



Determination 2018/032

Regarding open risers in an existing building undergoing alterations at 13B Wall Place, Kenepuru, Porirua

Summary

This determination considers the authority's refusal to grant an amendment to a building consent for alterations. The applicant seeks to remove the requirement to close risers to the single set of stairs providing access to the upper level. The determination discusses the application of section 112(1)(a) in the circumstances, and the assessment of compliance with Clause D1 Access routes to the extent "as nearly as is reasonably practicable".



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 this determination are:
 - the owner of the building, Sterling Capital Ltd ("the applicant"), acting through the project architect ("the architect")
 - Porirua City Council ("the authority"), carrying out its duties as a territorial authority or building consent authority.
- 1.3 I consider the current tenant to be a person with an interest in this determination.
- 1.4 I have also consulted with the Office for Disability Issues ("ODI") at the Ministry of Social Development, as required under section 170 of the Act.
- 1.5 The determination arises from a dispute regarding open risers to a single flight of stairs in an existing building. The building consent for recent alterations included closing the risers. The applicant then applied for an amendment to the building consent to limit the scope of works i.e. to not close the risers, and the authority has

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.

refused to grant that amendment. The authority maintained the view that leaving the stairs with open risers would mean that the alterations do not comply to the extent required under section 112(1)(a)².

- 1.6 The matter for determination³ is the authority's exercise of its powers of decision in refusing to grant an amendment to the building consent. In making this determination I must consider whether the building after the alteration and without closing the risers will comply with Clause D1 Access routes (First Schedule, Building Regulations 1992) to the extent required by section 112 of the Act.
- 1.7 In making my decision, I have considered the submissions of the parties and the other evidence in this matter. I have not considered compliance with any other aspects of the Act or other clauses of the Building Code.
- 1.8 The relevant sections of the Act, clauses of the Building Code and paragraphs of the Acceptable Solution referred to in this determination are set out in Appendix A.

2. The building work and background

- 2.1 The two-storey building was designed in 1967 as a research laboratory for the New Zealand Portland Cement Association and showcases concrete construction technologies of that time.
- 2.2 The applicant purchased the building in 1999. The stair that is the subject of this determination has been retained from the original design; it was precast with concrete treads and a central stringer supporting the stair treads.
- 2.3 The stair forms the only access between ground level and the upper floor and is the means of egress in an emergency. The tread is 280mm and the minimum going is 256mm, riser height is 170mm and pitch is 35° (see Figure 1)⁴.
- 2.4 In 2014, as part of alterations to the building for earthquake strengthening, balustrades, graspable handrails, and contrasting nosing were added to the stair to improve its level of compliance with the Building Code.
- 2.5 On 7 September 2015 the architect applied for building consent for alterations on behalf of the owner. The alterations included extending the mezzanine floor, demolition of some existing internal walls, removal of an external window, construction of an internal wall and installation of cabinetry in a kitchenette. The consent application states the value of the works as \$50,000.
- 2.6 The building consent application identified the Acceptable Solution D1/AS1, as the means of compliance for Clause D1 - Access routes, but did not incorporate closing the risers to the stairs.
- 2.7 On 29 September 2015 the authority sent a request for information to the architect. In regards to the stairs the authority stated:

These stairs MUST be compliant (also noted in the fire report) as is on the accessible route – No open risers are permitted in compliance with NZBC D1.1c, D1.3.1c, D1/AS1 – 4.1.8b and NZS4121:2001⁵ – C8.1.1. Please provide details on method of installing closed risers to the stair.

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)(a) of the Act

⁴ Measurements vary between individual stairs – refer figure 1.

⁵ New Zealand Standard NZS 4121:2001 Design for Access and Mobility – Buildings and Associated Facilities

- 2.8 On 14 October 2015 the authority wrote to the architect regarding the stairs, showers, and illuminated exit signs/emergency lighting. The authority set out its view on the stairs as follows:

The proposal to keep the stair risers open does not comply with [Clause C4.2 or D1]. I noted (*sic*) this stair was considered ANARP previously when the other stair components were installed as part of the seismic upgrade circa (2014).

[The authority suggests] the open risers can be closed for example with the addition of sheet metal or timber components and while this may not be straight forward and may not be continuous but will make the stairs usable as the leg/foot can be dragged using the closer as a guide. ...

I am of the belief that the sacrifices (cost) do not outweigh the benefits of installing closers. ...

- 2.9 On 28 October 2015 the architect modified the proposal, submitting a sketch of proposed closers. The closers consisted of steel sheet folded to suit the tread form (“the closer”) – see Figure 1 below – to be installed 95mm in from each side.
- 2.10 The detail was accepted by the authority and approved as part of building consent no. BCA0431/15.

