MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Determination 2017/038

Regarding the refusal to issue a code compliance certificate for a 10-year-old commercial building at 36 Munroe Street, Napier

Summary

The determination arises from the authority's refusal to issue a code compliance certificate for a 10-year-old commercial building due to concerns about the compliance of the roof with respect to Clause E2 External moisure, and Level 3 with respect to Clause G4 Ventilation. The determination considers the compliance of the building and the authority's reasons for declining the code compliance certificate.

1. The matter to be determined

1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004[1] ("the Act") made under due authorisation by me, John Gardiner, Manager Determinations and Assurance, 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 owner of the building, the Thackery Trust ("the applicant") acting through the builder and a legal adviser
- Napier City Council ("the authority"), carrying out its duties as a territorial authority or building consent authority acting through a legal adviser
- PricewaterhouseCoopers New Zealand, who is a lessee and occupies the third floor of the building (the tenant).

1.3 This determination arises from the decision of the authority to refuse to issue a code compliance certificate for the 10-year-old commercial building. The refusal arose because the authority is not satisfied that the building work complies with certain

[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.

clauses[2] of the Building Code (First Schedule, Building Regulations 1992); in particular, the butyl rubber roof gutter, and the ventilation system serving the third floor of the building.

1.4 The matter to be determined[3] is therefore whether the authority was correct to refuse the code compliance certificate. In deciding this matter, I must consider whether the completed elements of the building work comply with the relevant clauses of the Building Code.

1.5 I note that the owner will be able to apply to the authority for a modification of durability provisions to allow specified periods to commence from the date of substantial completion in about 2007. Although I leave this matter to the parties to resolve in due course, I comment on the matter in paragraph 7.

1.6 In making my decision, I have considered the submissions of the parties, the report of the independent expert commissioned by the Ministry to advise on this dispute ("the expert") and the other evidence in this matter.

2. The building work

2.1 This determination relates to the construction of a commercial building on a level corner site in an urban area. The building is three storeys high with a basement carpark beneath. The tenant occupies the third (top) floor of the building.

2.2 The building is constructed from precast concrete panels to the basement walls, with timber framing to the remaining levels. The exterior walls are clad in proprietary fibre-cement panels, with profiled metal cladding over a cavity to the north elevation.

2.3 The roof is timber-framed with timber trusses and purlins supporting the profiled metal roofing. The 3° pitch 'butterfly' roof drains into a 3m wide central membrane-lined box gutter. The gutter falls towards concealed outlets and overflows at the east and west ends.

3. Background

3.1 The authority issued building consent No. 051404 under the Building Act 2004 on 20 February 2006 and construction commenced the following month. The authority carried out inspections of the timber framing and claddings, with pre-line inspections carried out in December 2006/January 2007 and the building was substantially completed by March 2007 when final inspections were requested.

3.2 The authority carried out final inspections on 17 May 2007 which identified various incomplete work and documentation. The authority's letter to the builder, dated 18 May 2007, listed 17 items to be attended to. Various work and documentation was completed and the building was re-inspected in December 2007.

3.3 Work to rectify outstanding matters continued during 2008 and no further inspections were carried out during the next three years. On 25 June 2013 the authority refused the issue a code compliance certificate for the building.

[2] In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.
[3] Under sections 177(1)(b) and 177(2)(d) of the Act

3.4 The previous determination

3.4.1 The refusal led to a determination being applied for by the applicant. The application was received on 17 October 2013. Determination 2014/045[4] ("the previous determination") was issued on 22 September 2014; the determination found that:

- the roof gutter did not comply with Clauses B2 and E2 of the Building Code
- the ventilation system to the third floor did not comply with the Clause G4 of the Building Code

and the authority's decision to refuse to issue a code compliance certificate was confirmed. The remaining work was considered compliant.

3.5 The remedial work

3.5.1 The applicant commissioned a report on the roof by a member of the NZIBS[5] dated 4 April 2015. The report was comprehensive and provided recommendations for remedial work. It appears the applicant disputed some of the report's findings.

3.5.2 The applicant applied for an amendment to the original building consent for the mechanical services to the third floor to address the non-compliance identified in the previous determination. The scope of the work included installing two "roof mounted supply air fans' and a 'fresh air distribution network". The authority issued the amendment to building consent No. 051404A on 7 June 2016.

