Industrial Research Services

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Registered Testing Authority - Building Code of Australia

20 March 2006 Our Ref. ES13 / 925 03/0212

TEST REPORT No. SY1131-2

Requested by: Style Plantation Holdings Pty Ltd
on (date): 1 March 2006
Manufacturer: Anji Ya Feng Bamboo Products
Product Desc.: Coffee colour, semi-gloss finish strandwoven bamboo
96mm x 14mm x 915mm
Sampling details:
Where: Delivered
Date: 15 March 2006
By whom: Courier
How (methods): N/A

This test report consists of 6 pages

SUMMARY OF SLIP RESISTANCE TESTS PERFORMED:

		Result	Class
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials		
	Appendix A: WET Pendulum (Four S). Mean BPN:	20	Z
	Appendix B: DRY (FFT). Mean COF:	0.50	F
	Appendix A,B: Dual classification:		ZF
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials		
	Appendix C: WET/BAREFOOT Ramp		
	Mean angle of inclination:	9°	
AS/NZS 4586:2004	Slip resistance classification of new pedestrian surface materials,		
	Appendix D: OIL-WET Ramp		
	Mean overall acceptance angle:	4.1°	N/A

In order to interpret the classifications, please refer to Standards Australia Handbook 197, An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials, which recommends minimum classifications for a wide variety of locations.

It is important to realise that test results obtained on unused factory-fresh samples may not be directly applicable in service, where proprietary surface coatings, contamination, wear and subsequent cleaning all influence the behaviour of the pedestrian surface.

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET PENDULUM TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix A)

Test Date: 20 March 2006

RESULTS:
Location: North Ryde Slip Resistance Laboratory
Rubber slider used: Four S
Conditioned with grade P400 paper, dry
Sample: Unfixed
Cleaning: Distilled water
Temperature: 23°C

Pendulum Friction Tester: Stanley - Munro London (S/N: 0312, calibrated 03/02/05)
Test conducted by: Tintin

	Specimen 1	2	3	4	5
Last 3 swings	**28**	**22**	**19**	**19**	**16**
	26	**21**	**19**	**19**	**16**
	25	**21**	**19**	**19**	**16**
Averages	**26**	**21**	**19**	**19**	**16**

Mean BPN : 20

CLASS : Z

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

DRY FLOOR FRICTION TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix B)

Test Date: 20 March 2006

RESULTS
Location: North Ryde Slip Resistance Laboratory
Sample Sample Unfixed
Cleaning: Dry el/static cloth
Temperature: 23°C
FFT measurements taken over 2 passes of 800mm each

Rubber Type: Four S
Conditioned with grade P400 paper, dry

Floor Friction Tester: Tortus Mk II (S/N: 244)
Test conducted by: Tintin

Run 1: Average COF: 0.50

Run 2: Average COF: 0.51

Mean COF: 0.51

According to AS/NZS 4586 the Dry Coefficient of Friction shall be reported as : **0.50**
(mean rounded to the nearest 0.05)

CLASS : F

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

WET/BAREFOOT RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix C) Test Date: 20 March 2006

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: - mm

Surface structure: [X] Smooth
[ ] Profiled
[ ] Structured

RESULTS

		Actual mean	Reported mean
Mean angle of inclination:	**Calibration Board A:**	**11.53 °**	**12 °**
	Calibration Board B:	**18.11 °**	**18 °**
	Calibration Board C:	**24.24 °**	**24 °**
Mean angle of inclination of Test Board:		**9.24 °**	**9 °**

CLASSIFICATION:

Quality Group: ☐

PLEASE NOTE!

This pedestrian surface material cannot be classified because the mean angle of inclination of calibration Board A was 11.53 and the test sample only achieved the lower mean result of 9.24 degrees.

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SLIP RESISTANCE CLASSIFICATION OF NEW PEDESTRIAN SURFACE MATERIALS

OIL-WET RAMP TEST METHOD

TEST CARRIED OUT IN ACCORDANCE WITH
AS/NZS 4586:2004 (Appendix D) Test Date: 20 March 2006

Location: Slip Resistance Laboratory

Sample Fixed

Joint width: - mm

Surface structure: [X] Smooth
[ ] Profiled
[ ] Structured

RESULTS

Mean overall acceptance angle: 4.1 °

Displacement space: not tested

CLASSIFICATION:

Slip Resistance Assessment Group: N/A

Displacement Space Assessment Group: -

To achieve an 'R' classification the overall acceptance angle must be greater or equal to 6 degrees.

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REPORT NO: 1131-2
ISSUE DATE: 20 March 2006
MANUFACTURER: Anji Ya Feng Bamboo Products
TILE DESC: Coffee colour, semi-gloss finish strandwoven bamboo
96mm x 14mm x 915mm

Date and Place 20 March 2006, North Ryde, NSW

Name, Title and Digital Signature:

TINTIN
Technical Officer

Tel: 61 2 94905430
Fax: 61 2 94905777
Email: Tintin.Tintin@csiro.au

Consulting services are available if further detailed analysis of the test results are required.

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REPORT NO: 1131-2 Addendum
ISSUE DATE: 20 March 2006
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PRODUCT DESC: Coffee colour, semi-gloss finish strandwoven bamboo
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DETERMINATION OF Rz SURFACE ROUGHNESS

(Using a Taylor-Hobson Surtronic 10 Rz roughness meter using a 0.8mm cut off length)

Test Date: 20 March 2006

RESULTS

Location: Slip Resistance Laboratory

	Rz values
1	3.3
2	3.5
3	3.1
4	2.9
5	3.7
6	3.7
7	4.7
8	4.0
9	3.0
10	3.6

Surface Roughness (Rz) mean = 3.6 microns

BS 7976:2002, Pendulum Testers, requires a different test foot preparation (lapping paper) for pedestrian surfaces that have a Rz roughness of less than 15 microns. This lapping paper tends to reduce the pendulum result, sometimes appreciably. CSIRO recommends the use of this procedure (CSIRO COF1) as an adjunct to AS/NZS 4586. It helps to discriminate among products that have marginal wet slip resistance and to identify those that may be dangerous if wet.

The measurement of the various aspects of surface roughness is complex given the number of potential roughness parameters. While there is still some uncertainty as to exactly what type of roughness needs to be measured, peak-to-trough roughness (Rz) gives a useful guide to the likely slip resistance in wet conditions. Research has suggested that hard floors need to have a slightly higher Rz roughness than polymeric floors for the same degree of safety in wet conditions, but whatever flooring material is used an Rz roughness value of at least 10 microns is required where wet slip resistance may be required. In circumstances where wetness is normal or expected, this figure should be increased by a factor of 2 or more.

Greater peak surface roughnesses are likely to be required where floors slope or where the floor is likely to become contaminated with high viscosity liquids.