

Determination 2022/006

The compliance with Clause F9 Means of restricting access to residential pools of a pool barrier incorporating a microchip operated pet door

90 Lakings Road, Blenheim

Summary

This determination considers whether the pool barrier that incorporates a pet door with modifiable controls complies with Clause F9 – Means of restricting access to residential pools of the Building Code. The determination assesses the compliance of the barrier against the Acceptable Solution F9/AS1 and as an alternative solution.



In this determination, unless otherwise stated, references to “sections” are to sections of the Building Act 2004 (“the Act”) and references to “clauses” are to clauses in Schedule 1 (“the Building Code”) of the Building Regulations 1992.

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

Extracts from the Acceptable Solution F9/AS1¹ and New Zealand Standard NZS 8500:2006² (“NZS8500”) discussed in this determination are contained in Appendix A.

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 Ministry³.
- 1.2. The parties to the determination are:
 - 1.2.1. the owner of the property, C Munro, who applied for this determination (“the owner”)
 - 1.2.2. Marlborough District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.
- 1.3. This determination arises from a disagreement between the parties about the compliance of a microchip operated pet door that is installed on a gate on the east side of the property.
- 1.4. The owner has sought the determination as a way to confirm whether the same type of microchip operated pet door that is installed in the gate can be used to replace two existing pet doors.
- 1.5. The matter to be determined⁴ is whether the section of the pool barrier that has the microchip operated pet door complies with Clause F9 – Means of restricting access to residential pools of the Building Code.

Matters outside this determination

- 1.6. The immediate pool area and the remaining parts of the barrier are outside the scope of this determination. I have not considered the authority’s decision to grant

¹ Acceptable Solution F9/AS1 for New Zealand Building Code Clause F9 Means of restricting access to residential pools

² Safety barriers and fences around swimming pools, spas and hot tubs.

³ The Building Act 2004, section 185(1)(a) provides the Chief Executive of the Ministry with the power to make determinations.

⁴ Under section 177(1)(a) of the Act.

The pet door

- 2.2. The microchip operated pet door (“the pet door”) is located on a gate on the east side of the immediate pool area. The flap of the pet door can open in both directions and provides entry and exit from the pool area into a garden.
- 2.3. The microchip pet door measures 178mm (W) x 170mm (H). It is designed for large cats and small dogs and has been installed at a low height for ease of access for the pet (See Figure 2).
- 2.4. The pet door is designed to allow selective entry/exit through the recognition of microchips that are commonly used for pet identification, either under the pet’s skin or in a supplied tag that can be attached to the pet’s collar. The microchip reader is located inside the unit and a pet has to be close to the flap for the reader to detect the microchip, which then unlocks the pet door.
- 2.5. Once a pet has been through the door it automatically closes and locks using a magnetic catch. The time between the pet passing through the door and the door locking can be set to anything between 1 – 10 seconds.
- 2.6. The pet door has a control panel to select different operating modes. The control panel is located on the top of the pet door under a panel. To change the settings, the panel must be removed, and buttons pressed to select an operating mode. The settings remain visible on the LCD screen when the panel is put back in place.
- 2.7. The pet door has several operation modes for selective entry – meaning only a pet with a microchip can move through the door. The locking modes built into the device include:
 - 2.7.1. Mode 1: normal operation – the pet can enter and exit at all times.
 - 2.7.2. Mode 2: in only – the pet is allowed to enter but is prevented from exiting.
 - 2.7.3. Mode 3: out only – the pet is allowed to exit but is prevented from entering.
 - 2.7.4. Mode 4: fully locked – the pet is prevented from entering or exiting.
 - 2.7.5. Mode 5: curfew mode – the pet is allowed to exit during certain times.
- 2.8. The door can be changed from any of these modes to a manual mode, which means the microchip reader is disabled and the pet door will move freely. In this setting the door will be able to open and close without a microchip. There is also the option of changing the time for the door to lock after the pet has moved through; this can be up to 10 seconds.

