

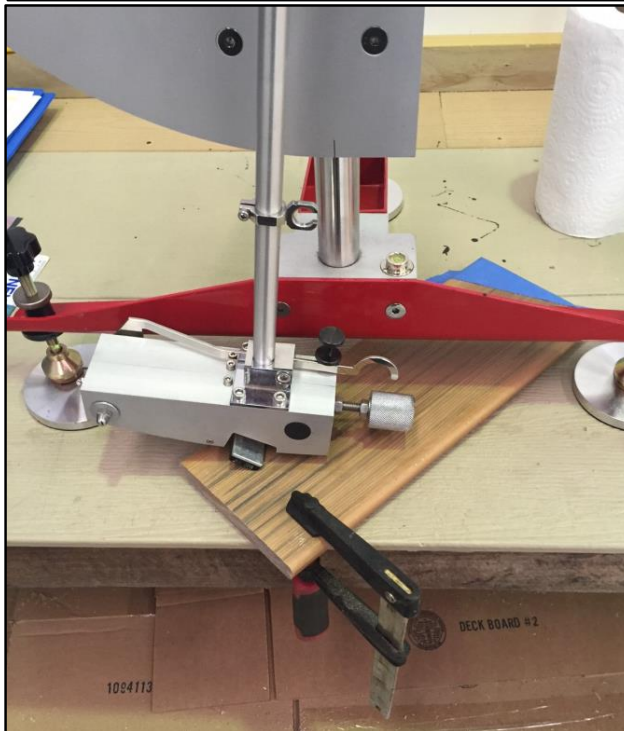
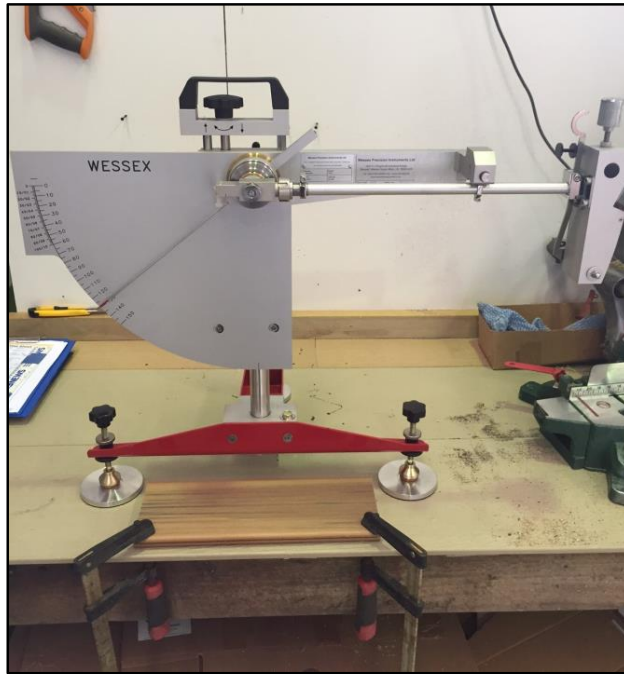


## Wet Pendulum Test Report

**Prepared for:** Perth Decking Company  
**Site address:** 657 Dundas Rd, Forestfield  
**Test ID No:** 0066  
**Test Date:** 2 May 2016  
**Author:** Martin Ferrier

## Contents

Executive summary .....	1
About this report.....	2
Wet pendulum friction test method.....	3
Appendix A: SA HB 198:2014 Classification guides.....	4





## Executive summary

### Introduction

Perth Decking Company, commissioned SlipGuard to perform slip resistance tests to assess compliance with the Australian Standards *AS 4663:2013* and *AS 4586:2013*.

Wet pendulum tests were performed to assess the frictional characteristics of the Duralife Siesta Decking Board surface under wet conditions

These tests were performed on two samples.

In accordance with the Australian Standard, this report outlines the findings and interpretation of test results.

