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Independent Slip Testing Services

GLOBAL PRODUCT CLASSIFICATION

# TEST REPORT

## SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS AS 4586-2013

Appendix A - Wet Pendulum Testing  
Appendix B - Dry Friction testing

*Prepared For:*

Knott Wood Pty Ltd

*Product Description:*

Brown Aluminium Decking Board

*Test Date:*

12/05/2015



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**Report Prepared for:**

Knot Wood Pty Ltd  
 3/93 Burnside Road  
 Stapylton QLD 4207

**Page #:** 1 of 1  
**Program #:** 4004

**Test Date:**

05/12/2015

**Test Site:**

Independent Slip Testing Services- Slip Resistance Laboratory (Lota QLD)

**Testing Technician:**

B.Houston

**Testing Instrument:**

Mastrad Wet Pendulum Skid Tester with 4S rubber slider  
 Testing Instrument Serial #: SK1734 (W6)

TESTING SPECIMENS DESCRIPTION, SIZE & COATING (If applicable)

1. 1 x Brown Aluminium Decking Board - 110 x 16cm
2. 1 x Brown Aluminium Decking Board - 110 x 16cm
3. (2 x samples tested in 5 x locations)
- 4.
- 5.

<b>Surface Condition:</b>	Fine Textured	<b>Cleaning:</b>	Tested as received
<b>Fixed/ Unfixed:</b>	Unfixed	<b>Rz Mean:</b>	n/a
<b>Environmental Conditions:</b>	Air conditioning	<b>Air Temp:</b>	24 Deg.C
<b>Direction of Test:</b>	As indicated on underside of sample	<b>Slope:</b>	n/a

**AS 4586-2013**

INTERPRETATION OF THE WET PENDULUM RESULTS	
Classification	Pendulum mean BPN (4S rubber)
P5	>54
P4	45-54
P3	35-44
P2	25-34
P1	12-24
P0	<12

**TEST RESULTS**

Specimen	#1 Result:	26 BPN	Slider condition (P400):	85 BPN
	#2 Result:	24 BPN	Slider condition (Lapping):	63 BPN
	#3 Result:	25 BPN	Temperature adjustment:	n/a
	#4 Result:	26 BPN		
	#5 Result:	25 BPN		

*^nb. lapping paper conditioning not used for 'rough' surface finishes*

**CLASSIFICATION**

CLASSIFICATION	PENDULUM MEAN BPN (4S rubber)
<b>P1</b>	<b>25</b>

*The mean results of the five specimens is reported (rounded to nearest whole number)*

*^ An individual result both below the result classification and below the mean result minus 20% shall be considered of lower classification*

Maximum Slope Design Value (when dry):	N/A
Maximum Slope Design Value (when wet):	N/A

*^NCC Code provides reference for ramps up to 1:8*

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*Accredited for compliance with ISO/IEC 17025. NATA is a signatory to the APLAC mutual recognition arrangement for the mutual recognition of the equivalence of testing, calibration and inspection reports*

NATA Accreditation #14967

Signatory: Mick Walton



Testing was carried out using the Wet Pendulum Test Method (using 4S rubber slider) in accordance with Australian Standard AS 4586-2013 Appendix A.



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## WET TEST RESULTS INTERPRETATION GUIDE- NATIONAL CONSTRUCTION CODE (AUS)

### INTERPRETING WET TEST RESULTS

- Step 1** Compare description of reported test location to the most relevant location description in Table 3A. Note the pendulum classification for that location.
- Step 2** Note the pendulum classification BPN range in Table 2.
- Step 3** Compare the BPN range and classification to the actual test result.

