POOL FENCE TEST NO: AZT0098.14

# POOL FENCE TEST REPORT

## Client: Sentrel Pty Ltd

## As per 'AS1926 Set- 2012 Swimming pool safety Standards Set – Section 3- Loading Requirements'

**Azuma Design Pty Ltd**

**Address:** 52 Justin Street Smithfield NSW 2164 Australia PH: 61(02)9604 0255

POOL FENCE TEST NO: AZT0098.14

# POOL FENCE TEST REPORT

**Model No. / Name**: Sentrel Pool Fence (Aluminium)

**Customer**: Sentrel Pty. Ltd.

**Address:** PO Box 122 Bellingen NSW 2454

**Date of Test**: 14/02/2014 & 29/04/14 to 5/05/2014

**Dimensions:**
***Barrier:***
**Material-** Aluminium top and bottom extruded rails with vertical Ø2.5mm cable and Ø25.4mm vertical divider tubes.
**Overall -** 2700mm W x 1195mm H
**Vertical pickets -** Cable - Ø2.5mm, Tube - Ø25.4mm **Pitch -** Cable - 66mm, Tube – 590 & 510 mm
**Horizontals -** Top and Bottom - 75mm x 40mm
**Gap between bottom of fence and ground level-** 100mm
***Test sample complies with requirements of section 2.3?*** Yes
***Gate***
**Material-** Aluminium extruded and welded frame with vertical Ø2.5mm cable and Ø25.4mm vertical divider tubes.
**Overall -** 1080mm W x 1180mm H
**Vertical pickets -** Cable - Ø2.5mm, Tube - Ø25.4mm **Pitch -** Cable - 66mm, Tube – One in centre.
**Horizontals -** Outer frame all 75mm x 40mm
***Test sample complies with requirements of section 2.4?*** Yes
***Posts***
**Material-** Aluminium
**Dimensions -** 65mm square x 3mm wall thickness extrusion x 1270mm height.
**Fixing -** All posts fixed to ground via Ø16mm booker rod chemset 90mm deep. Post located and held via square male spigot system inserted into bottom of hollow of square tube clamped to ground via spring washer and nut. Square tube post then fixed to spigot via 1 x ¼" rivet per side of post (total of four rivets).

***Lock* -** Latch release mechanism 1500mm from ground, fully functional and lockable by key? Yes
***Hinges* –** Self-closing from all angles? Yes

**Identification-** *Lock*- D&D Technologies "MagnaLatch". *Hinge*- "Tru Close" with angled tops
*(Please see photos on following page for further detail)*
**Note: SS316 cable tension preset by manufacturer to manufacturers' specifications**

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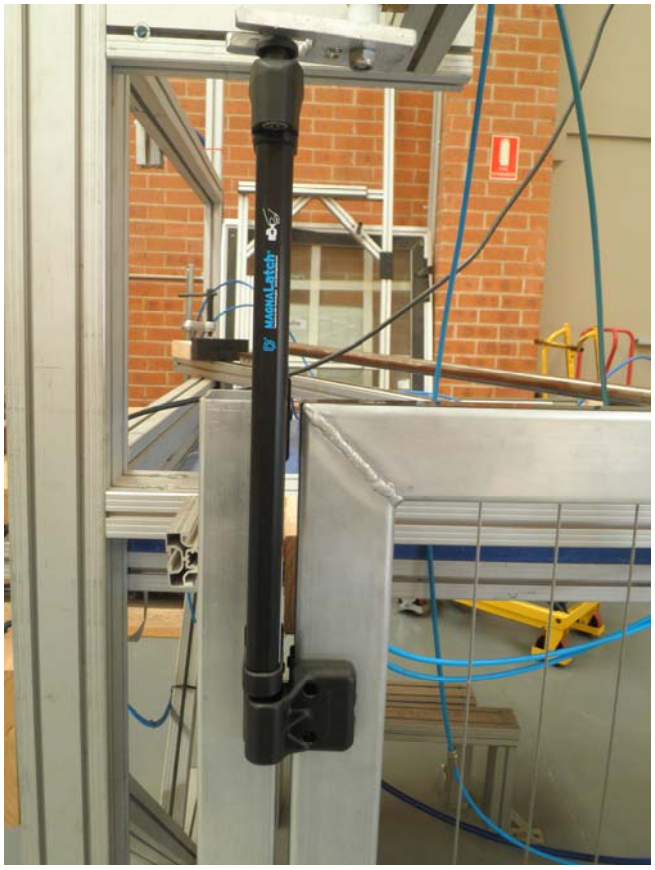
**Hardware**

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**Aim:** To test the pool fence sample according to *'AS1926.1 Set 2012- Swimming Pool Safety Standards Set- Section 3- Loading Requirements'*. Only the applicable tests for this type of sample shall be carried out.