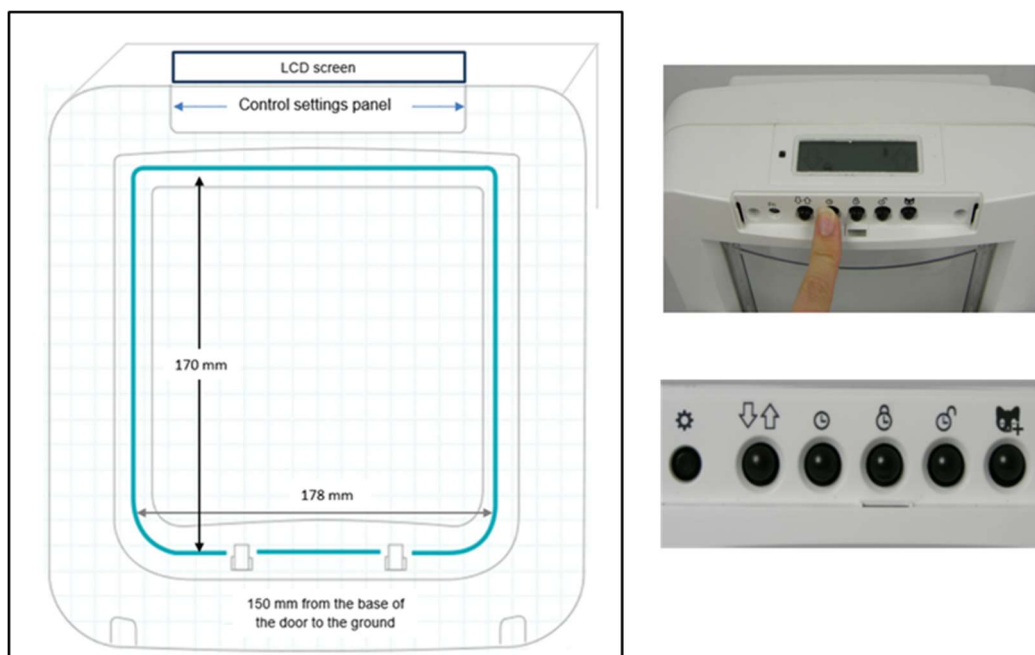


Figure 2: Sketch with measurements of the pet door. In the image: Photo 1: LCD screen and Photo 2: control panel.

3. Background

- 3.1. The dwelling and pool were built under a building permit in 1973. The two manually operated pet doors were installed circa 1988.
- 3.2. In 2017 and 2019 the owner carried out additions and alterations to the existing dwelling under building consents BC171449 and BC190897⁵.
- 3.3. The glass barrier around the pool was installed, and in September 2020 the architect for the owner applied for an amendment to BC171449 that included the use of the microchipped pet door in the pool barrier.
- 3.4. The authority responded stating:

The pet door needs to be removed / permanently closed off. It (*sic*) a) opening is greater than 100mm b) pet doors are prohibited from opening into the immediate swimming pool area. Just “Locking” is not sufficient as it needs to be a permanent solution.
- 3.5. Correspondence continued between the parties about how the pool barrier was to achieve compliance.
- 3.6. The authority also considered whether the pet door complied as an alternative solution but concluded that “even if pet door can only be opened by the [microchip]

⁵ A code compliance certificate was issued for BC190897 on 28 November 2019.

as the current property owner's standard set up, there are options to change that setting with the flick of a dial ...".

3.7. The Ministry received an application for a determination on 30 September 2020.

4. Submissions

The owner

4.1. The owner believes the pet door complies with the Building Code for the following reasons:

- 4.1.1. The opening and closing of the door is electronically and magnetically controlled. The door only opens if an animal with an approved microchip travels through it.
- 4.1.2. The door operates with a microchip and once programmed the pet door will only allow access for the specific pet.
- 4.1.3. After the pet door has opened, it will stay unlocked until after the pet has passed through the tunnel. The locks will close around one second later.
- 4.1.4. The facts of this case are not directly relevant to the previous determination (2017/045)⁶ referred to by the authority.
- 4.1.5. The current legislation was created prior to the development of the technology for these pet doors. However, the pet door is conceptually similar to pool gates that are not able to be opened by a child. An owner can leave any gate open by adding an obstruction to hold the gate open or propping the gate open; there is no difference between that and an owner changing the control settings of the pet door.

The authority

4.2. The authority has indicated the following views on the matter (in summary):

- 4.2.1. Given the intent of the Building Code, the pet door does not comply with the code.
- 4.2.2. Pet doors where they have openings greater than 100mm do not comply with any compliance documents or regulations (including the Acceptable Solution, the Fencing of Swimming Pools Act 1987, the Building Code and NZS8500).

