



# Global Safe Technologies (Australia) Pty Ltd

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## FLOOR SAFETY INSPECTION REPORT

Customer Name: <b>Everton Shopping Centre</b>		Contact Name: <b>John Smith</b>	Date: <b>22/08/2006</b>
Job Address: <b>23 Bermude Avenue</b>		City: <b>Melbourne</b>	
State: <b>VIC</b>	Postal Code: <b>3101</b>	E-mail: <a href="mailto:jsmith@everton.com.au">jsmith@everton.com.au</a>	
Telephone: <b>03 9999 9999</b>	Mobile: <b>0499 999 999</b>	Inspected By: <b>Tibor Bode</b>	
Area Inspected: <b>Ground floor at shopping centre</b>		Total Area Size: <b>157sqm</b>	

### ~ SLIP RESISTANCE CONDITION OF SURFACE ~

1. Initial slip-resistance test (Use water only):

(√ Check appropriate box)     Excellent     Fair     Poor

2. Final slip-resistance test (Use Maintenance Solution™ diluted 1:10):

(√ Check appropriate box)     Excellent     Fair     Poor

(√ Check appropriate box)

Did slip-resistance recover when cleaned with Maintenance Solution™?  Yes     No

(If No then floor requires rejuvenating)

### EQUIPMENT CHECK:

(√ Check appropriate box if okay)     Mop buckets     Mops     Deck brush

If not okay please explain: **Was not checked**

(Dirty mops, Dirty mop buckets, Worn Brush, etc.)

### CLEANERS CHECK (If not using Maintenance Solution™)

(√ Check appropriate box)     Acceptable     Unacceptable

If unacceptable please explain: **Was not checked**

(Powders, Abrasives, Bleach, etc.)

Is a training session with cleaning staff recommended? (√ Check appropriate box)  Yes     No

If Yes, please arrange appropriate time:    Day/    Month/    Year/

**DOES FLOOR REQUIRE REJUVENATING?** (√ Check appropriate box)  Yes     No

If Yes, please arrange appropriate time:    Day/    Month/    Year/



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**Detailed report:**

Area inspected was the ground floor of the shopping centre. Recent slip resistance test report was also reviewed. Shopping centre is very busy and has large traffic. Main concern is Area No 2, which mainly has orange ceramic tiles, but also some smaller sections have other tiles.

Tiled surface in area is in excellent condition which is cleaned and maintained well. There are different types of tiles laid on surface and they are protective coated with topical sealer.

Surface was tested for slip resistive qualities using the Pendulum test by NATA accredited test consulting company XYZ Pty Ltd, which report is referred in this document. Mean Wet Pendulum value for Area No 2. was BPN 24, but the 5 specimen numbers Adjacent to fast food restaurant ranged from BPN 14 to BPN 37. When mean value interpreted by the relevant AS/NZS 4663:2004 it is Class Z, which means **Very High** contribution of the floor surface to the risk of slipping when wet. For more detailed information, please refer to Informative Annex at the end of the report.

HB197:1999 which is An Introductory Guide to Slip Resistance of Pedestrian Surface Materials recommends the following slip resistance for the specific areas.

**HB197:1999 Table 3 state Minimum Pendulum or Ramp Recommendations for Specific Locations.**

<b>Shopping Centre excluding food court</b>	<b>Class Z or R9</b>
<b>Shopping Centre food court</b>	<b>Class X or R10</b>
<b>Internal ramp, slopes, greater than 2 degrees – dry</b>	<b>Class X or R10</b>
<b>Other separate shops inside Shopping Centre</b>	<b>Class Z or R9</b>
<b>Other shops with external entrances - entry area</b>	<b>Class X or R10</b>

**PICTURES:**

No pictures were taken.



