



Determination 2018/011

Regarding the decision to refuse to issue an amended building consent for substituted windows at 90A Verbena Road, Birkdale, Auckland



Summary

This determination concerns the substitution of aluminium windows that were detailed in an approved consent with imported timber windows. The owner had sought a consent amendment for the substitution, but this had been refused by the authority. The amendment had also been sought after the installation of the windows. The determination considers whether the timber windows satisfy the Building Code, and whether the authority was correct to refuse the building consent amendment.

1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, 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 property that the building work relates to, H Claesson and G Gillard, (“the applicants”)
 - Auckland Council carrying out its duties and functions as a territorial authority or a building consent authority (“the authority”).
- 1.3 This determination arises from the authority’s decision to refuse to issue an amended building consent for the substitution of imported timber windows in place of aluminium windows detailed in an approved building consent because the timber

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.

windows had not been shown to demonstrate compliance with the New Zealand Building Code.

1.4 Accordingly, the matter to be determined² is whether the authority correctly exercised its powers of decision in refusing to issue the amended building consent. In determining this matter, I must consider:

- whether the substituted timber windows comply with Clauses B1 Structure, B2 Durability, and E2 External moisture of the Building Code (First Schedule, Building Regulations 1992), and
- whether the building work to install the windows satisfies B2 Durability, and E2 External moisture.

1.5 In making my decision, I have considered the application, the submissions of the parties, the report of the independent expert commissioned by the Ministry to advise on the dispute (“the expert”), and the other evidence in this matter. I have not considered any other aspects of the Act or Building Code, beyond those required to decide on the matter to be determined.

2. The building work

2.1 The applicants’ property is located on the west-facing bank of a gully in a suburban area. The site is sloping and is in a low-to-medium wind zone, and a medium corrosion zone. The applicants are in the process of constructing a two-storey outbuilding on their property. The building consists of a double garage on its lower level, with ‘a storage/activity room/office space’ on the storey above. The applicants advise that this building has been constructed with slightly higher specifications than might normally be expected, as a sort of test run for their house, which they intend to build adjacent to it. These higher specifications include thicker walls, incorporating a 45mm cavity.

2.2 The original building consent specified that the building would have aluminium window joinery. However, this was subsequently changed in the application for an amended building consent to imported Swedish-manufactured wooden joinery. The applicants advise that they changed the joinery because the aluminium windows available in New Zealand would not work with the 45mm cavity.

2.3 The windows the applicants have used were manufactured in Sweden around 2012 by an established window manufacturing company. They were manufactured to comply with Swedish Standard SS 818103, and carry a label indicating that they have been certified as compliant. The applicant advises that they were purchased from a friend who had imported but never used them.

2.4 The windows are constructed from Scots pine, and have been treated to the Nordic Wood Preservation Council Standard for Preservation Class B. This class of preservation is designated for windows that are intended to be painted or otherwise coated before use, in order to protect the preservative from leaching. The windows are all (except for one) triple glazed, with internal gaskets and metal hardware. The joinery has been installed with wooden architraves and window reveals and a metal sill extension.

² Under sections 177(1)(b) and 177(2)(a) of the Act.

3. Background

3.1 The authority issued the original building consent (BB-1252521) on 26 May 2015. The consent was for 'New building in the empty site, new garage, office, game room to be used as service room for the future house in the site'.

3.2 The October 2016 inspection

3.2.1 The authority carried out a number of inspections including a 'CavityWrap' inspection on 10 October 2016. That inspection passed and the record includes photographs of the building wrap, window sills and cavity battens; together with the following comments:

1. ... On site minor variation application, product specification, and proper details, elevations as per manager inspections
2. ... Received Decision: Cladding changed from direct fix to cavity. Minor variation agreed by team leader inspections
3. Owner builder application taken for team leader approval
4. Ok to proceed, framing notes to be cleared at preline.

3.2.2 The applicants advise that at the time of the inspection they had:

...test fitted [two of the new] windows for assessing how the cavity system worked and there was no objection from the inspector. He only asked about how they were fixed and we showed him the special fixing screws supplied with the windows.