⁶ Determination 2017/045 regarding compliance of a barrier to a swimming pool (21 June 2017).

- 4.2.3. The standard NZS8500, paragraph 3.7 states, “Pet doors to the immediate pool area are prohibited”.
- 4.2.4. In Acceptable Solution F9/AS1, paragraph 2.1.3, it states, “There shall be no openings in the pool barrier that a 100mm diameter sphere could pass through”.
- 4.2.5. The authority further indicated that pet doors are prohibited from opening into the immediate swimming pool area and that just “locking” is not sufficient and a more a permanent solution is required.
- 4.2.6. The pet door needs to be removed/permanently closed off as it has an opening greater than 100mm.
- 4.2.7. The authority referred to previous determinations⁷ where a pet door was deemed non-compliant, and the authority is not satisfied that the addition of a microchip activator renders the door any more compliant.

The draft determination

- 4.3. A draft determination was issued to the parties for comment on 4 August 2021.
- 4.4. The authority on the 8 August 2021 accepted the draft determination.
- 4.5. The owner, on the 1 September 2021, indicated that they also accepted the draft without any further comments.

5. Discussion

The legislation

- 5.1. Section 17 of the Act provides “All building work must comply with the Building Code to the extent required by this Act...”. Because the building work to install the glass fence and installation of the pet door in the east gate occurred in 2019 or 2020, the relevant Building Code clause is F9.
- 5.2. Swimming pools and spa pools present a risk to young children. Clause F9 aims to prevent injury or death of young children involving residential pools, by requiring physical barriers that restrict access of unsupervised young children to the immediate pool area.

⁷ Determination 2017/045 regarding compliance of a barrier to a swimming pool at 5 Hillary Street, Chedworth, Hamilton (21 June 2017); Determination 2011/071 regarding the compliance of outward opening doors to a pool area at 19 Wright Road, Point Chevalier (21 July 2011).

5.3. The functional requirement of Clause F9.2 states:

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.

5.4. The performance requirement of Clause F9.3.1 states:

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

Compliance by way of the Acceptable Solution F9/AS1

5.5. Acceptable Solutions are one means of establishing compliance with the Building Code. A design that complies with an Acceptable Solution will be treated as having complied with the provisions of the Building Code to which that Acceptable Solution relates.

5.6. I have first considered whether the east gate with the microchip pet door, as part of the pool barrier, is constructed in accordance with Acceptable Solution F9/AS1.

5.7. Paragraph 2.1.3 of F9/AS1 states:

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

5.8. It could be argued that the microchip operated pet door is not an “opening”, on the basis that the operating modes allow it to be used in a manner that it remains closed and locked unless and until the microchipped pet accesses the door. However, because the operating modes are able to be changed to allow for free movement in either or both directions, I am of the view that for the purpose of assessing the pet door against F9/AS1 I must consider the size of the door when it is unlocked.

5.9. The dimensions of the opening in the pet door are 178mm x 170mm. This is larger than the openings provided for in F9/AS1 and therefore the Acceptable Solution is not met.

5.10. However, construction in accordance with an Acceptable Solution is only one way of establishing compliance and is not mandatory. A building consent authority cannot refuse to accept a design solution simply on the basis that it is not in accordance with an Acceptable Solution.

Compliance as an alternative solution

5.11. The Building Code is performance based and it is open to a pool owner to demonstrate that their barrier complies by some other means, referred to as an

alternative solution. What must be assessed in this situation is compliance with the performance criteria in Clause F9.

