



Determination 2018/054

Regarding a notice to fix issued in 2009 for a then 10-year-old house with monolithic cladding at 8 Benson Road, Remuera, Auckland

(to be read in conjunction with Determination 2008/118)



Summary

This determination considers the authority's exercise of its powers of decision in relation to a notice to fix issued for a house with monolithic cladding. The determination discusses the relevant standards at the time of construction and whether the notice to fix should have required replacement of the untreated timber framing used with treated timber.

1. The matters to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ ("the current Act") made under due authorisation by me, Katie Gordon, Manager Determinations, Ministry of Business, Innovation and Employment ("the Ministry"), for and on behalf of the Chief Executive of the Ministry.
- 1.2 The parties to the determination are:
 - the owners of the house, D, J and A Fong ("the applicants"), acting via an agent ("the agent")
 - Auckland Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.
- 1.3 Certain matters regarding this building have been described in a previous determination, 2008/118² issued on 16 December 2008 ("the first determination"). The first determination concerned a notice to fix issued by the authority in July 2006 for the then 7-year-old house because it was not satisfied that the building work

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.

² Determination 2008/118 A notice to fix for a house at 8 Benson Road, Remuera, Auckland (16 December 2008)

complied with certain clauses of the Building Code³ (First Schedule, Building Regulations 1992). In this determination I refer to that notice to fix as “the second notice”⁴.

- 1.4 The first determination found that there was evidence of moisture penetration and identified a number of areas that required remedial building work. The determination concluded that the building work did not comply with Clauses E2 External moisture and B2 Durability. The determination also concluded that the authority should withdraw the second notice, on the basis that it was prescriptive in terms of the remedial action required, and issue a new notice in its place that required the applicants to bring the house into compliance with the Building Code, stating:
- [paragraph 10.2]
- ... identifying the items listed in paragraphs 5.9 and 5.10 [of the first determination] and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. ...
- 1.5 The first determination recommended the applicants produce a response to the new notice in the form of a detailed proposal produced in conjunction with a competent and suitably qualified person.
- 1.6 In response to the first determination the authority withdrew the second notice and issued notice to fix No. 3104 on or about 7 April 2009 (“the third notice”). It is this third notice to fix that is the subject of this determination.
- 1.7 This determination arises because, in the agent’s opinion, all of the notices issued by the authority were inadequate as they did not “answer the question of [untreated kiln dried timber framing] behind absorbent claddings” – the agent is of the view the timber framing is not compliant with the Building Code and has sought a determination on the compliance of the timber framing to the external walls and “wet areas”⁵. The agent also stated that the applicants were electing to take the remedy stated in the notice to seek a determination (refer paragraph 2.4.6).
- 1.8 The matters to be determined⁶ are therefore:
- the authority’s exercise of its powers of decision in issuing the third notice; and
 - whether the timber framing to the external walls and wet areas complies with Clauses B1 Structure and B2 Durability of the Building Code. In deciding this matter I have taken into account the likely impact of moisture ingress through cladding defects since the house was originally constructed.
- 1.9 In making this determination, I have also considered the wording and content of the third notice in relation to the particular matters of contravention identified and the remedies.
- 1.10 References to Acceptable Solutions or standards, unless otherwise stated, are to those that were current at the time the building consent was issued.

³ 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.

⁴ The first notice was a notice to rectify issued in February 2004 under the Building Act 1991.

⁵ The agent did not define the “wet areas” to be considered in this determination; however the term “wet area” is commonly understood to be spaces that contain sanitary fixtures or appliances, including laundries, bathrooms, kitchens and toilets.

⁶ Under sections 177(1)(b) and 177(2)(d) of the Act

2. The building work and background

2.1 The building

- 2.1.1 The building work consists of a house that is two-storeys in part. Construction is generally conventional light timber frame with concrete slab and foundations, concrete block retaining walls, monolithic cladding, and aluminium windows. The house is complex in plan and form, with 20° pitch clay tile roofs at varying levels, and eaves and verge projections that vary from gutter or fascia only to 430mm wide.
- 2.1.2 An enclosed deck, with open metal balustrades and membrane floor, extends from the master bedroom on the upper north east corner. The deck is supported by a monolithic-clad column, which continues up to support the roof overhang above. Monolithic-clad columns also support a canopy from the ground floor lounge to the north and a 2-storey high entrance canopy to the west.
- 2.1.3 The cladding system consists of 4.5mm fibre-cement sheets fixed through the building wrap directly to the framing timbers, and covered with three coats of fibreglass mesh-reinforced modified plaster finished with flexible coatings over. The cladding system includes purpose-made flashings to windows, edges and other junctions.
- 2.1.4 When evaluated using the E2/AS1⁷ risk matrix, the weathertightness features (outlined in the first determination) show that all elevations of the house demonstrate a high weathertightness risk rating. If constructed now in accordance with E2/AS1 the cladding would require the incorporation of a drained cavity, however, this was not a requirement at the time this house was constructed in 1999.