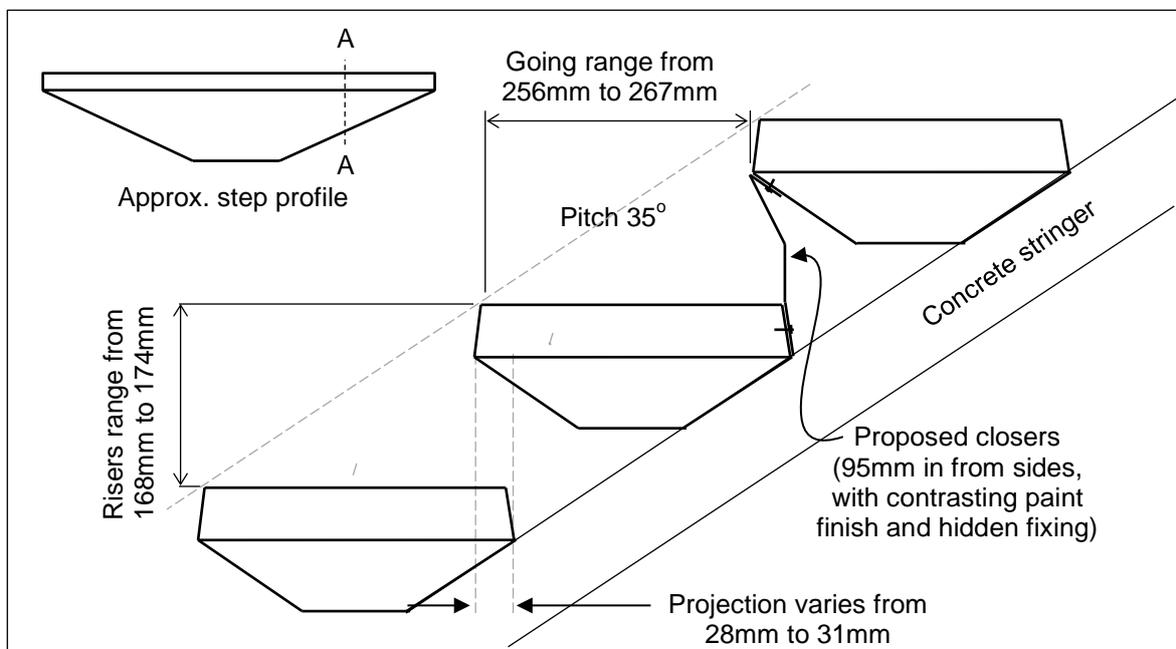


Figure 1: Sketch of stair A-A including closer (as proposed in building consent⁶)

- 2.11 The architect then sought the advice of a firm of architectural and structural engineers (“the engineer”) regarding closing of the stair riser. In a letter dated 15 March 2016 the engineer stated:

... the reinforcing steel at both nosing and rear of each tread has been placed with very tight concrete cover dimensions.

In our opinion, the fixings of front or rear mounted “closers” will run the risk of splitting concrete off corners, or failing to achieve suitable penetration.

- 2.12 In April 2016 the tenant wrote to the authority regarding the closers and requested the authority agree the stairs were safe and functional as is and further work was not required.

⁶ It is unclear how the designer intended the fixing at the top to be installed if the sheets were pre-formed.

- 2.13 The building work was carried out with the exception of closing the stair risers. The applicant applied to the authority to amend the building consent to remove the building work to close the stair risers.
- 2.14 In a letter dated 1 June 2016 to the architect, the authority refused to grant the amendment and stated its view that without the closers the building work did not achieve the requirement to comply 'as nearly as is reasonably practicable' (in terms of section 112 of the Act). The authority also noted that the tread size, which it stated was 290mm, does not meet the size set out in Acceptable Solution D1/AS1⁷ for Accessible Stairs. The authority suggested a design solution and stated its view that the sacrifices to achieve compliance did not outweigh the benefits of installing the closers.
- 2.15 In regard to the engineer's rationale for not using screw fixings to the stairs, the authority noted there were other options available. The authority remained of the view that an appropriate adhesive was a reasonable and cost effective solution and that the material used could be acrylic or some other material fit for purpose. The authority outlined three options it considered were available in the circumstances:
1. Close stair risers (amended to make allowance for engineers info)
 2. Install a second stair [compliant with] D1/AS1
 3. Apply [for a] determination.
- 2.16 An application for a determination was received by the Ministry on 10 November 2017.

3. The submissions

3.1 The initial submissions

- 3.1.1 The application for determination was supported by a submission from the architect and copies of the following documents:
- The letter from the authority dated 1 June 2016 refusing to grant the amendment.
 - The letter from the engineer dated 15 March 2016, with a copy of the original construction detail.
 - Photographs of the existing stairs and the building.
 - A copy of the original drawings of the stairs, and drawings provided to support the building consent.
 - The letter from the tenant to the authority dated 11 April 2016.
- 3.1.2 The applicant holds the view that the amendment to the building consent to omit the closing of the stair risers should be granted and the stair complies to the extent required under section 112. The architect submitted the level of non-compliance is minimal and:
- in an emergency the direction of travel would be downward and the omission of a closed riser would make little difference to the functional performance of the stair

⁷ Acceptable Solutions and Verification Methods For New Zealand Building Code Clause D1 Access Routes
Ministry of Business,
Innovation and Employment

- the requirement for the closers was not reasonably practicable given the design, the limited scope of the building work, and the relatively low value of the building work, nor would it be feasible to install an additional second stair for the same reasons and due to the building layout
- upgrading the stair would be complex and likely costly – no durable solution has yet been found.

3.1.3 In response to questions put by the Ministry, the architect made a further submission on 17 November 2017 and provided a detail drawing of the closers that had been included in the building consent application. The architect noted: ‘as the solution moved from sketch design to construction documentation it became apparent that the proposal was fraught with difficulty in both design and installation’. The engineer had reviewed the proposed solution and identified that the position and cover of the reinforcing meant it was at risk of damage should the closers be installed. The engineer advised that mechanical fixings are not suitable and an adhesive solution ‘has issues with durability’.

3.2 The first draft determination and submissions received in response

3.2.1 A first draft of this determination was issued to the parties for comment on 19 December 2017. No information had been provided on the cost of installing the closers, or what other investigations had been undertaken regarding the design of closers, or any justification of the view that adhesive fixings would not be a durable solution. The first determination concluded that based on the information provided the authority had correctly exercised its powers of decision.

