the Building Regulations 1992).
- 1.3 Based on the items identified in the notices to fix, I consider that the matters for determination are:

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

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

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.

1.3.1 Matter 1: The claddings

Whether the claddings as installed (“the cladding”) complies with Clauses B2 Durability and E2 External Moisture. By “the claddings as installed” I mean the components of the systems (such as the backing materials, the plaster, the flashings and the coatings), as well as the way the components have been installed and work together. I address this matter in paragraph 7.

1.3.2 Matter 2: The lintel to the garage opening

Whether the lintel structure above the garage door opening complies with Building Code Clause B1 Structure. I address this matter in paragraph 8.

1.3.3 Matter 3: The macrocarpa pergola

Whether the timbers in the pergola structure comply with Building Code Clause B2 Durability. I address this matter in paragraph 9.

1.3.4 Matter 4: The additional durability considerations

Whether the building elements installed under the 1996 consent comply with Clause B2 Durability of the Building Code, taking into account the age of the building work completed under that consent. I address this matter in paragraph 11.

1.4 Matters outside this determination

1.4.1 The swimming pool (compliance with Clause F4 Safety from falling)

The 2004 building consent noted a swimming pool which is not shown in either the consent drawings or specification. I have received no information about the pool, and it does not feature in either notice to fix. The compliance of the pool is therefore outside the matters to be determined.

1.4.2 Clause E1 Surface water

The notice to fix in respect of the 2004 consent (refer paragraph 3.10) included non-compliance with Clause E1 Surface water, which appears to relate to a downpipe that was not connected with the stormwater system. This matter has not been included as a matter to be determined and I leave this matter for the authority and the applicant to resolve.

1.4.3 The additional unconsented work

1.4.4 I note a simple lean-to structure has been attached to the south wall of the garage. The lean-to structure is not the subject of this determination.

1.5 In making my decision, I have considered the submissions of the parties, 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 6.1.

2. The building work

2.1 The building work consists of a 2-storey house, with an attached single-storey garage, situated on a large flat rural site that is in a high wind zone in terms of NZS 3604³.

2.2 The building has been constructed in 2 stages as follows:

- The 1996 building consent for the original house and garage, constructed in 1997.
- The 2004 building consent included an upper level extension to the original house and the addition of a glazed timber pergola to the north elevation.

Although the work for both consents has been completed for some time, neither stage has been issued with a code compliance certificate.

2.3 The building work was undertaken under the supervision of two building certifiers, which were duly registered as building certifiers under the Building Act 1991, but which ceased operating as certifiers before code compliance certificates could be issued. The building certifiers were:

- BCW Ltd (“building certifier A”) for the 1996 consent
- Approved Building Certifiers Ltd (“building certifier B”) for the 2004 consent.

2.4 The house (1996)

2.4.1 The house is L-shaped and was originally 2-storey in part, with an upper level over the eastern “leg” and a roof deck over the remaining area. Construction is specifically engineered, with concrete foundations, concrete floor slabs to both levels, reinforced concrete/polystyrene block walls and aluminium windows with arched heads.

2.4.2 The walls to the house are constructed with interlocking expanded polystyrene blocks filled with reinforced concrete and finished with a mesh-reinforced plaster to both faces. The walls extended up to form 1 metre high parapets around the original roof deck, with an external curved concrete staircase providing access at the north west corner.

2.5 The attached garage (1996)

2.5.1 A single-storey garage forms a lean-to against the south wall of the house, with a 6° pitch profiled metal roof and parapets to the 3 external walls. The garage construction is conventional light timber frame, with a concrete slab and foundations, monolithic cladding and aluminium windows.

2.5.2 The wall cladding to the garage comprises 7.5 mm thick fibre-cement sheets fixed through the building wrap to the framing, and finished with an applied textured coating system. Clay tiles are fixed to the tops of the monolithic-clad parapets.