2.2 The original construction, and the first and second notices

- 2.2.1 The authority issued a building consent No. BLD 36990080001 on 23 February 1999 under the Building Act 1991 (“the former Act”). The house appears to have been substantially completed during 1999, although a final inspection was not undertaken until 2003. Subsequently the authority had concerns regarding the weathertightness of the monolithic cladding, and following another inspection on 23 February 2004 the authority issued a notice to rectify⁸ (“the first notice”).
- 2.2.2 The authority carried out a further inspection on 26 May 2006 and issued the second notice. In a letter to the applicants dated 4 July 2006 accompanying the notice, the authority stated that it could not issue a code compliance certificate as it could not be satisfied that the building work complied with the Building Code.
- 2.2.3 The applicants engaged a weathertightness consultant to “review requirements for remedial work as required to obtain code compliance”. In a letter to the applicants dated 12 July 2007, the consultant noted the following (in summary):
- The inspection company had not undertaken any invasive moisture tests.
 - The timber framing was likely to be untreated.
 - All areas of potential problems should have linings removed for inspection.
 - Causes for elevated moisture should be confirmed.
 - Radical solutions are unlikely to be required.

⁷ E2/AS1 is an Acceptable Solution for Building Code Clause E2 External moisture

⁸ The equivalent, under the former Act, of a notice to fix.

- The most important thing is to ensure durability of the structure.
- Providing problem areas are identified and satisfactorily repaired, it should not be necessary to upgrade the cladding to meet current requirements.

2.2.4 In an email to the consultant dated 27 July 2007, the authority requested the development of a more specific scope of work once the linings were removed, with details provided for the remedial work. The authority also suggested that the applicants apply for an amendment to the building consent to modify Clause B2.3.1 in respect of the start date for the durability periods.

2.2.5 The applicants subsequently engaged a specialist moisture detection company to install moisture detection probes in the wall framing. The company installed 90 probes and reported on the results of monitoring moisture levels. A report issued on 26 August 2008 identified various areas with high moisture contents, and a summary dated 26 August 2008 noted that the results showed “some isolated areas that are not performing – most likely due to isolated defects”.

2.3 The first determination

2.3.1 On 9 September 2008 the Department of Building and Housing (which later transitioned to the Ministry) received an application for a determination on whether the second notice was ‘properly issued’.

2.3.2 As part of that determination the Department engaged an independent expert to provide an assessment of the condition of the building elements subject to the determination. The expert carried out invasive moisture readings and recorded 16 elevated readings that indicated external moisture was entering the structure.

2.3.3 The first determination, issued on 16 December 2008, concluded that the building work did not comply with Clauses E2 and B2, and that investigation and remedial work was required in a number of areas for both the wall and roof cladding. The first determination confirmed the authority had correctly exercised its powers in issuing the second notice, but that the authority should withdraw the notice and issue a new one (refer paragraphs 1.4 and 1.5).

2.3.4 The first determination noted:

[Paragraph 10.2]

The authority shall withdraw the notice to fix. A new notice to fix is to be issued in its place that requires the owners to bring the house into compliance with the Building Code, identifying the items listed in paragraphs 5.9 and 5.10 [of the first determination] and referring to any further defects that might be discovered in the course of investigation and rectification, but not specifying how those defects are to be fixed. It is not for the notice to 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 owners to propose and for the authority to accept or reject.

[Paragraph 10.3]

I would suggest that the parties adopt the following process to meet the requirements of paragraph 10.2 [of the first determination]. Initially, the authority should issue the [new] notice to fix. The owners 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.

2.4 The 2009 notice to fix (“the third notice”)

2.4.1 On 27 March 2009 the authority carried out an inspection of the building work for the purpose of issuing another notice to fix. The authority issued the third notice on 7 April 2009 with attached photographs of the relevant areas of building work.

2.4.2 The particulars of contravention were described in the notice as follows:

... The authority identified that there is building work which:

- has not been undertaken in accordance with the requirements of building consent no. B/1999/3600800; and
- has not been undertaken in accordance with the requirements of the [Building Code] and in particular, is in breach of clauses B1 Structure, B2 Durability, E1 Surface water, E2 External moisture, F4 Safety from falling, G11 Gas as an Energy source, G12 Water supplies, G13 Foul water, and H1 Energy efficiency of the Building Code; and
- has not been undertaken in accordance with the requirements of the [the Act] and in particular, is in breach of Sections 17, 40(1), and 44(1) of the Act.

2.4.3 The third notice then listed “details of the contraventions” that:

- identified issues related to the installation of the cladding not being as per the manufacturer’s specifications (items numbered .1(a) to (e)), items that were not installed in accordance with the building consent (items .2(a) to (l)), and items that had not been installed in accordance with accepted trade practice of the time (items .3(a) and (b));
- item .4 noted the lack of drainage behind the cladding and ‘there is only limited ability for air circulation in the wall framing to ensure that damp timber can dry out’;

2.4.4 Item .3(a) noted:

All timber and wood-based products shall be protected against damage from moisture and against significant variations of moisture content, both before and after installation or enclosure. With reference to the independent report carried out by [the expert engaged to assist in the first determination] and that done by [the agent’s moisture monitoring company] this requirement has not been achieved.

2.4.5 The third notice stated that the authority had not been able to satisfy itself that the durability requirements of the Building Code could be met, and provided a table that set out the required durability periods for specific building elements with durability periods of 5 and 15 years⁹. (I take this to be item 4.0 referred to in the remedies as described below.)

2.4.6 The third notice to fix set out the remedies as follows:

With respect to [.1(a) – (e); .2(a) – (l); .3(a)-(b)]; and 3.0(a), lodge with [the authority] a proposed ‘**scope of works**’ (usually in writing and prepared by a recognised building expert), outlining how each area of non-compliance is to be addressed and rectified. This proposal, if accepted, may then form the basis for you to make an application for a Building Consent confirming compliance with the building code.

With respect to 4.0, you may apply to [the authority] for a waiver and modification under section 67 of [the current Act], to waive the requirements of clause B2 (Durability) of the building code. That is, the requirements of B2 shall commence from the date of substantial completion, as opposed to the date of the Code Compliance Certificate.

