

Australian/New Zealand Standard™

**Slip resistance measurement of existing
pedestrian surfaces**

AS/NZS 4663:2004

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-094, Slip Resistance of Flooring Surfaces. It was approved on behalf of the Council of Standards Australia on 22 September 2004 and on behalf of the Council of Standards New Zealand on 1 October 2004. This Standard was published on 18 October 2004.

The following are represented on Committee BD-094:

Australian Building Codes Board
Australian Chemical Specialties Manufacturers Association
Australian Institute for Non-Destructive Testing
Australian Resilient Floor Covering Association
Australian Stone and Terrazzo Association
Australian Tile Council Inc.
Ceramic Tile Manufacturers Association
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Slip resistance measurement of existing pedestrian surfaces

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-094, Slip Resistance of Flooring Surfaces, to supersede [AS/NZS 4663:2002](#).

The objective of this Standard is to provide users, maintenance organizations and facility managers with standardized methods of testing existing in situ pedestrian surface materials for determination of their slip resistance.

Wet testing is carried out using two types of rubber materials, TRL rubber, which has been traditionally used for testing outdoor surfaces and Four S rubber which was specifically developed to replace the TRL rubber for testing smoother indoor surfaces, as it provides more discrimination between such internal surfaces.

The use of these rubbers on the specified test devices enables universal comparison of test results. The testing does not take into account the performance of different footwear sole materials or profiles. The slip resistance of these materials can vary widely, even within generic groups of polymers such as PVC or polyurethane. The slip resistance of footwear is also a function of the soling material, the tread, the effects of ageing, degradation and wear, as well as design and construction parameters. While it may be possible to form sliders using other soling materials, it is outside the scope of this Standard.

HB 197, *An introductory guide to the selection of slip resistant pedestrian surfaces*, establishes a basis for specifying pedestrian surface materials for various locations based on wet slip resistance classifications that are obtained when testing to [AS/NZS 4586](#), *Slip resistance classification of new pedestrian surface materials*. HB 197 recognizes that slip resistance test methods have inherent limitations.

A new floor is considered to become an existing floor once it has been installed and made available for pedestrian traffic, other than movements specifically for purposes of formal testing to determine compliance with [AS/NZS 4586](#). New floors are to be tested in accordance with [AS/NZS 4586](#).

Lapping paper testing is currently the subject of ongoing research, particularly with regard to the issue of test slider preparation for the pendulum test. Standards Australia Committee BD-094 is evaluating the results of this research. The committee may find it appropriate to issue further amendments to this Standard should improved differentiation between the slip potential of materials be identified. BS 7976-2 *Pendulum testers Part 2: Method of operation* provides details of the 3 µm lapping paper procedure.

The term 'normative' has been used in this Standard to define the application of the Appendix to which it applies. A 'normative' Appendix is an integral part of a Standard.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Slip resistance measurement of existing pedestrian surfaces****1 SCOPE**

This Standard provides means of measuring the frictional characteristics of existing pedestrian surfaces in wet and dry conditions.

This Standard does not cover gratings or carpet.

NOTE: The slip resistance testing of carpets used for synthetic sporting surfaces is covered by [AS 2983.4](#).

2 APPLICATION

The test methods in this Standard shall be used for existing pedestrian surfaces.

This Standard may also be used for evaluating surface applications and treatments, including products such as sealers, polishes and etchants that modify the surface characteristics of pedestrian surfaces.

The method specified for the measurement of wet slip resistance shall be used for all external areas and those internal pedestrian surfaces where such measurements are required. It does not contemplate shoe sole materials, characteristics of individual gaits, or other factors that may contribute to slips.

NOTES:

- 1 The test methods specified in this Standard may not be suitable for measuring some pedestrian surfaces, for example, highly profiled surfaces such as shown in Figure 1. Such surfaces generally have a displacement volume greater than or equal to $4 \text{ cm}^3/\text{dm}^2$.
- 2 In Appendix A, provision has been made for either of two rubbers to be used in the wet pendulum test method. Clay and concrete pavers have traditionally been tested using TRL rubber, whereas Four S rubber is used for other pedestrian surfaces. When testing highly profiled surfaces such as shown in Figure 1, TRL rubber generally produces more consistent results than Four S rubber.
- 3 Caution should be exercised when comparing dry floor friction results of existing floors and test results that were obtained on new pedestrian surface materials. The latter may be unexpectedly high on some very smooth flat clean surfaces, because after installation the presence of contaminants can significantly alter some results.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1683.15	Methods of test for elastomers
1683.15.1	Method 15.1: International rubber hardness (ISO 48:1994)
2983	Methods of test for synthetic sporting surfaces
2983.4	Method 4: Test for slip resistance
AS/NZS	
4586	Slip resistance classification of new pedestrian surface materials
BS	
7976-3	Pendulum testers—Method of calibration