³ New Zealand Standard NZS 3604:1999 Timber Framed Buildings

- 2.5.3 The specification calls for the timber wall framing to be “No 1 treated pine”, with no indication of the type or level of treatment. Given the lack of evidence and the date of construction in 1997, I consider that the external wall framing to the garage is unlikely to be treated.

2.6 The upper level addition (2004)

- 2.6.1 The upper level has been extended over the original roof deck, with a new roof and roof structure to the new and original walls. This addition has resulted in a 2-storey house that is fairly simple in plan and form.
- 2.6.2 The new roof structure is specifically engineered with laminated timber beams and rafters, which are exposed beneath the skillion roof and the eaves projections. The resulting house has a 20° pitch pressed metal tile hipped roof with eaves projections of more than 900mm above all walls.
- 2.6.3 The original exterior curved staircase is retained, with a porch recess provided at the first floor northwest corner.
- 2.6.4 The 1 metre high parapets to the original roof deck have been retained to form the lower walls to the new upper level. 150mm x 150mm timber posts support the new roof structure and are recessed 50mm into the polystyrene back of the original walls. The upper walls have timber infill framing between the posts, which aligns with the inside faces of the posts. The 150mm step between the new upper walls and the original block walls is capped with a sloping metal flashing that forms a continuous band around the new upper level walls.
- 2.6.5 The wall cladding to the new upper walls comprises 7.5mm thick fibre-cement sheets fixed through H3 treated timber battens and the building wrap to the framing, and finished with a flush finish jointing filler over mesh-reinforced joints and an applied textured plaster system. The 20mm timber battens form a cavity between the cladding sheets and the building wrap.
- 2.6.6 The drawings and specification call for the new exterior framing to be H3 treated. Given the date of construction in 2004, I accept that the external wall framing is likely to be treated.

2.7 The macrocarpa pergola (2004)

- 2.7.1 A timber pergola, approximately 4 x 6 metres in plan, supports a 10° pitch glazed lean-to canopy above the main entry on the north elevation. The pergola structure is specifically engineered, with a 300mm x 300mm lintel beam above four 300mm x 300mm posts. The posts are spaced at about 2m centres and set into 900mm deep concrete footings, and galvanised steel connection brackets connecting the post to the lintel beam. 200mm x 75mm rafters at 900mm centres are fixed to a stringer which is bolted to the walls of the original house.
- 2.7.2 The specification calls for the pergola posts and beam to be “H5 treated hardwood or pine”, and the pergola rafters and the stringer to be “H3 treated pine”. However, the pergola posts and beam installed to the pergola are untreated macrocarpa, which the owner advises is a mixture of heart and sapwood.

3. Background

- 3.1 The authority issued a building consent (No. 16279) on 16 May 1996 under the Building Act 1991.
- 3.2 Building certifier A carried out various inspections during construction, including a pre-line inspection on 3 November 1997. I have received no records of any inspections carried out following a plumbing inspection on 7 November 1997. Although the house appears to have been completed in 1997, it appears that a final inspection was not carried out and no code compliance certificate was issued.
- 3.3 Building certifier A ceased operating as a building certifier on 26 March 2003.
- 3.4 The authority issued a second building consent (No. 70908) on 9 January 2004 under the Building Act 1991, based on a building certificate (No. 70004) issued by building certifier B on 4 December 2003. The scope of engagement for building certifier B excluded:
- Processing and inspection of external cladding outside acceptable solutions E2 AS1. WDC to issue CCC.
- 3.5 Building certifier B carried out various inspections during construction, including a pre-line inspection on 12 May 2004. The last inspection by building certifier B appears to be the gib-nail inspection on 12 May 2004, after which the project was passed to the authority for completion.
- 3.6 Building certifier B ceased operating as a building certifier on 22 October 2004.
- 3.7 On 13 December 2004, the owners authorised the authority to carry out all further inspections of the building work. The authority carried out an inspection of the pergola footings on 16 December 2004, which appears to have been the last inspection.
- 3.8 In 2008, when the owners sought code compliance certificates for the building work, the authority carried out a “preliminary inspection”, and noted that it:
- ...discussed jobs on site – quick look at exterior indicates non compliance with NZBC – notice to fix to be issued.
- 3.9 The authority issued two notices to fix, both dated 26 May 2008, for the building work carried out under both consents. The “particulars of contravention or non-compliance” in the notice to fix for the 1996 consent stated:
- Non-compliant with sections B1, B2, E2 of NZBC specifically:
- Building exterior with numerous cracks throughout.
 - Possible failure of garage door lintel.
 - Ground level around perimeter.
- 3.10 The “particulars of contravention or non-compliance” in the notice to fix for the 2004 consent stated:
- Non-compliant with sections B2, E2, E1 of NZBC specifically:

- Flashing system to head of glazing and means of containing glazing members not as per plan – allowing water entry to macrocarpa structural members comprising B2 (Durability).
- Structural posts & beams constructed in macrocarpa (not hardwood as per plan) with posts on brackets but in ground contact in some areas.

3.11 The Department received an application for a determination on 19 August 2008.

4. The submissions

4.1 The applicant forwarded copies of:

- the consent drawings and specification
- the notices to fix dated 26 May 2008
- some technical information.

4.2 The authority forwarded copies of:

- the consent drawings and specification
- the consent documentation
- the inspection records
- the notices to fix dated 26 May 2008.

4.3 Copies of the submissions and other evidence were provided to each of the parties. Neither party made any further submissions in response to the submission of the other party.

4.4 A draft determination was issued to the parties on 3 November 2008. The draft was issued for comment and to provide the parties with an opportunity to agree a date when the original house complied with Building Code Clause B2 Durability.

4.5 The applicant accepted the draft without comment. The authority accepted the draft but expressed the view that the pergola was a structural element that should have a 50-year life, which it based upon other determinations issued by the Department.

4.6 Both parties agreed that the building elements complied with Clause B2 on 1 January 1998. I take the view that, in this instance, the building elements are those contained in the original 1996 consent for the original house, but excluding the garage given the nature of its construction and the extent of the defects.

5. The expert's report

5.1 As mentioned in paragraph 1.5, I engaged an independent expert to provide an assessment of the condition of those building elements subject to the determination. The expert is a member of the New Zealand Institute of Building Surveyors. The expert inspected the house on 22 September 2008 and furnished a report that was completed on 26 September 2008.

5.2 The expert noted that the building work generally appeared to be in accordance with the consent drawings, except for the use of macrocarpa for the pergola timbers.

5.3 The expert inspected the interior of the house, taking non-invasive moisture readings internally, and elevated moisture levels were noted at the plastered sill of a north window in the polystyrene block wall. Due to the nature of the construction the expert did not take any invasive moisture readings in the house walls.

5.4 The house

5.4.1 Commenting specifically on the house wall claddings, the expert noted that:

- the ground and paving levels are against the bottom of the plaster, and there is no step up to the inside floor level
- the paint coating to original walls appeared to be original, and was in poor condition
- there are many cracks in the plaster over the original walls
- the paving around the house is damaged in a number of areas
- there is no allowance for drainage from the cavity behind the new upper wall cladding
- the window sill flanges are sealed to the plaster of the original walls with no sill flashings, trapping moisture that is penetrating into the inside plasterwork
- while the windows in the new cavity walls appear to be installed satisfactorily, the windows in the original block walls are recessed, with no evidence of head or sill flashings. (However, I note that the block-work included a rebate around the window openings, against which the window is fixed.)
- there is no capping over the top of the block balustrade at the upper porch and the staircase balustrade, and the plaster is water stained and cracking
- the upper porch deck is unfinished, with no waterproof membrane installed over the concrete floor slab, and timber, and unsealed fibre-cement sheet is exposed at the bottom of the new walls.