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## RECOMMENDATIONS:

- Area in question has very wide range (23 BPN) of test results and the mean value is one class under the required Class X. While the majority of the shopping centre would fall into the Class Z area (apart from food court and entrance areas) the surface slip resistive quality has to be increased preferable to an overall Class X (preferable close to BPN 40 or above), then purely aiming to Class Z only. Achieving a more consistent slip resistance would also be an aim.
- Surface has topical sealer applied, which most likely greatly reduces slip resistive quality of surface. This topical sealer has to be removed and replaced with a penetrating sealer that would maintain the slip resistive quality of the surface, while at the same time would provide protection against staining and allow reasonably easy cleaning.
- As at this point in time the unsealed tile's slip resistive quality is unknown, no recommendation can be made whether a micro etching treatment would be required. This will be reviewed upon receipt of sample four tiles and slip resistance measurements of various combinations.
- Establishment and ongoing maintenance of a Floor Safety / Slip Resistance Register. This document and other regular slip resistance reports would ensure compliance with various Standards, Acts and Codes as well as would provide proper documentation to prove due diligence and to mitigate liability. Carl Strautins from Slip Check Pty Ltd can provide assistance in this regard.
- Review of existing cleaning practices to ensure that the compliant slip resistive surface will be properly maintained without loss of slip resistance.
- Regular Slip Resistance tests and you may also want to consider of purchasing the Slip Alert™ device for internal use as well as an immediate measuring tool when a slip fall incident is reported. Please also find documentation about the Slip Alert™ device and its distributor, Peter Vournechis of Australasian Slip Testing

Inspector:

Date: 29 August 2006



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## INFORMATIVE ANNEX

SlipAlert<sup>1</sup> is a new, simple, portable machine that was developed to enable immediate assessment of the slip resistance of floor surfaces. SlipAlert was carefully designed so that it behaves in the same way as the heel of a shoe slipping across a floor.

The Pendulum is recognized by the Australian Standards for measuring the in situ wet slip resistance of floors. SlipAlert was developed to complement the Pendulum so that one can carry out a test and discover how the floor surface would fare if tested by an experienced operator using a Pendulum.

CSIRO<sup>2</sup>, the British Health and Safety Executive<sup>3</sup> and the UK Slip Resistance Group<sup>4</sup> have found that the SlipAlert correlates acceptably with the Pendulum such that it can be used to provide indicative test results.

SlipAlert is not intended to be relied upon as the sole means of testing in legal cases or where compliance with the Standards is required - those should still be tested using a Pendulum.

An approximate relationship between the two devices has been developed so that a SlipAlert result expressed in terms of the SlipAlert Number (SAN) can be expressed in terms of the British Pendulum Number Equivalent (BPNE).

When Global Safe tests floors, we convert the SlipAlert Number to a BPNE so that we can relate the test results to the Australian Standards.

There are two Australian Standards for measuring slip resistance: AS 4586:2004, *Slip resistance classification of new pedestrian surface materials*, and AS 4663:2004, *Slip resistance measurement of existing surfaces*. Standards Australia Handbook 197 (1999), *An introductory guide to the selection of slip resistant pedestrian surfaces*, provides guidance in the selection of floor coverings that are based on AS 4586 test results using a series of five classifications from V (high wet slip resistance) to Z (minimal wet slip resistance). The HB 197 philosophy is to recommend floor coverings that are appropriate to the probable service conditions. The current recommendations include class X where the entrances to public buildings may become wet, and class Z for supermarket aisles other than the fresh food areas. HB 197 also provides recommendations in terms of wet barefoot ramp (A, B or C) and oil-wet ramp (R9 to R13) classifications. The oil-wet ramp classifications are only more relevant in special conditions such as industrial situations, where people typically wear treaded safety shoes, often on structured (or severely profiled) floors. The ramp tests cannot be undertaken where floors have been laid.

It is proposed that HB 197 will soon be revised, based on a slightly modified pendulum test. The following table (overleaf) anticipates the probable guidance. An extra column has been added, in which we give the corresponding range of SlipAlert Numbers. Where SlipAlert tests are conducted, the SAN range might best be seen as indicating an acceptable target range. Where higher results are obtained, the surface is probably in need of better maintenance or rejuvenation.

