

Determination 2023/026

Regarding the compliance of part of an existing pool barrier with section 162C of the Building Act 2004

68 Clarkin Road, Hamilton

Summary

This determination considers whether a section of an existing residential pool barrier complies with section 162C of the Building Act 2004. In making this decision, the determination considers two issues – namely the size of gaps in the metal fencing and the hedge planted on the outside.



In this determination, unless otherwise stated:

- “sections” are sections of the Building Act 2004 (“the Act”)
- “clauses” are clauses in Schedule 1 (“the Building Code”) of the Building Regulations 1992
- “FOSPA” is the Fencing of Swimming Pools Act 1987
- “FOSPA Schedule” is the Schedule to FOSPA.

The Act and the Building Code are available at www.legislation.govt.nz. Information about the legislation, as well as past determinations, compliance documents (eg Acceptable Solutions) and guidance issued by the Ministry, is available at www.building.govt.nz.

1. The matter to be determined

- 1.1. This is a determination made under due authorisation by me, Peta Hird, Principal Advisor Determinations, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.¹
- 1.2. The parties to the determination are:
 - 1.2.1. D O’Neill and M O’Neill, the owners of the property (as trustees of a trust) who applied for this determination (“the owners”)
 - 1.2.2. Hamilton City Council, carrying out its duties as a territorial authority or building consent authority (“the authority”).
- 1.3. The matter to be determined² is whether a section of the barrier to a residential swimming pool complies with section 162C of the Act. In making this decision, the determination will consider two aspects of the barrier – namely the gaps in the metal fencing and whether the hedge planted on the outside is part of the barrier for compliance purposes.
- 1.4. I have only considered the compliance of a section of metal fence on the southern end of the owners’ swimming pool barrier. As far as I am aware, the compliance of the other parts of the barrier is not disputed by the parties.

2. The building work

- 2.1. The owners’ property is in a residential area in Hamilton. The house is located at the southern end of the property and the pool is located at the northern end. The pool is surrounded by a raised timber deck.

¹ The Building Act 2004, section 185(1)(a) provides the Chief Executive of the Ministry with the power to make determinations.

² Under section 177(1)(a) of the Act.

2.2. The pool barrier consists of 1.8m high plaster block walls to the northern and western sides, and 1.2m high metal fencing to the eastern and southern sides (see Figure 1). The eastern side of the barrier is constructed from vertical metal bar fencing that was installed some time in 2020. The western, northern, and eastern sides of the pool barrier are not in dispute between the parties. It is the compliance of the southern section of the barrier, which retains the original metal fencing (see Figures 1, 3 & 4), that is disputed and that forms the subject of this determination.

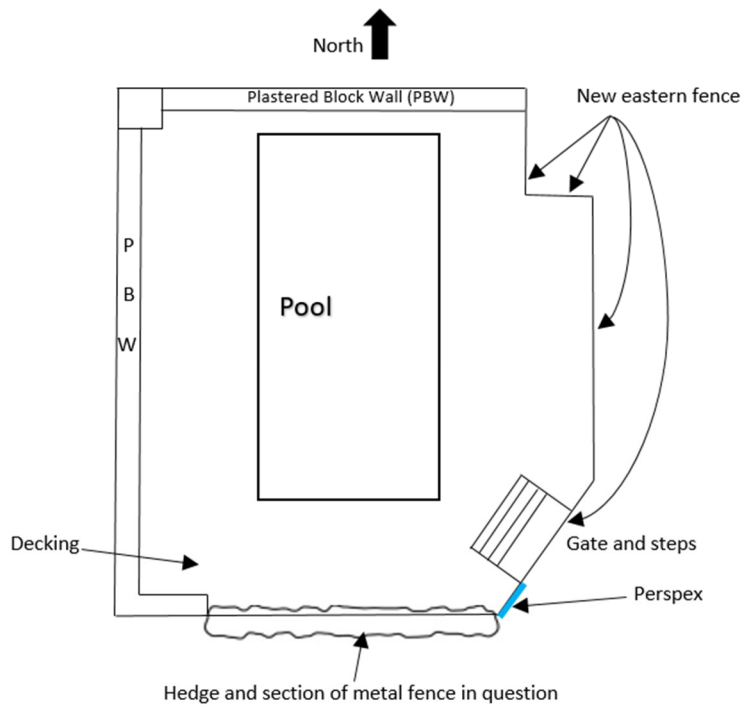


Figure 1: Plan of the pool and pool barrier (not to scale).

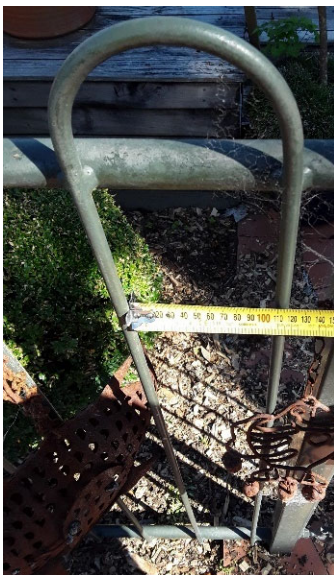


Figure 2: Original eastern barrier, which has since been demolished but is the same type of fencing that remains on the southern section of the barrier.

- 2.3. The southern section of the barrier is approximately 3m to 4m in length. In the south-west corner, the 1.8m high plastered block wall returns from the western side of the barrier and continues for approximately 1m. The balance of the southern section of the barrier has been in place since 1998 or 1999. It is formed by a metal fence, of the type shown in Figure 2, that is built on top of and along the edge of the raised timber deck that surrounds the pool. It is this section of metal fence that is the subject of this determination. The metal fence is 1200mm high and the deck is at least 600mm high, giving the southern section of the barrier a total height of at least 1800mm.
- 2.4. The metal fence is constructed from a series of vertical metal bars that loop over at the top and are spaced approximately 110mm apart. The vertical metal bars are attached to two larger horizontal metal rails that run the extent of the fence (refer to Figure 2). The bottom rail is located about 50mm above the deck level and the vertical bars do not extend below it. The top horizontal rail is located approximately 100mm below the top of the loops.
- 2.5. The southern section of the barrier has a hedge planted outside it, next to the deck. The hedge extends up the entire side of the southern barrier and beyond the top of the metal fence and according to the owners' submissions stands at least 1.8m tall. Its branches have intertwined through the gaps in the metal fence. The hedge appears to be well-established (see Figures 3 & 4).



Figures 3 (left) & 4 (right): Photographs of the southern section of the barrier, showing the deck, metal fence and the hedge.