### NATIONAL CONSTRUCTION CODE COMPLIANCE CLASSIFICATIONS

\* TABLE 3A

Minimum wet pendulum test or oil-wet inclining platform classifications that are deemed to satisfy the building applications in the National Construction Code

Location	Wet pendulum test	Oil-wet inclining platform test
<b>Stair Treads and Stairway Landings in Buildings Covered by NCC Volumes One and Two</b>		
Stair treads and a stairway landing (when dry)	P3	R10
Stair treads and a stairway landing (when wet)	P4	R11
<b>Nosings for Stair Treads and Stairway Landings in Buildings Covered by NCC Volumes One and Two</b>		
Dry stair tread, a stair non-skid nosing strip and a stairway landing	P3	
Wet stair tread, a stair non-skid nosing strip and a stairway landing	P4	
<b>Ramps in Buildings Covered by NCC Volumes One and Two</b>		
Ramps not steeper than 1:14 gradient (when dry)	P3	R10
Ramps not steeper than 1:14 gradient (when wet)	P4	R11
Ramps steeper than 1:14 up but not steeper than 1:8 (when dry)	P4	R11
Ramps steeper than 1:14 up but not steeper than 1:8 (when wet)	P5	R12

NOTE: NCC compliance is demonstrated by achieving the values set out in this Table for either the wet pendulum test or the oil-wet inclining ramp test. It is not necessary to meet both criteria.

\*TABLE 2

Classification of Pedestrian Surface Materials according to the AS 4586-2013 wet pendulum test

Pendulum* mean BPN		Classification	Previously stated as (HB197:1999)
Four S rubber	TRL rubber		
>54	>44	P5	V
45-54	40-44	P4	W
35-44	35-39	P3	X
25-34	20-34	P2	Y
12-24	< 20	P1	Z
<12	-	P0	Z

### TREATMENT OPTIONS

For test results that achieve a BPN result below the NCC requirements the following are options available to increase slip resistance and reduce your risk

As a guide, possible styles of treatments we see our clients using to improve slip resistance include:

- Cleaning procedures** Detergent residues can build up over time with heavy detergent use.
- Acid etching** For tiled surfaces. Can vary in performance with different tile types.
- Wet sand / Soda blasting** To obtain a textured finish to tiles and other hard surfaces (may require sealing).
- Shot blasting** More extreme treatment to wet sand blasting (may require sealing).
- Textured coatings** Ensure a consistent texture is achieved.
- Surface replacement** Replacement surface may be the most cost effective option in some locations.

*For treatment suppliers in your local area search the internet for options listed above or in the yellow pages 'flooring treatments' section. ISTS recommends sourcing a number of detailed proposals when considering treatments, outlining expected slip resistance improvements, visual changes, clean ability and life expectancy.*

### ADDITIONAL NOTES & REFERENCES

**'R' Ratings** The Ramp 'R' ratings are obtained using the ramp test. An 'R' rating can not be achieved for in-situ testing. There is no correlation between 'R' ratings and wet pendulum test results.

**References** \*Table 3A- HB198:2014 "Guide to the specification and testing of slip resistance of pedestrian surfaces" Standards Australia Limited 2014.

\*Table 2- AS 4586-2013 "Slip resistance classification of new pedestrian surface materials".

*\*The information provided is intended as a guide only, consult the referenced publications for further information in regards to measurement results and recommendations.*



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## WET TEST RESULTS INTERPRETATION GUIDE- PARTICULAR APPLICATIONS...NON NCC (AUS)

### INTERPRETING WET TEST RESULTS

- Step 1** Compare description of reported test location to the most relevant location description in Table 3B. Note the pendulum classification for that location.
- Step 2** Note the pendulum classification BPN range in Table 2.
- Step 3** Compare the BPN range and classification to the actual test result.

