



Determination 2020/010

Regarding the compliance of openings in a first floor external wall with Building Code Clause F4 Safety from falling at 462 Moray Place, Dunedin



Summary

This determination considers the compliance of existing windows that are proposed as openings in the first floor of a building with respect to Building Code Clause F4 Safety from falling. The determination also considers whether the authority was correct to purportedly refuse to issue the building consent for this work.

1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004 (“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 Ministry¹.
- 1.2 The parties to the determination are:
 - the owner of the property, Tanner Investments (“the owner”), represented by an agent (“the agent”) who is also the project architect².
 - Dunedin City Council (“the authority”) carrying out its duties as a territorial authority or building consent authority.

¹ The Building Act and Building Code are available at www.legislation.govt.nz. The Building Code is contained in Schedule 1 of the Building Regulations 1992. Compliance and guidance documents issued by the Ministry, as well as past determinations, are available at www.building.govt.nz.

² The agent is a Registered Architect.

- 1.3 This determination arises from a dispute between the agent and the authority about the first floor openings that are left in an exterior wall (“the wall openings”) after the sashes are removed from existing double-hung windows. The agent considers that the safety from falling provisions of the Building Code should be applied to the opening as they are to windows.
- 1.4 The matter to be determined³ is whether the wall openings comply with Clause F4⁴ Safety from falling, specifically F4.3.4(b) and F4.3.4(g), and whether the authority was correct in purportedly refusing to grant a building consent in respect of this work.
- 1.5 I have not considered the compliance of the building work with any other aspects of the Building Code.
- 1.6 In making my decision, I have considered the submissions of the parties and the other evidence in this matter. I have not considered any other aspects of the Act or Building Code beyond that required to decide on the matter to be determined.

2. The building work

- 2.1 The agent applied for a building consent to convert the top level of a two-storey office building into four apartments.
- 2.2 The design of the apartments includes creating a “loggia”⁵ off the living areas of Apartments 1 and 4 in the south facing external wall. The loggia (as shown in Figure 1) is similar to a covered terrace that is open to the exterior; it is approximately 700mm in width and is accessed from each of the two apartments through sliding doors.

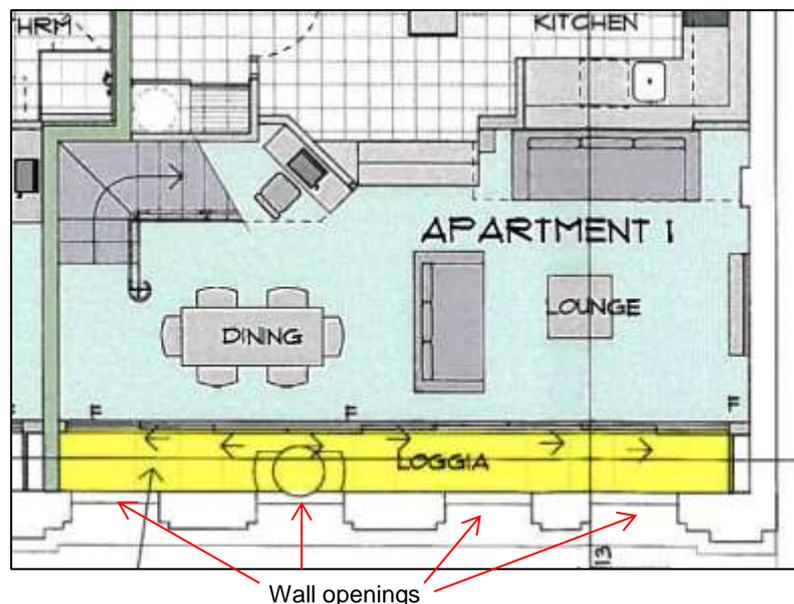


Figure 1: Apartment 1 plan (not to scale)

- 2.3 The proposed building work includes the removal of all existing timber sashes⁶ from the eight windows in the south-facing external masonry wall. The timber frame and

³ Under sections 177(1)(a), 177(1)(b), and 177(2)(a) of the Act.