3.2.2 The authority did not acknowledge the application for determination or make a submission in response to the draft.

3.2.3 The ODI were provided a copy of the draft on 2 March 2018. In a response on 16 March 2018 the ODI advised it supported the decision in the draft, noting:

...disabled people should have the right to access public buildings on an equal basis to others, and [the ODI] promote the use of Accessible Stairs [in accordance with] D1/AS1 and NZS 4121. Without complying with these accessibility standards, 24 per cent of the population who have some kind of impairment, could be restricted or prevented from using this building now or in the future.

3.2.4 The architect provided a submission on 16 March 2018, saying, in summary, that:

- The architect disputes that the nature and duration of the current tenant should be dismissed; the tenant is a fieldwork team using the facility as a base.
- The estimate for fabrication and installation cost for the closer option investigated is in excess of \$6,000 + GST, which is more than 10% of the fit out cost. It would create an imbalance of benefit vs cost sacrifice and for this reason it is considered not reasonably practicable to install closers to the existing stairs.

3.2.5 The current tenant was provided a copy of the draft on 20 March 2018. The tenant responded on 29 March 2018, advising that as the ‘lead tenant’ they had been in the property for approximately two years and they supported leaving the stairs “as is”. The tenant also noted that there had not been any ‘injuries, near misses or falls on the staircase’ in that time.

3.3 The site visit, the second draft determination, and submissions received in response

3.3.1 On 16 April 2018, three officers of the Ministry carried out a site visit to view the stairs. Measurements were taken of some steps, with details and variations recorded as follows:

- Tread: 280mm
- Projection: 28mm to 31mm
- Going: 257mm to 267mm
- Riser height: 168mm to 174mm
- 16 Risers
- Pitch 35°
- 900mm distance from bottom stair to internal roller door
- Width between graspable rails: 1160mm.

3.3.2 The officers observed:

- restricted security card access to the building
- no reception on the ground floor; visitors are required to sign in on the first floor
- installing a compliant set of stairs with the top stair in the current location would mean the bottom stair was close to or beyond the location of the internal roller door
- a staff member of the tenant wearing a lower leg support using the stairs – the length of the support sole was approximately the length of the tread, meaning as the user placed the centre of their foot on the tread when ascending, the toe was under the projection
- other staff members using the stairs – their heels (when moving up the stairs) and toes (when moving down the stairs) overhang the tread, with some people angling their feet to mitigate for the small tread.

3.3.3 On 8 May 2018 a second draft of this determination was issued to the parties, the ODI, and the current tenant for comment. The second draft took into account the information provided by the architect and the observations of the Ministry officers, and concluded that the authority had correctly exercised its powers based on the information it had before it at the time, but reversed the authority's decision on the basis of the information now available.

3.3.4 By email on 14 May 2018 the architect accepted the findings of the second draft determination and made no further submission.

3.3.5 The authority initially responded to the second draft determination by email on 14 May 2018, noting that it considered the decision did not uphold section 118. The authority provided copies of:

- certificates of public use dated 30 November 2015 and 7 June 2017
- a building consent processing check-sheet, which noted the stairs were not compliant as accessible stairs

- a ‘complete fire checklist form’ which collated comments in relation to a request for information, with comment from the authority.
- 3.3.6 The authority advised that it had its decision to refuse to grant the amendment peer reviewed at the time, and remained of the opinion that the only reasonable alteration that can be made to the stairs to bring them closer to compliant is to install the closers and that this would meet the test of compliance as nearly as reasonably practicable. The authority also submitted:
- when assessing the stairs as a means of escape the authority used Acceptable Solution C/AS5⁸ paragraph 3.1.4, which requires compliance with D1/AS1
 - it considered the sacrifice versus the benefit to be suitable taking into account the use of the mezzanine floor and cost and extent of the building work
 - the authority considered the extent of the work, and ‘the trade-off was to leave the non-compliant accessible toilet to the ground floor unaltered as the stairs were the prevailing “non-compliance” in line with section 118. The ground floor toilet has been considered usable and alteration would include plumbing and building work in an area largely untouched for this project’.
- 3.3.7 The authority stated it was unconvinced that there was not a viable solution and sought an extension of time in which to supply more information.
- 3.3.8 The authority provided a further submission and additional documentation on 11 June 2018, including:
- the application for building consent
 - requests for information dated 29 September and 14 October 2015
 - drawings, including a sketch of the proposed closers
 - the ‘Building Consent Processing Checklist [Major]’, and ‘Complete File Checklist Form’
 - a peer review by an officer from another building consent authority
 - correspondence from the architect dated 28 October 2015.
- 3.3.9 In its submission the authority noted that the extension of the mezzanine increased the number of people occupying that part of the building, which in consequence increased the use of the stairs. The authority is of the view that closing in the risers ‘is desirable and possible and has not been fully explored’.
- 3.3.10 The ODI provided a submission on 22 May 2018 in response to the second draft (in summary):
- The ODI “would expect that best practice accessibility is followed from NZS 4121 and D1/AS1”.
 - “... there would be great benefit gained in installing the closers to provide for disabled people to use the building on the same basis as others.”
 - While the cost of the work may be unreasonable now, the opportunity for accessibility has been lost for future occupants of the space.

⁸ C/AS5 Acceptable Solution for Buildings used for Business, Commercial and Low Level Storage (Risk Group WB) For New Zealand Building Code Clauses C1-C6 Protection from Fire

- The ODI would have liked to see more effort to explore other alternatives such as adhesive fixings to test whether a cheaper solution could be provided.