3.2.3 As a result of this inspection, the applicants 'assumed there was no problem [with the new windows] and fitted the rest of them'. They also assumed that the new joinery would constitute a minor variation to the building consent.

3.3 The May 2017 inspection

3.3.1 On 18 May 2017, the authority completed a pre-line inspection, which passed door and window air seals and also the weathertightness of the exterior (including the windows). The inspection record included the note 'can line inside of the building [but] do not fit reveals as amendment required for change of joinery'.

3.3.2 A site instruction notice issued during the inspection states:

Cavity system and joinery not as per consented plans. Amendment to be applied for. No further inspection to be booked until such time as amendment is approved.

Continue with items as discussed as per ... inspection sheet[s]. Next inspection after amendment approval will be cladding and finalising of preline...

3.3.3 During the inspection, the applicants made an 'On-site application for variations to approved plans'. This application related to other aspects of the building work (not the window joinery) and was approved by the authority on 19 May 2017.

3.4 The window amendment application

3.4.1 The applicants applied for an amended building consent on 16 June 2017. The application for an amendment included, among other changes, the substitution of the imported Swedish wooden windows for the aluminium ones. With the application, the applicants provided the window manufacturer's product information, as well as information relating to the windows' wood preservation treatment and the 2013 Swedish standard SC0270-09 for 'Outward opening windows – patio doors – fixed windows – ventilation hatches'. The amendment application also included other changes to the original consent that do not form part of this determination.

- 3.4.2 On 29 June 2017, the authority requested further information relating to the application. The authority stated that as the windows were from Sweden they would need to be assessed as an alternative solution, and provided an ‘Alternative solution checklist’ for this purpose. The applicants provided more information in response to this letter on 3 July 2017.
- 3.4.3 On 27 July, the authority made a further request for information. The request stated that the ‘Swedish Technical approval has no bearing on New Zealand Building Code or New Zealand Standards’ and itemised the Swedish tests that in its opinion did not satisfy the testing required by New Zealand standards. The letter also questioned the product labelling on the windows. It concluded:
- In summary, the proposed product has not demonstrated compliance to the New Zealand Building Code. Please inform your supplier to approach suitable testing agency to have the product assessed to NZS 4211³ and NZS 4284⁴ (*sic*). The former is the standard for windows and the latter is for the installation into buildings. The test has to cover the following.
- a) Weathertightness
 - b) Air leakage
 - c) Structural tests
 - d) Serviceability Deflection
 - e) Ultimate strength
 - f) Torsional Strength.
- 3.4.4 The applicants replied on 31 July 2017 with information about how the European standards related to the New Zealand standards.
- 3.4.5 On 4 August 2017, the authority emailed the applicants repeating its advice that the testing that had been done on the windows ‘still fall[s] short of Testing requirements under NZS 4211’, and suggested that the applicants should have the windows tested in New Zealand by an ‘independent accredited Testing Agent’.
- 3.4.6 The applicants queried this decision, as they believed that they had provided all the information needed to demonstrate that NZS 4211 had been met, and on 15 August 2017 sent the authority an email comparing the test values obtained under the European standard with those required by the New Zealand standard.
- 3.4.7 The authority replied on 16 August 2017, reiterating that, as the windows had only been demonstrated to comply with a ‘foreign standard’, they either needed to be assessed by an independent expert or tested in New Zealand to demonstrate compliance with the New Zealand Building Code.

3.5 The application for a determination

- 3.5.1 The applicants applied for a determination which was received by the Ministry on 11 September 2017.

³ New Zealand Standard NZS 4211: 2008 Specification for performance of windows

⁴ Australia New Zealand Joint Standard AS/NZS 4284: 2008 Testing of Building Facades

3.6 The authority's refusal to issue the amendment

3.6.1 On 12 September 2017 (and again on 26 November 2017), the authority sent the applicants a letter to advise under section 50 of the Act that it was refusing to issue the amended building consent, because it was not satisfied on reasonable grounds that the completed building work would comply with the Building Code. The specific reasons given for this decision were that:

- the applicants had decided to apply for a determination about the matter
- the work had 'already been completed on site' before the applicants applied for the amendment.