⁴ In this determination, references to sections are to sections of the Act and references to clauses are to clauses of the Building Code.

⁵ A gallery or arcade having one or more of its sides open to the air.

⁶ For the purposes of this determination the sash is the part of the window that holds the glass and the framework around the glass to keep it in place. Window sashes are fitted into the window frame and may or may not be movable.

sill of the windows are to remain. The fall from the wall opening is over 1m in height. New stop beads are to be installed inside the existing frame to reduce the wall opening width to 995mm (refer Figure 3).

2.4 As shown in Figure 2, the height from the proposed loggia floor level to the top of the sill is approximately 772mm. The barrier to the wall opening, as it is proposed, consists of the wall below the opening and the sill. The sill has a height of 19mm and a depth of 65mm. The width of the timber frame is approximately 170mm and its thickness approximately 19mm. Formed into the wall is an external sill (“the external sill”) that slopes away at an angle for a distance of 720mm from the sill edge.

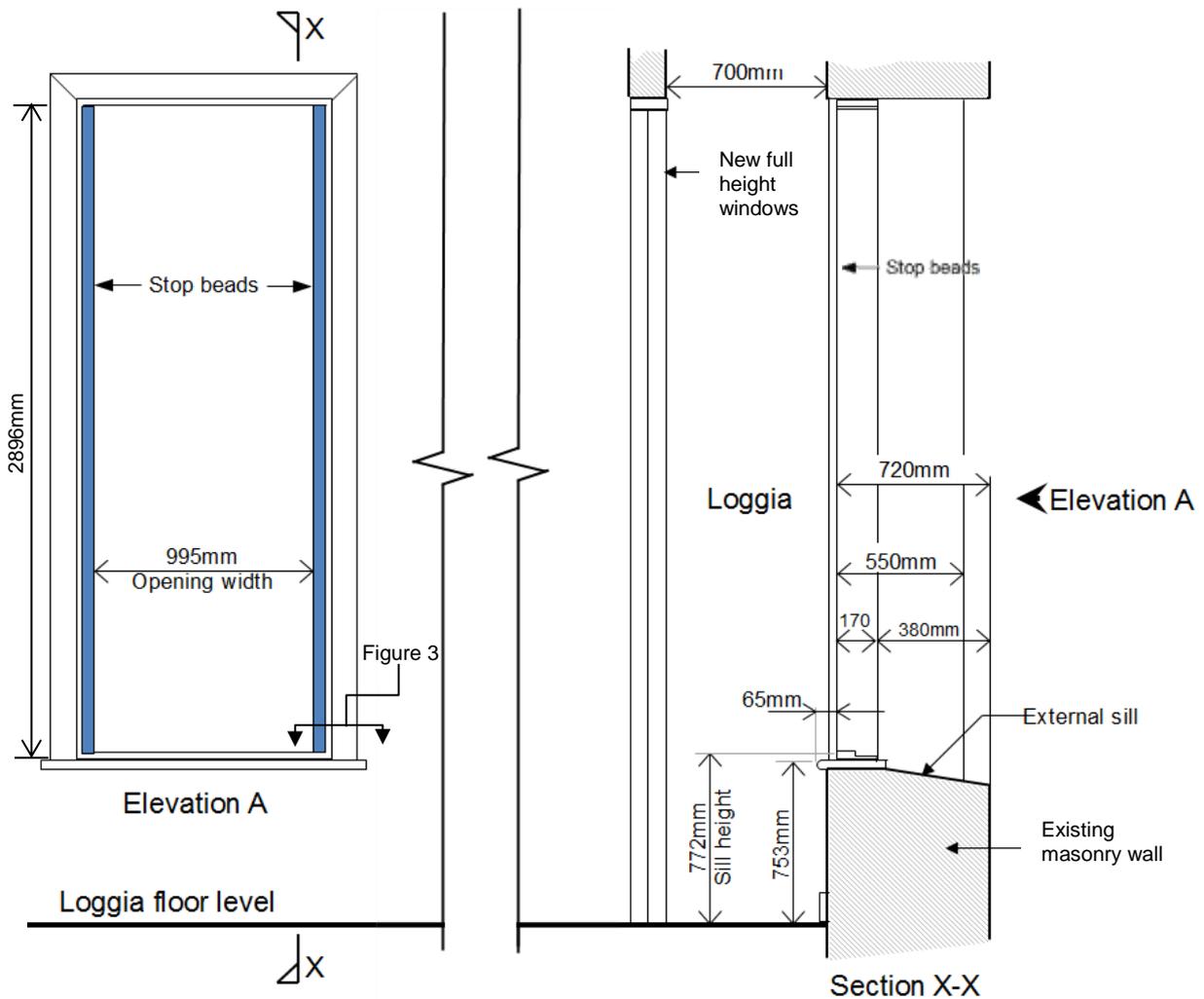


Figure 2: Wall openings (not to scale)

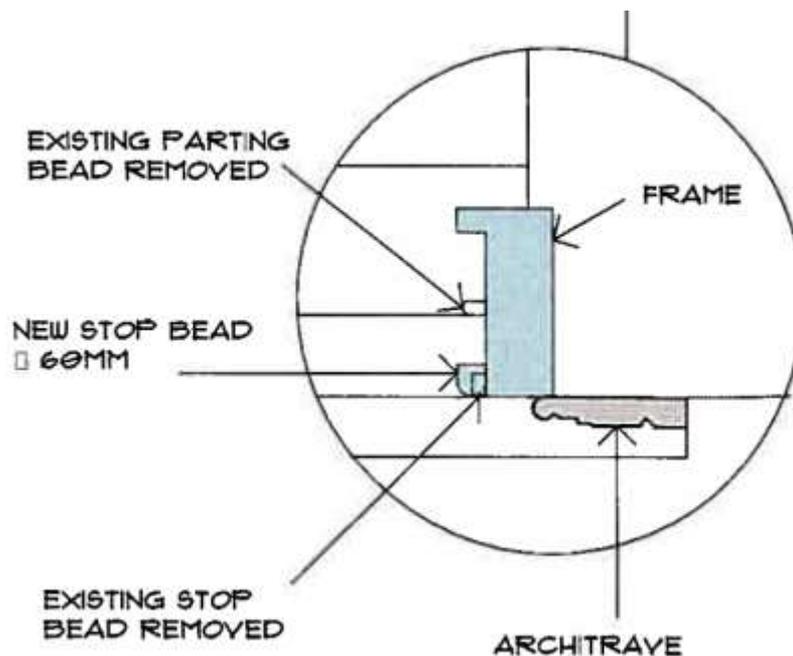


Figure 3: Window jamb detail (not to scale)

3. Background

3.1 On 27 August 2019 the authority wrote to the agent requesting (among other matters) further information regarding the wall openings:

Barriers required to openings in exterior walls that are below 1m in the apartments...

(I have not seen the agent’s response to the authority.)

3.2 On 8 October 2019 the authority sent another request for information:

[the authority still believes] that you cannot call them window openings with the window sashes removed and will require a barrier at 1m from the finished floor level. The definition of a window in the English dictionary is: an opening in the wall or roof of a building or vehicle, fitted with glass in a frame to admit light or air and allow people to see out.

3.3 In a response dated 10 October 2019 the agent provided the following comments in response to the authority (in summary):

- References were provided to show that a window is an “unobstructed opening in a wall, without any glass”. An architectural dictionary definition states a window is a hole or opening in a wall to allow light into the interior and ventilation of the enclosed space.
- The removal of a sash from a window aperture does not affect the continuing status of the aperture as a window.
- The window openings, with either the sashes open or removed have comparable opening width and sill height to the opening window provisions in F4/AS1⁷ paragraph 2.1.1.