3.5.3 The building work to bring the ventilation into compliance with Clause G4 commenced, and remedial work was carried out to the roof gutter. It is not clear what the remedial work to the gutter and/or the roof was undertaken. The applicant says it supplied the authority with the results of flood testing to the gutter[6] and requested that it advise what else was outstanding: the test was not witnessed by the authority. It is noted that flood testing in August 2016 ("the August 2016 leak") lead to a leak because the gutter was left blocked over a weekend when it also rained and the gutter overflowed onto the building, refer Table 1.

3.5.4 In an email to the applicant dated 10 November 2016, the authority stated:

> In relation to the code compliance certificate application it is my understanding that there are other outstanding items relating to this consent, so until the additional outstanding items are provided I will not be able to accept [code compliance certificate] application.

3.5.5 The matter was not resolved and the Ministry received an application for this determination on 30 November 2016.

4. The submissions

4.1 The initial submissions

4.1.1 The applicant's submission stated that the gutter membrane repair to rectify the non-compliance identified in the previous determination has been carried out and water tested, with no water ingress noted. The applicant clarified that the membrane tape to part of the gutter had been replaced.

[4] Determination 2014/045 *Regarding the refusal to issue a code compliance certificate for a 7-year-old commercial building at 36 Munroe Street, Napier* (Ministry of Business, Innovation and Employment) 22 September 2014
[5] The New Zealand Institute of Building Surveyors
[6] Believed to be the flood test carried out on 9 December 2015.

4.1.2 The applicant attached copies of:

- correspondence between the applicant and the authority
- the previous determination
- the results of the flood test to the membrane roof dated 9 December 2015, with 10 photographs of the test
- the "Mechanical Services NZS4303 Commissioning Report – Rev B" dated 28 November 2016
- producer statement (PS1) for the mechanical ventilation system on the third floor dated 12 January 2016
- producer statement (PS3) for construction of the 'Fresh air ducting' to the third floor
- producer statement for the electrical system for the fresh air supply
- combined certificate of compliance and electrical safety certificate
- producer statement (PS4) for the mechanical fresh air ventilation to the third floor
- the amendment to the original building consent No. 051404A, with the conditions attached and the approved drawings
- specification for the third-floor fresh air system.

4.1.3 In an email dated 1 February 2017 the authority stated its reasons for refusing the code compliance certificate for the following reasons:

- It was still not satisfied the "roof complies with Clauses E2 and B2 of the Building Code and that the ventilation system for the third floor complies with Clause G4 of the Building Code".
- The compliance of the metal roof was also in question in addition to the membrane gutter. Questions had been put to the owner about the compliance of the roof which have remained unanswered.
- The basement was still leaking, questions to the owner about this had also remained unanswered.

Council provided reports and related material, some of which had been provided by the owner.

4.1.4 The Ministry sought clarification from the authority to confirm why the code compliance certificate was being refused, and if there were any issues with the works identified in the previous determination that had been completed. The authority responded that it did not believe any work had been done to the roof, other than the water testing. The authority also noted that as far as it was aware the tenant was still experiencing issues with leaks.

4.2 The first draft determination and submissions in response

4.2.1 A draft determination was issued to the applicant and the authority for comment on 23 March 2017. Due to an administrative oversight the draft was not provided to the tenant at that time.

4.2.2 The applicant accepted the draft determination on 23 March 2017.

4.2.3 In a letter dated 6 April 2017 the authority submitted a response in which it did not accept the decision of the draft determination and provided further comments (in summary):

Water ingress from the roof

- The determinations decision was not accepted; the "building still leaks" and does not comply with Clause E2 and B2.
- On 5 April 2017 "55.6mm of rain fell in Napier over 24 hours and a severe weather warning was put in place…". Leaking was reported by the tenant on the same day and the authority inspected 'new leaking that had occurred that day'.
- The authority provided 14 photographs of stained ceiling tiles, plus a floor plan marked-up showing the location of the stained tiles. The submission said the 14 photos 'show areas of leaking' and that officers "did not investigate the source of the leaking, which would have been a task for the council's expert building surveyor had access been provided."