3.3.11 No further submissions were received from the tenant.

4. Discussion

4.1 Section 112 and its application to this building

4.1.1 Central to this dispute is the interpretation of the requirements of section 112(1)(a) of the Act. Section 112(1)(a) of the Act provides:

112 Alterations to existing buildings

- 1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—
 - (a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to—
 - (i) means of escape from fire; and
 - (ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118);

4.1.2 It is not disputed that this is a building to which section 118 applies.

4.1.3 The architect says that the people who work on Level 1 are field staff, and due to the physical nature of their role they are able to use the stairs. In addition, the building is not able to be accessed by general members of the public. The architect contends that the stairs therefore do not require closers as the upper level will not be accessed by people with disabilities.

4.1.4 I accept that in some circumstances occupants of a particular building will be required to be fully fit and able due to the nature of their work. In circumstances where a building is specifically designed for a particular use that requires occupants to be fully fit and able, what is considered “reasonable and adequate” access for the purpose of clauses concerning access for people with disabilities may differ.

4.1.5 For example, Determination 2005/166⁹ considered whether a lift was required as part of additions to a meat processing plant. The building had a particular use and access to and within the building was restricted to only employees that were required by their role to be physically fit and able. In that case people with disabilities would not be reasonably expected to work in or visit those areas of the factory. Accordingly, those clauses of the Building Code relating to access for people with disabilities would not apply in respect of those areas.

4.1.6 However, I do not consider that to be the case in this instance. While staff of the current tenant are generally fit and able due to the nature of their work, I must consider the matter in terms of the life of the building and not just the current tenancy. The building is an office building and has not been designed with a particular use where occupants by the nature of their employment must be physically fit and able. I conclude therefore that the requirements of section 118, section 112(1)(a)(ii) and the relevant clauses of the Building Code that concern access by people with disabilities apply in this case.

⁹ See Determination 2005/166 Regarding access for people with disabilities to the upper floor of a beef processing plant (19 December 2005)
 Ministry of Business, Innovation and Employment

4.2 The Building Code

- 4.2.1 The Building Code prescribes functional requirements for buildings and the performance criteria with which buildings must comply in their intended use (section 16 of the Act). The relevant clause of the Building Code in this case is Clause D1 – Access routes, and the relevant objectives of the provision are to safeguard people from injury during movement into, within and out of buildings and to ensure that people with disabilities are able to enter and carry out normal activities and functions within buildings.
- 4.2.2 The matter before me concerns the authority’s refusal to grant an amendment to the consent to remove the stair closers from the approved building work. This is only related to the stair’s compliance with access for people with disabilities: the closers provide no benefit in terms of means of escape from fire to building users exiting the building in the event of a fire.

4.3 Assessment methodology for an alteration

- 4.3.1 The purpose of section 112 is to trigger the upgrade of existing buildings over their lifetime when alterations are being carried out in order to raise the level of compliance to current standards or at least to ‘as nearly as is reasonably practicable’ to current standards.
- 4.3.2 The first step in assessing a proposal involving an alteration is to establish which Building Code clauses are relevant (see Appendix A). The second step is to assess the current compliance of the existing building to identify any non-compliance with the relevant clauses, and then to establish what would be required to bring the building into compliance. For the purpose of this discussion I have focussed on only Clause D1 as I have already concluded that the closers would provide no benefit in relation to means of escape from fire (Clause C4).
- 4.3.3 There has been some discourse between the parties as to the classification and compliance of the stairs generally in comparison with the Acceptable Solution D1/AS1. I make the following observations in relation to the existing stairs (which are the only means of access between the two levels) and level of compliance by comparison with the Accessible Stairs as described in D1/AS1 and NZS 4121:

	D1/AS1	NZS 4121	Existing Stairs
Minimum tread (mm)	310	310	280
Maximum pitch (deg.)	32°	-	35°
Maximum riser (mm)	180	180	174
Maximum tread projection	25	25	31

- 4.3.4 I note that as part of previous alterations to the building (circa 2014), balustrades, graspable handrails, and contrasting nosings were added to the stair to improve its level of compliance with the Building Code.
- 4.3.5 In terms of access and facilities for people with disabilities, the existing stairs do not comply with the following clauses:
- D1.3.3(b) – be free from dangerous projections
 - D1.3.3(f)(i) – have adequate footing
 - D1.3.4(g) – stairs not having open risers

Dealing with each of these clauses in turn:

Dangerous projections

- 4.3.6 The stair has a maximum tread projection of 31mm, an open riser, and a tread with a 35° return angle¹⁰ under the tread at its centre (the treads taper in depth so the return angle is in effect 90° at the edges of the stair). This configuration can allow a foot to be caught under the tread when going up the stairs (refer Figure 13 in D1/AS1). This matter can be improved though the installation of closers, as described in the building consent.

Adequate footing

- 4.3.7 The stair tread is 280mm, which is 30mm less than the 310mm prescribed in D1/AS1 and NZS 4121. I consider the tread does not provide adequate footing as required by Clause D1.3.3(f)(i). Given the present configuration of the stairs, this matter can only be resolved by installing a new flight of stairs. As the building consent was issued based on a proposal to alter rather than replace the stairs, I must assume the matter of whether it was reasonably practicable to replace the stairs to achieve compliance was assessed by the authority.

Open risers

- 4.3.8 The stair has open risers and accordingly does not comply with Clause D1.3.4(g).