3.4 The matter remained unresolved and the Ministry received an application for determination on 22 October 2019.

⁷ Acceptable Solution F4/AS1 Safety from Falling for New Zealand Building Code Clause F4

4. The submissions and the draft determination

4.1 The initial submissions

4.1.1 The agent provided a submission dated 15 October 2019 that included a background of the events, correspondence with the authority and selected copies of the architectural drawings. The agent submitted the following (in summary):

- The floor height in the apartments has been raised to allow people seated in the apartments to see a garden opposite the building.
- Etymology references and definitions of “‘window’ to prove they are still in fact windows even if the glass is removed”.
- The inclusion of the stop beads reduces the window opening to less than 1000mm, and if the sashes were to remain in place, the sill could be 760mm high and satisfy F4/AS1.
- Commentary in F4/AS1 states:
When a window opening width is less than 1000mm a sill height of 760mm is considered sufficient to protect older children and adults from falling through the opening. When the opening is wider than 1000mm the opening needs to be treated in the same way if it were a balcony...
- “...the window sash – either present or removed, has no bearing on compliance.”

4.1.2 The authority acknowledged the application on 30 October 2019 but made no submission in response.

4.2 The draft determination

4.2.1 The draft determination was sent to the parties for comment on 31 January 2020.

4.2.2 On 3 February 2020 the authority responded to the draft accepting the decision without further comment.

4.2.3 On 13 February 2020 the agent responded saying the decision of draft determination was not accepted and submitted reiterating past submissions (in summary):

- The wording in the Commentary to paragraph 2.1.1 of the current F4/AS1 aligns with the architectural dictionary definition of window.
- Determination 2002/04⁸ referenced in the draft determination is not relevant because it references a superseded Acceptable Solution.
- The Acceptable Solution F4/AS1 was presumably changed to acknowledge “that a person could prevent falling from such an opening by stretching their arms sideways and engaging with the wall alongside.”
- Additional drawings showing the comparison between the window open with its sash slid up to its full extent, and the sash removed, have no effect on the status of the “opening in the wall”.
- The absence of a window sash does not always make the window “imaginary or notional” as stated in Determination 2002/04. If the bottom sash is open (i.e. lifted) to its full extent it would be well above average adult head height and would have no effect on safety from falling.

⁸ Determination 2002/04 Safety from falling in an entertainment centre (16 May 2002).

- The existing window sashes could remain as opening windows and would remain a compliant barrier.

4.2.4 On 25 February 2020, and in response to the agent’s response, the authority submitted (in summary):

- Regardless of how a “window” is defined, the wall openings, all of which are one story above ground, are a potential danger to the building occupants.
- The wall openings are more dangerous than conventional windows, which can be closed by a parent at a “high risk time” and to intervene if a child attempted to open the window and climb out.

4.2.5 I have taken the submissions into account and amended the determination as appropriate.

5. Discussion

5.1 General

5.1.1 The authority and agent disagree on whether the wall openings can be classified as “windows” for the purposes of satisfying F4/AS1 and subsequently complying with Clause F4.

5.2 The legislation

5.2.1 The relevant performance requirements of Clause F4 are:

Objective

F4.1 The objective of this provision is to safeguard people from injury caused by falling.

Functional requirement

F4.2 Buildings shall be constructed to reduce the likelihood of accidental fall.

Performance

F4.3.1 Where people could fall 1 metre or more from an opening in the external envelope or floor of a building, or from a sudden change of level within or associated with a building, a barrier shall be provided.

F4.3.4 Barriers shall:

...

(b) Be of appropriate height,

...

(g) Restrict the passage of children under 6 years of age when provided to guard a change of level in areas likely to be frequented by them.

5.3 Acceptable Solution F4/AS1

5.3.1 One way to comply with the Building Code is to propose a design in accordance with an Acceptable Solution, which sets out prescriptive requirements for establishing compliance with the relevant provisions of the Building Code. An authority must accept compliance with an Acceptable Solution as establishing compliance with the Building Code.