### NATIONAL CONSTRUCTION CODE COMPLIANCE CLASSIFICATIONS

**\* TABLE 3B**

Wet pendulum test or oil-wet inclining platform classifications for applications where the NCC does not require slip resistance

Location	Wet pendulum test	Oil-wet inclining platform test
<b>External Pavements and Ramps</b>		
External ramps including sloping driveways, footpaths etc. steeper than 1 in 14	P5	R12
External ramps including sloping driveways, footpaths, etc., under 1:14, external sales areas (eg. markets), external carpark areas, external colonnades, walkways, pedestrian crossings, balconies, verandas, carports, driveways, courtyards and roof decks	P4	R11
Undercover car parks	P3	R10
<b>Hotels, Offices, Public Buildings, Schools and Kindergartens</b>		
Entries and access areas including hotels, offices, public buildings, schools, kindergartens, common areas of public buildings, internal lift lobbies		
Wet area	P3	R10
Transitional area	P2	R9
Dry area	P1 (see Note 3)	R9
Toilet facilities in offices, hotels and shopping centres	P3	R10
Hotel apartment bathrooms, ensuites and toilets	P2	A
Hotel apartment kitchens and laundries	P2	R9
<b>Loading Docks, Commercial Kitchens, Cold Stores, Serving Areas</b>		
Loading docks under cover and commercial kitchens	P5	R12
Serving areas behind bars in public hotels and clubs, cold stores and freezers	P4	R11

### Supermarkets and Shopping Centres

Fast food outlets, buffet food servery areas, food courts and fast food dining areas in shopping centres	P3	R10
Shop and supermarket fresh fruit and vegetable areas	P3	R10
Shop entry areas with external entrances	P3	R10
Supermarket aisles (except fresh food areas)	P1 (see Note 3)	R9
Other separate shops inside shopping centres - wet	P3	R10
Other separate shops inside shopping centres - dry	P1 (see Note 3)	R9

### Swimming Pools and Sporting Facilities

Swimming pool ramps and stairs leading to water	P5	C
Swimming pool surrounds and communal shower rooms	P4	B
Communal changing rooms	P3	A
Undercover concourse areas of sports stadiums	P3	R10

### Hospitals and Aged Care Facilities

Bathrooms and en suites in hospitals and aged care facilities	P3	B
Wards and corridors in hospital and aged care facilities	P2	R9

**\*TABLE 2**

Classification of Pedestrian Surface Materials according to the AS 4586-2013 wet pendulum test

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Four S rubber	TRL rubber		
>54	>44	P5	V
45-54	40-44	P4	W
35-44	35-39	P3	X
25-34	20-34	P2	Y
12-24	< 20	P1	Z
<12	-	P0	Z

### ADDITIONAL NOTES & REFERENCES

- 'R' Ratings** The Ramp 'R' ratings are obtained using the ramp test. An 'R' rating can not be achieved for in-situ testing. There is no correlation between 'R' ratings and wet pendulum test results.
- References** \*Table 3B- HB198:2014 "Guide to the specification and testing of slip resistance of pedestrian surfaces" Standards Australia Limited 2014.  
\*Table 2- AS 4586-2013 "Slip resistance classification of new pedestrian surface materials".  
*\*The information provided is intended as a guide only, consult the referenced publications for further information.*



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**Report Prepared for:** Knot Wood Pty Ltd  
 3/93 Burnside Road  
 Stapylton QLD 4207

**Page #:** 1 of 1  
**Program #:** 4004

**Test Date:** 05/12/2014  
**Test Site:** Independent Slip Testing Services- Slip Resistance Laboratory (Lota QLD)  
**Testing Technician:** B.Houston  
**Testing Instrument:** Tortus Dry Floor Friction Tester with 4S rubber slider  
 Testing Instrument D2- Serial #: 254

Testing Specimens Description, Size & Coatings (If applicable)			
1. 2 x Brown Aluminium Decking Board - 110 x 16cm			
<b>Surface Condition:</b>	Fine textured	<b>Cleaning:</b>	With a dry lint free cloth
<b>Fixed / Unfixed:</b>	Unfixed	<b>Rz Mean:</b>	n/a
<b>Environmental Conditions:</b>	Air conditioning	<b>Air Temp:</b>	24 Deg.C
<b>Direction of Test:</b>	As indicated on underside of sample	<b>Slope:</b>	n/a