This notice must be complied with by 15 May 2009.

⁹ The table does not include the building elements that are required to meet the performance clauses of the Building Code for 50 years.

Alternatively, you must confirm in writing by 15 May 2009 to [the authority] your intention to apply to the [Ministry] for a determination pursuant to section 177...

- 2.4.7 On 7 May 2009 the applicants advised the authority that a builder had been engaged to prepare a scope of works but that it was not expected that this would be ready before 15 May 2009. The authority responded on 11 May 2009, noting it would await the proposal and advising the applicants that the authority must agree to the proposal before any building work proceeded.
- 2.4.8 I have not seen any information that indicates the proposal/scope of works was completed, or that any additional investigations or building work was carried out to address the non-compliant building work. However, in response to the third draft determination (refer Appendix B.4) the agent provided photographs which show remedial work carried out in relation to leaks through the roof cladding.
- 2.4.9 The Ministry received an application for a determination on 17 November 2017 and sought further information in response. The application was accepted on 8 January 2018.

3. The submissions

- 3.1 Over the course of the determination I received a number of submissions from the parties and various documents from the applicant's agent in support of the application. The information provided and submissions relevant to the matter to be determined, including the three draft determinations issued for comment and hearing, are recorded in Appendix B as below:
- B.1 The initial application, documentation and correspondence.
- B.2 The first draft determination issued on 12 February 2018 and submissions received in response.
- B.3 The second draft determination issued on 15 June 2018 and submissions received in response and at the hearing held on 24 August 2018, and documents tabled at the hearing.
- B.4 The third draft determinations d draft determination issued on 17 September 2018.
- 3.2 The agent contends the authority failed to correctly exercise its powers when it did not include in the notices to fix that the untreated timber is not compliant with the Building Code. In the agent's opinion, the untreated kiln-dried timber is not "fit for purpose" in its use in this building, and is not able to be compliant with the relevant clauses of the Building Code for the following reasons:
- The timber was exposed to weather for more than one month during construction in 1999.
 - The framing is behind an absorbent cladding system without condensation management or control.
 - The external envelope's design is such that it allows moisture ingress, meaning the timber will be subject to wetting.
 - There is not adequate ventilation in the walls to aid drying.

3.3 In support of his view, the agent has referred to the following Acceptable Solutions, standards and publications, relevant extracts from which are copied in Appendix A.2:

- B1/AS1¹⁰ (Amendment 3), which cites NZS 3604:1990
- B2/AS1¹¹ (Second edition), which cites NZS 3602:1995
- E2/AS1 (Second edition), which cites NZS 3604:1990
- NZS 3604:1999 ‘Timber framed buildings’ – specifically paragraph 4.3.1 which cites NZS 3602
- NZS 3602:1995 ‘Timber and wood-based products for use in building: Part 1 Mandatory requirements for compliance with the durability provisions of Clause B2 of the Building Code’ – specifically paragraph 105 Preservative treatment, commentary C105.5, and Tables 1B and 1D
- Miscellaneous Publication MP3640:1992 ‘Specification of the minimum requirements of the NZ Timber Preservation Council Inc’ – specifically paragraph 7.2.1.1 which is cited in NZS 3602:1995
- BRANZ Study report 279A March 1998.

3.4 I have summarised the agent’s submissions regarding the treatment level and use of the timber as follows:

MP3640:1992

Paragraph 7.2.2.1 of MP3640 requires greater treatment than H1¹² where the framing is not adequately ventilated. In this building the framing is not adequately ventilated because the cladding is a face-fixed system.

NZS 3602:1995 (cites MP3640 for timber treatment classes)

Untreated kiln-dried Radiata pine is included in Table 1D (“Members protected from the weather and in dry conditions and not exposed to ground atmosphere”); however, the use of untreated timber in this house is outside the limitations set out in C105.5 because it is behind an absorbent cladding system.

Because it is behind absorbent cladding systems where it is prone to solar-driven moisture, Table 1B applies (“Members exposed to exterior weather conditions and dampness”) and H3¹³ treated framing is therefore required.

BRANZ Study report 279A

Although this report concludes that untreated Radiata pine will meet Clauses B1, B2, and F2 Hazardous Building Material, this is limited to uses described in Table 1D of NZS 3602.

3.5 The agent also contends that untreated timber has not been assessed to B1/VM1 or B2/VM1¹⁴, noting that research projects undertaken by SCION¹⁵ did not demonstrate untreated Radiata pine would be as durable as treated timber framing in uses beyond those described in Table 1D of NZS 3602. In regards to in-service history (which is one means of establishing compliance by way of B2/VM1) the agent is of the view

¹⁰ B1/AS1 is an Acceptable Solution for Clause B1 Structure

¹¹ B2/AS1 is an Acceptable Solution for e Clause B2 Durability

¹² Timber treatment class to New Zealand Standard NZS 3602: Part 1: 2003 Timber and wood-based products for use in building

¹³ Timber treatment class to New Zealand Standard NZS 3602: Part 1: 2003 Timber and wood-based products for use in building

¹⁴ B2/VM1 is the Verification Method for Clause B2 Durability

¹⁵ SCION is a New Zealand Crown Research Institute specialising in research and development for forestry, wood products, and wood-based materials.

that “there is no acceptable in-service history of untreated timber framing” in the environment and conditions present in this case.

