



## Determination 2021/019

### Regarding the compliance of a swimming pool barrier that incorporates an existing balcony balustrade at 282 Glenfield Road, Auckland



**Figure 1: Photo of balcony balustrade**

#### Summary

This determination considers the compliance of a pool barrier that incorporates a balcony balustrade. In determining whether the barrier achieves the compliance with Clause F9 Means of Restricting Access to Residential pools of the Building Code, the determination assesses the barrier against the Acceptable Solution F9/AS1 and as an alternative solution.

#### 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, National Manager Determinations, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.<sup>1</sup>
- 1.2 The parties to the determination are:
  - the owners of the property, G and C Macpherson (“the owners”) who applied for the determination.

<sup>1</sup> The Building Act and Building Code (Schedule 1 of the Building Regulations 1992) are available at [www.legislation.govt.nz](http://www.legislation.govt.nz). Information about the legislation, as well as past determinations, compliance documents and guidance issued by the Ministry is available at [www.building.govt.nz](http://www.building.govt.nz).

- Auckland Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.

1.3 This determination arises from a dispute between the parties about whether part of the swimming pool barrier complies with Clause F9 Means of Restricting Access to Residential Pools of the Building Code<sup>2</sup>. At issue is the height of the existing balcony balustrade that forms part of the pool barrier.

1.4 The matter to be determined<sup>3</sup> is whether the section of pool barrier formed by the balcony balustrade complies with Clause F9 of the Building Code.

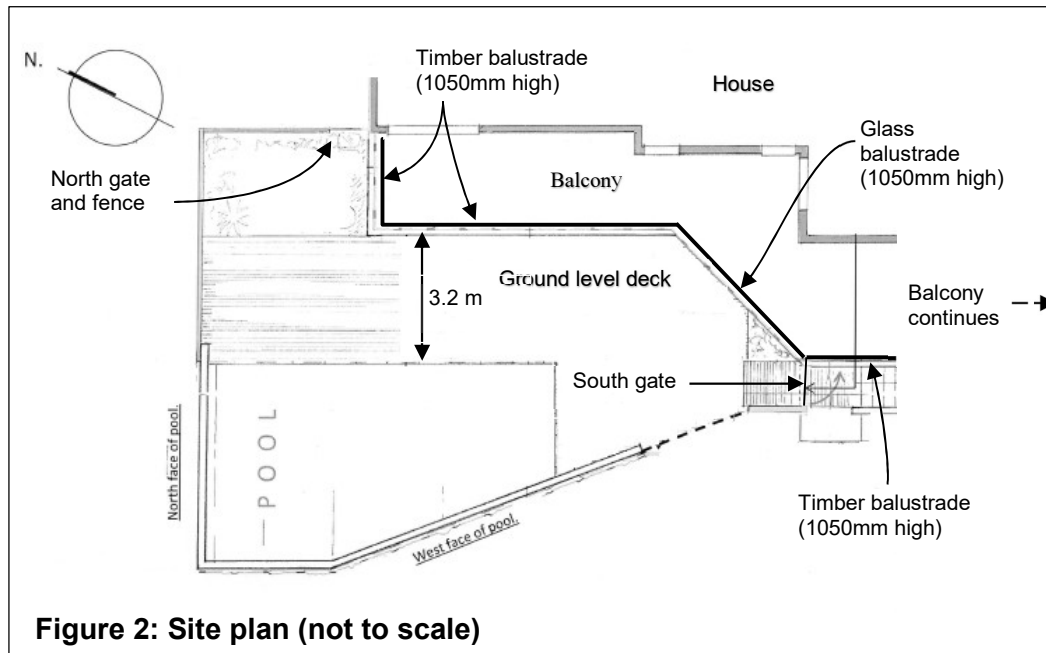
### Matters outside of this determination

1.5 The matter to be determined is limited to assessing compliance of the section of the barrier formed by the balcony balustrade; I do not consider the compliance of the rest of the pool barrier or the immediate pool area<sup>4</sup>.

1.6 I have not considered the balcony balustrade with regard to compliance with Clause F4 Safety from falling.

## 2. The pool barrier

2.1 The pool is an in-ground pool located to the west of the house. Part of the pool barrier is formed by the balustrade to a balcony that runs along the west elevation of the house (see Figure 2 Site plan). It is this balcony balustrade that is the subject of the determination. This determination does describe other features of the barrier where I consider these relevant to the assessment of the compliance of the balcony balustrade.