  (In an email to the Ministry dated 19 April 2017 the authority said "Council cannot confirm that water is currently entering the ceiling space".)

The ventilation system

- The authority accepted the determination with respect to Clause G4 Ventilation.

Other matters

- The applicant has refused to allow access for the authority's expert assessor and its response is without the benefit of that advice.
- It did not accept the basement was compliant as stated in the draft.
- The authority requested the Ministry confirm the commencement date for the minimum durability requirements.

4.2.4 On 10 April 2017 two emails from the applicant stated that 8 of the 14 stained tiles were from old leaks, and that 6 of the stained tiles were from new leaks as a result of Cyclone Debbie.

4.2.5 On 18 April 2017 the applicants advised that there were no roof leaks on level 3 of the building from either Cyclone Debbie or Cook. The building has been inspected that morning after Cyclone Cook "and it was confirmed … that there were no leaks [on level 3] from Cyclone Cook". "Cyclone Cook … resulted in flooding, slips and widespread power outages in Hawkes Bay".

4.2.6 On 18 and 27 April 2017 the Ministry sought clarification from the parties about the amount of rain that had fallen in Napier during Cyclone Debbie, and information about whether the marked ceiling tiles noted by the authority were the result of water ingress that occurred during this rain event.

4.2.7 On 28 May 2017, the applicants submitted an affidavit from a builder employed by the applicant and who was familiar with the matter and who had visited the building, plus rainfall data for Napier from NIWA[7]. In the affidavit, the builder said:

- Only some of the ceiling tiles were replaced after the August 2016 leak.

[7] The National Institute of Water and Atmospheric Research

- 10 photographs are of “old leaks from the water testing in 2016”.
- Cyclone Debbie resulted in 4 ‘minor leaks'. The remaining 10 stained tiles are from old leaks.
- The authority’s inspection took place on the afternoon noon of 5 April “after 125 mm of rain had fallen from Cyclone Debbie”.
- After Cyclone Debbie the roof was inspected and loose roofing screws were tightened and a rivet placed. The roof and the level three of the building was re-inspected after Cyclone Cook and there were “no leaks”.
- The NIWA rainfall data[8] showed:
  - 5 April 2017 - 8am to 10am - 21mm rainfall
  - 4 April 2017 (24 hours) - 74.6mm rainfall
  - 5 April 2017 (24 hours) - 51.6mm rainfall
  - 4 to 5 April 2017 (48 hours) - 126.2mm rainfall.

4.2.8 It is noted that the affidavit records that that the builder :”attended the water testing in 2016 with MBIE’s expert”. This part of the statement is in error. The expert only carried out water testing on 3 February 2017 and not in August 2016. The statement that all the leaks were from the testing in August 2016 is also open to question: in the order of 4 photographs are of tiles at the building perimeter located some distance horizontally from the gutter.

4.2.9 The Ministry sought comment from the authority and the tenant to the applicant’s submission. The authority responded on 23 May 2017 saying, in summary, that:

- It did not doubt the rainfall data. It had no comment to make on the statements made in the affidavit but was unable to verify or challenge the outcome of the builder’s inspection and findings because it was not present.
- It noted that the acknowledgement of the leaks in the affidavit conflicted with the applicant’s earlier contention the building was not leaking after Cyclone Debbie.

4.2.10 No response was received from the tenant to the applicant’s submission.

4.2.11 I have considered the parties submissions and amended the determination as appropriate.

4.3 The second draft determination and submissions in response

4.3.1 The determination was issued on 2 June 2017 but recalled on the same day as it was found that due to an administrative oversight, neither the draft determination nor the expert’s report had been issued to the tenant for comment. The determination was reissued as a second draft for comment, along with the expert’s report, to all parties on 6 June 2017.

4.3.2 The tenant responded on 7 June 2017 saying that it had no comment to make.

4.3.3 The authority responded on 8 June 2017 saying in summary that:

- Council had provided a submission in response to the application which was not recorded in the draft determination.

[8] Rainfall recorded at a weather station some 500m from the building for 4 and 5 April 2017.