- 3.6 The agent also noted that the framing is reliant on the performance and maintenance of the cladding, and in the agent’s view the amount of moisture absorbed in the cladding and timber during periods between maintenance and repairs would be greater than the drying rate of the walls and would lead to timber decay. The agent is of the view that there is no supporting evidence that untreated timber could comply with Clause B2 Durability and “remain as durable and comparable to H3 framing” in its use in this case.
- 3.7 In conclusion, the agent considers that there is no pathway to achieve compliance for the untreated timber as used in this building, meaning that a code compliance certificate could never be issued despite the applicants taking measures to address issues with the cladding as listed in the notice to fix. On that basis, the agent is of the view that the notice to fix should have included that the untreated timber framing was not compliant.
- 3.8 The authority made no submission in response to the application for determination, but acknowledged receipt of the application on 22 December 2017. By email on 14 May 2018 the authority advised that it was of the view that the extent of any damage and/or dampness in the framing timber is likely to have worsened since the first determination and requires further investigation. The authority noted that if the cladding was not removed to allow the framing to be viewed, the applicants would need to put forward persuasive evidence of the performance of the external timber framing.

4. Discussion

4.1 General

- 4.1.1 This determination concerns a house constructed in 1999 under a building consent issued under the former Act. The building is now over 18-years old, and the required durability periods for many of the building elements, if taken from the date of substantial completion, have passed. However, during that period the building work has failed to achieve compliance; there is a history of external moisture ingress (confirmed in the first determination and in submissions made during this determination).
- 4.1.2 The application for this second determination raises the following issues for consideration:
- the scope of the items of non-compliance identified by the authority in the third notice as the particular matters of contravention in relation to the timber framing,
 - the remedies provided for in the third notice, in particular the option to apply for a determination,
 - and the compliance of the untreated timber.
- 4.1.3 The relevant clauses in regards to the compliance of the timber framing are Clause B1 Structure, and Clause B2 Durability (refer Appendix A.1).

4.2 Compliance and the scope of the third notice

4.2.1 The agent contends the untreated framing cannot comply with Clause B2 Durability on the basis that construction does not satisfy NZS 3604, and the use of untreated timber does not satisfy NZS 3602 because:

- the timber was exposed to weather for more than one month during construction in 1999
- the framing is behind an absorbent cladding system without condensation management or control
- the design details of the external envelope allow moisture ingress, meaning the timber will be subject to wetting
- there is not adequate ventilation in the walls to aid drying.

4.2.2 NZS 3602:1995, which is cited in B2/VM1 and B2/AS1, allowed the use of untreated kiln dried timber where the timber is protected from weather and in dry conditions and not exposed to ground atmosphere (refer Appendix A.2). Paragraph 105.5 of the Standard states:

Radiata pine framing members that have been kiln dried at 74°C or above, and to 18% moisture content or less and have been planer gauged do not require preservative treatment, provided they are not exposed to ground atmosphere or in any position where the timber moisture content will exceed 18 %.

4.2.3 The commentary to that paragraph notes:

C105.5

... Care needs to be exercised in the use of untreated framing members adjacent to external absorbent claddings on walls and roofs that are susceptible to solar driven moisture transfer mechanisms which can cause high humidity in framing cavities. Cladding manufacturers' recommendations to prevent solar-driven moisture transfer through their absorbent cladding materials from entering framing cavities should be followed. ...

4.2.4 The commentary does not specifically preclude the use of untreated kiln dried timber adjacent to absorbent claddings, nor does it require timber adjacent to absorbent claddings to have treatment to H3 as per Table 1B; rather the commentary notes that "care needs to be exercised" and cladding manufacturer's recommendations followed to prevent solar-driven moisture transfer. I am of the view that the commentary required careful consideration on a case-by-case basis if contemplating the use of untreated kiln dried timber adjacent absorbent cladding systems.

4.2.5 In this case the cladding system consists of a fibre-cement sheet (which is absorbent) covered in a modified acrylic plaster and flexible coatings. While the plaster and coating system will largely prevent moisture being absorbed by the underlying fibre-cement, any defects in the coating or in installation or detailing of the cladding system would result in moisture entering the absorbent material. This presents a high risk to the underlying timber, as without ventilation to aid drying the timber is likely to become damaged as a result of transfer of moisture from the cladding.

4.2.6 However, notices to fix can only be issued in respect of work that the authority knows to be non-compliant with the Building Code (as opposed to not being in accordance with a stated means of compliance). The matters of non-compliance identified in the notice to fix must be supported by evidence that establishes reasonable grounds for the authority's belief in those matters of non-compliance, as required by section 164 of the Act. In this respect I do not accept the agent's

argument that the authority should have included all of the timber framing in the notices to fix as being non-compliant simply on the basis that, as the agent contends, the timber was used outside the application of the relevant standards of the time (refer paragraph 3.4).