5.4.2 I note that the cladding extends around the projecting support posts to the upper walls. This has divided the wall lengths into dimensions that do not require the installation of control joints

5.5 The attached garage

5.5.1 Commenting specifically on the garage wall cladding, the expert noted that:

- the cladding butts against the surrounding paving
- there are many cracks in the cladding
- the garage door lacks a head flashing
- there is a noticeable deflection in the garage door lintel, and decay is visible on the timber reveal
- the windows are face-fixed with no head flashings

- the parapets are capped only with clay roof tiles, which are dislodged and missing in some areas
- the roof has leaked, allowing moisture into the garage that has damaged linings. The condition of the timber framing is not known.

5.5.2 The expert advised that he did not sight the structure above the garage opening. The expert considered that the deflection was likely to be the result of one or a combination of the following factors:

- the inadequacy in the original lintel structure
- timber decay in the lintel structure.

5.6 The macrocarpa pergola

5.6.1 Commenting specifically on the pergola, the expert noted that:

- the junction between the glazed roof and the original walls is not weathertight
- the macrocarpa posts are embedded in concrete and are in close proximity to the surrounding ground, allowing the bottom of the posts to remain damp
- the untreated macrocarpa beams are a mixture of heart and sapwood, and lack any form of applied timber preservative.

5.7 A copy of the expert's report was provided to the parties on 2 October 2008.

6. Evaluation for code compliance

6.1 Evaluation framework

6.1.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solutions⁴, which will assist in determining whether the features of this house are code compliant. However, in making this comparison, the following general observations are valid:

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

6.1.2 The evaluation of the external building envelope is considered in paragraph 6.2, while the evaluation of the macrocarpa pergola timbers is considered in paragraph 9.2.

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.

6.2 Evaluation of external building envelope for E2 and B2 Compliance

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. The Department and its antecedent, the Building Industry Authority, have also described weathertightness risk factors in previous determinations⁵ (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 In relation to these characteristics I find that this house:

- is built in a high wind zone
- is a fairly simple 2-storey building
- has monolithic cladding fixed directly to the framing to the garage
- has monolithic cladding fixed over a cavity to the house upper walls
- has concrete-filled polystyrene block walls to the original house
- has a concrete first floor slab to the house
- has eaves projections of more than 900mm above the house walls
- has parapets above the garage walls
- has a recessed porch to the upper level, which sits above living areas
- has a pergola attached to one of the lower walls
- has a garage framed with untreated timber, which will provide no resistance to the onset of decay if the framing absorbs and retains moisture
- has additions to the upper walls framed with treated timber, which will resist the onset of decay if the framing absorbs and retains moisture.

6.3.2 The house has been evaluated using the E2/AS1 risk matrix. The risk matrix allows the summing of a range of design and location factors applying to a specific building design. The resulting level of risk can range from 'low' to 'very high'. The risk level is applied to determine what claddings can be used on a building in order to comply with E2/AS1. Higher levels of risk will require more rigorous weatherproof

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

detailing; for example, a high risk level is likely to require a particular type of cladding to be installed over a drained cavity.

- 6.3.3 When evaluated using the E2/AS1 risk matrix, the weathertightness features outlined in paragraph 6.3.1 show that 2 elevations demonstrate a high weathertightness risk rating and the other 2 elevations a moderate risk. I note that the upper level walls to the 2004 addition incorporate a drained and ventilated cavity. The current version of E2/AS1 would have required the cladding to the garage to be installed over a drained and ventilated cavity, although the version of E2/AS1 current in 1996 would not.

6.4 Weathertightness performance: the house

- 6.4.1 Generally the cladding to the house appears to have been installed in accordance with good trade practice. However, the expert's report has identified weathertightness defects in both the original house and the recent alterations.