3. Background

- 3.1. The pool was constructed in the 1960s. The authority does not hold records of its construction. The owners purchased the property in 1997 and constructed a pool barrier some time in 1998 or 1999 (“the original barrier”). The southern section of the barrier, which is the subject of this determination, was constructed as part of this work. There is no building consent, code compliance certificate or certificate of acceptance relating to the building work for the original barrier.
- 3.2. The authority carried out a monitoring inspection of the pool barrier on 18 March 2020.³ In its inspection report, the authority highlighted several compliance issues with the eastern side of the original barrier, including that the gaps between the vertical bars of the original metal fence exceeded 100mm in most areas.
- 3.3. This inspection also noted potential issues with the southern section of the original barrier, stating that “the hedge along the left side of the pool fence is acceptable for now, but might become climbable in the future.”
- 3.4. Following this inspection, the owners replaced the entire eastern side of the pool barrier, including installing a new self-closing gate and a new metal fence along the eastern side. The new fence has smaller gaps between its vertical bars compared to the original barrier. As I understand it, the authority is now satisfied this eastern side of the pool barrier is compliant.
- 3.5. The authority conducted a further inspection on 10 September 2020. At this inspection, the authority identified the following issues with the southern section of the barrier:
 - 3.5.1. The fence did not “extend at least 1.2m above any permanent projection or object permanently placed on the ground outside and within 1.2m of the fence”.
 - 3.5.2. The “branches of the hedge to the left side of the pool area that is intertwined with the fence creates a foothold to climb the fence [and] must be addressed”.
- 3.6. The owners disagreed with the authority’s assessment and considered that the southern section of the barrier complied. In a letter to the authority dated 16 September 2020, the owners stated:
 - ...
 2. In my view, there is no way a child could climb that hedge and get over it into the pool.
 3. Nor could a child get through the hedge to access the fence.

³ As required under section 162D(1).

4. The combination of the hedge and the steel fence behind it, make the gaps virtually impossible to get through. Particularly a child under the age of 5.
 5. ... in my view, your requirement that we take the hedge out and then replace the fence is unreasonable and not in accordance with the requirements under the Act...
- 3.7. The owners also stated that when they constructed the original barrier it complied with FOSPA. In the owners' view, the work they had done to replace the eastern side of the fence was unnecessary because the original barrier (including the southern section of the fence) complied with the FOSPA Schedule and remains compliant now.

4. Submissions

The owners

- 4.1. The main points of the owners' submissions can be summarised as follows:
- 4.1.1. The pool was originally fenced in accordance with the requirements of FOSPA. At the time of the authority's inspection in March 2020, the fence still complied with FOSPA.
 - 4.1.2. The original barrier has a bar running along its bottom, and another at its top, with "nothing in between with which to climb that fence". The combined height of the hedge and fence, from the ground to the top of the hedge is approximately 2m.
 - 4.1.3. Since the authority's September 2020 inspection, the hedge has "grown more branches which are slender and would not support the weight of a child".
 - 4.1.4. The property is 100 metres off the road and surrounded by a 2m high fence and electronic gate, so an unsupervised child would not be able to get through the gates and into the property in the first place.
 - 4.1.5. Even if a child got through the gate and into the property, it would be "impossible" for a child to climb the hedge. The hedge starts approximately 1m off the ground.
 - 4.1.6. Section 162C(2) provides that the means of restricting access for pools that were constructed after 1 September 1987, can comply with the requirements of the Building Code that were in force at the time the pool was constructed, erected or installed. The intention of section 162C(2) is not to exempt pools constructed before that date, as FOSPA expressly applied to existing pools.

- 4.1.7. Pools constructed before 1 September 1987 should have complied with the FOSPA Schedule. If they continue to comply with that Schedule, then they will not be in breach of section 162C of the Act. This is found in the transitional provisions in sections 450A and 450B of the Act. The fence complied with FOSPA, and “therefore the fence as it currently is complies”.
- 4.1.8. The fence complies with the FOSPA Schedule because:
- it is at least 1.2m above the ground on the outside of the fence
 - it is at least 1.2m above any permanent projection from or object permanently placed on the outside of the fence
 - it is constructed of steel rod and is impenetrable, due to it being inside the hedge.
- 4.1.9. The owners submitted that the pool fence wouldn’t comply if there was no hedge. The spacing between the vertical bars exceeds the 100mm specified in clause 4 of the Schedule, but “this is mitigated by the fact that the hedge makes it impossible to get through the gap”. If there was no hedge the fence would not comply, “however, the combination of the fence and the hedge, makes the potential for the fence to be climbed over or through impossible”.
- 4.1.10. In a later submission, the owners provided a photo of the southern barrier and stated the “gap between the railings is 10cm”.

The authority

- 4.2. The main points of the authority’s submission can be summarised as follows:
- 4.2.1. When FOSPA came into force, it required all existing pools to be fenced in accordance with its Schedule.⁴ This included the owners’ pool.
- 4.2.2. All pool fencing must comply under section 162C of the Act. Section 450B states that “existing pools need to comply with the Schedule [to FOSPA]”.
- 4.2.3. In the authority’s view, the southern section of the pool barrier does not comply with the FOSPA Schedule because:
- the gaps between the metal bars in the fence exceed 100mm in several areas
 - the hedge is well-established, and a child could use the branches to climb up and over the barrier

⁴ The Act commenced on 20 July 1987 and section 3 stated it applied to existing pools constructed, erected or installed before 1 September 1987.

- the branches are strong enough to hold the weight of a child and the first climbable branches are 500mm off the ground.
- 4.2.4. Following the second inspection in September 2020, the authority considered that the fence, with the hedge as it was then, was climbable and did not comply with section 162C of the Act.
- 4.2.5. The authority submits that “the rules under both Acts” are consistent in that the gaps between the metal bars cannot exceed 100mm and there should be no permanent projections within 1200mm of the fence.

Submissions in response to the draft determination

- 4.3. A draft determination was issued to the parties for comment on 17 February 2023.
- 4.4. The authority accepted the draft without comment on 21 February 2023.
- 4.5. The owners did not accept the draft and provided additional written submissions and photos on 9 March 2023. The owners’ response reiterated some of the points previously raised but also noted the following:
- 4.5.1. While the gaps in the fence do not comply with the FOSPA Schedule, the hedge is impenetrable.
- 4.5.2. A building consent was not required for the pool barrier at the time it was constructed because the fence did not fall under the definition of a building under the 1991 Building Act.
- 4.5.3. The fence complied with the requirements of FOSPA when it was constructed, and it continues to comply.
- 4.5.4. As of March 2023, the hedge has grown out further making it physically impossible for a child to climb, as “a child would find it impossible to hold onto the hedge, put their feet on the [deck edge] and ascend the hedge to get over it.” Additionally, the hedge has “delicate strands on the outside which no child could climb because they were too delicate to support any child’s weight”.
- 4.6. In summary, the owners consider that at the time it was constructed, the fence complied with FOSPA and did not require a building consent. They consider the fence continues to comply with FOSPA. Additionally, they maintain the view that the combination of the hedge and fence is not climbable, as the hedge forms “an additional barrier against any child attempting to climb the fence”.
- 4.7. I have considered the submissions received in response to the draft determination and amended the determination as I consider appropriate.