Uniform riser

- 4.3.9 Although not considered in paragraph 4.3.5, the stairs are also required to have a uniform rise (refer Clause D1.3.3(f)(ii)). Paragraph 4.1.3 of D1/AS1 allows a tolerance of ± 5 mm in riser height (being a total variation of 10mm) in one stair. A variation of 6mm was recorded in the 5 riser heights measured during the site visit (168mm to 174mm); and while not all 16 risers were measured, there was not a noticeable variation in riser height when using the stair. I consider this feature of the stair is compliant.

4.4 Compliance as nearly as is reasonably practicable

- 4.4.1 Section 112(1) provides for compliance “as nearly as is reasonably practicable”. In keeping with previous determinations addressing the “as nearly as is reasonably practicable” test under section 112, I refer to Determination 2006/040¹¹ and the interpretation of the words ‘as nearly as is reasonably practicable’ adopted by the High Court in *Auckland City Council v New Zealand Fire Service* [1996] 1 NZLR 330 (an appeal against Determination 93/004¹²) in that it was held:

[Whether any particular item of upgrading is required] must be considered in relation to the purpose of the requirement and the problems involved in complying with it, sometimes referred to as “the sacrifice”. A weighing exercise is involved. The weight of the considerations will vary according to the circumstances and it is generally accepted that where considerations of human safety are involved, factors which impinge upon those considerations must be given an appropriate weight.’

- 4.4.2 I therefore consider that the question of compliance as nearly as is reasonably practicable involves balancing the benefits of any particular item of upgrade against the costs or sacrifices of installing that item.

¹⁰ Figure 13 in D1/AS1 says the return angle is to be 60° minimum.

¹¹ Determination 2006/040 Requirement for a lift in Building 4 (17 May 2006)

¹² Determination 93/004 Means of escape from fire in the conversion of an office building to an apartment building (5 November 1993)

- 4.4.3 In terms of section 112(1)(a)(i), I agree with the applicant that the closers, or lack of, would have no effect on compliance with the provisions of the Building Code that relate to means of escape from fire – in a fire event people would be descending the stairs and whether or not closers are installed will not alter the level of compliance of the existing stairs in that respect.
- 4.4.4 I must consider also whether the proposed amendment will comply with the provision that concerns access for persons with disabilities in section 112(1)(a)(ii).
- 4.4.5 As discussed in paragraph 4.3.1 above, the purpose of the requirement in section 112(1)(a)(ii) is to upgrade an existing building as part of consented alterations to improve access for people with disabilities who are expected to work in or visit that building.
- 4.4.6 The matter at issue is upgrading the stairs through the addition of closers to meet the requirements of D1.3.3(b) and D1.3.4(g). The benefits in relation to ambulant people with disabilities using stairs with closers are explained in the commentary to paragraph 4.1.8 of D1/AS1, and in the commentary to section 8.1.1 of NZS 4121 (Refer Appendix A.4) – solid (or closed) risers:
- assist people with a variety of ambulatory disabilities to guide the foot up the riser to the next step and maintain balance while doing so
 - are used to locate crutches and other similar walking aids
 - assist those who are prone to dizziness or vertigo.
- 4.4.7 I note there are no other benefits in closing the risers in respect to other features of the stairs discussed in paragraph 4.3.5 that are not compliant.
- 4.4.8 The applicant has received advice from an engineer that the closers as proposed with mechanical fixings (see Figure 1) ‘will run the risk of splitting concrete off corners, or failing to achieve suitable penetration’. I accept that the reinforcing steel closely adjacent to the front and rear faces of the treads will limit the ability to install mechanical fixings at these points. The architect is also of the view that using adhesive fixings would not be a durable solution and not practically feasible. In regards to the option set out by the authority to amend the design of the closers, the architect stated:
- As the application [for amendment to the building consent] was related to not closing the risers we considered that we had already investigated the feasibility of this option.
- 4.4.9 I have received no information from the architect as to what investigations were undertaken, or any justification of the architect’s view that adhesive fixings would not be a durable solution.
- 4.4.10 Aside from whether it is possible to achieve a feasible design solution, the architect has submitted the sacrifices involved in the installation of the closers are:
- the upgrade would be complex and would be out of proportion with the scope of the alterations
 - the cost is estimated to be in the order of 10% of the cost of the alterations
 - the level of non-compliance is “minimal”.
- 4.4.11 The estimated cost of installing the closers had not been quantified at the time the application for amendment was made, nor was any information on alternatives that the architect investigated presented to the authority. On that basis, I consider the

authority correctly exercised its powers of decision in refusing to grant the amendment to the building consent.

4.4.12 However, during the course of the determination the architect has provided an estimate for fabrication and installation of closers that was proposed for the purpose of obtaining the building consent. I note that the fabrication of the closers would be adversely impacted by the risers not being uniform, but more notably by the somewhat complex form of the underside of the treads which tapers in profile along its length. I also note that the closers as described in the approved consent do not provide a buildable solution.

4.4.13 Although the solution that formed part of the approved consent is considered unworkable I am of the opinion there are other solutions available to the owner that could have been further explored. For example, one possible solution consists of folded metal secured using adhesive sealant as described below (refer also sketch in Figure 2):

- limiting the width of the closer to the central portion¹³ of the stair
- securing a folded return at the bottom edge of the closer to the top of the 400mm wide stringer at the rear of each tread (the closer could run past the edges of the stringer)
- securing a folded return at the top edge of the closer to the underside of the tread above (and a maximum 25mm back from the front edge of the tread).