### Findings

#### Test results (summary)

This table summarises the slip resistance test results:

Date:	2nd May 2016	Test No:	66				
Customer:	<b>Perth Decking Company</b>						
Test Site:	657 Dundas Road Forestfield						
Test Location Description:	Bench test						
Floor/Sample Specification	<b>Duralife Siesta Decking Board</b>						
Australian Standard:	AS 4663-2013	Conducted By	Martin Ferrier				
Slider Type:	Slider 96	Slope:	Flat				
Slider Release Date:	May-15	Temp:	16c				
Test Equipment Spec:	Wessex	Time:	11.35am				
P400 Conditioning swings:	89	90	90				
3M 261 Lapping film swings:	58	59	60				
<b>Test Results</b>							
	Swing	Test No:					
		Sample 1			Sample 2		
		L1	L2	L3	L4	L5	L6
	Direction	Horiz	Diag	Perp	Horiz	Diag	Perp
Slip Swing Reading	1	42	43	40	37	37	38
Reading (BPN)	2	40	42	40	36	36	37
	3	40	42	40	37	36	36
	4	39	42	40	36	36	37
	5	40	42	39	36	36	37
	SRV	<b>40</b>	<b>42</b>	<b>40</b>	<b>36</b>	<b>36</b>	<b>37</b>
	Mean SRV	<b>39</b>					
	Classification	<b>P3</b>					

### More information

- Test methods, equipment and classifications: please refer to other sections in this document.



## About this report

### Report Summary

<b>Prepared for</b>	<b>Perth Decking Company</b>
<b>Site address</b>	<b>657 Dundas Rd, Forestfield</b>
<b>Test area</b>	<b>Various</b>
<b>Standard tested to</b>	<b>AS 4663:2013</b>
<b>Test date:</b>	<b>2 May 2016</b>
<b>Tester:</b>	<b>Martin Ferrier</b>

### Test summary

<b>Test type</b>	<b>Purpose</b>	<b>Equipment</b>	<b>Calibration date</b>
Wet pendulum	To assess the frictional characteristics of the surface by determining the wet dynamic friction between the test surface and the slider of a pendulum swinging in a vertical plane.	Wessex Wet Pendulum Floor Tester Slider Type Four S Slider 96	17 July 2015

The tests are performed in accordance with the Australian Standards for measuring the slip resistance of pedestrian surfaces:

- New surfaces (AS 4586:2013 Slip resistance classification of new pedestrian surface materials); and
- Existing surfaces (AS 4663:2013 Slip resistance measurement of existing pedestrian surfaces).

The standards include a location guide (to help determine the classification of the surface in relation to the test results) and a table that matches the surface classification with the test results (to identify if the surface is compliant with the Australian Standard). See **Appendix A** for more information.

More information about each slip resistance testing method, including calibration and results calculation, is included in the next few pages.

### Test Finding

**The Duralife Siesta Decking Board achieved a P3 rating. it must be noted that this test was carried out on individual boards which are limited to their size specifications. Especially in the diagonal swing where 100% pad contact was not achievable through the swing and sample contact. However it was over 95% so test result variation would be minimal.**

## Wet pendulum friction test method

### What is it?

The wet pendulum friction tester is a device that was first developed to measure the skid resistance of road surfaces to assess the condition in a road traffic accident. Since then, the pendulum tester has been used to assess the slip resistance of pedestrian flooring surfaces and the risk of slipping.

### How does it work?

The test instrument utilises a pendulum rubber slider making contact with the test surface over a prescribed distance. It measures the quantity of resistance to the motion of the pendulum created by the contact over a distance of 126mm.

### How is a surface tested?

Testing to evaluate the frictional characteristics of a surface is carried out on a horizontal surface where possible. When testing surfaces that are textured or high profiled, the test program should reflect both the predominant direction of pedestrian traffic and the direction of the lowest slip resistance.

### Steps:

1. The rubber slider is firstly conditioned with a piece of wet and dry sandpaper (grade, P400) and then with a sheet of 3M 261X Lapping Film Grade 3MIC.
2. For preparation:
  - a. The test area is swept clean of debris then cleaned with a soft brush and a cleaning agent, appropriate to the type of contamination to be removed.
  - b. Each test location is then sprayed with water and a minimum of 5 test swings are performed. The area is rewetted before each swing.
3. Results are recorded and calculated to assess compliance.

### How are results calculated?

The test result is based on the test area being tested in 6 different locations (L1-L6). The swing values are recorded until the last three values differ by no more than three units of the scale.

- The average of these three values is rounded to the nearest whole number and recorded as the slip resistance value (SRV) for the test location. The SRV is the mean British Pendulum Number (BPN) as tested. It is calculated over the course of five averaged tests.
- The location SRVs are then averaged to give the test area its mean SRV. The mean SRV determines the classification of the surface.
- The surface is deemed compliant with the standard for the test if the mean SRV for the test area matches the classification for the surface being tested.