2.2 The edge of the pool is approximately 3.2 m from the balcony balustrade when measured horizontally from the balcony, and there is a ground level deck

<sup>2</sup> In this determination, unless otherwise stated, references to clauses are to clauses of the Building Code.

<sup>3</sup> Under sections 177(1)(a) of the Act.

<sup>4</sup> Immediate pool area means the land in or on which the pool is situated and so much of the surrounding area as is used for activities carried out in relation to or involving the pool (section 7 of the Act).

surrounding the pool. The height from ground level to top of the balcony balustrade ranges from 2400 - 2600 mm.

- 2.3 The balcony balustrade overhangs a lower section of wall. This section of wall is constructed of closely spaced horizontal slats – see Appendix Figure 3.
- 2.4 A set of stairs lead down to the pool at the south end of the balcony, and there is a self-closing gate at ground level – see Appendix Figure 4.
- 2.5 There is a 1980 mm gate and a timber fence that intersects with the side of the house next to the balcony at its north end (“north corner”) – see Appendix Figure 5. This gate and section of fence is constructed with horizontal slats spaced 11 mm apart on the pool side. There is a hole in the gate, approximately 130 x 130 mm, at 1473 mm above ground level. The gate opens away from the pool, is self-closing, and has a magnetic latch at 1500 mm above ground.

### **The balcony balustrade**

- 2.6 The balustrade is made up of two balustrade types which I refer to as the “timber balustrade” and “glass balustrade”, and together as “the balcony balustrade” (see Figure 1 Photo of balcony balustrade). The majority of the balcony balustrade consists of what was an existing timber balustrade, with one section of glass balustrade approximately 3.2 m long that was installed as part of recent building work.
- 2.7 The top of the balcony balustrade is 1050 mm from the finished floor level of the balcony.
- 2.8 The timber balustrade has a sheer face on the inside and outside, and a 140 mm wide capping. The glass balustrade also presents a solid and sheer face, and is 12 mm wide with a top rail. There is a small gap at the junctions between the glass balustrade and adjoining sections of timber balustrade that measures 7 mm at one junction and 9 mm at the other.

## **3. Background**

- 3.1 On 26 July 2017 the authority issued building consent BC10250005 to “Install concrete swimming pool”. An amendment for building work unrelated to the balcony balustrade was issued on 21 November 2017.
- 3.2 A drawing included in a bundle of documents sent to the authority, dated 16 March 2017 and titled ‘swimming pool fence detail and concept plan’, noted that the existing timber balustrade to the balcony would be raised from 1050 mm to 1200 mm. This document was not stamped as approved by the authority and appears to be a concept design or draft document, albeit one that was lodged prior to building consent plans being approved. The drawing detailed the height of the timber balustrade would be raised by “using a small glass panel fixed to the inside face” and there would also be a “new 1.2m glass balustrade ...fixed to the face of deck” on the south face of the balcony.
- 3.3 The building consent plans stamped as approved on 21 July 2017 show the existing timber balustrade (at 1.050m high) and a “new 1.0m glass balustrade” fixed to part of the balcony.
- 3.4 Although I have not seen a record of the latest inspection notes, correspondence between the parties provides details of an inspection that took place in early May 2019. The authority ‘failed’ the pool barrier on the basis that the balcony balustrade

was only 1050 mm and did not meet the requirements of the Acceptable Solution<sup>5</sup> for Clause F9.

- 3.5 Disagreement arose between the parties about the compliance of the balcony balustrade. The authority believes that the height is not sufficient to meet the requirements of Clause F9, whereas the owners believe the height is sufficient and complies with Clause F9 as an alternative solution.
- 3.6 The Ministry received an application for a determination on 16 December 2019.