3.6.2 In the covering email, enclosing the above letter, the authority reiterated that the reason it was refusing the application for an amendment was because 'In order to proceed with the Determination, we have to refuse this Amendment Application'. With the letter, the authority enclosed a form entitled 'Request to cancel or withdraw a building consent'.

4. The submissions

4.1 The initial submissions

4.1.1 The applicants made a submission with their application for a determination. In their submission, they set out their view that there was no need for the windows to undergo additional testing, as the Building Code is performance based and the windows had already been tested by a 'reputable testing facility overseas'. They also stated that:

- this testing was 'at times' to 'higher test values and stricter norms' than applied in New Zealand, and covered all the requirements in NZS 4211 'with almost [directly] comparable values and tests'
- locally-sourced timber windows were fitted with hardware that was 'under dimensioned' for heavier double-glazing which was a recognised issue
- there were imported aluminium windows available in New Zealand that were tested to the same European standards as the subject windows: the imported windows were 'approved' as meeting NZS 4211
- all window and door heads sills, jambs and wall openings had passed the cavity and wrap inspections, and had been constructed in accordance with the Building Code
- the window frames were made of double-vacuum-treated Scots pine, and treated according to the Nordic wood preservation Class B, which is the equivalent treatment to H3.1 to H3.2⁵
- they were unable to find a company to independently assess or test the joinery, as suggested by the authority.

4.1.2 The applicants also provided further information around the 11 October 2016 and 18 May 2017 inspections, in emails to the Ministry dated 12 September, 13 September and 26 November 2017.

⁵ Timber treatment class to New Zealand Standard NZS 3602: Part 1: 2003 Timber and wood-based products for use in building

4.1.3 With their submissions, the applicants provided copies of:

- the plans for the building work
- correspondence with the authority, including their responses to the authority's requests for further information
- test results for the windows, and the manufacturer's product data for the windows
- an explanation of the standards that the windows had been tested to
- information relating to the windows' preservative treatment
- documentation relating to the authority's cavity and wrap inspection
- photos of the windows, as installed.

4.1.4 The authority acknowledged receipt of the application and on 18 September 2017 provided information from the property file in relation to the consent.

4.2 The draft determination and the responses received

4.2.1 A draft determination was forwarded to the parties for comment on 16 January 2018. The authority accepted the draft without comment on 23 January 2018.

4.2.2 The applicants accepted the draft subject to non-contentious comment on 26 February 2018; the submission included two inspection reports. The submission included the following comment (in summary):

- If the applicants had been advised that a formal amendment was required for the windows during the October 2016 inspection, this would have been applied for before continuing.
- Instructions and information from the authority was 'unclear at times'; the May 2017 site instruction contradicts comments made and items passed in the cavity and pre-line inspection records.
- The windows were not complete when the amendment was applied for because window reveals had not been fitted.
- The authority exercised flexibility by approving a cavity system as a minor variation. The applicants understood that 'the windows did not cause major concerns [to the authority] and could also be changed as a minor variation' (see paragraph 3.2).

I have considered the submission and amended the determination as appropriate.

4.2.3 In response to the applicants' contention that the installation of the windows was not complete because the reveals had not been fitted I note the following:

- The applicants' view appears to arise from the authority's May 2017 inspection instruction to the applicants that said 'can line inside of the building [but] do not fit reveals as amendment required for change of joinery' (refer paragraph 3.3.1).
- As noted herein (refer paragraph 6.2.5) a consent amendment is unable to be granted in respect of work that has already been carried out. While some aspects of the window's installation could be inspected with the reveals not fitted, this cannot address the compliance of the windows themselves as compliant building elements.

5. The expert's report

5.1 General

5.1.1 As stated in paragraph 1.5, I engaged an expert to assist me in this determination. The expert is a registered member of the New Zealand Institute of Architects. The expert reviewed the information provided by the parties and the relevant published industry standards, and conducted a site visit on 11 October 2017. The expert provided a report dated 22 November 2017. The parties were provided with a copy of the report on the same day.