- 6.4.2 With regard to the work carried out under the 1996 building consent, I conclude that remedial work is necessary in respect of:

- the inadequate clearances from the plaster to the ground and paving levels
- the inadequate clearances between the outside and inside floor level
- the cracks in the plaster over the original walls
- the paint coating on the original walls
- the damaged paving around the house
- the lack of provision for drainage at the unflushed sills of the windows in the original walls, with moisture penetrating into the inside plasterwork
- the lack of protection to the top of the block balustrade at the upper porch and the staircase balustrade, with the plaster water stained and cracking.

- 6.4.3 With regard to the work carried out under the 2004 building consent, I conclude that remedial work is necessary in respect of:

- the lack of provision for drainage from the cavity in the upper wall cladding
- the unfinished upper porch deck, with no waterproof membrane and timber and unsealed fibre-cement sheet exposed at the bottom of the new walls.

Matter 1: The claddings

7. Discussion

7.1 The house

- 7.1.1 I consider the expert's report establishes that the current performance of the cladding on the house is inadequate because it is allowing water penetration into the building at present. Consequently, I am satisfied that the house does not comply with Clause E2 of the Building Code.

- 7.1.2 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 intended life, and that includes the requirement for the house to remain weathertight. Because the cladding faults on the house may allow the ingress of moisture in the future, the building work does not comply with the durability requirements of Clause B2.

- 7.1.3 Because the faults identified with the house cladding occur in discrete areas, I am able to conclude that satisfactory rectification of the items outlined in paragraphs 6.4.2 and 6.4.3 will result in the house part of the building being brought into compliance with Clauses B2 and E2.

7.2 The garage

- 7.2.1 Taking into account the expert's report, I am satisfied that the current performance of the cladding installed on the garage is inadequate because it has not been installed according to good trade practice or to the manufacturer's recommendations at the time of construction. In particular, the monolithic cladding demonstrates the systemic defects listed in paragraph 5.5.1 that show non-compliance with the manufacturer's recommendations has resulted in an inadequate cladding installation. As a result there is moisture penetration into the walls through these defects, which is likely to have led to decay in the untreated framing timber. Consequently I am not satisfied that the cladding system as installed to the garage complies with either Building Code Clauses B2 or E2.

- 7.2.2 I find that, because of the extent and apparent complexity of the wall cladding faults identified in paragraph 5.5.1, I am unable to conclude, with the information available to me, that fixing the identified faults, as opposed to partial or full re-cladding, could result in compliance with Clauses B2 or E2. I consider that final decisions on whether code compliance can be achieved by either localised repairs or re-cladding, or a combination of both, can only be made after a more thorough investigation of the garage cladding and the condition of the underlying timber framing. This will require a careful analysis by an appropriately qualified expert. Once that decision is made, the chosen repair option should be submitted to the authority for its consideration and approval.

- 7.3 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 lintel to the garage opening

8. Discussion

- 8.1 The consented drawings for the house and garage contain no information showing a lintel beam over the 5.9 metre wide garage opening. Details of the remaining garage roof structure is documented, including a steel beam located near the centre of the garage.

- 8.2 I consider the expert's report establishes that the structure above the garage opening is overloaded. There are also indications of decay in the timber framing above the opening.
- 8.3 I also note the expert's comments in paragraph 5.5.2 as to the likely cause(s) of the sag above the garage door. I am unable to determine whether the garage lintel was structurally adequate at the time it was originally erected, and I have not been able to determine what structure exists above the garage opening.
- 8.4 I therefore consider that the structure over the garage opening will require further specific investigation to determine its adequacy.
- 8.5 Whether the current condition is a result of an initial structural inadequacy or subsequent damage due to timber decay, I am satisfied that the lintel as installed to the garage does not comply with Clause B1 of the Building Code.

Matter 3: The macrocarpa pergola

9. The durability of the pergola timbers

9.1 The durability requirements for the pergola timbers

- 9.1.1 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).
- 9.1.2 Having considered the form, and function of the pergola within the building complex as a whole, I agree with the authority that the pergola is a structure in its own right (refer paragraph 4.5). This leads me to the conclusion that the appropriate durability period for all structural elements within the pergola, including the macrocarpa posts and beams, is 50 years.