- 5.12. The Building Code is performance-based, meaning a building must achieve the performance criteria but the Building Code does not limit design flexibility or innovation in achieving performance.
- 5.13. In considering the pool barrier as an alternative solution proposal, I must be satisfied that it meets the performance criteria of Clause F9, specifically Clause F9.3.1. To comply with the performance requirements of Clause F9, barriers to the immediate pool area must restrict access by unsupervised young children.
- 5.14. It is important to note that the compliance requirement for pool barriers in Clause F9.3.1 is to “restrict access” to the pool area by unsupervised young children; it is not to “prevent” access. In other words, the requirement is not to construct a barrier that will keep all young children out; it is to construct a barrier that most children under the age of five years will be unable to get over or through, that all will find a challenge to navigate, and that will at least slow down or deter the most able.
- 5.15. Given the size of the pet door and its height from the ground, I am of the view that a child under five years of age would be able to fit and navigate through the pet door when it is unlocked. This compromises the barrier’s effectiveness in restricting access to the immediate pool area.
- 5.16. The owner contends the features of the pet door mean it will comply with Clause F9 as an alternative solution. The owner believes that because access via the pet door is selective, based on its use of the pet’s microchip to unlock it, and has settings to control how and when the pet door can be used, it will adequately restrict young children’s access.
- 5.17. I acknowledge the owner’s opinion about restriction of access and that based on operational features of the pet door it does restrict access to a certain extent. However, based on the reasoning below, I am not satisfied that the barrier with the pet door installed will restrict access of young children to the immediate pool area.

NZS 8500

- 5.18. The authority referred to New Zealand Standard NZS 8500 in its submission. The standard is not referenced in the Act as a means of compliance with the Building Code that must be accepted by building consent authorities⁸. While NZS 8500 is not cited as a compliance document for Clause F9, it was approved by the Standards Council and does represent a consensus of national bodies as a result of public consultation. As such, it can provide some guidance in assessing alternative solutions.

⁸ Section 22(2)

- 5.19. The standard requires various types of openings to be no more than 100mm. For example, windows that open into the immediate pool area, spacing between vertical members that form a barrier, and ground clearance below barriers, must all have openings or spacing of not more than 100mm.
- 5.20. Pet doors are specifically addressed in paragraph 3.7.1 of the standard, which prescribes requirements for doorsets to be child-resistant. This paragraph states:
- (i) Pet doors to the immediate pool area are prohibited.
- 5.21. The reference to pet doors is only included in the requirements for child-resistant doorsets – the standard is silent on pet doors being installed in anything other than doors. However, I do not read that omission as permitting pet doors to be installed in something other than a door where the pet door would give access to the immediate pool area.

Human Behaviour

- 5.22. The pet door has various modes in which it can operate. This raises the issue of human behaviour because the effectiveness of the pet door as part of the pool barrier relies on the appropriate operating mode being used and it not being disabled.
- 5.23. The District Court, in *Palmerston North City Council v Brian Green Properties (1971) Limited*⁹ considered human factors and the role of ‘human agency’ in the Building Code (also referred to as human behaviour or management practices):
- [57] The scheme of the Building Act, Building Code and Clause C4.2 itself, are concerned with how a building is designed and constructed to achieve its functional requirements [set out in the Building Code].
- [58] It is therefore incorrect to measure the functional and performance requirements of a building against the likelihood of human error. The [Building] code is not concerned with whether persons using a building will act or respond in a particular way, but **whether the building facilitates the functional requirement [set out in the Building Code] [my emphasis]; ...**
- 5.24. The 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 requirements and performance criteria with which aspects of buildings such as building elements and materials, spaces and amenities, and building systems must comply. One of the purposes of the Act¹⁰ is to ensure that people who use buildings can do so safely, and the mechanism for achieving that purpose is the regulation of building work and setting of performance standards.

⁹ *Palmerston North City Council v Brian Green Properties (1971) Limited* [2020] NZDC 1828.

¹⁰ Section 3 of the Act.

