

Determination 2007/99

Code compliance of Macrocarpa posts and rafters installed in a house at 678-76 Rockell Road, Hikurangi

1. The matter 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 applicant is the owner of the building, Rod Scott (“the applicant”) and the other party is the Whangarei District Council (“the territorial authority”).
- 1.2 This determination arises from the decision of the territorial authority to refuse to issue a code compliance certificate for a 5-year-old building because it had concerns about the durability of some of its building elements.
- 1.3 The matter to be determined is whether six columns and the rafter extensions installed in the building comply with clause B2 “Durability” of the Building Code² (First Schedule, Building Regulations 1992). (See sections 177 and 188 of the Act).
- 1.4 In making my decision I have considered the submissions of the parties, the opinion given by an independent expert in an earlier determination on a similar matter, namely Determination 2004/71, and the other evidence.
- 1.5 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 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.

2. The building work

- 2.1 The building work in question consists of six columns supporting a deck roof and projecting rafters installed in a large single-storey timber-framed building. The posts are laminated 150mm x 100mm with an oval shaped cross-section and are bolted at top and bottom to stainless steel plates. The rafters are either 185mm x 45mm or 185mm x 70mm. The timber used in all cases is dressed Macrocarpa and there is no dispute that the timber elements are not in contact with the ground.
- 2.2 Sheet L104 (R1) of the consented plans contains the notation “rafters selected Heart Macrocarpa”. However these rafters are part of an ancillary building and there is no further reference as to the grade or type of timber that is to be used for the posts or the main building rafters. The documents issued by the territorial authority indicate that it is satisfied that the columns are Macrocarpa.

3. Sequence of events

- 3.1 The territorial authority issued a building consent for the shed on 26 November 2002.
- 3.2 The territorial authority inspected the building during its construction and undertook a final inspection in April 2007. Following this inspection, the territorial authority produced a “Field Advice Notice – Final Inspection” document dated 30 April 2007. Included on this notice was the statement:

Macrocarpa structural and rafters need solution to comply with B2.

- 3.3 In a letter dated 2 May 2007, the territorial authority informed the applicant that:

[T]he Macrocarpa posts and rafter extensions will not comply with B2 (Durability) for ‘members exposed to exterior weather conditions and dampness, but not in ground contact’ which are required to reach a 50 year durability (Structural member) as per table 1B NZS: 3602.

The territorial authority refused to issue a code compliance certificate for the shed as it is of the opinion that the timbers in question are not code-compliant.

- 3.4 The territorial authority attached to the letter a notice to fix also dated 2 May 2007, which noted that the particulars of Contravention or Non-Compliance were:

Non-compliant with B2 of the Building Code specifically structural timber members unable to meet with 50 year durability requirements where exposed to exterior weather conditions and dampness- (Macrocarpa posts and exposed rafters).

The applicant was to:

Either remove structural members or cover structural members so not exposed or seek a determination from the Department of Building and Housing.

- 3.5 An application for a determination was received by the Department on 29 May 2007.

4. The submissions

- 4.1 The applicant informed the Department by phone that the posts were 150mm x 100mm in size and were laminated and of an oval cross-section. According to the applicant, the posts have also been treated with Epiglass “Evidure”, which is a two-part timber preservative that is usually used for marine applications.
- 4.2 The applicant forwarded copies of:
- some of the plans
 - the notice to fix
 - the letter from the territorial authority of 2 May 2007.
- 4.3 In a letter to the Department dated 30 May 2007, the territorial authority stated that it had refused to issue a code compliance certificate for the building work as it did not consider that the structural posts and rafter ends complied with clause B2 of the building code as the timber is not categorised in NZS 3602:2003³ Table 1.1B.3. The territorial authority also noted that as the tops and bottoms of the posts are fixed to stainless steel brackets, the posts could easily be replaced. The territorial authority had been advised that the timber in question has been protectively coated and do not dispute the coating is Epiglass “Evidure”.
- 4.4 The territorial authority forwarded copies of:
- the plans
 - the building consent
 - the territorial authority’s Field Advice Notice and its notice to fix
 - its letter to the applicant of 2 May 2007
 - an extract from NZS 3602:2003
 - a set of photographs showing some details of the building work.
- 4.5 Copies of the evidence were forwarded to each of the parties.
- 4.6 The draft determination was sent to the parties for comment on 19 July 2007. Both parties accepted the draft without comment.

³ NZS 3602:- Part 1: 2003 Timber and wood-based products for use in building

5. The Building Code and the acceptable solution

5.1 There is no dispute that the posts and rafters in question are structural members and that the relevant provisions of clause B2 of the building code are:

Clause B2—DURABILITY

OBJECTIVE

B2.1 The objective of this provision is to ensure that a building will throughout its life continue to satisfy the other objectives of this code.