## Appendix A: SA HB 198:2014 Classification guides

Location description (wet pendulum tests)	Classification
<b>External Pavements &amp; Ramps</b>	
External ramps including sloping driveways, footpaths etc., steeper than 1:14	<b>P5</b>
External ramps including sloping driveways, footpaths etc., under 1:14, external sales areas, external car park areas, external colonnades, walkways, pedestrian crossings, balconies, verandas, carports, driveways, courtyards and roof decks.	<b>P4</b>
Undercover car parks	<b>P3</b>
<b>Hotels, Offices, Buildings, Schools and Kindergartens</b>	
<b>Entries and access areas including hotels, offices, public buildings schools, kindergartens, common areas of public buildings, internal lift lobbies</b>	
Wet area	<b>P3</b>
Transitional area	<b>P2</b>
Dry area	<b>P1</b>
Toilet facilities in offices, hotels and shopping centres	<b>P3</b>
Hotel apartments bathrooms, en-suites and toilets	<b>P2</b>
Hotel apartment kitchens and laundries	<b>P2</b>
<b>Supermarket and Shopping Centres</b>	
Fast food outlets, buffet and servery areas, food courts and fast food dining areas in shopping centres	<b>P3</b>
Shop and supermarket fresh fruit and vegetable areas	<b>P3</b>
Shop entry areas with external entrances	<b>P3</b>
Supermarket aisles (except fresh food areas)	<b>P1</b>
Other separate shops inside shopping centres - wet	<b>P3</b>
Other separate shops inside shopping centres - dry	<b>P1</b>
<b>Loading Docks, Commercial Kitchens, Cold Stores, Serving Areas</b>	
Loading docks under cover and commercial kitchens	<b>P5</b>
Serving areas behind bars in public hotels and clubs, cold stores and freezers	<b>P4</b>
<b>Swimming Pools and Sporting Facilities</b>	
Swimming pool ramps and stairs leading to water	<b>P5</b>
Swimming pool surrounds and communal shower rooms	<b>P4</b>
Communal changing rooms	<b>P3</b>
Undercover concourse areas of sports stadiums	<b>P3</b>
<b>Hospital and Aged Care Facilities</b>	
Bathrooms and en-suites in hospitals and aged care facilities	<b>P3</b>
Wards and corridors in hospital and aged care facilities	<b>P2</b>



## Minimum wet pendulum test classifications deemed to satisfy the building applications in the NCC

Location	Wet Pendulum Test
<b>Stair Treads and Stairway Landings in Buildings covered by NCC Volumes 1 &amp; 2</b>	
Stair treads and stairway landing (when dry)	<b>P3</b>
Stair treads and a stairway landing (when wet)	<b>P4</b>
<b>Nosings for stair Treads and Stairway Landings in Buildings Covered by NCC Volumes 1 &amp; 2</b>	
Dry stair tread, a stair non-skid nosing strip and stairway landing	<b>P3</b>
Wet stair tread, a stair non-skid nosing strip and stairway landing	<b>P4</b>
<b>Ramps in Buildings Covered by NCC Volumes 1 &amp; 2</b>	
Ramps not steeper than 1:14 gradient (when dry)	<b>P3</b>
Ramps not steeper than 1:14 gradient (when wet)	<b>P4</b>
Ramps steeper than 1:14 gradient but not steeper than 1:8 (when dry)	<b>P4</b>
Ramps steeper than 1:14 gradient but not steeper than 1:8 (when wet)	<b>P5</b>

**Note:** The wet pendulum test classifications have been developed through Committee BD-094 discussions and consensus and are subject to further review.

- Dry areas are defined as those areas in which appropriate control measures ensure an area remains dry and clean when in use.
- Transitional areas have been defined as areas that are intended to be dry such as by the provision of design features (awnings, drains, mats etc.) appropriate to the physical location, climate and general exposure to water, as maintained in a dry and clean condition by the facilities manager.
- Wet areas are defined as areas that are not defined as dry or transitional area, which may be either constantly or intermittently wet or otherwise contaminated.

## Pedestrian surface materials

Classification according to the Australian Standard 4663-2013 wet pendulum test:

Classification	Wet Pendulum SRV
	Slider 96 Rubber
P5	>54
P4	45-54
<b>P3</b>	<b>35-44</b>
P2	25-34
P1	12-24
P0	<12



Anti-Slip treatments for slippery floors

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- The information provided in this test report is intended for general guidance only. SlipGuard takes no responsibility or liability for any actions as a result of this test report.
- The test result is also based on information supplied by the client.
- Factors such as usage, cleaning systems, applied coatings and patterns of wear may affect the characteristics of the surface after testing.