- 4.2.7 I note that the agent has provided evidence of undue dampness and damage caused to some of the timber framing resulting from leaks through the roof cladding which meant that some framing required replacement; and this building has a history of moisture ingress, which was evident in the findings of the expert in the first determination. It is likely that the extent of dampness and the resulting damage in the timber framing caused by moisture ingress, if not remediated, will have worsened over the intervening years. However, it does not necessarily follow that all of the timber framing has been subject to moisture ingress and none of the existing timber framing would now be considered sound and able to be treated insitu (if necessary or prudent). Compliance of timber framing will depend on whether or not the timber has been subject to moisture ingress in those areas.
- 4.2.8 In response to the third draft determination, the agent provided photographic evidence of failure of the roof cladding to prevent moisture ingress and resulting undue dampness and damage to some timber framing. I note that these photographs are undated and there is no indication that this evidence had been provided to the authority prior to it issuing the third notice to fix. However, the authority did have evidence (by way of the expert's report provided as part of the first determination) that the building's external envelope was not compliant with Clause E2. The authority was therefore aware that moisture ingress through cladding defects would lead to high moisture levels in the timber framing. The authority addressed this in the third notice to fix under the heading "details of the contraventions ..." in item no .3(a) which noted that the requirement to protect the timber against damage from moisture had not been achieved, and item no .4, which noted the lack of drainage behind the cladding meant there is only limited ability for air circulation in the wall framing to ensure that damp timber can dry out.
- 4.2.9 In conclusion, I consider the authority adequately addressed the issue of compliance of the timber framing in the third notice as described in paragraph 2.4.3 of this determination.
- 4.2.10 In regards to compliance of the timber framing, due to moisture ingress through the cladding system it is evident that some of the timber has not complied with Clause B2 insofar as it applies to Clause B1; however there is insufficient evidence available to conclude that all of the timber does not meet the performance requirements of Clauses B1 and B2. I note also that I have received no evidence that any timber framing in wet areas has been subject to moisture that would lead to a failure to comply with Clause B2.
- 4.2.11 The investigation of the underlying timber to establish the extent of damage or decay caused through moisture ingress, and whether the timber framing is to be made compliant by way of insitu treatment, or replacement, or a combination of those, remains a matter for the applicants to address.

4.2.12 I note that the Ministry and the authority both have guidance available that may be of use to the applicants in considering their next steps¹⁶. From the agent's correspondence to the Ministry it appears the applicants would like a definitive list of items to be remedied in order to bring the building work into compliance. This is not the purpose of a determination, nor is it the role of the authority in issuing a notice to fix. I reiterate it is not for a notice to fix to stipulate how building work is to be brought into compliance – that is for the applicants to propose and the authority to accept or reject, and I suggest the applicants prepare such a proposal in conjunction with a competent and suitably qualified person.

4.3 The remedies in the third notice

- 4.3.1 The third notice to fix sets out the remedies as described in paragraph 2.4.6 of this determination under the heading “To remedy the contravention or non-compliance you must: ...”. The first remedy required the applicants to lodge a scope of works to address the areas of non-compliance that had been identified, and the second required the applicants apply for a modification of Clause B2 to allow the start dates of the required durability periods to begin from the date of substantial completion. This was followed by the date the notice must be complied with and the “alternative”, which was to give notice of an intention to apply for a determination.
- 4.3.2 It is not appropriate to include applying for a determination as an alternative to remedying non-compliant building work in the remedies provided for in a notice to fix. A determination application is not a means by which non-compliant building work can be brought into compliance, but rather a determination can be applied for if an owner disputes the authority's decision to issue the notice to fix. It is more appropriate that this option is identified in the covering letter attached to notices to fix.
- 4.3.3 While I have come to the conclusion that the reference to an application for a determination as an alternative to complying with the notice should not have been included, I do not consider that this renders the notice invalid in respect of the non-compliant building work identified in the notice.
- 4.3.4 I note here that reference to a determination within notices to fix were common at the time this notice to fix was issued, but are not now.

¹⁶ The Ministry's Weathertightness: Guide to Remediation Design is available at <https://www.building.govt.nz/building-code-compliance/e-moisture/e2-external-moisture/weathertightness-guide-to-remediation-design/>
The authority's Guide to applying for a reclad building consent is available at <https://www.aucklandcouncil.govt.nz/building-and-consents/building-renovation-projects/Pages/re-clad-your-home.aspx>

5. Decision

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

- there is evidence that some of the timber framing in the external walls does not comply with Clause B2 insofar as it applies to Clause B1; however there is insufficient evidence available to conclude that all of the timber framing in the external walls and wet areas does not meet the performance requirements of Clauses B1 Structure and B2 Durability
- the authority correctly issued notice to fix No. 3104 in respect of the non-compliant building work, and I confirm the authority's decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 2 November 2018.

Katie Gordon
Manager Determinations

Appendix A: The Building Code and standards

A.1 The relevant performance clauses of the Building Code in force at the time the building consent was issued on 23 February 1999:

B1 – Structure

B1.3.1 Buildings, building elements and sitework shall have a low probability of rupturing, becoming unstable, losing equilibrium, or collapsing during construction or alteration and throughout their lives.

B1.3.2 Buildings, building elements and sitework shall have a low probability of causing loss of amenity through undue deformation, vibratory response, degradation, or other physical characteristics throughout their lives, or during construction or alteration when the building is in use.

B1.3.3 Account shall be taken of all physical conditions likely to affect the stability of buildings, building elements and sitework, including:...

(e) Water and other liquids, ...

B1.3.4 Due allowance shall be made for:

(a) The consequences of failure, ...

(c) Effects of uncertainties resulting from construction activities, or the sequence in which construction activities occur, ...

B2 – Durability

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

ii) Those building elements are difficult to access or replace, or

iii) Failure of those building elements to comply with the building code would go undetected during both normal use and maintenance of the building.

E2 – External moisture (relevant to the external envelope and the need to protect the *underlying structure*)

E2.3.2 Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness, or damage to building elements.

E2.3.3 Walls, floors and structural elements in contact with the ground shall not absorb or transmit moisture in quantities that could cause undue dampness, or damage to building elements.

E2.3.5 Concealed spaces and cavities in buildings shall be constructed in a way which prevents external moisture being transferred and causing condensation and the degradation of building elements.

