



ANTISLIP TILE STANDARDS

The below information refers to our Anti-Slip Criteria and Standards.

This information helps us to find the perfect tile for your situation, space and safety requirements.

NB: This document is provided to give guidance for slip resistance, but please consult with your architect or adviser for your specific project. Tilemax takes no responsibility for your unique situation or project. Standards and regulations are always subject to change.

NZ Building Code Reference Points

There is one main reference to anti-slip requirements in the New Zealand Building Code, which is in Section D – Accessways, specifically D1.3.3. A recent rewrite of D1/AS1 (which is the publication of Acceptable Solutions to ensure compliance with Section D), now covers a wider scope than just accessways, particularly for commercial situations.

D1/AS1 now refers to both Pendulum Testing which provides a SRV (or Skid Resistance Value (0 – 54+) and then a P value (e.g. P0 – P5) as well as Oil-Wet Ramp Testing which provides an R value (e.g. R9 – R13). The two testing methods are quite different and the result of one does not fully correlate to the other. As tile retailers, we can generally provide one or the other for an anti-slip tile, European factories, for example, focus on the ramp test method.

So what are these testing methods?

Pendulum Slip Test (Wet)

A Pendulum Test mimics a standard shoe sole striking a wet tile. The test measures the frictional resistance between a wet tile and a foot-shaped mass with a rubber slider that is mounted on a pendulum arm.

In this test the higher the number, the lower the risk of slipping.

A tile with a rating between P0 – P3 is generally considered suitable for indoor flooring while a P4 or P5 has a lower slip risk and can be used outside or around a pool.

<i>Pendulum Classification</i>	<i>Slip Resistance Value (SRV)</i>	<i>Slip Risk (When Wet)</i>
P0	Below 12	Very High
P1	12 - 24	Very High
P2	25 - 34	High
P3	35 - 44	Moderate
P4	45 - 54	Low
P5	Over 54	Very Low

Oil-Wet Ramp Test

An Oil-Wet Ramp Test involves laying the tiles on a ramp and applying lubricating oil to the surface of them. The test is conducted by a person walking on an oiled surface wearing cleated safety boots while being held by a harness. The angle of the ramp is adjusted until the individual slips, generating the R-Value and ranges from R9 to R13. The higher the number, the lower the risk of slipping.

Tiles with R9 or R10 are mainly used in internal spaces such as kitchens and bathrooms, while R11 and above is suitable for outdoor spaces, including around a pool.

<i>Slip Resistance Value</i>	<i>Corrected Mean Acceptance Angle (Degrees)</i>	<i>Slip Risk (When Wet)</i>
R9	6 - 9	Very High
R10	10 - 19	High
R11	19 - 26	Moderate
R12	27 - 34	Low
R13	Over 35	Very Low

How do these Methods Compare?

Given these two tests are not exactly the same, we cannot appoint a direct match from a P to R value but can confirm close relevance based on performance and confirmed areas of use (which are accepted under the NZ Building code compliance standards).

In this case, we generally relate the two tests as following:

<i>Pendulum Test Rating</i>	<i>Oil-Wet Ramp Test Rating</i>
P2 (SRV 25-34)	R9 (Deg. 6-9)
P3 (SRV 35-44)	R10 (Deg. 10-19)
P4 (SRV 45-54)	R11 (Deg. 19-26)
P5 (SRV Over 54)	R12 (Deg. 27-34)

We always recommend checking a tiles compatibility to the desired application prior to installation. Anti-Slip test reports can be provided if for a specific project.

Areas of Application for Anti-Slip Tiles (Residential and Commercial)

Residential Situations

Accessways: Requires a Pendulum Test Rating (SRV) of 39+ (High P3). This includes the approach to the main entrance and not inside the house. Ref D1/AS1 2.1.2.

Bathrooms/Kitchens/Living Areas: No slip rating is required as these areas are considered dry under normal circumstance. Ref D1/AS1 2.1.2.

Swimming Pool Surrounds: The immediate pool surround requires a Pendulum Test Rating (SRV) of 45+ (P4) or Ramp Test Rating of R11. This is a recommendation only.

External Paths, Patios, Verandahs: No guidance has been given, but we recommend referring to the Standards Australia HB 198 Guidelines which refer to the specification of slip resistance on pedestrian surfaces (Table 3B).

Sloping Access (including stairs): Calculate the slip resistance required based on slope, as per Appendix F, AS4586. Ref D1/AS1 2.1.5.

Commercial Situations

Accessways (expected to become wet during normal use): The approach to, and transition zone into a public building requires a Pendulum Test Rating (SRV) of 39+ (High P3) or Ramp Test Rating of R11. Internally this can be achieved by providing a mat of at least 1.8 meters length, if an anti-slip tile is not used. Ref D1/AS1 2.1.6.

Sloping Access (including stairs): Same as domestic criteria. Ref D1/AS1 2.1.5.

Other Commercial Situations: Ref. D1/AS1 2.1.4. we recommend referring to the Standards Australia HB 198 Guidelines which refer to the specification of slip resistance on pedestrian surfaces (Table 3B).

What Should I use on Stair Nosings, Landings and Ramps?

Slip Resistance Classifications referenced by BCA, NCC and Australian Standards

<i>Surface Conditions</i>	<i>Dry Surface</i>	<i>Dry Surface</i>	<i>Wet Surface</i>	<i>Wet Surface</i>
	<i>Wet Pendulum Test</i>	<i>Oil-Wet Ramp Test</i>	<i>Wet Pendulum Test</i>	<i>Oil-Wet Ramp Test</i>
Stair treads or stairway landing surface	P3	R10	P4	R11
Nosings for stair treads and stairway landing edge strip	P3		P4	
Ramps in buildings steeper than 1:20 but not Steeper than 1:14	P3	R10	P4	R11
Ramps in buildings steeper than 1:14 but not Steeper than 1:8	P4	R11	P5	R12

Table 3B HB 198 (Guide to the specification and testing of slip resistance of pedestrian surfaces).

This table outlines the minimum Pendulum or Ramp Test recommendations for specific locations.

<i>Location</i>	<i>Pendulum Slip Test (Wet)</i>	<i>Oil-Wet Ramp Test</i>
External Pavements and Ramps		
External ramps including sloping driveways, footpaths etc. steeper than 1:14	P5	R12
External ramps including sloping driveways, footpaths etc., under 1:14, external sales area (e.g. markets), external car park areas, external colonnades, walkways, pedestrian crossings, balconies, verandas, carports, driveways, courtyards and roof decks	P4	R11
Undercover carparks	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	R9
Toilet facilities in offices, hotels and shopping centres	P3	R10
Hotel apartment bathrooms, en suites and toilets	P2	A
Hotel apartment laundries and kitchens	P2	R9
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	R9
Other separate shops inside shopping areas - wet	P3	R10
Other separate shops inside shopping areas - dry	P1	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
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 sport 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

Other considerations include the amount and type of traffic expected, the product characteristics, exposure to contaminants, environmental factors, management policy and maintenance practices, OSH requirements, special provisions (i.e. handrails) and alternative information sources.