5. Discussion

- 5.1. The matter to be determined is whether the metal fencing on the southern section of the owners' pool barrier complies with section 162C of the Act.
- 5.2. Section 162C was enacted on 1 January 2017. It provides that every residential pool that is filled or partly filled with water must have physical barriers that restrict access to the pool by unsupervised children under 5 years of age.
- 5.3. Subsection 162C(2) sets out the means by which these barriers must comply:

162C Residential pools must have means of restricting access

(1) Every residential pool that is filled or partly filled with water must have physical barriers that restrict access to the pool by unsupervised children under 5 years of age.

(2) The means of restricting access referred to in subsection (1) must comply with the requirements of the building code—

(a) that are in force; or

(b) that were in force when the pool was constructed, erected, or installed (after 1 September 1987) and in respect of which a building consent, code compliance certificate, or certificate of acceptance was issued (in relation to the means of restricting access to the pool).

- 5.4. When section 162C of the Act came into force, other changes were also made to the existing legislation regulating residential pool barriers. FOSPA was repealed, sections 450A and 450B of the Act were enacted, and a new clause, F9 – 'Means of restricting access to residential pools', was inserted into the Building Code. The previous clause, F4 – 'Safety from falling' and its associated Acceptable Solution F4/AS1 were amended so they no longer applied to pool barriers.
- 5.5. Section 450A sets out transitional and savings provisions for residential pools, and specified an Acceptable Solution for section 162C based on the Schedule to FOSPA. However, on 27 April 2017 the Acceptable Solution in section 450A of the Act was revoked⁵. This means that section 450A is no longer available to establish compliance for the purpose of section 162C. It was only available from 1 January 2017 until 27 April 2017, which is the date that the new Acceptable Solution for clause F9 of the Building Code (F9/AS1) was published.
- 5.6. Section 450B remains in force and sets out the savings provisions that apply to existing residential pools constructed prior to 1 January 2017, such as the owners' pool. It reads:

⁵ See Gazette notice "Notice of Issue of Acceptable Solutions F9/AS1 and F9/AS2 and Revocation of the Acceptable Solution Issued by Section 450A of the Building Act 2004" (27 April 2017) 45 *New Zealand Gazette* No 2017-go2003. The *New Zealand Gazette* is the official newspaper of the Government of New Zealand. Secondary legislation not drafted by the Parliamentary Counsel Office may be published or notified in the *Gazette*.

450B Savings provision for existing residential pools

- (1) This section applies to a residential pool that was constructed, erected, or installed before 1 January 2017 (an existing pool).
- (2) An existing pool is deemed to have barriers that comply with section 162C if the barriers—
 - (a) complied with the Schedule of the Fencing of Swimming Pools Act 1987 (as that schedule was in force) immediately before 1 January 2017; and
 - (b) continue to comply with those requirements subject to—
 - (i) any exemption that was granted under section 6 or clause 11 of the Schedule of that Act and that was subsisting immediately before 1 January 2017; and
 - (ii) the conditions of any such exemption.

...

- 5.7. Section 450B of the Act provides a means for establishing compliance for existing residential pools built before section 162C was enacted. If existing pools had barriers that complied with the FOSPA Schedule immediately before section 162C was enacted, and if those barriers continue to comply with that schedule, then those barriers are deemed to comply with section 162C.⁶
- 5.8. For completeness, I note that section 450B(3) of the Act is a provision for above-ground pools, and is not relevant to the owners' pool.
- 5.9. In the following paragraphs I consider each of the potential means of establishing compliance of the barrier:
 - 5.9.1. compliance with the Building Code that was in force when the pool was built, as provided for in section 162C(2)(b) of the Act
 - 5.9.2. compliance with the FOSPA Schedule, as provided for in section 450B(2) of the Act
 - 5.9.3. compliance with the current Building Code, as provided for in section 162C(2)(a) of the Act.

What is assessed for the purpose of s162C

- 5.10. The owners stated that since applying for the determination they have installed 1.8m high gates at the entrance of the property which are only accessible by keypad, and they submit this makes the property secure from unauthorised entry by unsupervised children. The owners also submit that only adults can gain access to the property through the gate by invitation, and that a young child accompanying them is "not an unsupervised child".

⁶ There is a further requirement for pools that have been granted exemptions, but this is not relevant to the owner's pool.

- 5.11. I note that FOSPA, which applied to existing pools when it was enacted, required “some or all of the immediate pool area including all of the pool is fenced by a fence that complies with the Schedule to this Act”⁷.
- 5.12. In 1999 the Department of Internal Affairs published “Guidelines for Territorial Authorities on The Fencing of Swimming Pools Act 1987” which explained how FOSPA interacted with the Building Code and was intended to assist territorial authorities to satisfy their responsibilities under both Acts. This publication noted that, contrary to the general belief that pre-school drownings were caused by toddlers wandering from adjoining properties, or the road, onto properties which had a pool, 80% occurred either in a child’s home or when a child was visiting as an invited guest. This led to the requirement in FOSPA that pool owners fence their swimming pools or spa pools and the area immediately surrounding them.
- 5.13. The Building Code that was in force when the original barrier was installed required a barrier to restrict access to “the pool or the immediate pool area”. I do not consider the whole of the property is the immediate pool area⁸ and therefore the front gate to the property is not a relevant consideration. For that reason, the matter I am determining is the compliance of the southern section of pool barrier as the means to restrict access to a residential pool.
- 5.14. The owners’ submissions take an approach that the hedge can form part of the barrier. The owners acknowledge the fence does not comply with the FOSPA Schedule, but contend the hedge makes the gaps between the vertical rods impenetrable. I am of the view the hedge cannot be considered as part of the barrier restricting access to the pool because it is not a “building” nor “building work”, and so my assessment of compliance for the purpose of section 162C is limited to the metal pool fence and its base.
- 5.15. I note that the Building Act has the following purposes⁹:
- (a) to provide for the regulation of **building work**, ... and the setting out of performance standards for **buildings** to ensure that –
 - (i) people who use **buildings** can do so safely and without endangering their health; and
 - (ii) **buildings** have attributes that contribute appropriately to the health, physical independence, and well-being of the people who use them;
- ...
[my emphasis]

5.16. It is ‘building work’ that is regulated and the ‘building’ that must contribute to the safety, health, physical independence and well-being of the people who use it. This

⁷ Section 8 of FOSPA. This was amended when the Building Act 1991 came into force, requiring compliance with the Building Code.

⁸ Section 2 of FOSPA defined ‘immediate pool area’ as “the land in or on which the pool is situated and so much of the surrounding area as for activities or purposes carried on in conjunction with the use of the pool”. FOSPA has been repealed except for its schedule.

⁹ Section 3 Purposes.

is achieved by the building work meeting the minimum standards of the Building Code; in this case the standard to which the barrier to the swimming pool must comply.

