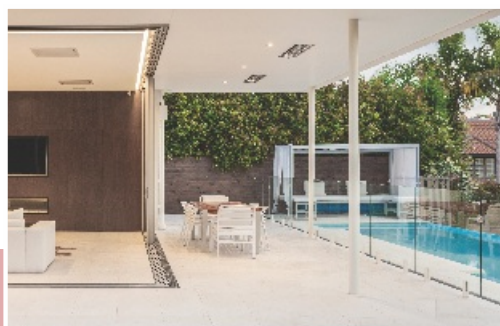
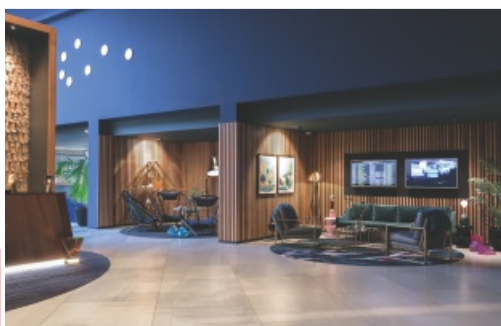


SLIP RESISTANCE STANDARDS FOR TILES IN NZ

New Zealand's Tile & Flooring specialists for 30 years

tile warehouse



SLIP RESISTANCE STANDARDS FOR TILES IN NZ

Tile meets all Slip Standards for safety-compliant spaces

IF YOU ARE A NEW ZEALAND ARCHITECT OR SPECIFIER, HERE IS WHAT YOU NEED TO KNOW:

1. **The Act to be adhered to for all flooring slip resistance related projects is AS/NZS3661.1, Clause D1 under the NZ Building Code.** D1/AS1 states that adequate slip resistance is required on all public access routes, including access into and within buildings.
2. **The definition of an access route** is a continuous route that permits people and goods to move between the apron or construction edge of the building to spaces within a building.
3. **Clause 2.1** requires level access routes which the public have access to including level accessible routes, to have a mean **co-efficient of friction (U)** of not less than 0.4 when tested in accordance with AS/NZS3661.1.
4. The definition of accessible routes is an access route usable by people with disabilities.
5. The clause 2.1 limits wet test/interior requirement to where **the public** have access
6. **Clause 2.1.2** sets the standard for areas that are intended to remain dry and 'Table 2' in this clause confirms that the vast majority of tile is acceptable when dry in public places. NB: We believe from tests we have seen / carried out that all tiles pass when dry.
7. **So, for practical purposes:**

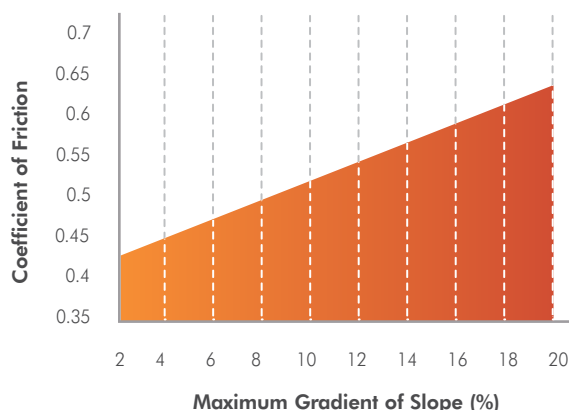
RESIDENTIAL: 'public access route' is defined as the pathway to the front door. As this access route would usually get wet under normal circumstances, a tile that passes 0.4 when wet is required. For single dwellings; decks, pool areas, bathrooms and laundries (where the public do not have access) are not public areas and therefore are not required to be slip resistant when wet. In multi-dwellings some areas (e.g. pools, laundries and communal courtyards) may be considered public areas and therefore will need to conform to the wet slip-resistant requirements.

COMMERCIAL: 'Access within buildings' is considered to be the public access between private areas of the building, e.g. corridors and bathrooms. Both of these spaces would remain dry under normal use.

'Access into buildings' can often become wet during normal use, so require a surface that will pass 0.4 when wet.

NB: D1/AS1 also provides a guide for the transition zone between 'wet under normal usage' and 'dry under normal usage'. This zone can use either water absorbent matting for an area sufficient to absorb most water from shoes (suggested as minimum 1.8 metres), or an extended area of the wet slip resistant surface (suggested to be 6-10m from where the ground gets wet from rain).

8. **Slip Resistance on Slopes**, when the slope increases, there is a requirement for an increased coefficient of friction (COF) test result. For example, a surface of a slope of 8% would require a COF of 0.5. See mathematical equation below:



$$\mu_m = \frac{100\mu + M}{100 - M\mu} \quad \text{where } \mu_m = \text{coefficient of friction required for a sloped surface}$$

μ = coefficient of friction obtained on a horizontal surface

M = maximum gradient of slope, in percent

This equation is represented in graphical form below:

Coefficient of Friction Required for a Sloped Surface,
Calculated for $\mu = 0.4$

For example, a surface with a slope of 8% would require a coefficient of friction of 0.5.



COMMONLY ASKED QUESTIONS AND ANSWERS:

Q: HOW DO I CORRELATE 'R' RATINGS (COMMONLY PRACTICED UNDER EUROPEAN STANDARDS) TO THE NZ "WET PENDULUM" TEST?