5.2 Compliance

5.2.1 In his report, the expert reviewed the background to the windows being installed in the applicants' house. He noted that, with their application to the authority for an amendment to a building consent, the applicants had provided copies of the current Swedish Technical Approval that related to the manufacturer's windows, No. SC0270-09. This approval had been issued on 16 November 2013, pursuant to European Standard EN 14351-1⁶, which was after the windows being used by the applicants had been manufactured. As a result, the performance certification labels on the applicants' windows did not match this standard, but a previous one.

5.2.2 In response to a direct inquiry made by the expert the applicants had provided a copy of the earlier Swedish Standard SS 818103⁷, which the labels on the window did relate to. The applicants also provided a copy of an email from the windows' manufacturer, dated 30 October 2017, confirming that there had not been any 'bigger changes made on our window construction' in the period between the tests conducted to the earlier Swedish standard and the subsequent tests to the European standard.

5.2.3 This confirmation enabled the expert to make a comparison between the testing carried out under Swedish Standard SS 818103, the later tests carried out under the European Standard EN 14351-1 (leading to the Swedish Technical Approval SC 0270-09), and the requirements of New Zealand Standard NZS 4211:2008: the comparison is detailed in Appendix A. From this comparison the expert concluded that 'there is sufficient test data to conclude that the windows themselves will exceed the requirements of the [New Zealand Building Code]'.

5.2.4 With respect to Clause B2 Durability, the expert looked at the timber preservative treatment used on the windows. The windows are constructed from Scots pine, and as such, are an alternative solution to Clause B2. The product labelling on the windows indicates that they have been treated to Nordic Wood Preservation Standard Class B. This level of preservative treatment is lower than that of timber treated to Class H3.1 or H3.2 under New Zealand Standard NZS 3602⁸. However, the expert considered that there were several features of the wood and its treatment, and of the windows' construction, which compensated for this shortfall. These included that:

- the windows' treatment level complied with European Standard EN351-1 Class NP3
- Scots pine is a moderately durable timber even when untreated, and the Scots pine from Nordic countries is more durable than the same species grown in New Zealand

⁶ Standard: CEN - EN 14351-1 Windows and Doors – Product Standard, Performance Characteristics – Part 1: Windows and External Pedestrian Doorsets

⁷ Swedish Standard SS 818103 Windows - Classification with regard to function

⁸ New Zealand Standard NZS 3602: Part 1: 2003 Timber and wood-based products for use in building

- the windows had been painted
- the windows' joints had been treated with preservative after machining
- the windows were constructed with metal sill extensions and a metal extrusion at the bottom of the sill
- the windows had a history of use, due to the length of time that their manufacturer had been in business.

5.2.5 However, there were three small issues relating to the 'detailing' of the windows that required attention if the windows, as installed, were to continue to comply. These were:

- the metal sill extensions had spots of rust on their edges
- the sill extensions lacked a seal to the timber sill, which will provide a capillary path for water to wet the timber
- the sill extensions have a stop end, but no overlap between the stop end and the jamb extension, allowing windblown rain and rain rebounding from the sill to enter the cladding cavity.

The preservative treatment of the reveals and external trim used in the windows' installation also required clarification.

5.3 The parties' submissions on the expert's report

5.3.1 The applicants responded to the expert's report in an email to the Ministry dated 23 November 2017. The email confirmed that, 'The exterior reveals and architraves are all H 3.2 18mm gauged NZ pine. As specified on the drawings.'

5.3.2 The applicants also suggested ways that some of the other issues with the window detailing could potentially be resolved.

5.3.3 The authority did not make a submission in response to the expert's report.

6. Discussion

6.1 The applicants have asked for a determination about the authority's decision to refuse to issue an amendment to the building consent for the outbuilding that they are currently building on their property. I note that the application for an amendment related to several aspects of the building work, but that this determination is limited to the refusal in relation to the use of the timber window joinery.