- The only test results that the applicant provided to the authority was a document from the membrane installer showing two[9] photographs and the statement "we have inspected the flood test on the 9 December 2015. We can confirm there were no leaks into the building" resulting from the 12-hour test.
- The reference to authority officers not investigating the source of the leaking (at paragraph 4.2.3) should include the reason for this.
- The builder is employed by the applicant, as acknowledged in his affidavit.
- The authority was not provided with the PS4 for the HVAC[10] system by the installer, and only became aware of it on receipt of the application for determination.

The authority also noted a typographical error.

4.3.4 The applicant responded to the second draft determination on 9 June 2017 requesting that the Ministry "confirm the commencement date for the minimum durability requirements" because he "[did] not wish to have anything left unresolved". The submission did not provide a date when it was believed the building was substantially complete.

4.3.5 I have amended the determination as I consider appropriate.

5. The expert's report

5.1 General

5.1.1 As mentioned in paragraph 1.5, I engaged an independent expert to assist me. The expert is a member of the New Zealand Institute of Building Surveyors and inspected the building on 3 February 2017. The expert's report was received on 7 March 2017 and was sent to the applicant and the authority on 10 March 2017: it was sent to the tenant on 6 June 2017 (refer paragraph 4.3.1).

5.1.2 The expert was asked to assist in determining whether the decision by the authority to refuse to issue a code compliance certificate was correct. The expert considered Clauses B2, E2, and G4 in his assessment of the building.

5.1.3 The expert contacted the authority to clarify its concerns regarding the building. The authority advised that it had concerns with general roof compliance and leaks to the roof and basement, and is not satisfied that the ventilation system to the third floor complied with the Building Code.

5.1.4 The expert observed that the building was generally "well presented and maintained to a reasonable standard".

5.2 Clause E2 External moisture and B2 Durability

5.2.1 The expert investigated and assessed particular areas of the building associated with external moisture ingress. The expert hose-tested features on the roof that are known to be at risk from moisture ingress. The following was observed:

[9] The copy of this letter supplied to the Ministry by the applicant includes 10 photographs including several that are duplicated
[10] Heating ventilation and air-conditioning

Table 1: The expert's observations

Area of concern	Expert's observation	Expert's comment
Basement leaks	• Observed several cracks in the basement that had been 'tidily filled' with grout • Dry unrepaired cracks	Engineering advice from the previous determination noted the cracking had 'no detrimental effect' on the structural integrity It was a maintenance issue and not indicative of failure to comply with the Building Code
Roof pitch	• Pitch ranged from 1.9 – 3.4° and averaging 2.6° • To satisfy E2/AS1 and the Roofing Code of Practice a minimum pitch of 3° is required. (While the building is outside the scope of these documents, they are useful for comparative purposes)	The steel roofing and flashings appear to be 'reasonably well installed' and would satisfy the 15 year building code durability requirement
Membrane repairs	• Remedial work to the substrate work had been undertaken, with a manufacturer's warranty for the membrane dated 28 January 2013 • New membrane patches to the east and west sumps had been installed • Membrane was delaminating in the central area of the gutter	The patches were 'reasonably well installed' The builder says the delaminating junction will be resealed, and is considered a maintenance issue
	• Minor ponding to the edge of the gutter was noted	The membrane gutter pitch was measured with falls to the outlets ranging 0.6% - 2.7% with an average 1.5% slope. The sumps at both ends of the gutter fall in two directions to downpipes with pitch measuring 5.5% - 6.5% Membrane lined gutters are required to have a minimum fall of 1:100 (1.0%) to satisfy E2/AS1, and the gutter exceeds this requirement. The ponding is unlikely to result in significant failure during the 15-year durability period
Inadequate ventilation to the membrane	• There were no bubbles in the membrane to indicate any moisture entrapment problem	Any trapped moisture can dissipate a short distance to the sides of the gutter
Historic leaks	• Below the central area of the gutter, and below the apron and parapet flashings were inspected • The applicant advised that the most recent leak occurred in August 2016 and caused stained ceiling tiles. Historic staining to the timber roof framing and plywood substrates were observed in the same locations • The applicant explained this roof leak arose from flood testing of the gutter where an outlet remained blocked over a weekend when it also rained. This caused the blocked gutter to overflow onto the	No evidence of current leaking was found in any of the locations following hose testing and heavy rain the previous day[11] The explanation for the roof leak is plausible and correlates with the sump flood testing undertaken on 9/12/15 and dated evidence provided of the effects of this leak

[11] On 2 February 2017 Napier experienced 5.8mm of rain in one day. During the entire month of January, Napier had received 5.4mm in total.