9.2 Evaluation of the pergola for compliance with Clause B2 Durability

- 9.2.1 In evaluating the design of a building and its construction, it is useful to make some comparisons with the relevant Acceptable Solution, in this case B2/AS1, which cites NZS 3602⁶ as an acceptable solution for meeting the durability requirements of timber used in the building.
- Table 1 of NZS 3602 specifies H3.2 treated radiata pine for posts and beams exposed to exterior weather conditions and dampness, but not in ground contact, where a 50 year durability performance is required (cypress species is not listed for this use).
- 9.2.2 As outlined in paragraph 9.1.2, I consider that the pergola structure is required to be durable for a minimum of 50 years with normal maintenance. As cypress species is not listed in Table 1 of NZS 3602, the macrocarpa timbers to the pergola must be assessed as an alternative solution to Clause B2.

⁶ New Zealand Standard NZS 3602:2003 Timber and Wood-based Products for Use in Buildings

- 9.2.3 The approach in determining whether the macrocarpa pergola posts and beam are durable involves an examination of their positions within the building, the surrounding environment, the design features likely to limit water penetration into the timber, and the moisture tolerance of the timber used in the posts. The consequences of an element demonstrating low risks and consequences of moisture penetration and loss of function is that solutions that comply with the Building Code may be less robust.

9.3 Durability risk

- 9.3.1 In relation to the risk characteristics of the macrocarpa pergola posts and beam in this application, I make the following observations:

The construction features of the pergola

- The 300mm x 300mm posts are spaced at 2m centres and support a 300 x 300 mm beam. The resulting structure supports rafters fixed to a stringer that is bolted back to the original walls.
- The posts and beam are sized to have a significant reserve in their structural capacity.
- The beam and the upper parts of the posts are sheltered under the glazed canopy, while the lower parts of the posts are exposed to the weather and the potential for surface water ponding around the base.
- The 4 posts are embedded in concrete and will be difficult to replace. Decay will be difficult to detect at the point the posts enter the concrete embedment and below.

The use of the timber in the pergola

- Apart from the sections of the posts that are below ground, the timber is generally well ventilated and able to dry out if it becomes wet.
- There is no timber preservative currently protecting the end grain of the posts or the beams.
- The base of the posts currently lack any clearance from the surrounding ground, with surface water not being deflected away from the base of the posts.

The durability of this timber species:

- Macrocarpa is a Cypress species. Its heartwood is a moderately durable timber and is the equivalent of *Pinus radiata* treated to H3.1, according to Table 1 of NZS 3602.
- The owner advises the macrocarpa is a mixture of heart and sapwood.

- 9.3.2 When assessed according to the above features, I consider that the macrocarpa demonstrates a moderate durability risk.

9.4 Durability performance

9.4.1 Generally the pergola appears to have been installed in accordance with good trade practice. However, taking account of the expert's report, I conclude that remedial work is necessary in respect of:

- the weathertightness of the junction between the glazed roof and the original wall construction
- the absence of any timber preservative to achieve the required durability requirements
- Making the base of the macrocarpa posts, including any areas adjacent the ground level, impervious to the effects of ground and surface water.

9.5 Conclusion

9.5.1 The pergola is required to comply with the durability requirements of Clause B2. Because the faults identified in the pergola may allow the deterioration of parts of the pergola in the future, the pergola does not comply with the durability requirements of Clause B2.

9.5.2 Because the faults identified with the pergola occur in discrete areas, I conclude that satisfactory rectification of the items outlined in paragraph 9.4.1 will result in the pergola being brought into compliance with Clause B2.