- 5.17. Hedges are not buildings and are likely to be impacted by seasonal growth patterns and have variable lifespans. For this reason, it is untenable for the compliance of the barrier to be assessed in reliance on a hedge.

Compliance by way of section 162C(2)(b)

- 5.18. Turning now to whether the southern section of the pool barrier complies by way of section 162C(2)(b) of the Act.
- 5.19. Section 162C(2)(b) only applies in respect of pools constructed, erected or installed after 1 September 1987. The owner's pool was constructed sometime in the 1960s and the pool barrier was constructed at a later point, around 1998 or 1999.
- 5.20. A further criterion in section 162C(2)(b) is that the means of restricting access to the pool has had a building consent, code compliance certificate or certificate of acceptance issued in relation to it. I consider that the correct interpretation of this subsection requires that both criteria listed above are met for (2)(b) to be available as a means of compliance.
- 5.21. The owners advise the pool itself was built pursuant to a consent (I note that prior to 1992 these would have been "permits"). However, neither of the parties have found any evidence that the pool barrier was the subject of a building consent, code compliance certificate or certificate of acceptance.
- 5.22. In response to a draft of this determination, the owners assert that the fact the fence did not have a building consent does not mean it was non-compliant with s162C(2)(b). The phrasing of this statement does not accurately reflect the conclusion I reached. I concluded that the means to establish compliance under section 162C(2)(b) is not available in the circumstances.
- 5.23. The owners also explained why a building consent was absent for the pool barrier, submitting that a building consent was not required as a fence does not fall under the definition of "building", and it only needed to comply with the FOSPA.
- 5.24. I disagree. The definition of building under section 3 of the 1991 Act that applied at the time the fence was constructed stated:

In this Act, unless the context otherwise requires, the term **building** means **any temporary or permanent movable or immovable structure** (including any structure intended for occupation by people, animals, machinery, or chattels); and includes any mechanical, electrical, or other system, and any utility systems, attached to and forming part of the structure whose proper operation is necessary for compliance with the building code ... **[my emphasis]**

- 5.25. The pool fence is within the meaning of a 'building' under that definition; it is a permanent immovable structure and has not specifically been excluded under that definition.¹⁰ I do not consider it necessary to discuss at length whether a fence is a 'structure' because I consider it clearly falls within the ordinary meaning of the word.¹¹
- 5.26. I further note the third Schedule of the 1991 Act, which concerned exempt buildings and building work, that was in force around the time the fence was constructed, stated:
- A building consent shall not be required in respect of the following building work:
...
(f) Any wall (other than a retaining wall), **fence (other than a fence as defined in section 2 of the Fencing of Swimming Pools Act 1987)**, or hoarding of a height not exceeding 2 metres above the supporting ground:
- 5.27. The exemption from requiring building consent was for fences meeting certain criteria, but excluded fences defined in section 2 of FOSPA. The section of pool fence that is the subject of this determination was within the definition of section 2 of FOSPA.
- 5.28. In the absence of any building consent, code compliance certificate or certificate of acceptance, as well as the fact the pool was constructed prior to 1 September 1987, compliance cannot be established by way of section 162C(2)(b).

Compliance with the FOSPA Schedule

- 5.29. Section 450B(2) provides another means by which barriers constructed prior to 1 January 2017 can be assessed for compliance with section 162C.
- 5.30. The owners state that the southern section of the barrier complied with the Schedule of FOSPA when it was built, immediately before section 162C was enacted on 1 January 2017, and it continues to comply. In their submissions, the owners detail the ways in which they consider the southern section of the barrier complies with the Schedule, namely that it is at least 1.2m above the ground, at least 1.2m above any permanent projection from or object permanently placed on the outside of the fence, and it is constructed of steel rods.
- 5.31. The owners have acknowledged that the gaps between the vertical metal bars are greater than the 100mm allowed for under the Schedule but are of the view this is mitigated by the presence of the hedge, which grows through the bars, making the gaps between the vertical metal bars impenetrable. For these reasons, the owners consider that the southern section of the barrier continues to comply with the

¹⁰ See appendix 4 for section 3 of the Building Act 1991.

¹¹ Previous determinations, such as 2016/002 (regarding the issue of a dangerous building notice in respect of a damaged shared driveway), have discussed the meaning of the word "structure" in relation to the definition of 'building' under the Act.

Schedule of the FOSPA, and hence complies with section 162C. In a later submission the owners state that the gap between the railings is 100mm and provided photos to demonstrate this. The photo appears to show a gap that is greater than 100mm, but smaller than 110mm.

5.32. I do not agree with the owners' assessment of compliance with the Schedule of FOSPA for two reasons. The first is the presence of permanent projections and objects on the outside of the fence. The second is that the fence does not comply in respect of the gaps between the vertical bars.

5.33. Clause 1(1) of the FOSPA Schedule states:

- 1(1) The fence shall extend—
- (a) at least 1.2 metres above the ground on the outside of the fence; and
 - (b) at least 1.2 metres above any permanent projection from or object permanently placed on the ground outside and within 1.2 metres of the fence.

5.34. The southern section of the barrier meets the first criteria set out in 1(1)(a); it measures at least 1200mm high and is constructed on top of the deck which is approximately 600mm high, giving an overall height of at least 1800mm.

5.35. However, I consider that the second criteria is not met. I note the requirement in clause 1(1)(b) of the Schedule of the FOSPA is simply that the fence should extend 1.2m above "any permanent projection from or object permanently placed on the ground outside and within 1.2 metres of the fence"; it does not specify that these projections or objects must be climbable.

5.36. The Guidelines for Territorial Authorities published in 1999 provided the following explanatory notes with respect to clause 1 of the Schedule¹²:

This means, for example, that the fence must be at least 1.2 metres above the level of any decking outside of it. It also means there must be no trees, hedges, or stacks of wood, etc, which can be climbed, within 1.2 metres of the outside of the fence.

5.37. In terms of applying clause 1 of the FOSPA schedule, this guidance supports my view that the hedge is an object external to the fence and recognizes that FOSPA sought to ensure the area around the exterior of the fence does not have permanently placed objects that would compromise the effectiveness of the fence in restricting access by young children.

5.38. When contemplating the types of objects that may be 'permanently placed', the Guidelines for Territorial Authorities refers to objects like "trees, hedges or stacks of wood". While they are not permanent to the same degree as a fixed structure, such

¹² See page 32, "Guidelines for Territorial Authorities on The Fencing of Swimming Pools Act 1987" (Department of Internal Affairs) 1999

as a deck or pergola, the fact that they have been listed as examples indicates to me that they meet the necessary level of 'permanence' contemplated by the Schedule. I consider that the hedge is "an object placed permanently on the ground outside and within 1.2 metres of the fence" and therefore clause 1 of the FOSPA schedule is not met.