6.2 The authority's refusal

6.2.1 As discussed in paragraph 5, I commissioned an expert to assist me in this determination. The expert was of the opinion that the authority acted correctly in refusing to issue an amendment to the building consent, as the documentation provided in support of the application did not demonstrate the windows' compliance with the Building Code, as an alternative solution.

6.2.2 I concur with this opinion. In particular, I note that the performance certification labelling on the windows did not match the information about the Swedish standards and testing regimes provided by the applicants. The authority raised this issue with the applicants in its correspondence, and was correct in these circumstances to ask the applicants to provide further verification that the windows did in fact comply.

- 6.2.3 Accordingly, I conclude that the authority acted correctly in refusing to issue the amended building consent. However, I note as an aside, that this was not one of the grounds cited by the authority in its letter of refusal; instead, the authority cited two other grounds.
- 6.2.4 The first of these was that the applicants had decided to proceed with a determination. I am unsure what the authority intended by this, as there is no compulsion to withdraw an application just because a party applies for a determination about a matter pertaining to it. The application can merely be put on hold pending the outcome of the determination. There is also no need for the applicants to lodge the “Request to cancel or withdraw a building consent” form provided with the refusal letter; the authority can simply decline to issue the amended consent.
- 6.2.5 The second ground given by the authority in its letter of refusal was that the work had already been ‘completed’, before the application for an amendment was made. This ground is correct. Under section 40 of the Act, buildings must not be constructed, altered, demolished, or removed without building consent. There is no capacity in the Act to grant a building consent for work that requires a consent, but which has been carried out on site before the amendment was granted.
- 6.2.6 In this situation, where the building work has been demonstrated to none-the-less comply with the Building Code, the only route available to an applicant is to apply for a certificate of acceptance under section 96 of the Act. This would have been the correct route for the applicants to pursue in the current case, given that they had already installed the windows at the time they applied for the amendment.
- 6.2.7 In this case it appears the authority requested that the consent amendment be sought after it had observed the installation of the windows: it is unable to require this. The more appropriate action would have been to either issue a stop work notice if the work has been in progress, or require the applicants to seek a certificate of acceptance in respect of any work that had been completed.

6.3 The windows’ compliance

The windows as building elements

- 6.3.1 I turn now to the question of the windows’ compliance with the Building Code. The windows represent an alternative solution, and it is for the applicants to demonstrate how they achieve compliance with the various clauses of the Building Code that relate to windows and their installation, namely Clauses B1, B2, and E2.
- 6.3.2 New Zealand Standard NZS 4211 is the Verification Method cited as a method for establishing the performance of windows in relation to Clause B1 – Structure (B1/VM1), and Clause E2 – External moisture (E2/VM1/AS1) of the Building Code. The authority considered the applicants had not shown that the requirements of NZS 4211 had been met.
- 6.3.3 After the applicants applied for a determination, they supplied further information about the Swedish and European standards that the windows have been assessed against, which was not available to the authority at the time it was considering their application for an amended consent. This additional information has enabled the expert to compare the testing under the Swedish and European standards (SS 818103 and EN 14351-1) with NZS 4211. The results of this comparison are shown in Appendix A.

6.3.4 The comparison demonstrates that all of the performance aspects of the windows that require consideration under NZS 4211 have been tested for under the Swedish and European standards, and the required test values met. Accordingly, I agree with the expert's opinion that there is now 'reasonable evidence' that the performance of the windows themselves will comply with the requirements of the Building Code, with regards to Clauses B1 and E2.

6.3.5 With respect to the windows durability I accept the analysis and opinion provided by the expert. While the treatment level for the Scots pine is lower than timber treatment class H3.1 or H3.2, this was compensated for by the following:

- the timber is moderately durable even when untreated,
- timber sourced from Nordic countries is more durable than the same species grown in New Zealand, and
- having the timber joints being been treated with preservative after machining, and the windows had been painted.

Taking these matters into account, I agree with the expert that the level of preservative that the windows have received will be adequate to achieve compliance with Clause B2 of the Building Code.