Area of concern	Expert's observation	Expert's comment
	third floor	
Parapet junction	• An unsealed parapet junction and hole where a rivet was missing was observed	No detectable leaking observed to the interior of the building. The builder says the junction will be re-sealed and is considered a maintenance issue
Penetrations through the membrane	• Vent pipe through the steel roofing is 'well installed', riveted and sealed to the cladding with the collar protected by a PVC socket • The vent pipe through the membrane gutter appears to rely on the sealant at its junction with the PVC socket	No leak was found in relation to the membrane penetration It is considered a maintenance issue The builder has installed a new sleeve to reduce the reliance on the sealant

5.3 Clause G4

5.3.1 Two new individual fan-assisted[12] ventilations systems were installed as part of the amended building consent. The authority required the applicant to provide a producer statement (PS4) from the installer of the HVAC system as well as a commissioning report. The expert noted that the PS4 and commission report had been provided to the authority (I note that the authority submits the PS4 was not provided to it by the installer).

5.3.2 The expert noted that the commissioning report appears to have largely addressed the authority's concerns related to the design limitations. The report indicated that an average 104% of design airflow was achieved for OAF-01, with all eight grilles achieving over 100%. An average airflow of 112% was achieved for fan OAF-02, with 10 out of 11 grilles achieving in excess of 100%. Grille 10 initially recorded 90% design airflow and final outlet a 60% design airflow. The expert considered that this result did not appear to affect compliance with Clause G4.

5.4 Quality of finish

5.4.1 The expert observed that the building was 'tidy' and appeared to be 'reasonably well maintained'. He noted that the 'crudely' installed membrane patches identified in the report provided in association with the previous determination had been replaced with new patches.

5.4.2 The roof and flashings are adequately directing surface water into the rainwater system. The apron and parapet flashing junctions are 'generally well sealed'. The roofing is installed to an 'acceptable trade standard' with identified defects considered to be maintenance items.

5.5 The expert's conclusions

5.5.1 The expert considered that on the basis of the engineering advice already provided, the minor cracks in the basement carpark are considered a maintenance issue, and not evidence of failure to comply with the Building Code.

[12] Described in the consent documentation as fans OAF-01 and OAF-02.

5.5.2 In regards to Clause B2 and Clause E2, the expert noted that there had been no leaking observed since August 2016, despite the hose testing to areas that had previously leaked. Therefore, no significant durability or external moisture issues are apparent.

5.5.3 In regards to Clause G4, the expert observed that a PS4 and commissioning report had been provided which were required documentation for the amended building consent. The fresh air provision to the third level generally meets the design levels and there appears to be 'no significant impediment' to achieving compliance with Clause G4.

6. Discussion

6.1 General

6.1.1 Section 17 of the Act requires all new building work to comply with the Building Code. In continuing to refuse to issue a code compliance certificate, the authority considers that there are areas where it considers compliance with the Building Code has not been achieved.

6.1.2 The authority has concerns related to the work carried out to rectify the non-compliance identified in the previous determination, regarding Clauses B2, E2 and G4. The authority also noted it was refusing to issue the code compliance certificate due to leaking cracks in the basement.

6.2 Clauses E2 External moisture and B2 Durability

6.2.1 The authority considers the roof is not performing in accordance with the relevant Building Code Clauses.

6.2.2 The expert's report, dated March 2017, identified that there were no issues observed with the roof cladding and internal membrane gutter. The historic areas of concern were inspected and no evidence of current water ingress was apparent after being hose tested and subjected to heavy rainfall. The expert identified several issues but considered them to be maintenance issues rather than non-compliance with the Building Code. He noted that the areas requiring maintenance were presently effective in preventing water ingress. The expert concluded that there were no issues relating to external moisture.

