



Reduce Your Risk!®

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 (with aftermarket coating)

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

| | | | |
|----------------------------------|-------------------------------------|------------------|--------------------|
| Surface Condition: | Fine Textured | Cleaning: | Tested as received |
| Fixed/ Unfixed: | Unfixed | Rz Mean: | n/a |
| Environmental Conditions: | Air conditioning | Air Temp: | 24 Deg.C |
| Direction of Test: | As indicated on underside of sample | Slope: | 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: | 55 BPN | Slider condition (P400): | 84 BPN |
| | #2 Result: | 56 BPN | Slider condition (Lapping): | 62 BPN |
| | #3 Result: | 55 BPN | Temperature adjustment: | n/a |
| | #4 Result: | 53 BPN | | |
| | #5 Result: | 55 BPN | | |

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

CLASSIFICATION

| CLASSIFICATION | PENDULUM MEAN BPN (4S rubber) |
|----------------|-------------------------------|
| P5 | 55 |

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): | 5.5 deg. |
| Maximum Slope Design Value (when wet): | 4 deg. |

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

DISCLAIMER:

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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 |
|---|-------------------|---------------------------------|
| Stair Treads and Stairway Landings in Buildings Covered by NCC Volumes One and Two | | |
| Stair treads and a stairway landing (when dry) | P3 | R10 |
| Stair treads and a stairway landing (when wet) | P4 | R11 |
| Nosings for Stair Treads and Stairway Landings in Buildings Covered by NCC Volumes One and Two | | |
| 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 | |
| Ramps in Buildings Covered by NCC Volumes One and Two | | |
| 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 |
|---|-------------------|---------------------------------|
| External Pavements and Ramps | | |
| 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 |
| Hotels, Offices, Public Buildings, Schools and Kindergartens | | |
| 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 |
| Loading Docks, Commercial Kitchens, Cold Stores, Serving Areas | | |
| 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

| 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 |

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.
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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 (with aftermarket coating) - 110 x 16cm | | | |
| Surface Condition: | Fine textured | Cleaning: | With a dry lint free cloth |
| Fixed / Unfixed: | Unfixed | Rz Mean: | n/a |
| Environmental Conditions: | Air conditioning | Air Temp: | 24 Deg.C |
| Direction of Test: | As indicated on underside of sample | Slope: | 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 (SRV/SCV)
 Test Result Run 1: 0.58
 Test Result Run 2: 0.57

CLASSIFICATION

| CLASSIFICATION | #MEAN COF (ROUNDED TO 0.05) |
|----------------|-----------------------------|
| D1 | 0.60 |

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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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!

- 1. Cleaning procedures** Detergent residue build up or other contaminants
- 2. Surface sealers** Lifecycle, application of sealer, product performance
- 3. Anti-slip treatments** Coatings, etchants, sandblasting, etc.
- 4. 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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GLOBAL PRODUCT CLASSIFICATION

TEST PRODUCT IMAGE

Product Description: Brown Aluminium Decking Board
(with aftermarket coating)

Test Date: 12/05/2015