The windows' installation

6.3.6 Having determined that the window units themselves will comply, I must now look at their installation. The expert conducted a site visit of the building work, and considered that the windows' installation was 'generally to a good standard'. He did, however, note three minor issues, all relating to the sill extensions, which required rectification. These were:

- the coating, which had spots of rust on the edges
- the lack of a seal between the extensions and the timber sill
- the absence of an overlap between the sills' stop ends and the jamb extension.

These matters will need to be rectified if the windows are to continue to comply over the long term.

6.3.7 I note that the expert also raised a query about the treatment of the wood used for the windows' reveals and external trim, if any of this wood had been imported from Sweden. However, the applicants have since confirmed that this wood is all H 3.2 treated New Zealand pine, as shown on the plans submitted with the application for an amendment which is accepted as adequate.

6.3.8 I conclude that that the window's installation satisfies Clause B2 and E2 of the Building Code with the exception of the minor matters described in paragraph 6.3.6

7. What happens next

7.1 As the windows have already been installed, the applicants should now apply for a certificate of acceptance in relation to this work. The applicants will need to address the three outstanding matters that are currently affecting the windows' ongoing compliance, as detailed in paragraph 6.3.6.

8. The decision

8.1 In accordance with section 188 of the Building Act 2004, I confirm the authority's decision to refuse to issue the amended building consent in relation to the substitution of the aluminium windows with the timber windows based on the information it had at the time the application for the amended building consent was made.

8.2 I also determine that:

- the windows themselves comply with the Building Code with respect to B1 Structure, B2 Durability, and E2 External moisture, and
- the installation of the timber windows does not satisfy B2 Durability, and E2 External moisture.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 11 April 2018.

Katie Gordon
Manager Determinations

Appendix A

A.1 Table 1 from the expert's report: Comparison of window tests to New Zealand, European, and Swedish standards

A NZS 4211:2008 Issue	B NZS 4211:2008 Test value required Medium wind zone	C SS 818103 Class C achieved in test	D Outcome	E EN Standard	F EN Standard Classification achieved in test	G EN Standard Test value of classification or test	H Outcome
6 Serviceability deflection	1/200 max @ ±680Pa	less than 1:300 @700Pa	Complies with NZS 4211:2008: because the deflection is less than the maximum stated although the test pressure was higher.	EN 14351- 1 Clause 4.2	3C	Less or equal 1/300 @ 1200Pa (Test result less than 1/1000)	Complies with NZS 4211:2008: because the deflection is less than the maximum stated although the test pressure was higher.
7 Operating of opening sashes	90N Max. to initiate & sustain movement - projecting sash.			EN 14351-1 Clause 4.16	1	2.9Nm. The windows are 1.2m high, the pivot at the top, handle at the bottom. Operation force e is 2.9Nm ÷ 1.2m = 2.4N	Complies with NZS 4211:2008: because the operation force is less than the maximum stated
8 Air infiltration	8L/s/m ² of opening max & 2 L/s/m of joint max @ ± 150pa non air conditioned	Graph indicates less than 3m ³ /hr/m ² = less than 0.83L/s/m ²	Complies with NZS 4211:2008: - because the air infiltration is less than the maxima stated	EN1026	4	Test data to EN1026: 0.5m ³ /hr.m ² of opening & 0.3m ³ /h.m of joint at 150Pa equals: 1.8 L/s/m ² of opening & 1.08 L/s/m of joint at 150Pa	Complies with NZS 4211:2008: - because the air infiltration is less than the maxima stated
9 Water penetration	204Pa test pressure	Pass at 500 Pa test pressure	Complies with NZS 4211:2008: - because the window passed the at a higher pressure than required	test EN 1027 classificati on EN12208	Class 9A	Passed test at 600Pa	Complies with NZS 4211:2008: - because the window passed the at a higher pressure than required
10 Ultimate Strength	± 960Pa			EN 14351-1 Clause 4.17	2	1800Pa	Complies with NZS 4211:2008: - because the window passed the test at a higher pressure than required.
11 Torsional strength of sashes	(0.04 of shortest member of sash or 50mm whichever is smaller @ 0.5 of Operating force)						The windows are relatively small and very stiff compared to aluminium joinery when operated manually during the site investigation.