- 5.39. Turning now to the fence itself, I consider the FOSPA Schedule is not met with respect to the spacing of the vertical metal bars. Clause 4 of the Schedule requires that "...the spacing between adjacent vertical pales, panels, or other posts shall not exceed 100 mm at any point." The owners have acknowledged the spacing exceeds 100mm and this is supported by photos in the authority's report of the old eastern section of the fence constructed from the same type of fencing, showing gaps of approximately 110mm, as well as the owner's photos.
- 5.40. The owners contend that the size of the gap is reduced and mitigated by the presence of the hedge. However, for the reasons set out in paragraphs 5.14 to 5.17, I do not consider the hedge forms part of the fence for the purpose of establishing compliance with the Schedule. I note also that clause 3 of the Schedule required "All materials and components shall be of a durable nature", and in my opinion the hedge would not meet that requirement.
- 5.41. The fence did not comply with clause 4 of the Schedule from the outset because it had been constructed with spacings exceeding 100mm between adjacent vertical bars. It therefore follows that the fence did not comply with the Schedule to FOSPA when it was constructed, nor did it comply immediately before 1 Jan 2017, and so it cannot be said to be continuing to comply.
- 5.42. For these reasons, I conclude the southern section of the owners' pool barrier does not achieve compliance with section 162C by way of the Schedule to FOSPA and section 450B(2) of the Act.

Compliance with the current Building Code

- 5.43. Section 162C(2)(a) of the Act provides for the current Building Code to be used as a means of compliance. This is available for all residential pool barriers, irrespective of when they were constructed.
- 5.44. The clause of the current Building Code that applies is Clause F9 – Means of restricting access to residential pools, and the relevant code clauses are as follows:

Objective

F9.1 The objective of this provision is to prevent injury or death to young children involving residential pools.

Functional requirement

F9.2 Residential pools with a maximum depth of water of 400mm 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.

Performance

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).

...

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

5.45. There are various means by which building work can be shown to comply with the Building Code, including demonstrating compliance with the relevant Acceptable Solution¹³. For clause F9, this is Acceptable Solution F9/AS1. The relevant paragraphs of F9/AS1 are as follows:

2.0 Barriers surrounding the immediate pool area

...

2.1.3 ...There shall be no openings in the *pool* barrier that a 100mm diameter sphere could pass through.

...

2.1.6 There shall be no ground features or objects outside a *pool* barrier within 1200mm of the top of the barrier that would assist a child in climbing. [Figure 2] gives acceptable methods for evaluating this requirement.

...

5.46. Some of the requirements in F9/AS1 are like those in the Schedule to FOSPA. In particular, the requirement in paragraph 2.1.3 of F9/AS1 that there shall be no openings in a pool barrier that a 100mm diameter sphere could pass through, has a similar impact to the restriction in the Schedule that vertical elements cannot be more than 100mm apart.

5.47. Also similar is the prohibition in paragraph 2.1.6 of F9/AS1 on ground features or objects outside and within 1200mm of the top of a pool barrier. There are some differences between this paragraph and the equivalent provisions in clause 1(1)(b) of the FOSPA Schedule, notably that under F9/AS1 the feature or object no longer needs to be permanent, but it would “assist a child in climbing”.

5.48. For the same reasons I discussed in relation to the FOSPA Schedule, I do not consider the southern section of the owners’ pool barrier meets the requirements in paragraphs 2.1.3 and 2.1.6 of F9/AS1. Due to the spacing of its vertical bars being approximately 110mm, the barrier has multiple openings that a 100mm sphere

¹³ Section 22(2) provides “A person who complies with an acceptable solution or a verification method must, for the purposes of this Act, be treated as having complied with the provisions of the building code to which that acceptable solution or verification method relates”.

could pass through. It also has an object, namely the hedge, outside it that is within 1200mm of the top of the barrier and in my opinion, the branches of the hedge are graspable and offer footholds that would assist a child to climb the barrier.

- 5.49. For these reasons, I do not consider the southern section of the pool barrier complies via F9/AS1.
- 5.50. However, Acceptable Solutions are not the only means of demonstrating compliance. Building work can also achieve compliance as an alternative solution, provided that the performance requirements in the Building Code are being met. I note section 7 of the Act defines performance criteria as “qualitative or quantitative criteria that the building is required to satisfy in performing its functional requirements.” Functional requirements are defined as “those functions that the building is required to perform for the purposes of this Act”.
- 5.51. Section 18 states that “building work is not required to achieve performance criteria which are additional to, or more restrictive than the performance criteria”. However, that is not to say that the performance criteria are to be applied in a vacuum. Broadly speaking, the Building Act is concerned with the design and construction of buildings, and the Building Code seeks to accomplish the purposes and principles of the Act by setting objectives and prescribing functional and performance requirements with which building elements must comply. Therefore, the performance criteria, functional requirements and objectives of the Building Code, and the principles and purposes of the Act are all linked and must be interpreted and applied consistently with each other.
- 5.52. In this case, the relevant performance requirement F9.3.3 states that the barrier must have “no permanent objects or projections on the outside that could assist children in negotiating the barrier”. As earlier discussed, the hedge is a permanent object that provides hand and footholds that could assist children to negotiate the barrier. Therefore, the hedge impacts negatively on the ability of the barrier to achieve the functional requirement stated in F9.2 and compliance with clause F9.3.3 is not achieved.
- 5.53. Turning now to clause F9.3.1, which requires a barrier that restricts access to the pool area by unsupervised young children. The owners contend the hedge is a form of mitigation for the gaps between the vertical bars and makes the barrier impenetrable. I disagree. The hedge is not a building and therefore not part of the barrier being assessed. The Building Code has envisaged that the effectiveness of a barrier may be compromised by objects that are not building work (as in F9.3.3). However, the building work itself must comply. In considering compliance of the barrier with the requirement to restrict access to the pool area, I must therefore disregard the presence of the hedge and assess the barrier independently of it.
- 5.54. Now I move onto assessing whether the barrier with gaps greater than 100mm meets F9.3.1 in performing the functional requirement of F9.2, to prevent unsupervised access by children under five.