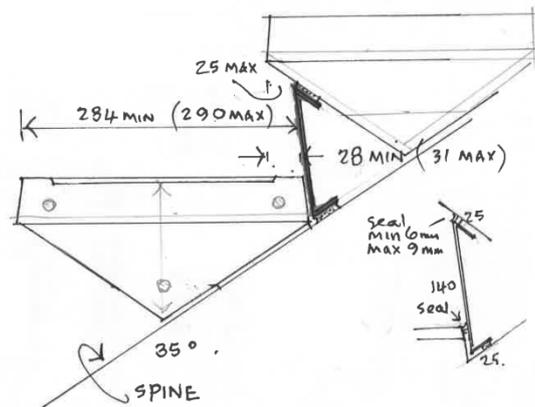


Figure 2: Sketch of possible closer solution using folded sheet metal

4.4.14 The above may provide a workable solution and informs my conclusion that a feasible solution, whether this or another one, could be designed to close the risers. As noted in paragraph 4.4.8, the architect considers an adhesive sealant used in this situation would not be sufficiently durable; however, the sealant fixings can be configured so they are in compression when impacted by foot traffic which would provide a more durable solution.

4.4.15 Whether such a solution can be justified rests on its cost against the benefit to be gained: i.e., the cost of any solution may still be significant when compared to the overall cost of the alterations when set against the minimal benefit to be gained in this case.

¹³ Figure 17 of Acceptable Solution D1/AS1 shows the “walking area” on a stair to be 300mm away from the handrail.

4.4.16 In this case I have considered:

- the limited occupancy of the upper level
- the limited benefit to be gained in installing the closers in relation to the overall non-compliance of the stairs
- the benefit gained for people with some ambulant disabilities
- the lack of any benefit to people using the stairs to exit the building
- the cost of the work is in proportion to the overall cost of the alterations.

4.4.17 I conclude the amendment to the consent to remove the closers from the approved building work complies as nearly as is reasonably practicable in this instance. I therefore reverse the authority's decision to refuse to grant the amendment to the building consent. In reaching this conclusion I have taken into account the solution contained in the approved consent was unworkable in practice and the cost outweighed the limited benefit to be gained.

4.4.18 I emphasise that each determination is considered on a case-by-case basis. The fact that I have concluded that the stairs without closers will comply to the extent required by section 112(1)(a)(ii) in the particular circumstances presented in this case does not mean the same conclusion would be reached in other similar cases.

5. The decision

5.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the authority correctly exercised its powers of decision in refusing to grant the amendment to the building consent based on the information it had before it at the time this decision was made.

5.2 However, based on the information provided to this determination I conclude the building after the alteration and without closing the risers will comply with Clause D1 Access routes to the extent required by section 112 of the Act. I therefore reverse the authority's decision to refuse to grant the amendment to remove the closers from the approved building work, thus requiring the authority make a new decision taking into account my conclusion on compliance.

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

Katie Gordon
Manager Determinations

Appendix A

A.1 The relevant sections of the Act:

112 Alterations to existing buildings

(1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—

(a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to— ...

(ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118);...

(b) the building will,—

(i) if it complied with the other provisions of the building code immediately before the building work began, continue to comply with those provisions; or

(ii) if it did not comply with the other provisions of the building code immediately before the building work began, continue to comply at least to the same extent as it did then comply.

118 Access and facilities for persons with disabilities to and within buildings

(1) If provision is being made for the construction or alteration of any building to which members of the public are to be admitted, whether for free or on payment of a charge, reasonable and adequate provision by way of access, parking provisions, and sanitary facilities must be made for persons with disabilities who may be expected to—

(a) visit or work in that building; and

(b) carry out normal activities and processes in that building.

(2) This section applies, but is not limited, to buildings that are intended to be used for, or associated with, 1 or more of the purposes specified in Schedule 2.

Schedule 2

Buildings in respect of which requirement for provision of access and facilities for persons with disabilities applies

The buildings in respect of which the requirement for the provision of access and facilities for persons with disabilities apply are, without limitation, as follows: ...

(f) commercial buildings and premises for business and professional purposes, including computer centres:

A.2 Relevant provisions of the Building Code include:

Clause D1—Access routes

Objective

D1.1 The objective of this provision is: ...

(c) ensure that people with disabilities are able to enter and carry out normal activities and functions within buildings.

Performance

D1.3.1 Access routes shall enable people to:

(c) move into spaces within buildings by such means as corridors, doors, stairs, ramps and lifts, ...

D1.3.2 At least one access route shall have features to enable people with disabilities to:

(c) have access to and within those spaces where they may be expected to work or visit
...

D1.3.3 Access routes shall:

- (a) have adequate activity space,
- (b) be free from dangerous obstructions and from any projections likely to cause an obstruction,
- (c) have a safe cross fall, and safe slope in the direction of travel,
- (d) have adequate slip-resistant walking surfaces under all conditions of normal use,
- (e) include stairs to allow access to upper floors irrespective of whether an escalator or lift has been provided,
- (f) have stair treads, and ladder treads or rungs which:
 - (i) provide adequate footing, and
 - (ii) have uniform rise within each flight ...
- (g) have stair treads with a leading edge that can be easily seen,
- (h) have stair treads which prevent children falling through or becoming held fast between treads, where open risers are used, ...
- (j) have smooth, reachable and graspable handrails to provide support and to assist with movement along a stair or ladder,
- (k) have handrails of adequate strength and rigidity as required by Clause B1 Structure,
- (l) have landings of appropriate dimensions and at appropriate intervals along a stair or ramp to prevent undue fatigue,
- (m) have landings of appropriate dimensions where a door opens from or onto a stair, ramp or ladder so that the door does not create a hazard, and
- (n) have any automatically controlled doors constructed to avoid the risk of people becoming caught or being struck by moving parts.