A: R9 = <0.35

R10 = 0.35 – 0.44

R11 = 0.45 – 0.54

R12 = >0.54

Q: WHERE DO I NEED TO SPECIFY SLIP RESISTANT SURFACES?

A: Acceptable Solution D1/AS1 states that adequate slip resistance is required on all public access routes, including access into and within buildings.

Q: DOES COMMERCIAL KITCHEN FLOORING NEED TO BE NON-SLIP?

A: Our recommendation is a balance of choosing a surface that has a reasonable degree of slip-resistance as well as easy to clean. We have access to specialist commercial kitchen ranges that provide both these requirements so please don't hesitate to get in touch with us to discuss the options.

Q: WHAT ARE SUSTAINABLE SLIP RESISTANT TILES?

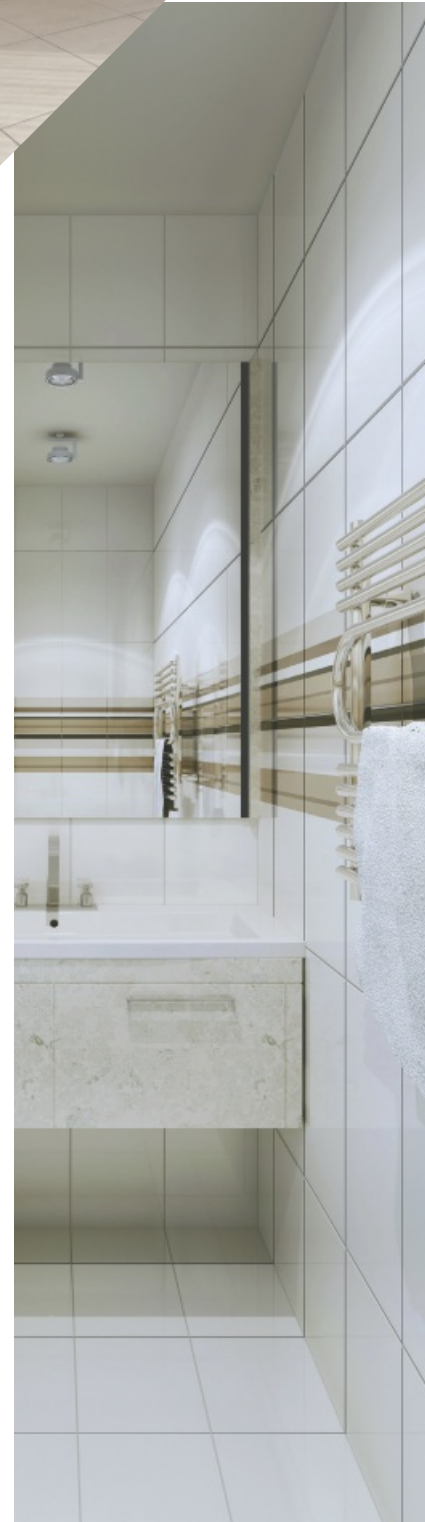
A: These are tiles that initially pass the co-efficient 0.4 slip requirement and go on to maintain their slip resistance over a period of time. Tiles that sustain their slip resistance over the longest period are typically specifically manufactured with this objective. Some tiles have accelerated wear tests that can estimate the future slip resistance after pre-specified traffic and abrasion, but most do not. Tests are available for a fee.

It is difficult however to predict how long slip resistance will be maintained for, as this depends on location-specific factors such as cleaning methods and foot traffic.

For Commercial spaces, we recommend a good cleaning maintenance program with PH Neutral cleaners and can provide these as part of the specification.

Q: HOW DO I GUARANTEE COMPLIANCE OF EXTERIOR TILES?

A: All Exterior tiles from Tile Warehouse are tested and we can provide slip resistant specifications and test results as required to ensure adherence to standards so you can rest easy your flooring is fit-for-purpose.



DID YOU KNOW?!

1. **ALL MATT** tiles (from Tile Warehouse) **PASS Slip Resistance tests** in New Zealand for Residential Indoor use.
2. The **Ramp** test is not recognised under AS/NZS3661.1 or the NZ Building Code. It can however be used as an alternative test. Ramp test is however used in AS and is recognised as the ISO standard (International Organization for Standardisation)
3. The maximum acceptable **ramp slope** in NZ for an accessible ramp is 1:12 (page 25 Clause D1).
4. When tiles are installed they **must** be covered until the job is completely finished. Otherwise dust and building materials can embed into the tiles and compromise slip resistance.
5. After the final stage of grouting, **ALL grout haze** must be removed so that contaminants and latex is removed. Otherwise Slip Resistance **WILL** be compromised.
6. For practical purposes, **Commercial Bathrooms** do not require a non-slip tile because they are considered (in the absence of showers), non-slip areas. However, at Tile Warehouse we recommend tiles with an appropriate level of slip resistance should be installed as good tiling practice.
7. When dry, a **polished** tile has the best co-efficient of friction resistance of all tile finishes!

CONTACT US FOR FURTHER INFORMATION:

www.tilewarehouse.co.nz/commercial/our-experts/ or call **0800 298 845**



Design & Selection made Easy for 30 years!