- 5.55. I acknowledge that gaps that are slightly larger than 100mm may restrict the movement of unsupervised young children through to the pool area. However, that raises the question of what the upper limit might be for gaps in pool barriers. FOSPA, New Zealand Standard 8500:2006¹⁴ and F9/AS1 all consistently prescribe 100mm as the effective quantitative measure in restricting access, and in the following paragraphs I have commented at length on why I consider 100mm is an appropriate limit for gaps in pool barriers.
- 5.56. In 1994, MBIE's predecessor, the Building Industry Authority (BIA)¹⁵ published an article entitled "Barriers-why the 100 mm diameter sphere?".¹⁶ The article noted the dimension concerns the size of a child's head – once the head is pushed through an opening, the body is flexible enough to follow. It noted, with reference to a New Zealand standard¹⁷, that the 100mm sphere test was appropriate because head widths for children under 6 years of age ranged from 110-130mm for 1-year olds, to 130-140mm for 5-year-olds. It also noted that the adoption of the 100mm sphere dimension is to "stop not only a child passing completely through a barrier, but also to prevent its body passing through and the head becoming trapped."
- 5.57. International standards also take this approach. In 2008 the European Consumer Voice in Standardization (ANEC) commissioned a report on "Dimensions and Designs of Swimming Pool fences and balcony and stairs barriers to protect children from falling and from passing through, below or above"¹⁸. This report noted that gaps may be wide enough for a child's chest to pass through but not the head. It considered that "head entrapment might also occur by head-first, this generally occurs when children place their heads through an opening in one orientation, turn their heads to a different orientation, then are unable to withdraw from the opening." The study included, by way of illustration, several photographs showing that a gap of 110mm allows the child's body to pass while entrapping the head.
- 5.58. The following year ANEC published another report on "Child Safety Barriers"¹⁹ observing that the World Health Organization concluded that safety barriers will not itself be a "hazard in terms of entrapment if the gaps are smaller than 10cm". It also observed that 100mm was the consistent measure for both pool fences and barriers in general across the United States, Australia, France, United Kingdom and Sweden.

¹⁴ NZS 8500:2006 at paragraph 3.3.7.

¹⁵ The BIA was replaced in Nov 2004 by the Department of Building and Housing (DBH) and in July 2012 it became part of MBIE.

¹⁶ BIA News, no. 32, April 1994. See Appendix 6 for the full article.

¹⁷ NZS 5828: Specifications for playgrounds and playground equipment, Part 3:1986 Design and construction – safety aspects

¹⁸ Carlos Neto and others *Dimensions and Design of swimming pool fences and balcony and stairs barriers to protect children from falling through and from passing through, below or above* (study commissioned by ANEC (European Association for Consumer Representation in Standardisation)). An extract is in Appendix 7.

¹⁹ Ann-Sofie Engdahl, Patrik Spanglund and Erika Waller *Child Safety Barriers* (study commissioned by ANEC (European Association for Consumer Representation in Standardisation)). An extract is in Appendix 5.

- 5.59. As discussed earlier at 5.51, I must interpret the performance criteria consistently with the preceding functional requirement, the objective, and the wider purposes and principles of the Act.
- 5.60. The objective in F9.1 is to “prevent injury or death to young children involving residential pools”. The means by which this is achieved is by using a barrier to restricting access to the pool and its immediate area by unsupervised young children.
- 5.61. As to the wider purposes of the Act, I turn to section 3(a), which ensures that “people who use buildings can do so safely without endangering their health...”. In satisfying the performance criteria, functional requirement and objective of the Building Code, the way a pool barrier restricts children from moving into the pool area must not endanger the health of the children.
- 5.62. I am also mindful of section 4 of the Act and the principles to be applied in performing functions or duties or exercising powers under the Act, as applicable to me under section 4(1)(b). In particular, under s4(2)(a), the importance of building code compliance as it relates to household units and the role it plays in the lives of people that use them. More specifically, s4(2)(b) states there is a need to “ensure that any harmful effect on human health resulting from the use of particular building methods or products of particular building design, or from building work, is prevented or minimised.”
- 5.63. In assessing compliance with the relevant performance criteria, I must also ensure that the building design seeks to prevent or at least minimise any harmful effects on building users, which, in this case, are young children. As such, I must have regard to their safety. Having due regard to the circumstances of this case, it would not be sensible or appropriate for me to conclude that the barrier complies as an alternative solution when extensive evidence exists to suggest that the gaps in the fence present an entrapment risk, and there is a solution that avoids this additional harm or hazard, which is limiting gaps to no more than 100mm.
- 5.64. For the reasons I have considered above, I conclude the southern section of the pool barrier does not comply with F9.
- 5.65. It is not for me to say how the pool barrier is to be brought into compliance with the Building Code. That is for the applicant to propose and for the authority to accept or reject.

6. Conclusion

- 6.1. I conclude that the metal fence on the southern section of the owners’ pool barrier does not comply with section 162C of the Act by way of any of the three pathways discussed:
- 6.1.1. the criteria under section 162C(2)(b) are not met

6.1.2. it does not comply with the FOSPA Schedule

6.1.3. it does not comply with the current Building Code clause F9.

7. Decision

7.1. In accordance with section 188 of the Building Act 2004, I determine that the metal fencing on the southern section of the barrier to the owners' residential swimming pool does not comply with section 162C of the Act.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 10 October 2023.

Peta Hird

Principal Advisor Determinations

Appendix 1: Schedule to the Fencing of Swimming Pools Act 1987

2 Interpretation

In this Act, unless the context otherwise requires,—
fence—

(a) means a fence that complies with the requirements of the building code in force under the Building Act 2004 in respect of swimming pools subject to this Act; and

(b) includes any part of a building and any gates or doors that form part of the fence

Fence: this definition was amended, as from 1 July 1992, by section 92(1) Building Act 1991 (1991 No 150) by substituting the words “building code in force under the Building Act 1991 in respect of swimming pools subject to this Act;” for the words “Schedule to this Act”.

fence: this definition was substituted, as from 31 March 2005, by section 414 Building Act 2004 (2004 No 72). See subpart 4 of Part 5 of that Act (comprising sections 416 to 451) as to the transitional provisions.

Schedule

Means of compliance for fences under this Act

Height

1(1) The fence shall extend—

(a) at least 1.2 metres above the ground on the outside of the fence; and

(b) at least 1.2 metres above any permanent projection from or object permanently placed on the ground outside and within 1.2 metres of the fence.

(2) Notwithstanding subclause (1), where the fence is constructed of perforated material, netting, or mesh and any opening in the material, netting, or mesh has a dimension (other than the circumference or perimeter) greater than 10 mm, the fence shall extend at least 1.8 metres above the ground or the projection or object.

Ground clearance

2 Any clearance between the bottom of the fence and ground level shall not exceed 100 mm.

Materials

3 All materials and components shall be of a durable nature and shall be erected so as to inhibit any child under the age of 6 years from climbing over or crawling under the fence from the outside.

...

Appendix 2: Extracts from Acceptable solution F9/AS1

2.0 Barriers surrounding the immediate pool area

...

2.1 Pool barriers

2.1.1 A *pool* barrier can be a fence but may also take other forms of construction, such as a concrete block wall. ...

2.1.2 *Pool* barriers not on a property boundary shall have a height of not less than 1200mm from the finished floor or ground level outside the *pool* barrier.

2.1.3 *Pool* barriers shall not be angled more than 15° degrees from vertical and may only slope away from the *pool*. Any rails, rods or wires forming a part of a *pool* barrier that are not themselves vertical shall be at least 900mm apart vertically to restrict climbing. There shall be no openings in the *pool* barrier that a 100mm diameter sphere could pass through.