Barrier height

5.3.2 The applicable Acceptable Solution for Clause F4 is F4/AS1. Paragraph 2.0 in F4/AS1 sets out the requirements for opening windows to satisfy F4/AS1 and paragraph 2.1.1 of F4/AS1 states:

In housing and areas of other buildings likely to be frequented by children under 6 years of age, a window with an opening width of less than 1000 mm shall have either:

- a) the lower edge of the opening at least 760 mm above floor level, or
- b) a restrictor fitted to limit the maximum opening so that a 100 mm diameter sphere cannot pass through it, or
- c) a 760 mm high barrier protecting the opening of solid construction or with vertical members its full height.

5.3.3 The lower edge of the opening is 772mm above the floor level and this height would satisfy paragraph 2.1.1 of F4/AS1 if the wall openings can be classified as an “opening window”.

5.3.4 I consider the apartments are likely to be frequented by children under 6 years of age. This means that if the wall openings cannot be classified as opening windows, a barrier height of not less than 1000mm is required to satisfy F4/AS1, as stated in Table 1 ‘Minimum Barrier Heights’ in F4/AS1, “Balconies and decks, and edges of internal floors or mezzanine floors”.

5.4 Can the wall openings still be considered windows?

5.4.1 The consideration of whether a wall opening could be treated as window has been discussed in Determination 2002/04⁹. That determination concluded that an opening in a wall cannot be treated as a window and I repeat the following relevant key points:

[Paragraph 6.7.3.2] ...the danger of falling out of a window is usually significantly different from the danger of falling off a balcony, at least partly because of the visible presence of the window.

[Paragraph 6.7.3.4] ...the opening protected by the barrier cannot be treated as being an imaginary or notional window. The fact that there was once a window there has no effect on the danger when the window is no longer there...accordingly the barrier did not comply with...F4/AS1.

5.4.2 I acknowledge that the context of building in Determination 2002/04 is different to this case. However, I concur with the conclusion reached in that determination; an opening in a wall cannot be treated as being similar to an opening window. I agree that whether there was a window in the past has no effect on the danger now that the window sashes have been removed. There is now a permanent opening.

5.4.3 I also note the heading to paragraph 2.0 in F4/AS1 is “Opening windows” and not “Openings”; the scope of this section also makes no reference to permanent openings.

5.4.4 Paragraph 2.0 in F4/AS1 refers to the possibility of a fall from an open window and provides measures to mitigate this, which includes the use of restrictors to minimise the degree a window can open. I consider that if the Acceptable Solution was intended to cover all openings, whether permanently open or openable, this section would refer to openings, and not opening windows.

⁹ Determination 2002/04 Safety from falling in an entertainment centre (16 May 2002).

5.4.5 I acknowledge that the agent has referred to specialist architectural dictionaries when considering the definition of a window. I also note the Oxford English dictionary defines a window as:

an opening in a wall or roof, fitted with glass in a frame to admit light or air and allow people to see out.

5.4.6 I am of the view the wall openings cannot be considered as “windows” for the purpose of F4/AS1. I have taken the text of the Acceptable Solution, both dictionary definitions of “window”, and the relevant points from Determination 2002/04 into consideration when reaching this conclusion.

5.4.7 As I have concluded the wall openings are not “opening windows” the openings would need to satisfy Table 1 of F4/AS1, which requires a 1000mm high barrier (refer paragraph 5.3.4). The barrier height at 772mm is insufficient to satisfy F4/AS1. Therefore, compliance with Clause F4 by way of Paragraph 2.0 of F4/AS1 is not achieved.

5.5 Compliance of the opening as an alternative solution proposal

Compliance with Clause F4.3.4(b)

5.5.1 Satisfying the requirements of an Acceptable Solution is one way but not the only way of achieving compliance with the Building Code. The Building Code is performance-based and allows for the use of different design methods than those detailed in the Acceptable Solutions.

5.5.2 F4/AS1 provides design solutions for barriers that would comply with Clause F4. However, other barrier designs that do not appear in F4/AS1 may achieve compliance, provided that the barrier elements are configured to meet the performance requirements of Clause F4.

