

## NZBC F9.2 / F9.3.1 / F9.3.4

AS1 and NZS 8500-2006 for pool safety compliance

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All door-sets depicted in this photo-shoot have been modified for child-pool safety compliance using door-set specific Swish Pool Access Safety Systems.

Pool safety compliance under FoSPA 1987 and / or, NZS 8500-2006 has seen door-sets shown Swish modified and approved since April 2005, as child and pool safe.



NZS 8500-2006 is now the reference document specified in the NZBC F9 – AS1 which provides non-mandatory Acceptable Solutions to the Act

These modified child-safe pool door-sets meet legislation under **NZBC F9.2 / F9.3.1 / F9.3.4** and contribute to child-safety in the home-pool environment.



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**NZBC F9 – Stated objectives:**

- 1. Reduce the danger of children aged up to 5 years, drowning in the home pool:**
  - a. Provide a pool barrier preventing child access when the pool is not being used
  - b. Preventing child access to the home pool without adult supervision
  - c. Reducing child drownings by 6 during the next 10 years
  
- 2. Make pool safety compliance easier by:**
  - a. Reduce the cost of compliance for the home-pool owner
  - b. Reduce the cost of pool consent administration for territorial authorities
  - c. By providing easy to understand pool compliance legislation

**NZBC F9 – Means of restricting access to residential pools**

**F9.1 Objective:** To prevent the injury or death to young children involving residential pools

**Functional Requirement:**

**F9.2.** Pool access must be restricted to prevent a child aged 5 years and under from gaining unsupervised entry to the pool area or the immediate pool

**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 (i.e.: under 5 years of age)

**F9.3.4.** Where a building forms all or part of an immediate pool area

- a. Doors between the building and the immediate pool area **must not be** readily opened by children and must either
  - (i) Emit an audible warning when the door is open or
  - (ii) Close automatically after use

**Swish Confirmation 1:**

**Swish Pool Access Safety Systems meet the provisions of NZBC F9 under all clauses specified:**

**Objective F9.1 - Functional requirement F9.2 - Performance - F9.3.1 and F9.3.4**

## **NZBC F9 AS1 4.0 - Building wall forming the pool barrier:**

### **4.2 Doors in the building wall**

**4.2.1** Doors in a building wall providing access into the immediate pool area shall be single leaf doors that are not more than 1000mm in width. These doors shall be side hinged or sliding

**Note:** Refer to the Swish Technical Review of F9 AS1 4.2.1 (addendum) which details and confirms Swish Systems **have successfully modified door-sets** of all sizes and configurations, obtaining pool-safety consent under the FoSPA 1987 Schedule since April 2005.

Further, NZS 8500-2006 (as the now referenced document in NZBC F9) placed no restriction on door width or number of panels on its introduction. Research indicates international drowning statistics place no importance on the number of panels or width of the door-set. The Swish System (TA approved in 2005 as pool compliant) was recognised as a system capable of modifying all sliding door-sets operationally for pool compliance including, restricting the opening width when installed.

**4.2.2** Door in a building wall providing access into the immediate pool area shall have:

- a. Either a self-closing device or an audible alarm
- b. A self-latching device that automatically operates on the closing of the door and that must be released manually and
- c. The release for the self-latching device be located not less than 1500mm above the inside floor

**Note:** Swish Systems, in meeting the provisions of NZS 8500-2006 have successfully modified door-sets of all sizes and configurations to operate within these parameters since July 2007.

In addition, through the “exemption to FoSPA 1987 process” successful consents for the use of the DoorMinder (SelfLatch and Alarm) System have been obtained under NZS 8500-2006 (as the now referenced document in NZBC F9) and its USA standard UL2017 for alarm specifications.

**4.2.3** For hinged door-sets that open towards the pool, a self-closing device shall return the door to the closed and self-latched position, from **any position** when the door is stationary. **For all other doors**, a self-closing device shall return the door to the closed and self-latched position when the door is stationary **and 150mm or further** from the closed and self-latched position.