## 4. The submissions

### The owners

- 4.1 The owners included a submission with the application for determination, submitting the following (in summary):
- All relevant information was provided to the authority at the start of the project and the pool barrier was built in accordance with the approved building consent plans.
  - The building consent plans noted the existing timber balustrade at a height of 1050 mm as well as the new glass balustrade at 1050 mm high.
  - The balcony balustrade meets the performance requirements of the Building Code Clause F9.
- 4.2 The owners are of the view there are no climbable features on the pool-side of the balcony barrier that would assist a child to climb down from the top of the balustrade. The owners also compared the balcony balustrade to the criteria for a boundary fence provided in the Acceptable Solution F9/AS1, noting the height from the top of the balcony balustrade (2600 mm) exceeds that of a boundary fence in the Acceptable Solution (1800 mm), and at this height and with no climbable features children would be discouraged from climbing down into the immediate pool area.
- 4.3 The owners responded to a draft of this determination, accepting the findings without further comment.

### The authority

- 4.4 The authority set out their views in an email to the owners dated 17 June 2019. The authority considers a boundary fence is not comparable with a balcony because a child will occupy the balcony more frequently, for longer periods of time, and is more familiar with the environment. The authority stated:
- ... the disincentive has to be greater for a child to even attempt to drop down, especially as the familiarity with the environment and that it's their own house would embolden such attempts, quite different from knowing that what you're about to attempt is jump/drop down into someone else's property.
- 4.5 The authority is of the view there is not sufficient reasoning to support the owners' opinion that the balcony balustrade complies with the Building Code as an alternative solution.

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<sup>5</sup> Acceptable Solution F9/AS1 Means of restricting access to residential pools for Building Code Clause F9. This Acceptable Solution came into effect 27 April 2017 and can be used as a means of achieving compliance.

- 4.6 The authority responded to the draft of this determination, noting that while it did not disagree with the principles and reasoning it considered the height from the immediate pool area to the balcony floor (approx. 1575 mm) with a balustrade only 1050 mm high “directly undermine[s] and contradict[s] the Acceptable Solution”. The authority sought further explanation on this point, and I have amended the discussion as I consider appropriate.

## 5. Discussion

### Clause F9 Means of restricting access to residential pools

- 5.1 The Act sets out in section 17 the requirement that all building work must comply with the Building Code to the extent required by the Act.
- 5.2 The objective of Clause F9 is “to prevent injury or death to young children involving residential pools”. Clause F9’s functional requirement is as follows:

**F9.2** Residential pools with a maximum depth of water of 400 mm or more that are filled or partly filled with water must have means of restricting access that prevents unsupervised access by a child under 5 years of age.

- 5.3 The relevant performance criteria in Clause F9 include:

**F9.3.1** Residential pools must have or be provided with physical barriers that restrict access to the pool or immediate pool area by unsupervised young children (ie, under 5 years of age).

**F9.3.2** Barriers must either—

- (a) surround the pool (and may enclose the whole or part of the immediate pool area);

...

**F9.3.3** A barrier surrounding a pool must have no permanent objects or projections on the outside that could assist children in negotiating the barrier.

### Acceptable Solution F9/AS1

- 5.4 One of the ways to demonstrate compliance with the Building Code is to comply with a relevant Acceptable Solution<sup>6</sup>. The Acceptable Solution F9/AS1 describes acceptable methods of construction for various types of pool barriers, including barriers formed by balcony balustrade<sup>7</sup>, to comply with Clause F9.
- 5.5 Paragraph 2.5.1 of the Acceptable Solution F9/AS1 states:
- When the floor of a balcony is more than 2400 mm vertically above the immediate pool area, a barrier complying with Clause F4 [ie. minimum 1000 mm high] may be used instead of a Clause F9 barrier [ie. 1200 mm high] provided that there are be [sic] no projections within 1200 mm below the top of it (such as a wall or landscaping feature) that could assist a child to climb down. [My additions in square brackets]
- 5.6 In this situation the floor level of the balcony is approximately 1575 mm vertically above the immediate pool area, i.e. less than the 2400 mm provided for in F9/AS1. In addition, the gate and fence at the north end of the balcony (1980 mm high) is within 1200mm from the top of the balustrade. The balustrade therefore does not satisfy the conditions in paragraph 2.5.1 of F9/AS1.

<sup>6</sup> Section 19, Building Act 2004

<sup>7</sup> F9/AS1 paragraph 2.5

- 5.7 However, Acceptable Solutions are not mandatory and compliance with an Acceptable Solution is not the only method of achieving compliance with the Building Code.