## AS 4586-2013

INTERPRETATION of INDIVIDUAL & MEAN DRY FLOOR FRICTION RESULTS	
Class	Floor Friction Tester Mean Value
D1	≥40
D0	< 40

## TEST RESULTS

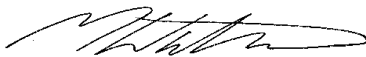
Test Result Run 1: 0.55  
 Test Result Run 2: 0.54  
 (SRV/SCV)

## CLASSIFICATION

CLASSIFICATION	#MEAN COF (ROUNDED TO 0.05)
<b>D1</b>	<b>0.55</b>

### Results Comments:

- \* Indicates an individual test run registered below 0.40
  - \*\* Indicates a test sector of an individual test run is < 0.35 resulting in a compulsory 'D0' classification
  - # The mean COF of Test Result Run 1 & 2 is rounded to nearest 0.05
- nb. Test specimens are disposed after 1 month if not collected by client

  
 Signatory: Mick Walton

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 NATA Accreditation #14967



Testing was carried out using the Dry Floor Friction Test Method (using 4S rubber slider) in accordance with Australian Standard AS 4586-2013 Appendix B.



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## DRY TEST RESULTS INTERPRETATION GUIDE (AU)

### INTERPRETING DRY TEST RESULTS

- Step 1** Note the classification result for each test location on the test report.  
**Step 2** Compare the results to the recommended classification of 'D1'

TABLE 1

Interpretation of the dry floor friction results

Test Result Mean Value (COF)	Classification Result (AS 4586-2013)	Previously stated as 'Contribution to Risk' result (AS/NZS.4663.2004)
≥ 0.40	D1	Moderate to Very Low
< 0.40	D0	High to Very High

### TREATMENT OPTIONS

For test results that achieve a result below the recommendations the following are options to increase slip resistance and Reduce Your Risk!

- Cleaning procedures** Detergent residue build up or other contaminants
- Surface sealers** Lifecycle, application of sealer, product performance
- Anti-slip treatments** Coatings, etchants, sandblasting, etc.
- Surface replacement** Surface suitability

For treatment suppliers in your local area search the internet for options listed above or in the yellow pages 'flooring treatments' section. ISTS recommends sourcing a number of detailed proposals when considering treatments, outlining expected slip resistance improvements, visual changes, clean ability and life expectancy.

\*The information provided is intended as a guide only, consult the referenced publications for further information in regards to measurement results and recommendations

### FREQUENTLY ASKED QUESTIONS

#### 1. The mean test average is ≥0.40, however the result is 'D0' classification

A. Individual test run achieved <0.35. 'The mean of the test results should be equal to or greater than 0.40 and each individual result should be ≥ 0.35. If either of this criteria is not met, the lot shall be considered to be classification 'D0'

Nb. Each test run consists of 8 individual tests.

ISTS reports note the following

\* Indicates an individual test run registered below 0.40.

\*\* Indicates a test sector of an individual test run is <0.35 (resulting in a compulsory 'D0' classification ).

#### 2. Why are test results rounded to the nearest 0.05?

A. As described in the relevant standards, the mean result of Test 1 & 2 is rounded to nearest 0.05

#### 3. What is the classification for locations as stated in publication HB197

A. This handbook does not provide any interpretation of dry slip test results.

#### 4. How about dry testing for external areas?

A. Dry slip resistance measurement does not apply to external surfaces, wet testing is the appropriate test method.

#### 5. How do I improve the slip resistance of a surface currently achieving 'D0' classification?

A. Many treatments and procedures are available. Treatment options will vary depending on the type of surface and whether a sealed or unsealed finish is required. Described at left are a list of options to improve slip resistance and Reduce Your Risk!



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## TEST PRODUCT IMAGE

**Product Description:** Brown Aluminium Decking Board

**Test Date:** 12/05/2015