9.5.3 I acknowledge that making the base of the macrocarpa posts impervious to the effects of ground and surface water will require careful consideration. This could be achieved by saturating the base of the posts with a timber preservative that also inhibits the passage of water (such as a low viscosity epoxy resin). The posts could also be terminated clear of the ground and supporting the posts on purpose-made galvanised steel brackets, or similar.

10. General

10.1 I note the observations made by the expert with respect to the poor maintenance of the house.

10.2 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 in, for example, Determination 2007/60. With respect to the exposed timber posts and beam used in the pergola, normal maintenance tasks should include, but not be limited to:

- regular cleaning and removal of any debris built up around timber junctions
- regular application of timber preservative.

10.3 I emphasise that each determination is conducted on a case-by-case basis. Accordingly, the fact that particular timber elements have been established as being code compliant in relation to a particular building does not necessarily mean that the same timber elements will be code compliant in another situation.

Matter 4: The durability considerations

11. Discussion

- 11.1 There are concerns about the durability, and hence the compliance with the Building Code, of certain elements of the original house taking into consideration the completion of the original building in 1997.
- 11.2 Due to the nature of the construction of the attached garage, and the defects outlined in paragraphs 5.5.1, the modification of the commencement of the durability periods discussed in this section applies only to the house and not the attached garage.
- 11.3 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).
- 11.4 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.
- 11.5 In this case the delay between the completion of the building work in 1997 and the applicants’ request for a code compliance certificate in 2008 raises concerns that various elements of the original house 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.
- 11.6 The 11-year delay between the substantial completion of the building work consented in May 1996 and the authority’s refusal of a code compliance certificate raises the matter of when all the elements of the original house complied with Clause B2. 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 or about 1997.
- 11.7 It is not disputed, and I am therefore satisfied, that all the building elements in the house build under the 1996 consent, with the exception of the attached garage, complied with Clause B2 on 1 January 1998, refer paragraph 4.6.
- 11.8 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.

- 11.9 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 the building elements, with the exception of the garage.
 - (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, or shortly after, 1997.
- 11.10 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.

12. What is to be done now?

- 12.1 New notices to fix should be issued that require the owners to bring the house into compliance with the Building Code, identifying the items listed in paragraphs 5.5.1, 6.4.2, 6.4.3, 8.4 and 9.4.1, and referring to any further defects that might be discovered in the course of rectification, but not specifying how those defects are to be fixed. It is not for the notice to fix to stipulate directly how the defects are to be remedied and the house brought to compliance with the Building Code. That is a matter for the owner to propose and for the authority to accept or reject.
- 12.2 I suggest that the parties adopt the following process to meet the requirements of paragraph 12.1. Initially, the authority should issue the notice to fix. The owner should then produce a response to this in the form of a detailed proposal, produced in conjunction with a competent and suitably qualified person, as to the rectification or otherwise of the specified issues. Any outstanding items of disagreement can then be referred to the Chief Executive for a further binding determination.
- 12.3 Once the matters set out in paragraphs 5.5.1, 6.4.2 and 8.4 have been rectified to its satisfaction, the authority can then issue a code compliance certificate in respect of the 1996 building consent as amended in paragraph 13.2(b).
- 12.4 Once the matters set out in paragraphs 6.4.3 and 9.4.1 have been rectified to its satisfaction, and there are no other areas of non-compliance, the authority can issue a code compliance certificate in respect of the 2004 building consent.

13. The decision

- 13.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the building does not comply with Clauses B1, B2 and E2 of the Building Code, and accordingly confirm the authority's decision to issue the two notices to fix.
- 13.2 With regard to the work carried out under the 1996 building consent, I also determine that:
- (a) all the building elements installed in the building under the 1996 building consent, apart from the garage and the items that are to be rectified, complied with Clause B2 on 1 January 1998.

(b) the 1996 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 January 1998, instead of from the time of issue of the code compliance certificate for all the building elements, with the exception of the garage and the items as set out in paragraph 6.4.2 of Determination 2008/124.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 24 December 2008.

John Gardiner
Manager Determinations