5.5.3 The barrier did not satisfy F4/AS1 because the wall opening sill height at 772mm is lower than the required 1000mm height. The low height of the barrier would likely act as a fulcrum or pivot causing a person leaning against or moving into the barrier to topple over it if that person’s centre of gravity was above 772mm (as compared with 1000mm for a barrier that satisfies F4/AS1). In other words, unless there was some feature compensating for the lack of height, the barrier does not reduce the likelihood of accidental fall and safeguard people from injury caused by falling.

5.5.4 A feature that could be seen as a factor in mitigating for the lack of height is the 720mm width of the external sill located below the top of the wall opening. If a barrier were wide enough it would not be physically possible to fall over it (as distinct from a person climbing over it). Even at some lesser width, it would be possible for a person who started to fall over it to stop their fall by putting a hand on the top of the barrier.

5.5.5 However, as shown in Figure 2 the external sill is set down from the window frame by approximately 45mm and instead of being horizontal, is sloping down and away from the building. I consider the set down and slope reduce the effectiveness of the external sill in mitigating for the lower barrier height.

5.5.6 I note no other arguments have been presented to show the barrier to the wall opening complies with Clause F4. Therefore, I am of the view that the barrier to the wall opening does not comply with Clause F4.3.4(b).

Compliance of the wall opening with Clause F4.3.4(g)

- 5.5.7 I have also considered whether the barrier to the wall opening complies with Clause F4.3.4(g). This is due to the fact the apartments are likely to be frequented by children under 6 years of age.
- 5.5.8 Determination 2010/014¹⁰ described how children can climb over solid barriers by holding onto the top and gaining a friction grip with one shoe on the vertical surface by arching their body outwards. Children older than four years of age usually have enough arm strength to climb almost any 1000mm barrier simply by pulling themselves up and rolling over the top.
- 5.5.9 In this case, the sill itself, the skirting board, the architrave all act as points a child could either grip or use as projections to assist in climbing the barrier. The width of the external sill could also assist a child in climbing the barrier. These climbing points combined with the low sill height will not restrict the passage of children under 6 years of age. Therefore, I consider the wall opening height would also fail to comply with Clause F4.3.4(g).

5.6 The change of use and section 115

- 5.6.1 The building appears to have undergone a change of use from a use related to working, to a use related to sleeping activities, as set out in the Building (Specified Systems, Change the Use, and Earthquake-prone Buildings) Regulations 2005. Therefore, I consider it important to provide comment on the provisions of section 115 for the agent and authority to consider should the sashes remain in place and the window width is unchanged, as referred to by the agent.
- 5.6.2 Section 115(a) states:
- in a case where the change involves the incorporation in the building of 1 or more household units where household units did not exist before ...in its **new use, will comply, as nearly as is reasonably practicable, with the building code in all respects**;...
- (my emphasis)
- 5.6.3 Section 115(b) states:
- (b) in any other case, unless the territorial authority gives the owner written notice that the territorial authority is satisfied, on reasonable grounds, that the building, in its new use,—
- ...
- (ii) will,—
- (A) if it complied with the other provisions of the building code immediately before the change of use, continue to comply with those provisions; or
- (B) if it did not comply with the other provisions of the building code immediately before the change of use, continue to comply at least to the same extent as it did then comply.
- 5.6.4 Should the sashes remain in place, the authority would need to consider the provisions of section 115. As it appears new household units are being incorporated where none were before section 115(a) would seem to apply. The building in its new use would need to comply with all the clauses of the Building Code, as nearly as is reasonably practicable, including Clause F4.

¹⁰ Determination 2010/014 Safety barriers surrounding a swimming pool area (25 February 2010).

5.6.5 Should section 115(a) not apply, the building work would still be subject to section 115(b)(ii). The loggia floor level is proposed to be raised, so compliance of the sill height would be worse than before and the sill height would not satisfy section 115(b)(ii)(B). Therefore, even if the sashes remain in place further work may be required to achieve compliance under the provisions of section 115.

6. The decision

6.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the wall openings do not comply with Clauses F4.3.4(b) and F4.3.4(g) of the Building Code, and the authority was correct in purportedly refusing to grant the building consent, and I confirm that decision.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 16 June 2020.

Katie Gordon
Manager Determinations