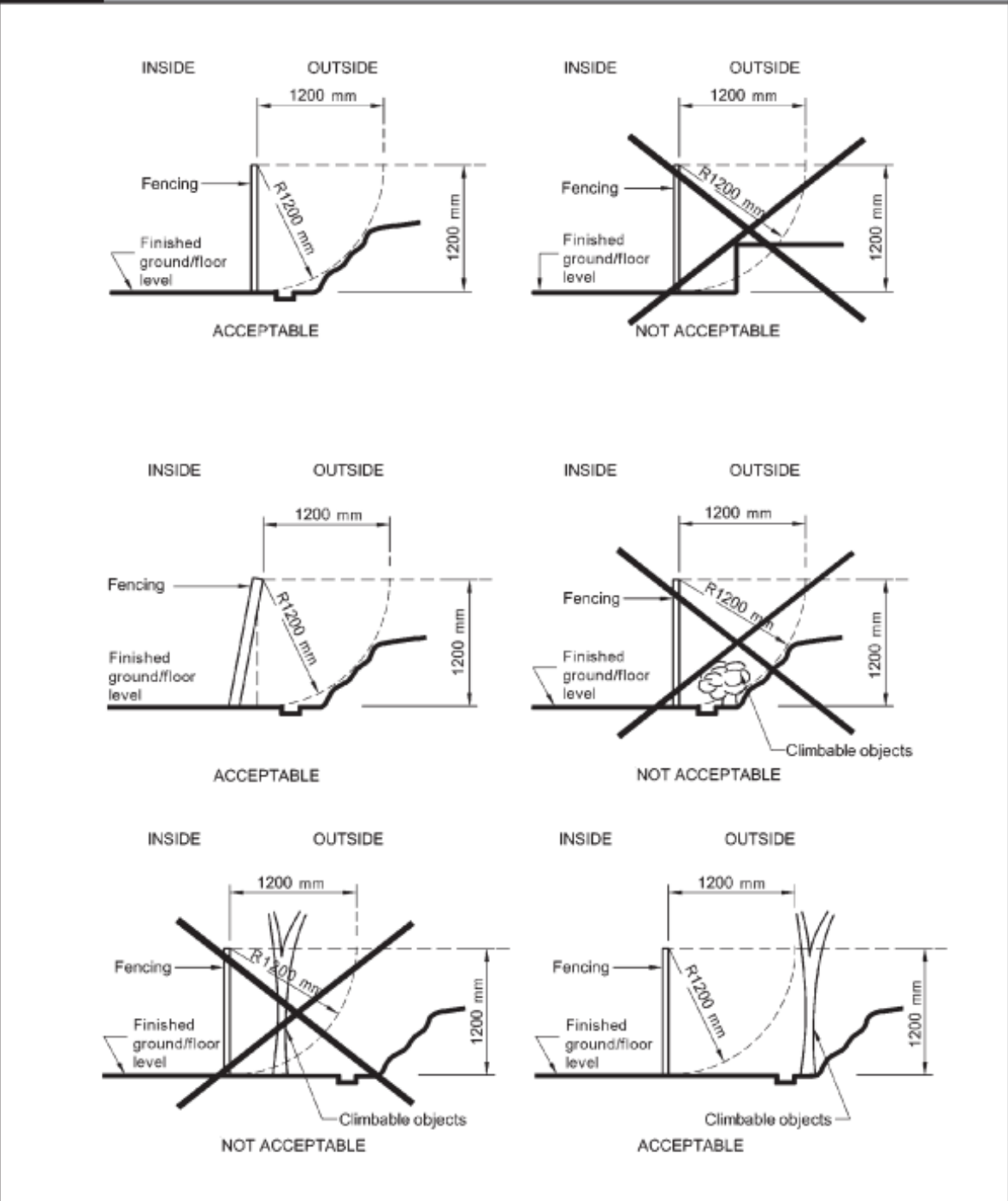
2.1.4 [Figure 1] shows acceptable ways of constructing *pool* barriers that are not on a property boundary. ...

2.1.6 There shall be no ground features or objects outside a *pool* barrier within 1200mm of the top of the barrier that would assist a child in climbing. [Figure 2] gives acceptable methods for evaluating this requirement.

2.1.7 Any projections or indentions on the outside face of a pool barrier shall not have a horizontal projection from the face of the pool barrier greater than 10mm unless they are at least 900mm apart vertically.

...

Figure 2: Determining pool barrier height
Paragraph 2.1.6



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Appendix 3: Building Act 2004

3 Purposes

This Act has the following purposes:

- (a) to provide for the regulation of building work, the establishment of a licensing regime for building practitioners, and the setting of performance standards for buildings to ensure that—
- (i) people who use buildings can do so safely and without endangering their health; and
 - (ii) buildings have attributes that contribute appropriately to the health, physical independence, and well-being of the people who use them; and
 - (iii) people who use a building can escape from the building if it is on fire; and
 - (iv) buildings are designed, constructed, and able to be used in ways that promote sustainable development:
- (b) to promote the accountability of owners, designers, builders, and building consent authorities who have responsibilities for ensuring that building work complies with the building code.

4 Principles to be applied in performing functions or duties, or exercising powers, under this Act

1) This section applies to—

...

- (b) the chief executive; and

...

(2) In achieving the purpose of this Act, a person to whom this section applies must take into account the following principles that are relevant to the performance of functions or duties imposed, or the exercise of powers conferred, on that person by this Act:

- (a) when dealing with any matter relating to 1 or more household units,—
- (i) the role that household units play in the lives of the people who use them, and the importance of—
 - (A) the building code as it relates to household units; and
 - (B) the need to ensure that household units comply with the building code:
 - (ii) the need to ensure that maintenance requirements of household units are reasonable:
 - (iii) the desirability of ensuring that owners of household units are aware of the maintenance requirements of their household units:
 - (b) the need to ensure that any harmful effect on human health resulting from the use of particular building products, building methods, or building designs, or from building work, is prevented or minimised:

...