**Note:** BCA’s should be aware NZS 8500-2006 recognised residential door-sets are not manufactured to meet the standards of fire or smoke-stop door-sets. Fire regulations require the door-set to close when the door is resting on the lock mechanism.

NZS 8500-2006 (as the now referenced document in NZBC F9) allowed a door to swing in either direction and self-latch from a stationary position of 150mm open because there is no identifiable child-safety reason to support a change to the NZS 4211 standard for residential door-sets.

#### 4.2.4 A door alarm shall

- a. Produce an alarm tone of 75 dBAL when measured at a distance of 3000mm that commences 7 seconds after the door's self-latching device is released and
- b. Automatically returns to a state of readiness when the door is returned to a closed and self-latched position and
- c. Have an audible or visual low battery charge warning

**Note:** The Swish DoorMinder (SelfLatch and Alarm) System is NZ designed and manufactured to meet the requirements of NZS 8500-2006 which specifies UL2017 as the defining document. NZS 8500-2006 requires the following operating parameters to be met:

- a. The alarm shall sound at 85dB within 3000mm that commences 10 seconds after the door operation is activated.
- b. The alarm automatically resets immediately on the closing of the door to a self-latched position.
- c. The alarm shall have an audible warning of a low battery charge.
- d. The alarm shall be completely automatic allowing no manual adjustment to its operation.
- e. The alarm be automatically timed to cease after 60 seconds of continuous operation
  - (i) It is considered adults in the home will be fully aware of a breach in the pool barrier within this time-frame
  - (ii) It is considered this automatic feature will reduce noise pollution and disturbance to neighbours should the door-set be left open when pool use is supervised.
  - (iii) This provision has been approved unreservedly by councillors sitting on pool exemption committees.

Further, through the "exemption to FoSPA 1987 process" successful consents for the use of the DoorMinder (SelfLatch and Alarm) System have been obtained under NZS 8500-2006 (as the now referenced document to NZBC F9) and its USA inspired alarm specifications.

**4.2.5** Door alarms may be provided by a deactivation switch placed 1500mm above the floor level that silences the alarm for not more than 15 seconds

**Note:** The Swish DoorMinder (SelfLatch and Alarm) System, in meeting NZS 8500-2006 specification (as the now referenced document to NZBC F9), does not allow any provision for manual adjustment or deactivation under any circumstances.

#### **Swish Confirmation 2:**

Swish Pool Access Safety Systems **in meeting** the provisions of **NZBC F9** above and its reference document **NZS 8500-2006**, have successfully modified door-sets of all sizes and configurations for pool safety compliance for a period of 12.5 years to the date of this document, using either:

1. **SelfLatch and SelfClose** Systems on door-sets with pool access
2. **SelfLatch and Alarm** Systems on door-sets with pool access

**Background to NZBC F9 legislation:**

**1. Fencing of Swimming Pools Act 1987 and its Schedule allowed:**

- a. The wall of a dwelling as the pool barrier providing:
- b. All door-sets in the wall are self-closing and self-latching.
- c. All windows in the wall are restricted to a maximum opening of 100mm.

**1a. Fencing of Swimming Pools Act 1987 Schedule:**

**9.0. Operation of gates and doors**

**9.1.** Every gate or door shall be fitted with a self-latching device.

**9.2.** Where the latching device is accessible from the outside of the fence by reaching over the fence, gate, or door or through a hole in the fence, gate or door, the latching device and the lowest point of any hole giving access to it shall be at least 1.2 metres above the ground on the outside of the fence,.

**9.3.** Where the latching device is otherwise accessible from the outside of the fence, gate or door, the latching device shall be at least 1.5 metres above the ground on the outside of the fence, gate or door.

**10.** Every gate or door shall be fitted with a device that will automatically return the gate or door to the closed position and operate the latching device when the gate or door is stationary and 150mm from the closed and secured position.