D1.3.4 An accessible route, in addition to the requirement of Clause D1.3.3, shall:

- (a) be easy to find, as required by Clause F8 Signs,
- (b) have adequate activity space to enable a person in a wheelchair to negotiate the route while permitting an ambulant person to pass,
- (c) include a lift complying with Clause D2 Mechanical installations for access to upper floors where:
 - (i) buildings are four or more storeys high,
 - (ii) buildings are three storeys high and have a total design occupancy of 50 or more persons on the two upper floors,
 - (iii) buildings are two storeys high and have a total design occupancy of 40 or more persons on the upper floor, or
 - (iv) an upper floor, irrespective of design occupancy, is to be used for the purposes of public reception areas of banks, central, regional and local government offices and facilities, hospitals, medical and dental surgeries, and medical, paramedical and other primary health care centres,
- (d) contain no thresholds or upstands forming a barrier to an unaided wheelchair user,
- (e) have means to prevent the wheel of a wheelchair dropping over the side of the accessible route,
- (f) have doors and related hardware which are easily used,
- (g) not include spiral stairs, or stairs having open risers,

- (h) have stair treads with leading edge which is rounded, and
- (i) have handrails on both sides of the accessible route when the slope of the route exceeds 1 in 20. The handrails shall be continuous along both sides of the stair, ramp and landing except where the handrail is interrupted by a doorway.

A.3 The paragraphs of the Acceptable Solution D1/AS1 referred to in this determination:

4.1.8 Open risers

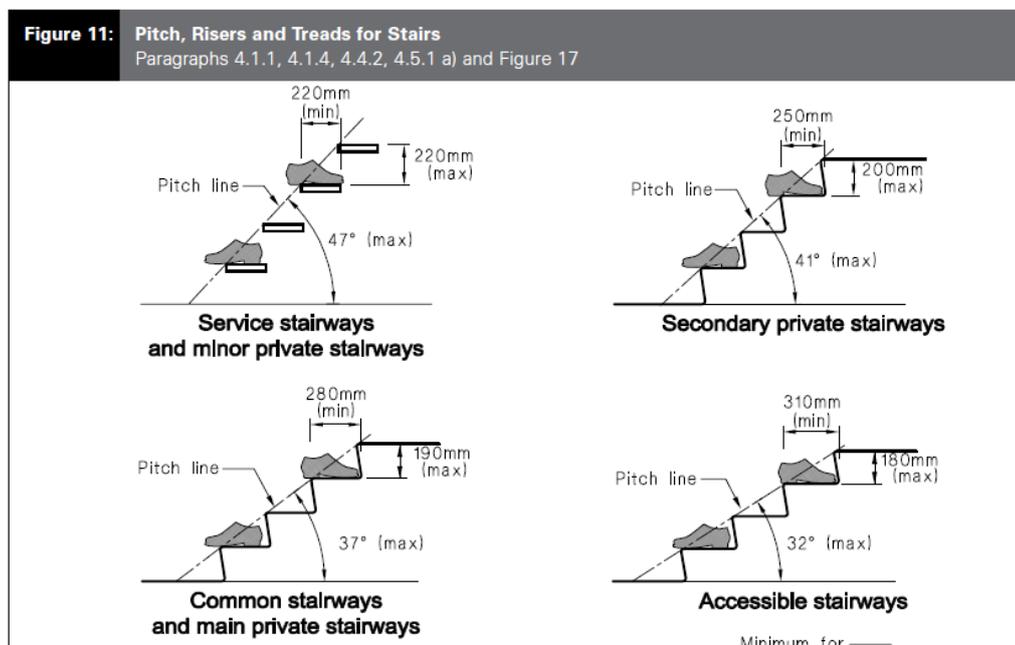
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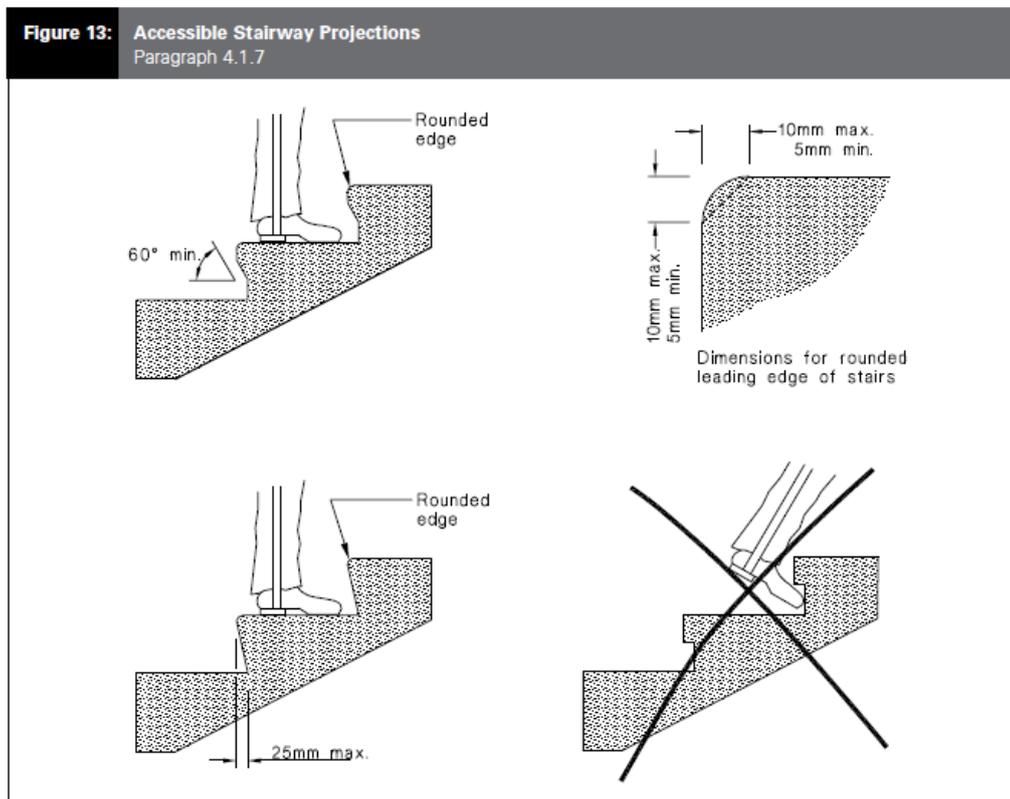
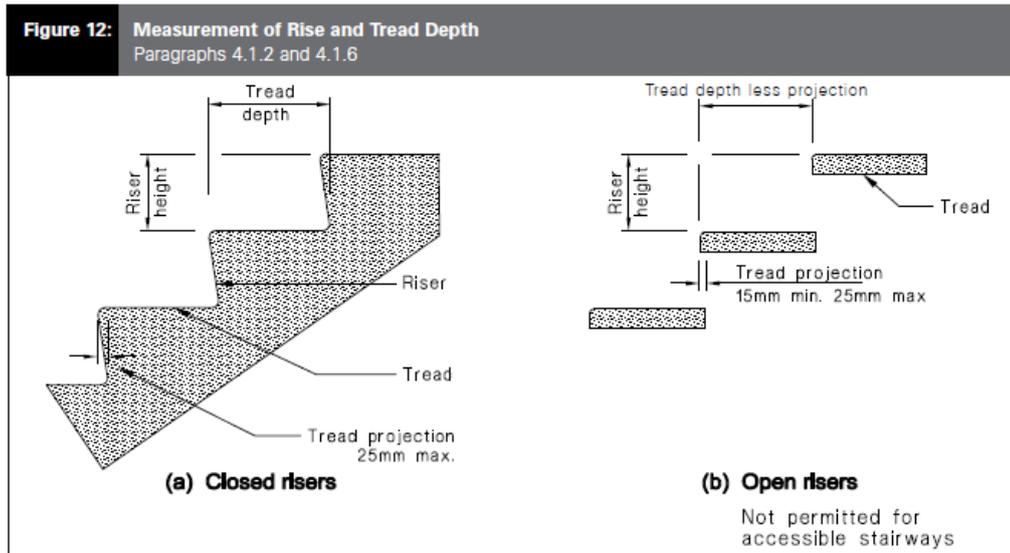
b) Open risers are not to be used within accessible stairways, ...