Cyclone Debbie and Cook

6.2.3 High wind and heavy rain caused by Cyclone Debbie was felt in Napier over 4 and 5 May 2017, similarly Cyclone Cook on 13 and 14 May 2017. Both cyclones caused damage throughout the Hawkes Bay region from high winds and flooding. I note the building is in a relatively exposed location: it is mostly surrounded by open space (roadway and carparking) and any adjacent buildings are only half its height.

6.2.4 The authority took photographs of ceiling tiles in 14 areas where it says the building was "leaking" on the afternoon of 5 May 2017; it did not determine whether the tiles themselves were damp. The applicant initially said that 6 photographs were from areas that were leaking, while the affidavit says there were 4 areas.

6.2.5 At least one of the stain marks has been there since before Cyclone Debbie: one photograph is of a distinctly-shaped stain that was included in the expert's March 2017 report. From photographs included in the expert's report, existing dry marks in

the ceiling tiles are generally noticeably lighter in the centre of the mark with a distinct outer border.

6.2.6 Photographs taken by the authority that are accepted by the applicant as being from current leaks, and which are therefore damp, are uniformly darker with little or no border. Of the 14 photographs taken - 7 to 8 marks appear to be evidence of old water leaks; 5 marks are darker in the centre of the stain which indicate the tile is damp resulting from water ingress during Cyclone Debbie. Four of the 6 new marks are located on or near external walls; water ingress may therefore not be solely from the roof.

6.2.7 The builder says maintenance items were addressed after Cyclone Debbie and the building did not experience any leaks after Cyclone Cook. This has not been independently verified, but I have had no comment from the tenant that disputes this statement.

Does the roof presently satisfy Clause E2?

6.2.8 I accept that this building has a history of problems in regard to the past leaks into various areas and I have taken that into account in reaching my conclusions on the current weathertightness and durability of those areas. I accept that the water ingress that occurred in August 2016 arose from it raining over a weekend while the internal gutter was also blocked as part of a flood test: from the photographic evidence provided it appears a significant amount of water entered the building on this occasion, and that supports this scenario. The leaks that occurred as a result of Cyclone Debbie are a different matter.

6.2.9 The evidence and the applicant's statements support the view that about half of the 14 photographs show marks from old water leaks. There appear to be in the order of 5 tiles that were damp from water ingress as a result of Cyclone Debbie, which the applicant does not dispute. The question that arises is whether water entering the building during an extreme weather event means that the building is failing Clause E2?

6.2.10 In some instances the Building Code provides performance limitations and thresholds beyond which failure to achieve compliance in extreme cases is accepted: for example Clause E1.3 2 where non-residential buildings may be flooded; however, a residential building may flood but only in circumstances more severe than a 1-in-50 year event.

6.2.11 The performance requirements for Clause E2 state that roofs must prevent penetration of water that could cause undue dampness or damage to building elements (E2.3.2); concealed spaces and the like must prevent the accumulation of moisture (E2.3.5); and that building elements must make due allowance for the consequences of failure (E2.3.7). Clause B2.3.1 says that ongoing maintenance is required to ensure ongoing compliance, and B2/AS1 describes minimum timber treatment levels for timber located behind claddings where the level of treatment is determined by the risk of water ingress.

6.2.12 These requirements take account of the likelihood that what are otherwise considered compliant buildings can and do allow moisture ingress from time to time. I note that the Functional Requirement for E2 (E2.2) says "Buildings must be constructed to provide adequate resistance to penetration by, and the accumulation of, moisture from the outside." The inclusion of the word "adequate" implies to me that the performance requirement is not absolute in all circumstances.

6.2.13 In my view Cyclone Debbie was an extreme weather event where the cladding's failure to keep water from entering the building does not represent a failure of Clause E2. Taking into account the rainfall that the building experienced, the water ingress that did occur was very limited in extent, and was not, in my view, attributable to the failure of any particular building feature, material, or building element.

6.2.14 Although staining was noted to the timber framing and plywood roof substrate by the expert, his report indicated that there was no evidence of moisture causing damage to the building elements, or adversely affecting the timber structure or the ceiling tiles apart from some discolouration.