FUNCTIONAL REQUIREMENT

B2.2 Building materials, components and construction methods shall be sufficiently durable to ensure that the building, without reconstruction or major renovation, satisfies the other functional requirements of this code throughout the life of the building.

PERFORMANCE

B2.3.1 Building elements must, with only normal maintenance, continue to satisfy the performance requirements of this code for the lesser of the specified intended life of the building, if stated or:

- (a) The life of the building, being not less than 50 years, if:
 - (i) Those building elements (including floors, walls, and fixings) provide structural stability to the building, or . . .

5.2 The acceptable solution for clause B2 “Durability”, B2/AS1, as amended on 1 April 2004, says:

3.2.1 Part 1 of NZS 3602: 2003 is an acceptable solution for meeting the durability requirements of timber building elements.

3.2.2 From 1 April 2004 to 31 March 2005 nothing in paragraph 3.2.1 shall apply to the issue of code compliance certificates or building certificates under sections 43 or 56(3) of the building act 1991, but the previous acceptable solution part 1 of NZS 3602: 1995⁴ will continue to apply as an acceptable solution until 31 March 2005.

5.3 For posts and rafters exposed to exterior weather conditions and dampness but not in ground contact, NZS 3602:1995 specifies H3 treated radiata pine, whereas NZS 3602: 2003 specifies H3.2 treated radiata pine. For the purposes of this determination I consider these requirements to be essentially the same.

⁴ NZS 3602:- Part 1: 1995 Timber and wood-based products for use in building

6. Verification of the timber durability

- 6.1 Following a request from the Department, the applicant forwarded a letter from the supplier of the Macrocarpa rafters dated 21 June 2007. The supplier noted that the timber supplied on its invoice No 35355 was “heart” and suitable for the purpose of “rafters under the house soffits”. The timber should be coated and maintained in the normal manner.
- 6.2 The supplier’s invoice No 35355 was attached to this letter and the invoice listed both 185mm x 70mm and 185mm x 45mm members.
- 6.3 I have received information from both the parties that they accept that the posts are also manufactured from heart Macrocarpa.

7 Discussion

- 7.1 I consider that I have reasonable grounds to assume that the timber used for the columns and rafters is heart Macrocarpa.
- 7.2 If it can be shown that the timber used for the posts and rafters is equivalent to H3.2 treated radiata pine, then they can be concluded as being code-compliant.
- 7.3 In Determination 2004/71, the Building Industry Authority (the antecedent of the Department) accepted the opinion of an independent expert that it had engaged (“the expert”) to examine the code-compliance of some heart Macrocarpa posts. The expert was of the opinion that the posts in question (which were located such that they would not be subject to prolonged dampness) would have a durability equivalent to that of H3.2 treated pinus radiata, provided that they were 100% heartwood and cut ends of the posts were painted with a copper naphthelate preservative. I am also prepared to accept that the expert’s opinion would apply to the posts and rafters that are the subject of this determination and that their durability would be equivalent to that achieved by members complying with B2/AS1 as in force until March 2005.
- 7.4 The use of this timber in these applications is an alternative solution to clause B2 of the code. Acceptable solutions are of necessity conservative and must provide for the worst case. The risks here have been mitigated by surface treatment and design so that the alternative solution is compliant. Therefore, given the specifics of this case I consider the timber will comply with clause B2 of the code.
- 7.5 According to the information that I have received, the posts and rafters of the building are heart Macrocarpa and have been treated with preservative. I suggest that the territorial authority inspect the posts and rafters to check the protective system applied to the timber members and to draw its own conclusions as to whether this treatment is the equivalent or otherwise of a copper naphthelate preservative system and whether the treatment has been applied to the cut ends of all the timber elements. I would expect that the supplier of the Evidure preservative would be able

to provide necessary comparative information on durability to assist in the evaluation.

- 7.6 If the territorial authority is satisfied that the posts and rafters are of a timber and finish that are equivalent to the criteria of that set out in Determination 2004/71 then these timber elements can be deemed to be the equivalent to H3.2 treated radiata pine and therefore code-compliant. If the territorial authority accepts this equivalence, then it should withdraw the notice to fix and issue a code compliance certificate for the building.
- 7.7 I decline to incorporate any waiver or modification of the Building Code in this determination.

8 The Decision

8.1 In accordance with section 188 of the Building Act 2004, I hereby determine that, once the territorial authority is satisfied that the posts and rafters comply with clause B2 of the Building Code, it should:

- (a) withdraw its notice to fix dated 2 May 2007
- (b) issue a code compliance certificate for the building.

Signed for and on behalf of the Chief Executive of the Department of Building and Housing on 30 August 2007.

John Gardiner
Manager Determinations