**2. The publishing of NZS 8500-2006 designed as a compliance document and**

- a. Issued as an advisory to territorial authorities with the intent that all home-pools would meet the standard within 5 years of its publication.
- b. NZS 8500-2006 has now been referenced to NZBC F9 AS1 and its contents have been used extensively throughout the new Schedule

**Note:** In AS1 clause 4.0 - Building wall forming part of the pool barrier, without any apparent reference to historical "best practice," door-set standards or norms, new and apparently untried 'approved solutions' have been advised.

**3. Swish confirm the following historical facts regarding the successful modification of door-sets for pool compliance:**

- a. At the date of this document, door-sets of all configurations have been successfully modified to **self-close and self-latch**, over a 12.5 year period under FoSPA 1987.
- b. At the date of this document, door-sets of all configurations have been through the 'exemption process,' have been successfully modified to be **self-latch and alarmed**, over a 10 year period.
- c. Swish confirm, as at the date of this document **over 3000 systems** have been installed to successfully modify door-sets of ALL configurations for pool compliance.

- 4. Swish Pool Access Safety Systems are New Zealand designed and manufactured**
- a. Designed for use in pool compliance, to be child resistant and 'fit for purpose'
  - b. Manufactured using corrosion resistant materials to ensure minimal servicing
  - c. All systems are installed by registered trades-people to Swish installation instructions

### **Swish Confirmation 3:**

Swish Pool Access Safety Systems for both slide door-sets and hinged door-sets were designed to meet and exceed the requirements of the Fencing of Swimming Pools Act 1987 and Schedule.

Swish modified door-sets of all sizes and configurations have been confirmed as pool compliant since April 2005 through to date.

During this period. Swish has received no challenge or adverse comment from territorial authorities nation-wide regarding the effectiveness of its systems for use in pool safety compliance

### **NZS 8500-2006 as a reference document to NZBC F9 AS1 – (Building wall forming the barrier)**

#### **2.3.2. Specific requirements for pools:**

**(e)** The pool shall be enclosed by an isolation barrier where the wall of a house contains a child resistant window or child resistant door-set or door-sets, regardless of the direction of door swing

**(f)** The pool shall be enclosed by an isolation barrier where a wall of a house contains doors from the house to the immediate pool area (regardless of the direction of the door swing). Should the doors NOT be self-closing then in addition there shall be also:

**(ii)** An alarm complying with UL 2017 capable of detecting unauthorised access from the house into the immediate pool area and that when activated emits a sound of 85dB to be heard from the house.

#### **3.7.1 Child Resistant Door-sets – Shall comply with all the following requirements**

- a. Shall be fitted with a self-latching device that will automatically operate on the closing of the door and will prevent the door being reopened without manually releasing the device
- b. Every door shall be fitted with a device that will automatically return the door to the closed and self-latched position when the door is stationary and 150mm from the closed and secured position
- c. The release for the self-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 self-latching of the door shall comply with 4.6
- h. Doors from the house may swing in either direction

#### 4.6. Closing and latching of doors

Every door shall be fitted with a device that will automatically return the door to the closed position and operate the latching device.

##### In addition to 3.7.

- a. Close and latch from a stationary position 150mm from the closed and secured position under the natural weight of the door; and
- b. Have a latching device, door jamb and strike plate to which the door is attached capable of retaining the door in the closed position

**Note:** It is also considered the NZS 8500-2006 specified alarm is a device that causes the door to be closed – **by the operating adult**

The alarm **fitted into** the door is a device that will ensure the adult door operator closes the door to the self-latched position immediately after use.

When the door is returned to the self-latched position it automatically operates to ensure a child aged 6 years and under cannot operate the door.

Every time the door is opened the alarm operates automatically sounds within 10 seconds at 85dB within 3 metres meeting the operational requirements of UL 2017

#### Swish Confirmation 4:

Swish Pool Access Safety Systems for both slide door-sets and hinged door-sets were designed to meet and exceed the requirements of the Fencing of Swimming Pools Act 1987 and Schedule.

Swish modified door-sets **of all sizes and configurations** have been confirmed as pool compliant since April 2005 through to the date of this document.