6.2.15 Taking into account the expert's report, and the performance of the building during Cyclone Debbie, I am satisfied that the roof cladding and internal membrane gutter complies with Clause E2 in shedding precipitated moisture and preventing the penetration of water that could cause undue dampness or damage to the building elements.

6.2.16 The building is required to comply with the durability requirements of Clause B2, which requires a building to satisfy all the objectives of the Building Code throughout its effective life. I consider the work carried out by the builder to the roof after Cyclone Debbie was normal maintenance, and did not arise from any systemic failure of the roof itself with respect to its design and construction. I am therefore satisfied that the roof also complies with Building Code Clause B2.

6.3 Clause G4 Ventilation

6.3.1 Clause G4.3.1 requires that:

> Spaces within buildings shall have means of ventilation with outdoor air that will provide an adequate number of air changes to maintain air purity.

6.3.2 The authority stated that it was not satisfied the ventilation system installed as part of the amended building consent complied with the Building Code Clause G4. The previous determination had established that the ventilation system was unlikely to provide adequate levels of fresh air to comply with Clause G4.

6.3.3 The amended building consent drawings noted that the fresh air supply has been designed to satisfy G4/AS1[13], with a producer statement provided by a mechanical and building services Chartered Professional Engineer. The Acceptable Solution states that:

> **1.5.1** Mechanical ventilation systems must satisfy the following conditions: a) outdoor air supply shall be designed and equipment installed to comply with NZS 4303, or AS 1668.2 (excluding Table A1 and Sections 3 and 7), and to provide outdoor air to occupied spaces at the flow rates given in NZS 4303 Table 2

6.3.4 Another mechanical engineering firm undertook testing of the fresh air system against the requirements of NZS4303[14], and supplied a commissioning report dated 28 November 2016. The commissioning report concluded that the two fans were operating with the appropriate air flow rate being provided to satisfy NZS4303, and consequently Clause G4.

6.3.5 The expert also noted that the two air conditioning units servicing the third floor were adjusted in January 2017, and no issues had been reported since by the tenants.

[13] Acceptable Solution G4 Ventilation
[14] New Zealand Standard NZS4303:1990 *Ventilation for acceptable indoor air quality*

6.3.6 I consider that the expert's report, alongside the evidence from the mechanical services engineer, provides reasonable grounds on which to conclude that the ventilation system complies with the Building Code.

6.4 The basement

The authority has ongoing concerns about water ingress to the basement (refer paragraph 5.1.3). The previous determination did not find any evidence of failure in the basement, and I accept the expert's position that the basement cracks are a maintenance issue and, as previously determined, will not affect the compliance of the building work to Clause B1, Clause B2 or Clause E2.

7. Durability

7.1 The authority has requested the Ministry confirm the commencement date for the minimum durability requirements. I do not consider this is necessary as this can be agreed between the parties without the Ministry's intervention - see below.

7.2 The relevant provision of Clause B2 of the Building Code requires that building elements must, with only normal maintenance, continue to satisfy the performance requirements of the Building Code for certain periods ("durability periods") "from the time of issue of the applicable code compliance certificate" (Clause B2.3.1).

7.3 In this case, the 10-year delay since the completion of the building in about 2007 raises concerns that many elements of the building work are now beyond their required durability periods, and would consequently no longer comply with Clause B2 if code compliance certificates were to be issued effective from today's date.

7.4 I have considered this issue in many previous determinations and I maintain the view that:

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

(b) it is reasonable to grant such a modification, with appropriate notification, as in practical terms the extension is no different from what it would have been if a code compliance certificate for the building work had been issued at the time of substantial completion (which in this case was in 2007).

7.5 The applicant has requested the determination confirm the commencement date for the durability periods, but no date has been proposed or agreed between the parties. The previous determination records that the building was substantially completed in March 2007, and certificates of public use were issued in March and April 2007. It seems appropriate that the durability period should commence from 1 May 2007. The applicant should now make an application to the authority to modify Clause B2.3.1 to this effect.

8. The decision

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

- the roof complies with Clauses B2 and E2 of the Building Code
- the ventilation system to the third floor complies with Clause G4 of the Building Code

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

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 14 June 2017.

John Gardiner
Manager Determinations and Assurance