A.2 The building consent for the construction of the house was issued on 23 February 1999. The Acceptable Solutions, and Standards cited in those Solutions, that were in effect at the time the consent was issued are as follow:

Code Clause and relevant Acceptable Solution	Effective dates	Standard(s) cited	Comment
B1, B1/AS1, Amendment 3	1 Dec 1995 to 30 Nov 2000	NZS 3604:1990 (NZS 3602 is not cited)	NZS 3604:1990 references NZS 3602:1990
B2, B2/VM1 and B2/AS1 Second Edition	28 Feb 1998 to 30 Nov 2000	NZS 3602:1995	NZS 3602 allowed use of untreated Radiata pine in certain circumstances
E2, E2/AS1 Second Edition	28 Feb 1998 to 30 Nov 2000	NZS 3604:1990 (NZS 3602 is not cited)	NZS:3604 as above

Verification Method B2/VM1

1.0 Durability evaluation

1.0.1 Verification that the durability of a building element complies with the NZBC B2.3.1 and B2.3.2 will be by proof of performance and shall take into account the expected in-service exposure conditions by one or more of the following:

- a) In-service history,
- b) Laboratory testing, ...

1.1 In service history

1.1.1 Verification of durability based on in-service history of a building element, including materials, components and systems shall take into account but not be limited to:

- a) Length of service,
- b) Environment of use, ...
- e) Limitations in performance
- f) Degree of degradation ...

1.2 Laboratory testing

1.2.1 Verification of durability based on successful performance in a laboratory test shall be accompanied by an assessment of the tests performed, their relevance to field and service conditions, ...

New Zealand Standard NZS 3604:1990 Code of practice for light timber frame buildings not requiring specific design (superseded)

2.1 Timber and wood-based products

2.1.2 Subject to any specific provision in this Standard, timber and wood-based products specified in accordance with NZS 3602 shall be approved as suitable

New Zealand Standard NZS 3602:1995 Timber and wood-based products (superseded)

Part 1 Mandatory requirements for compliance with the durability provisions of Clause B2 of the New Zealand Building Code

105 Preservative treatment

105.5 Radiata pine framing members that have been kiln dried at 74°C or above, and to 18 % moisture content or less and have been planer gauged do not require preservative treatment, provided they are not exposed to ground atmosphere or in any position where the timber moisture content will exceed 18 %.

C105.5

In timber complying with conditions in 105.5 attack from the common New Zealand household borer (Anobium), will be at an acceptable low level to comply with the strength properties and durability required by the [Building Code]. Care needs to be exercised in the use of untreated framing members adjacent to external absorbent claddings on walls and roofs that are susceptible to solar driven moisture transfer mechanisms which can cause high humidity in framing cavities. Cladding manufacturers' recommendations to prevent solar-driven moisture transfer through their absorbent cladding materials from entering framing cavities should be followed. Adequate prevent of moisture being conducted from the subfloor into the wall cavity should be implemented.

It should be noted that kiln dried gauged untreated radiata pine framing timbers be protected from getting wet or moisture pick up from the ground or concrete prior to installation in the structure (Refer 109.4.3). The building should be closed in to protect the untreated timber from the weather and dampness within one months exposure to the weather during construction.

...

Table 1 – Building components requiring a 50 year durability performance

Building components	Species	Grade or standard ref.	In situ moisture range %	Requires treatment	Level of treatment to MP 3640	See clause reference
B Members exposed to exterior weather conditions and dampness (see section 107)						
Sarking and framing not protected from solar driven moisture through absorbent cladding materials exposed to the weather	Plywood Radiata pine	AS/NZS 2269 No.1 Framing	24% or less	Yes Yes	H3 H3	105.1 109.7
...						
D Members protected from the weather and in dry conditions and not exposed to ground atmosphere (see section 109)						
... Loadbearing studs ...	Radiata pine	No.1 Framing	24 % or less	Yes	H1	105.1 109 205
	Kiln dried and gauged Radiata pine or Corsican pine	F5 or No.1 Framing	18 % or less	No		105.5 C105.5
Non-load bearing studs in walls containing bracing Nogs or dwangs	Radiata pine	No.2 Framing	24 % or less	Yes	H1	105.1
	Kiln dried	F4 or No.2 Framing	18 % or less	No		105.5 C105.5

Miscellaneous Publication MP3640:1992 Specification of the minimum requirements of the NZ Timber Preservation Council Inc. (superseded)

1 Scope and interpretation

1.1 Scope

This publication sets out specifications for the protection of timber from attack by insects, decay, or marine borers. It provides guidance in the form and composition of the preservative, the care of treated timber and recommendations as to use.

4 Recommendations and advisory notes

4.1 Care of treated timber

4.1.1

The care and property handling of timber after treatment and prior to use (and in service where the relevant Hazard Class contains recommendations upon necessary or desirable maintenance procedures) can have a bearing on its efficiency in service.

4.1.2

Treated timber should be properly cared for before use to avoid exposure to a hazard situation for which it has not been treated and therefore against which it has not been protected. ...

7 Hazard classes and treatment requirements

7.1 Guide to Hazard Classes for various end use situations

Table 2 – Guide to hazard classification for various end use situations

Item	Hazard class	Group
...		
Framing	1	A
Studs	1	A
Trusses, roof	1	A

7.2 Summary of Hazard Class descriptions

7.2.1 Hazard Class H1

7.2.1.1

Where timber, including plywood, is used out of contact with the ground and in situations where are adequately ventilated and continuously protected from the weather. Approval of this treatment for exterior use is conditional upon protection from direct exposure to weather by a well maintained three-coat paint system.