## Section 3.1- STRENGTH AND RIGIDITY OF OPENINGS- *As per Appendix A of AS1926.1*

**Test description:** Record the force required to pull a conical end test object as per the standard, through the fence panel. The fence panel will be tested in three locations, across the width of the panel at the middle of each third of the panel. The peak force shall be not less than 150N. Please see photos for further detail.
**Test requirement:** Openings in the fencing shall have sufficient strength and rigidity such that 105 mm diameter cone can not pass through the opening under the minimum application of 150 N force.

**Test result:**

| | **Peak force** *(min. 150 Newtons)* | **Result** |
|---|---|---|
| **Location #1-** | 223.9 | **PASS** |
| **Location #2-** | 209.5 | **PASS** |
| **Location #3-** | 212.1 | **PASS** |

**Test sample after pull test:**

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**STRENGTH OF POST AND FOOTINGS-** ***As per Appendix B of AS1926.1***

**Test description:** Each post and footing shall withstand a horizontal force of 330N at 1200mm above finished ground level.

**Test requirement:** After loading, there shall be no permanent damage to any post, the footings shall not loosen to impair the effectiveness of the barrier.

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**Section 3.2**
**Test result:**

**Component tested-** Vertical Post 65mm square x 3mm wall thickness x 1210mm height

**Distance from ground to point of force application:** 1200mm

**Datum measurement:** 390mm

**Force applied:** 330N **Time held:** 30 seconds

**Measurement after 330N applied and released:** 390mm

**Permanent deformation:** 0mm

**Observations:** Nil

**Result:** PASS

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**Section 3.3- STRENGTH OF FENCING COMPONENTS-** ***As per Appendix C of AS1926.1***

**Section 3.3.1- Rigid components**

**Test description:** A test probe attached to a force gauge is applied to the test sample. Place the flat end of the test probe against the component to be tested. Apply a 50 N pre-load, without shock, to the test object to load the component in the desired direction for 30 seconds. Remove the pre-load and measure a datum point. Apply a force of 330 N, without shock, to the test object in order to load the component in the desired direction for 30 seconds. Remove the test force and inspect the component for breakage or sign of fracture of any component and loosening of any component. Measure and record the amount of deformation of the component, in millimetres. Please see photos for further detail.

**Test requirement:** Structural components shall be capable of sustaining a force of 330 N without any component breaking, showing signs of fracture, loosening, or becoming permanently deformed by more than L/200 mm over its length.

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**Date of Test**: 14/02/2014 & 29/04/14 to 5/05/2014

**Horizontal rectangular tube**

**Azuma Design Pty Ltd**

**Address:** 52 Justin Street Smithfield NSW 2164 Australia PH: 61(02)9604 0255

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**Section 3.3.1- Rigid components**
**Test result:**

**Component tested-** Horizontal rectangular tube

**Preload:** 50N **Time held:** 30 seconds

**Datum measurement:** 3.5mm

**Force applied:** 330N **Time held:** 30 seconds

**Measurement after 330N applied and released:** 3.5mm

**Permanent deformation:** 0mm

**Result:** PASS **Max (L/200):** 13.5mm (2700/200)

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**Date of Test**: 14/02/2014 & 29/04/14 to 5/05/2014

**Vertical round tube divider**

**Azuma Design Pty Ltd**

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**Section 3.3.1- Rigid components**

**Test result:**

**Component tested-** Vertical round tube divider

**Preload:** 50N **Time held:** 30 seconds

**Datum measurement:** 7mm

**Force applied:** 330N **Time held:** 30 seconds

**Measurement after 330N applied and released:** 7.5mm

**Permanent deformation:** 0.5mm

**Result:** PASS **Max (L/200):** 5mm (1035/200)

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**Section 3.3.2 – FLEXIBLE MATERIAL AND COMPONENTS-** ***As per Appendix D of AS1926.1*** - N/A

**Section 3.4- CLOSING AND LATCHING OF GATES-**
***Gate closes from fully open and latches:*** Under the natural weight of the gate? Yes
With the gate open and after a weight of 25 kg has been placed on the top rail or component at a point 100 mm from the outer edge of the locking stile of the gate for 30 seconds and then removed? Yes

**Section 3.5- STRENGTH AND RIGIDITY OF A GATE UNIT-** ***As per Appendix E of AS1926.1***

**Test description:** A test probe attached to a force gauge is applied to the test sample. Apply a force of 330N to the centre of the gate panel. Apply the same horizontal force to each of the four corners of the gate. Repeat for the other side of the gate. Apply the same horizontal force once more to any part of the gate at, or below, 1200mm from ground level. Inspect the panel for breakage, fracture or permanent deformation and if latch was released during test. Open the gate so it is ajar and separated from the latch post, apply a force of 250N in a vertical direction to the top rail at a point 100mm from the outer edge of the latch stile. Remove force and check the gate automatically closes and the latch operates. Inspect the panel for breakage, fracture or permanent deformation. All forces to be applied for 30 seconds.

**Test requirement:** No component of gate units shall fracture, break or loosen so the effectiveness of the gate unit is impaired or permanently deformed by a factor of more than L/200 mm over its length. The latch shall not unintentionally release.