### **Compliance as an alternative solution**

- 5.8 The Building Code is performance based and it is open to a pool owner to demonstrate that the barrier complies by means other than F9/AS1 – this is commonly referred to as an alternative solution.
- 5.9 While compliance by way of an Acceptable Solution is not mandatory, it is still useful to understand the principles behind the criteria provided in the Acceptable Solution. In this respect, when evaluating an alternative solution it may be useful to make some comparisons with the Acceptable Solution.
- 5.10 In this case the owners are of the view that a young child would not be able to climb down into the immediate pool area and have compared the use of the balcony balustrade with criteria in F9/AS1 for a pool barrier on a property boundary.
- 5.11 The criteria in paragraph 2.2 of F9/AS1 for a pool barrier on a property boundary include the barrier height is not less than 1800 mm (on the pool side), is located not less than 1000 mm from the water's edge, and has:
- a 900 mm high zone on the pool side of the barrier that begins not more than 150 mm from the top and is constructed as specified in Paragraphs 2.1.3 and 2.1.7 [of F9/AS1], to restrict climbing by children.
- 5.12 These criteria address the problem faced by a pool owner when they cannot control what happens on a neighbouring property and have no ability to prevent a neighbouring property owner from building a permanent structure next to a boundary fence. The comment following paragraph 2.2 makes it clear that the intention is to ensure that if a child did manage to climb to the top of a barrier located on a property boundary, it will then be difficult for the child to climb down into the immediate pool area due to the construction of the pool-side surface of the barrier:
- Comment:** Should a child gain access to the top of the barrier from the outside, this construction method will prevent them from climbing down into the pool area.
- 5.13 In comparing the criteria in F9/AS1 for boundary fences against those in F9/AS1 for balconies I note that a balcony and a boundary fence have different uses, present different risks, and accordingly have different requirements. I do not consider that they are directly comparable. However, I also note that for both balcony balustrades and boundary fences, F9/AS1 requires that there are no projections on the pool side of the barrier that could assist a child climbing down into the immediate pool area.
- 5.14 In the following paragraphs I discuss the two balustrade types (timber and glass) and then assess these in combination against the performance criteria in Clause F9. In making this analysis I will consider the principles of the Acceptable Solution relating to the restriction of access to the immediate pool area as discussed above.

### **The timber balustrade**

- 5.15 The height of the timber section of the balustrade is 150 mm lower than that provided for in the Acceptable Solution for balconies less than 2400 mm above the immediate pool area. However it is not the height of the balustrade alone that is determinative of its compliance as a pool barrier as an alternative solution. The features of the balustrade must be considered in combination and in context when looking at

whether the pool barrier would restrict access by a young child from the balcony to the immediate pool area.

- 5.16 The inner and outer faces of the timber balustrade have no projections to assist a child in negotiating the balustrade, with the exception of the pool side of the north corner, which I discuss in more detail at paragraph 5.19.
- 5.17 The capping on the timber balustrade is 130 mm, and overhangs the face of the balustrade by approximately 5 mm. The width and geometry of the timber balustrade would present a challenge for a young child to maintain a grip or finger purchase on the timber capping to assist in negotiating the barrier. This feature may not in itself be sufficient to offset the height of the barrier.
- 5.18 The 130 mm width of the timber capping provides a flat surface for a child that would assist in transitioning from the balcony to pool side of the barrier, for example by lying on their stomach and using the flat surface to swivel on until their hips and legs are on the pool side.
- 5.19 Should a child gain access to the top of the balustrade at the north corner, the top of the north gate and fence, where it meets the balustrade, provides a solid foothold for a child negotiating the balustrade. The north fence is at the most 620 mm below the balustrade capping<sup>8</sup>. The opening in the gate provides a further solid foothold approximately 500 mm below the top of the gate. However, there are no other features on the pool side at this north corner that would provide handholds for a child to transition from standing on the top of the north gate/fence to climbing down its face.
- 5.20 At the south junction, the top of the south gate is 1050 mm or more from the top of the balustrade<sup>9</sup>. The top of the south gate presents a smaller foothold for a child attempting to climb down in comparison to the north fence or gate. Similar to the north fence, there are no other handholds that would assist a child to navigate down at that point.