- 5.25. The legislation does not manage the actions of the building users – for example there is nothing in the Act or the Building Code that will ensure a supervising person removes young children from the pool area when they leave, or that a person does not carry out an action (such as propping open a gate or disabling an alarm) that would render an otherwise compliant barrier non-compliant. Rather the legislation manages building work to ensure the building does not contribute unnecessarily to risks of people using buildings.
- 5.26. The owner suggests that the pet door can be compared with the operation of a compliant gate, ie. that a self-latching and self-closing pool gate could be made non-compliant by being propped open to prevent it from closing. In this example of an otherwise compliant barrier, a user could place a weighted object in front of the gate to render the barrier ineffective. The owner is equating this with a person changing the operation mode of the pet door to disable the microchip reader.
- 5.27. Gates in pool barriers provide access into and out of the immediate pool area for users of the pool. A compliant gate, when closed, restricts the entry of young children. Gates are required to be self-closing and latching¹¹ to ensure the gate is returned to being an effective part of the barrier when it is not being used for access. In this way the behavioural risk, of remembering to close the gate, is taken out of the equation.
- 5.28. The significant difference with the pet door is that the ability to render the barrier ineffective is designed into the mechanism, and there is no equivalency in the design of a compliant pool gate.
- 5.29. For the pet door to be effective as part of the pool barrier, first the controls must be set to an operating mode that continuously restricts movement into the pool area without a microchip, and then the operating mode needs to remain on that setting. The controls to change the operating mode should not be easily accessible to a young child from outside the pool area, and a young child should not be able to follow a pet through the door. In addition, the locking mechanism would need to be strong enough that a young child is not likely to be able to force the flap open.
- 5.30. I have not received any information regarding the force that would need to be applied to the pet door for it to fail when it is locked.
- 5.31. I have considered the accessibility of the control panel and the likelihood a young child would be able to change the settings.
- 5.32. The height of the pet door is easily accessible by a young child. However, the control panel is protected by a plastic cover that needs some form of leverage to open it. The panel has a small area in which to place your finger or screwdriver to remove the cover. I do not have any information on how easy or challenging it would be for a child to remove the cover to obtain access the control panel.

¹¹ Building Code clause F9.3.3 (b) and (c)

- 5.33. Regardless of whether a child could easily remove the cover, the pet door installed in the east gate has the control panel on the pool side of the barrier. This means a child would not be able to access the controls to change the settings without first being in the pool area¹².
- 5.34. Now I turn to the general operation of the pet door. I consider it relevant that for the pet door to restrict access by a young child into the pool area, it must be set to an appropriate operation mode and then not changed. The setting of the operation mode relies on a person to make the correct selection, along with ensuring these settings remain as programmed and are not changed in the future.
- 5.35. Likewise, the delay settings for the locking mechanism would need to be set to an appropriate time that would restrict a child from being able to move through the pet door immediately after a pet and be maintained in that setting.
- 5.36. These factors mean that there is an inherent human agency risk in ensuring the pet door is always operating with the appropriate settings. With range of choice and ease of control over the settings comes a risk of human error in ensuring these settings are appropriately programmed to begin with and that the settings are not changed in the future.
- 5.37. I am of the view therefore that the pool barrier with the microchip operated pet door installed in the east gate does not comply with Clause F9 as an alternative solution.

6. Decision

- 6.1. In accordance with section 188 of the Building Act 2004, I hereby determine the pool barrier, with the microchip operated pet door installed in the east gate, does not comply with Clause F9 – Means of restricting access to residential pools.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 24 May 2022.

Peta Hird

Principal Advisor Determinations

¹² If the same type of unit was installed in a house, it is likely that the controls would be accessible from inside the house.

Appendix A

A.1. The relevant paragraph of Acceptable Solution F9/AS1:

2.0 Barriers surrounding the immediate pool area

...

2.1.3 Pool barriers shall not be angled more than 15° 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 900 mm apart vertically to restrict climbing. There shall be no openings in the pool barrier that a 100 mm diameter sphere could pass through.

A.2. New Zealand Standard NSZ 8500:2006 Safety barriers and fences around swimming pools, spas and hot tubs (“NZS8500”):

3.7 Child-resistant doorsets

3.7.1 Child-resistant doorsets shall comply with all of the following requirements.

- (a) Doors shall be fitted with a self-latching device that will automatically operate on the closing of the door and will prevent the door from being re-opened without manually releasing of the device;
- (b) Every door shall be fitted with a device that will automatically return the door to the closed and latched position when the door is stationary and 150mm from the closed and secured position;
- (c) The release for the latching device on the internal (house) side of the door shall be located not less than 1500mm above the floor;
- (d) There shall be no footholds wider than 10mm on the door or its frame between the floor and 1000mm above the floor;
- (e) The closing and latching of the door shall comply with 4.6
- (f) Horizontal members, vertical members, perforated materials or mesh, and finish shall comply with this Standard;
- (g) The door-set shall comply with the performance requirements for a gate for strength and rigidity of openings and strength of gate ...;
- (h) Doors from the house may swing in either direction; and
- (i) Pet doors to the immediate pool area are prohibited.