- A.3 Standard referred to by the agent but not current at the time the building consent was granted include:

New Zealand Standard NZS 3604:1999 Timber framed buildings (superseded)

4 Durability

4.3 Timber and wood-based products

4.3.1 The timber species, grade, preservative treatment, in-service moisture range and their end use environment shall comply with NZS 3602

Appendix B: Submissions received

B.1: The application and initial submissions

Applicant/ agent 17 November 2017	<p>Application for determination, covering letter and supporting documentation.</p> <p>After 2004 the applicants had building work carried out to address the deficiencies, but subsequent problems lead to investigations that found 'serious structural damage' to the framing which had occurred despite repairs to the cladding. In one instance, serious structural damage to framing required the framing to be reinstated¹⁷.</p> <p>The applicants have not investigated the state of the framing timber in the skillion roof, flat roofs, deck substrate, balustrades, or wet areas.</p> <p>The tiled roof has no ponding boards and water entry has decayed walls – the lack of ponding boards was not included in the notices and there will be other means by which external moisture will ingress as building elements age.</p> <p>Neither the notice to rectify, the notices to fix, nor the first determination dealt with the central issue of untreated kiln dried framing; this left the applicants without direction as to what building elements required remediation in order to obtain the code compliance certificate.</p> <p>Nothing in the notices set out a requirement for compensatory features that would offset the inadequate ventilation and untreated timber framing.</p> <p>While the applicants can rectify the cladding deficiencies identified in the notices, the timber framing is not fit for purpose because it will continue to decay and cause toxic moulds – the repairing of cladding deficiencies to bring the building into compliance can only be achieved with framing that is adequately treated.</p> <p>The three notices should be withdrawn because:</p> <ul style="list-style-type: none"> • the cladding was “deemed compliant with acceptable solution E2/AS1 (as at 1999) being solid plaster over rigid backing board” • the cladding does not require a cavity as it is deemed to comply without one • the external timber framing and timber framing in wet areas is not compliant with the building consent, the Building Code, or the Act. <p>A new notice to fix should be issued that requires the timber framing in external walls and wet areas be treated to NZS 3604 (which would necessitate removal of the cladding) and listing any deficiencies the authority considers would not likely be remedied by the new scope of works. And “the remaining untreated timber framing ... be dealt with” as it is not an acceptable material, it cannot be maintained, and it is unfit for purpose.</p>
The Ministry 27 November 2017	<p>The Ministry sought further information from the agent:</p> <ul style="list-style-type: none"> • the application did not include any copies of correspondence between the parties since the first determination was issued, or any advice or reports about the building work • it was unclear whether the authority had been advised of any evidence of the condition of the framing by way of reports or similar. • confirmation whether the request for a new notice to fix had been put to the authority.
Agent 27 November 2017	<p>The applicants had taken no further action since 2009.</p> <p>The list of cladding defects on the notices meant little if all of the framing or all of the cladding must be removed to allow for in situ treatment and/or replacement of the timber framing.</p>
The Ministry 7 December 2017	<p>The Ministry sought clarification from the agent.</p>
Agent	<p>The applicants were electing to apply for the determination as provided for in</p>

¹⁷ It is unclear what work was carried out or when this occurred; I do not have details of any building work that has been carried out after the first determination was issued in December 2008.

11 December 2017	the third notice (refer paragraph 2.4.6).
Authority 22 December 2017	Acknowledged receipt of the application (no submission).
The Ministry 8 January 2018	The application for determination was accepted.

B.2: The first draft determination and submissions in response

The Ministry 12 February 2018	A first draft issued to parties for comment. The draft concluded the authority had correctly exercised its powers of decision in issuing the third notice to fix, albeit that an application for determination had been incorrectly included in the remedies set out in the notice.
Authority 13 February 2018	Accepted the draft without further comment.
Applicant/ agent 27 February 2018	Omitting the use of untreated timber in the notice to fix was a failure by the authority to correctly exercise its powers. Scope of the matter to be determined now to include “whether the untreated timber as used on this house complies with the Building Code.
The Ministry 11 April 2018	Matter to be determined was to include compliance of the framing timber, and requested relevant information from the parties.
	Clarification that: <ul style="list-style-type: none"> • H3 framing is not “required” by the Building Code, which is a performance-based document. • Standards referred to by the agent are referenced in some Acceptable Solutions, however Acceptable Solutions are not mandatory nor the only way of achieving compliance with the Building Code. • For buildings constructed under the former Act the building work must comply with the Building Code that was in force at the time the building consent was issued. The test is not whether the building work complies with Acceptable Solutions or referenced Standards. • The issuing of a notice to fix is a means by which authorities notify the specified person of building work that does not comply with the Building Code, and the authority must have evidence of non-compliance for it to issue a notice to fix. • It is not for a building consent authority to direct an owner by way of a notice to fix as to how to achieve compliance or to use a particular building material or particular means of construction¹⁸.
Authority 14 May 2018	The extent of any damage and/or dampness in the framing timber is likely to have worsened since the first determination and requires further investigation. If the cladding was not removed to allow the framing to be viewed, the applicants would need to put forward persuasive evidence of the performance of the external timber framing.
Agent 11 May (dated 8 May), 15 and 16 May 2018	NZS 3604 references NZS 3602 for preservative treatment of timber framing. The cladding was absorbent and framing treated to H3 was required by Table 1B of NZS 3602. The untreated kiln-dried timber framing is not compliant with the Building Code by virtue of the limitations on end use within NZS 3602 and MP 3640 – it cannot be guaranteed to stay dry for its intended life. There is little or no point in the applicants investigating the condition of the framing timber and undertaking targeted replacement of framing timber when any remaining framing could not be made compliant.
	When all the framing is examined it will likely need replacing due to: <ul style="list-style-type: none"> • exposure to construction moisture for over six months in winter during the

¹⁸ There are prescriptive means of achieving compliance such as Acceptable Solutions or Verification Methods, and these are available on the Ministry’s website, or compliance may be achieved through some other alternative solution.