### **The glass balustrade**

- 5.21 The glass section of the balustrade is 1050 mm high, 12 mm wide and runs along the balcony for about 3 m. In my view, a child is easily able to grip the top of this part of the balustrade and, with the friction of their feet against the glass, pull themselves up.<sup>10</sup>
- 5.22 The glass balustrade does not provide a surface for a child to move along the top of this section of the balustrade.
- 5.23 Neither party has provided a measurement between the top of the glass balustrade (at the south end where it adjoins the timber balustrade) and the top of the south gate. It appears from photographs provided that the top of the gate is below the floor level of the balcony. The difficulties in negotiating the barrier at this point are described in paragraph 5.20.

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<sup>8</sup> Based on information about the height of the balustrade from ground level as ranging from 2.4 m to 2.6 m.

<sup>9</sup> Based on photographs provided that show the top of the south gate either at or below the floor level of the balcony.

<sup>10</sup> A study on child safety barriers provides some useful insight into children's climbing techniques and the effectiveness of different designs of barriers: Child safety barriers - Study commissioned by: ANEC (European Association for Consumer Representation in Standardisation).

### **Negotiation down the pool side of the balcony balustrade**

- 5.24 The inner and outer faces of the timber and glass balustrade are smooth, and there is only a small gap at the junctions between the glass and timber balustrades and a small lip on the pool side of the channel in which the glass balustrade sits. In my view these features would not assist a young child negotiating down the face of the balustrade, including at the junctions.
- 5.25 In addition, the lower wall below the balustrade is inset along its length. This feature of the barrier presents a difficulty for a young child attempting to climb down the pool side of the barrier.
- 5.26 Furthermore, the vertical height from the top of the balustrade to the ground level, and the sizeable horizontal distance from the pool (3.2m), both act as deterrents for a child attempting to drop or jump down to the pool area. The distance from the balcony balustrade to the pool itself also means that a child would be less likely to attempt to jump from the top of the balustrade into the pool.
- 5.27 In conclusion, I am of the view it would be difficult for a young child to climb down on the pool side; this is due to the following features of the balcony balustrade, namely:
- The lack of viable handhold or footholds on the pool side of the balcony balustrade, including at transition points if the child gains a foothold on either the south fence or north fence and gate.
  - The balcony balustrade overhangs the lower wall.
  - The vertical distance of the balcony to ground level.
  - The horizontal distance to the pool.
- 5.28 On balance, given the combination of features described above, I conclude that the balcony balustrade meets the performance criteria in Clause F9.3.1 as a barrier restricting access of children under five years of age to the pool despite the height of the balcony floor above the immediate pool area being less than that provided for in the Acceptable Solution.
- 5.29 I note that each determination is considered on a case-by-case basis. Accordingly, the fact that a particular balustrade barrier of this height has been established as being compliant with Clause F9.3.1 as an alternative solution in this case does not necessarily mean one will be code-compliant in another situation.

## **6. Decision**

- 6.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the balcony barrier complies with Clause F9.3.1 of the Building Code.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 17 September 2021.

Katie Gordon

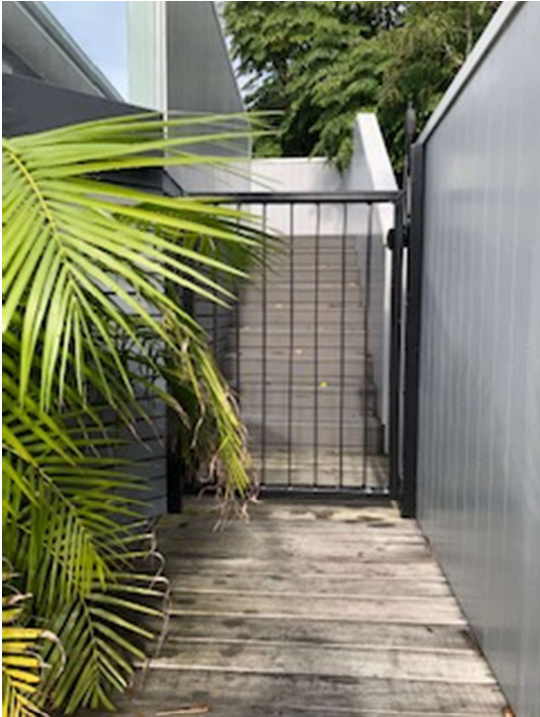
**National Manager Determinations**



**Appendix**



**Figure 3: lower wall and balustrade junction**



**FIGURE 4: SOUTH GATE**



**Figure 5: North gate and fence**