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**Gate test**

**Test A**


**Test B & C**


**Test D**

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**Section 3.5- Test result:**

**Test A- Centre of panel**
**Datum:** 125mm
**Force applied:** 330N **Time held:** 30 seconds
**Measurement after test:** 125mm **Permanent deformation:** 0mm
**Maximum allowable (L/200):** 1035/200 = 5mm

**Test B- Corners of panel- Inside**
**Force applied:** 330N **Time held:** 30 seconds

| Test corner | Datum (in mm) | Measurement after (in mm) | Permanent deformation (in mm) | Pass/Fail |
|---|---|---|---|---|
| **1** | 145 | 145 | 0 | PASS |
| **2** | 140 | 140 | 0 | PASS |
| **3** | 150 | 145 | 5 | PASS |
| **4** | 145 | 145 | 0 | PASS |

**Test C- Corners of panel- Outside**
**Force applied:** 330N **Time held:** 30 seconds

| Test corner | Datum (in mm) | Measurement after (in mm) | Permanent deformation (in mm) | Pass/Fail |
|---|---|---|---|---|
| **1** | 145 | 145 | 0 | PASS |
| **2** | 140 | 140 | 0 | PASS |
| **3** | 200 | 205 | 5 | PASS |
| **4** | 145 | 145 | 0 | PASS |

**Observations:** Nil
**Latch released during test A, B & C? (Y/N):** No

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**Test D- Vertical**

**Force applied:** 250N **Time held:** 30 seconds

**Distance from edge of gate:** 100mm

**Gate closes automatically? (Y/N):** Yes

**Observations:** Nil

**Result:** PASS

## Section 3.6- DURABILITY OF A GATE UNIT- *As per Appendix F of AS1926.1*

**Test description:**
(a) Install the gate unit in accordance with the manufacturer's instructions on a site which simulates the in situ condition with the gate posts securely anchored into the ground.
(b) Ensure that the gate and its latch comply with Clause 2.4.
(c) Measure and record the force (to the nearest 5 N) required to release the latch.
(d) Release the latch and open the gate to the 90-degree position.
(e) Release the gate and allow it to close under the action of the self-closing device.
(f) Repeat Steps (d) and (e) for a total of 10 000 operations or until the latch fails to operate, whichever occurs first. The latch shall not be lubricated or adjusted during this test.
(g) Inspect the gate to see whether it still complies with Clause 2.4.
(h) Measure and record the force (to the nearest 5 N) required to release the latch.
(i) Inspect the gate, including the hinges and latch together with the gate posts, for any damage which would affect the ability of the gate to comply with the requirements of Section 2.

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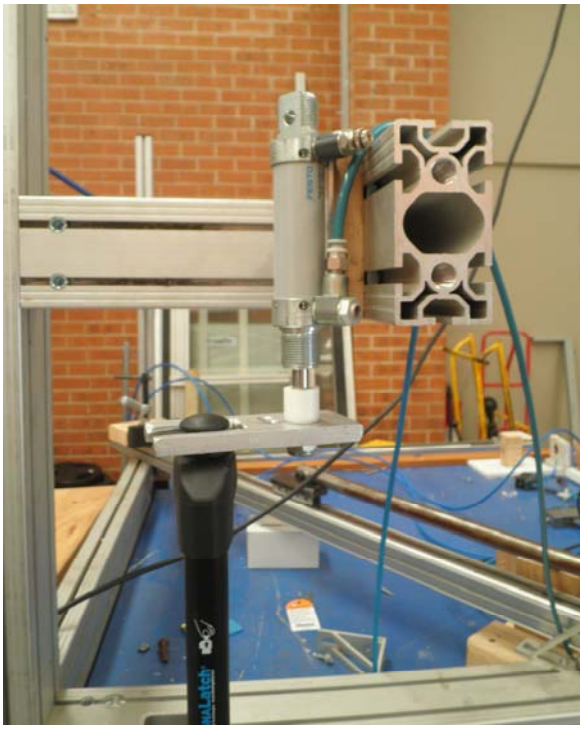
**Gate durability test**



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**Test requirement:**
(a) Shall be capable of complying with the requirements of Clauses 2.4.1 to 2.4.3 after 10,000 operations; and
(b) The force required to release the latch shall not be greater than 50 N both before and after the test.

**Test result:**
(a) Number of operations of the gate completed: 10,000
(b) Does the gate still comply with Clause 2.4 after test complete? Yes
(c) The force required to release the latch at the start of the test: 17N
(d) The force required to release the latch at the end of the test: 17N
(e) Any damage to the gate, hinges, latching device or gate posts at end of the test? No

**Observations:** Nil

**Result:** PASS

**Conclusion:** From the results achieved, it is evident that the sample satisfied the requirements as per *'AS1926.1 Set 2012- Swimming Pool Safety Standards Set- Section 3- Loading Requirements'.*

**Tested by:** Nathan Olsen

**Signatory Name:** Nathan Olsen

**Signatory Signature:**

**Date:** 5/05/2014

END OF REPORT

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