	<p>construction period; and</p> <ul style="list-style-type: none"> • continuing exposure to moisture from construction deficiencies; and • condensation in external walls from solar driven moisture through the absorbent cladding.
	<p>Moisture ingress through the cladding is likely to go undetected for significant periods of time and the timber would then be subject to undue dampness and damage and would not remain durable.</p> <p>The untreated framing timber is not accessible and is unable to be easily inspected or maintained.</p>

B.3: The second draft determination, further submissions, and the hearing

The Ministry 15 June 2018	A second draft issued to parties for comment. The decision regarding the authority's exercise of its powers of decision remained the same as the first draft. In relation to compliance of the framing timber, the draft concluded that while damage will have worsened over the years it does not necessarily follow that none of the existing timber would now be sound and able to be treated in situ, and likewise compliance of the timber in wet areas will depend on whether the timber has been subject to moisture ingress.
Authority 18 June 2018	Accepted the draft without further comment.
Applicant/agent 21 June 2018 (dated 22 June 2018)	<p>The agent asks that the determination confirm what level of treatment was required to the timber used behind the absorbent cladding given the cladding is at high risk of leaking, condensation, wicking and there was excessive exposure to weather during construction.</p> <p>There are no documents on file that supported the use of untreated timber for this framing when the authority granted the consent, so it is unclear on what grounds the authority was satisfied the building work would comply.</p> <p>The applicants requested a hearing be held.</p>
The Ministry 6 July 2018	<p>Clarification regarding the matter to be determined and the relevant test under the Building Act to obtain a code compliance certificate.</p> <p>Procedural matters and request for applicants to confirm hearing request.</p>
Applicant/agent 23 July 2018	<p>According to NZS 3602: 1995 Table 1B – all external framing installed behind absorbent cladding must be treated to H3.</p> <p>There are no features that would mitigate for the use of untreated timber, such as provisions to manage condensation, reliable evidence of use in service (such as research test results), and the applicants did not seek to use an alternative solution.</p> <p>The authority correctly approved the plans and specifications and the later amendment to stucco “such that the cladding became an acceptable solution”, and as an Acceptable Solution the requirement was for H3 treated timber.</p> <p>The change to untreated kiln-dried timber was a departure from the building consent, and justification is required for the departure from the approved plans and specifications. The authority had a duty to require the owner to either justify the use of the untreated timber or remove it. The applicants make no claim that the untreated timber will comply.</p> <p>Likewise, if the existing timber requires remediation or treatment in-situ, this would also be a departure from the approved consent.</p> <p>The timber framing is required to comply for 50 years without major remediation or alteration, and this means removal of cladding to investigate the condition of the underlying timber is outside the compliance requirements.</p> <p>If what is required to achieve compliance is in-situ treatment of remaining timber framing, replacement of damaged timber, and recladding with a cavity, this should be stated in the notice to fix.</p>
The hearing	A hearing was held in Auckland at the applicant's request, and the following

24 August 2018	<p>people attended:</p> <ul style="list-style-type: none"> • one of the applicants and the agent • two officers of the authority • myself accompanied by an officer of the Ministry and a determinations referee.
Agent 24 August 2018	<p>The applicant's agent tabled a written submission along with three case studies involving houses with system moisture ingress issues.</p> <p>The agent's submission is summarised in paragraphs 3.2 to 3.7.</p>

B.4: The third draft determination and further submissions

The Ministry 17 September 2018	<p>A third draft issued to parties for comment. The draft concluded that while moisture ingress through the cladding meant that some of the timber will not comply with Clause B2 insofar as it applies to Clause B1; there is insufficient evidence available to conclude that all of the timber does not meet the performance requirements, and confirmed the authority's decision to issue the third notice to fix in relation to non-compliant building work.</p>
Authority 17 September 2018	<p>Requested the wording of the decision regarding compliance of the timber be reviewed.</p>
Agent 24 September 2018	<p>Submitted:</p> <ul style="list-style-type: none"> • references to use of untreated framing should also include the decks and skillion roof • framing has been replaced in two areas already • sheltered areas represent a very small portion of the external walls • repairs and maintenance of external cladding does not stop the wet untreated timber from decaying or continuing to decay in the time leaks are discovered and repaired • remediating minor defects in the cladding will not bring the timber into compliance with the relevant standards • H3 treated timber is required as it provides for failure of other building elements to protect the timber from moisture, and this should have been included in the notice to fix. <p>Provided various annotated photographs, some showing leaks through the roof cladding and damaged or replaced framing. Noting:</p> <ul style="list-style-type: none"> • six areas of roof cladding have been opened that show failure of the roof cladding to prevent moisture ingress • MDU¹⁹ readings in one area below the north deck that were consistently in the 30% range now indicate framing is damaged.
Authority 25 September 2018	<p>Accepted the determination with no further comment.</p>

¹⁹ Moisture Detection Unit