Further, since July 2007, the Swish DoorMinder (SelfLatch and Alarm) has been approved by territorial authority 'Exemption Committee Hearings' under NZS 8500-2006 as an 'approved solution under FoSPA 1987 for a range of door-set sizes and configurations (hinge, bi-folding and heavy slide).

During this period. Swish has received no challenge or adverse comment from territorial authorities nation-wide (or any other national safety organisation) regarding the effectiveness of its systems for use in pool safety compliance

#### Conclusion:

Swish Pool Access Safety Systems **meet the provisions of NZBC F9 AS1 and its referenced document NZS 8500-2006** with each system being designed to successfully modify door-sets **of all sizes and configurations**, for pool safety compliance.

Swish Automation Ltd provide a site specific Product Technical Statement: Design package to facilitate the pool consent process. PS3 documentation is also supplied on project completion.





Relevant extract from NZBC F9 / AS1 4.2

4.2.1 Doors in a building wall that provide access into the immediate pool area shall be single-leaf doors that are not more than 1000mm in width. These doors shall be side-hinged or sliding.

Interpretation and solution

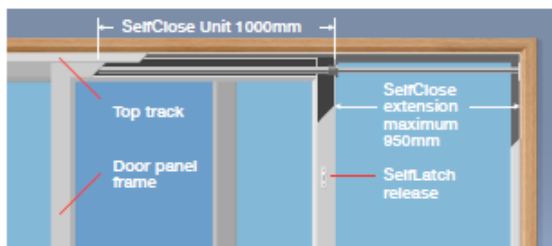
The above 1000mm width can only be intended to apply to a door aperture limit (door open). With a door panel closed and safety-latched, its dimensions are irrelevant. Apertures may pose potential risk, not door panels. Further, there is no logic to support a belief that a narrow opening is safer than a wider one in the context of pool safety for small children.

In any event, the intention of NZBC F9 / AS1 4.2.1 can be met without changing the physical dimensions of the panel. Swish SelfClose restricts slide door apertures to 950mm maximum regardless of panel dimensions. Other panels in a door-set are unaffected and remain closed. This has been a standard product feature since 2005.

Footnotes on sliding door structure and function

- Optimal width / height ratios of sliding door panels are essential for performance and reducing stress on wheelsets and structure. For optimal stability, widths of sliding door panels should be a minimum of 55% to 60% of their height.
- With slide door panels commonly 2000mm to 3000mm high (typically 2400mm), enforced restriction on panel width to 1000mm invites premature deterioration of function and safety performance.
- A longer slide panel wheelbase is essential for directional stability, balanced load distribution and reduced wear. A short wheelbase causes momentary tipping in the direction of movement and full panel load on the lead wheel. The condition worsens as wheelsets and structure deteriorate with each use.

**Right** Multiple panels in a door-set form an impenetrable wall for small children when closed and safety-latched. With a SelfClose constraint on the first opening panel, other panels in the series will not open in sequence, and are effectively still part of the wall. SelfLatch installed on the lead panel requires two-handed operation beyond the reach, strength and co-ordinative ability of small children.



Cut-away scale drawing showing SelfClose installation and function in constraining a sliding door aperture regardless of door panel size.

SelfClose™ Product information

**Description** Self-closing device for residential pool-access sliding doors, compliant with F9 / AS1 4.2.2a and 4.2.3

**Purpose** Prevent access from house to home pool by unsupervised children aged to 5 years by ensuring slide door panels return to closed, self-latched position after use.

**Operation** Manual-open / auto-close of slide door panel. Always used in conjunction with SelfLatch device to comply with F9 / AS1 4.2.2b, 4.2.2c and 4.2.3.

**Installation** Horizontally within door frame or vertically in décor-matched duct attached to door frame.

Construction and function

Tensioned telescopic dynamics contained in 1000mmL stainless steel tube (horizontal system) or aluminium alloy drawn tube (vertical system).

Restriction on opening width

Regardless of door panel width, typical travel of telescopic action is 850mm to 950mm depending on tension adjustment required to achieve efficient, safe door slide performance. Compliant with intention of F9 / AS1 4.2.1.