COMMENT:

...

2. Open risers are hazardous to ambulant people with disabilities. People who wear leg braces or prosthetic devices need a solid riser to guide the foot up over the riser to the next step and to maintain balance.





A.4 Relevant sections of New Zealand Standard NZS 4121:2001:

Section 8 Stairs

8.1 General

8.1.1

In all buildings where there is more than one floor a minimum of one accessible stair opening off an accessible route shall be provided whether or not lifts are installed.

Spiral and open riser stairs shall not be used for this purpose.

C8.1.1

Spiral or open riser stairs can be hazardous for elderly people and others prone to dizziness and vertigo. In addition people who wear leg braces or prosthetic devices need a solid riser to guide the foot up and over the riser to the next step and to maintain balance. Those who use crutches place them against the riser of the step above the one they are on.

8.4 Stair construction

8.4.2 Risers and treads

The steps of a flight of stairs shall be in accordance with the following requirements: ...

(b) Staircases shall have maximum rises of 180mm and minimum tread of 310mm in accordance with Figure 25.

8.4.3 Nosings

Nosings shall be rounded and not project more than 25mm (see Figure 25)

C8.4.3

Nosings with sharp or abrupt angles or projecting risers prevent the sliding foot action described in C8.1.1 and can cause tripping.

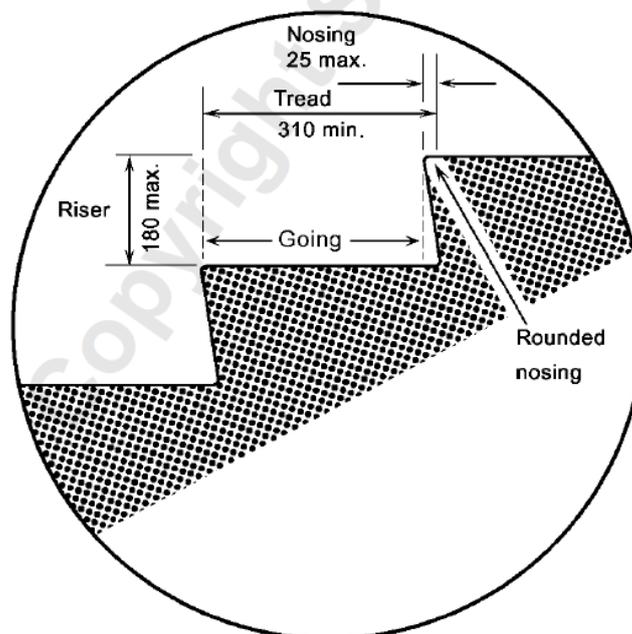


Figure 25 - Basic profile of stairs