HB 197 does not make any statements with respect to the amount or loss of slip resistance over time, as this can vary greatly between products, locations and environmental exposures. This alteration in slip resistance is the principal reason why slip resistance testing was separated between AS 4586 and AS 4663. The HB 197 recommendations may thus be perceived to be slightly demanding as they presumably allow for some loss of slip resistance. HB 197 even states that "Some recommendations may be lenient, while others may be onerous". The onus is on the specifier to ensure that the selected pedestrian surface will be appropriate for the specific circumstances of the project.

<sup>1</sup> <http://www.slipalert.com/welcome.html>

<sup>2</sup> Bowman, R (2005), 'Slip resistance, maintenance and social responsibility', *Tile Today*, February, 54-64.

<sup>3</sup> Hallas, K., Shaw, R., Lemon, P. and Thorpe, S. (2005), 'Roller coaster slip tests putting slip testing back on the rails!', *Contemporary Ergonomics* 2005, Francis & Taylor, 514-518.

<sup>4</sup> <http://www.ukslipresistance.org.uk/faq.php>



Technologies

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Table: Anticipated pendulum recommendations for various locations and equivalent SlipAlert Numbers

Location	Pendulum Class	SAN range
Public and commercial buildings –dry areas	Z	>157
Internal dry sloping areas (> 1 in 30)	X	≥136 ≤125
Public and commercial buildings –transitional areas	Y	≥157 ≤137
Public and commercial buildings –wet areas	X	≥136 ≤125
Level external areas	W	≥124 ≤117
External walkways (slope ≤ 1 in 20)	W	≥124 ≤117
Balconies, verandahs, carports, driveways, car parks	W	≥124 ≤117
Accessible external ramps	W	≥124 ≤117
External kerb ramps and steep surfaces (slope > 1 in 14)	V	≤117
Hotel, hospital and aged care bathrooms and ensuites	X	≥136 ≤125
Commercial self catering areas and kitchenettes	X	≥136 ≤125
Residential kitchens, bathrooms, toilets and laundries	Y	≥157 ≤137
Communal changing rooms	X	≥136 ≤125
Swimming pool surrounds and communal shower rooms	W	≥124 ≤117

AS 4663 is used to audit existing floors. It provides the following notional interpretation of the wet pendulum results as to the contribution of the floor surface to the risk of slipping when water wet. AS 4663 contains an important note with respect to this **notional** interpretation: “Estimates of the total risk of a slip should include consideration of other possible contributory factors which may include, but is not limited to, type of footwear, use of walking aid, speed and type of gait, and lighting”. Two additional columns have been added to the Table. The first provides the equivalent SlipAlert Numbers. The second provides the equivalent AS 4586 pendulum classifications for new pedestrian surfaces. This is provided for information only as there is no direct link between AS 4586 and AS 4663. However, looking at the table one can deduce that if one obtains a reading of 40 BPN on a surface where a class V finish was recommended, the floor is likely to make a higher contribution to the risk of slipping than the notional interpretation might indicate. The notional interpretation is more relevant where class X, Y or Z products have been recommended.

Table: A consideration of Three S rubber SlipAlert results in relation to Four S rubber wet pendulum results.

Pendulum result, BPN	Notional slip potential	SAN range	AS 4586 classification
>54	Very low	≤117	V
45–54	Low	≥124 ≤117	W
35–44	Moderate	≥136 ≤125	X
25–34	High	≥157 ≤137	Y
<25	Very high	>157	Z

In summary, please note that while SlipAlert™ test results closely correlate to Wet Pendulum test results, SlipAlert results are indicative of the floor’s condition and should not be relied upon as an official test results.

**Global Safe Technologies (Australia) Pty Ltd (Global Safe) warrants that:**

- (a) the SlipAlert™ device (*SlipAlert*) is fit for the purpose for which it is applied by the Global Safe dealer, in that it provides an indicative value only of floor slip resistance, and
- (b) Global Safe and its representatives have the licence to use the SlipAlert for its own slip resistance measuring purposes only.
- (c) this guidance has been provided in good faith to help explain the interpretation of SlipAlert test results and

**Global safe does not warrant that the SlipAlert conforms to Australian Standards**