Appendix 4: Building Act 1991

3. Meaning of “building”

- (1) In this Act, unless the context otherwise requires, the term building means any temporary or permanent movable or immovable structure (including any structure intended for occupation by people, animals, machinery, or chattels); and includes any mechanical, electrical, or other system, and any utility systems, attached to and forming part of the structure whose proper operation is necessary for compliance with the building code; but does not include—
- (a) Systems owned or operated by a network utility operator for the purpose of reticulation of other property; or
 - (b) Cranes, including any cranes as defined in any regulations in force under the Health and Safety in Employment Act 1992; or
 - (c) Cablecars, cableways, ski tows, and other similar stand-alone machinery systems, whether or not incorporated within any other structure; or
 - (d) Any description of vessel, boat, ferry, or craft used in navigation, whether or not it has any means of propulsion, and regardless of that means; nor does it include —
 - (i) A barge, lighter, or other like vessel;
 - (ii) A hovercraft or other thing deriving full or partial support in the atmosphere from the reactions of air against the surface of the water over which it operates;
 - (iii) A submarine or other thing used in navigation while totally submerged; or
 - (e) Vehicles and motor vehicles (including vehicles and motor vehicles as defined in section 2(1) of the Land Transport Act 1998), but not including vehicles and motor vehicles, whether movable or immovable, which are used exclusively for permanent for long-term residential purposes; or
 - (ea) Aircraft, including any machine that can derive support in the atmosphere from the reactions of the air otherwise than by the reactions of the air against the surface of the earth; or
 - (f) Containers as defined in section 2 of the Dangerous Goods Act 1974; or
 - (g) Magazines as defined in section 2 of the Explosives Act 1957; or
 - (h) Scaffolding used in the course of the construction process; or
 - (i) Falsework used in the course of the construction process.
- (2) For the purposes of Part 9 of this Act, a building consent, a code compliance certificate, and a compliance schedule the term ‘building’ also includes —
- (a) Any part of a building; and
 - (b) Any 2 or more buildings which, on completion of any building work, are intended to be managed as 1 building with a common use and a common set of ownership arrangements.

...

Appendix 5: Extract from Child Safety Barriers (study commissioned by ANEC (European Association for Consumer Representation in Standardisation)).

1.4 Rules, regulations and standards

Present rules and standards are varying, see Table 1.1, both for pool fences and for barriers in general. The first five of the standards in Table 1.1 address barriers for swimming pools and the others address general barriers. The specifications are also normally general and allow for variations that may unintentionally facilitate climbing. This should be kept in mind when analysing and proposing different solutions aimed at uniformity and at a better and more transparent correlation between the design of a barrier and its ability to prevent climbing. It is worth noting that pool accidents are most common for smaller children up to 3 years, while children of all ages are subjected to fall accidents.

Table 1.1 Regulations and standards.

Standard/ Regulation	Country/ Region	Height [m]	Gaps [mm]	Mesh [mm]	NCZ* [m]	Age*** [year]
WHO	World	1.2	100	-		
CPSC	US	1.2	100	45.5		
AS 1926.1-2007	Australian	1.2	100	13-100**	0.9	5
NZS 8500:2006	New Zealand	1.2	100	10-53**	0.9	6
NF P 90-306	France	1.1	102		1.1	5
BS 6180:1999	UK	1.1	100			5
EN 1176-1:2008	Europe		89			
BFS 2008:6 BBR 15	Sweden	1.1	100			

* NCZ - Non climbable zone

** Depends on height of the barrier

***Upper limit of protected age group

To help preventing drowning of young children in swimming pools, the WHO [1] recommends that barriers should be 1.2 m high and have no hand- or footholds that could enable a young child to climb it. It is also concluded that the safety barrier is not a hazard itself in terms of entrapment if the gaps are smaller than 10 cm. These two measures, height and gap between bars, seem to be the ones that are specified in most standards. There is some variation even in those.

Regarding gaps, it is recommended by the US Consumer Product Safety Commission (CPSC) [6] that they should be less than 4 inches (10.16 cm) to prevent a child from being squeezed. According to the Swedish code BFS 2008:6 BBR 15 [9] horizontal openings above the balcony front should be designed so that children cannot get stuck with the head, and the range of 110-230 mm should be avoided. To prevent small children from getting through with the torso and getting stuck with the neck/head, the gap should be limited to 89 mm [10]. In EN1176-1:2008 the range of 89-230 mm must be avoided for openings (89 x 157 mm being the dimensions for the "torso" probe). [14], [15] and [16] give maximum gaps of 100 mm. To find a reasonable limit, anthropology data of head and body dimensions for small children 6-12 months can be studied. According to BS 7231-1:1990 [8] a 6 month old infant's head has a diameter of 140 mm. Because the head is not round, the test probe for a small head is between 100 and 130 mm in diameter SS-EN 1176-1:2008 [10].

Appendix 6: Extract from BIA news no. 32 April 1994

Barriers

why the 100 mm diameter sphere?

What is the purpose of Paragraph 1.2.1 (a) of acceptable solution F4/AS1 which states that barriers where children are likely to be present shall have "No openings through which a 100 mm diameter sphere can pass"?

The important dimension in any barrier intended to resist children is the size of a child's head. Once the head is pushed through an opening a child's body is flexible enough to follow.

The heads of babies and young children are very large in proportion to their bodies. Tests have shown that a child's body can fit through an opening that is approximately 90 percent of the size of the opening through which the head can pass. Much research has been done overseas on the dimensions needed to restrict young children and provide a safe environment for them. These design considerations apply not only to gaps in a barrier balustrading but also to cots, playpens and similar equipment.

A key dimension that became apparent was that the 99 percentile head width for a 2-year-old child is about 115 mm; the chest width therefore corresponds to about 105 mm. Thus a figure of 100 mm for the maximum opening in children's equipment became a standard dimension.

The New Zealand Building Code, along with the British, Canadian and Swedish codes, adopted the 100 mm sphere dimension to stop not only a child passing completely through a barrier but also to prevent its body passing through and the head becoming trapped.

A New Zealand standard* which gives specific data on head widths for New Zealand children shows that the 100 mm sphere test is appropriate in this country. Head widths for children under 6 years of age range from 110-130 mm for 1-year-olds to 130-140 mm for 5-year-olds.

Preventing the passage of children through barriers is a necessary requirement of the building code. Injury from falls from buildings rates significantly among child hospitalisation statistics. In 1989 alone, 204 children under 6 were admitted to hospital from falls from buildings, and of these, 53 fell from a balcony, veranda or patio.



*NSZ 5828: *Specification for playgrounds and playground equipment, Part 3:1986 Design and construction - safety aspects.*

Appendix 7: Report commissioned by ANEC “Dimensions and designs of swimming pool fences and balcony and stairs barriers to protect children from falling and from passing through, below or above”

generally occurs when children place their heads through an opening in one orientation, turn their heads to a different orientation, then are unable to withdraw from the opening.

- Advanced (outwards) guards, outside the building profile: guards can have a space between them and the front wall of the building or the edge of the balcony floor. Children that walk or

crawl in a balcony with that type of protection might easily lose support of their feet or hands and a total or partial fall might occur.

- Handholds and footholds: many balconies are designed with gaps in their structure or may have chairs, flowers, plants or other decorative elements in the vicinity, that provide good support if a child wants to climb.



Figure 1 - A gap of 11 cm allows the child's body to pass entrapping the head.

The design of good barriers has probably the same cost as the design of unsafe barriers, but safe barriers will save lives and money spent on fall related injuries. Some aspects of barrier design are discussed next.

Maximum height of a barrier – measured from the floor to the top of the barrier.

The value for the height of the barrier is frequently defined in the interval from 0,90 m to 1,10 m. Despite these values there are some cases where we can see extreme values as 0,70 m (French Standard for non housing barriers with top $\geq 0,60$ m) and 1,40 m (Italian Standard).

