

# Slip resistant walking surfaces – safety of walking surfaces in and around buildings

---

People tend to blame themselves for slipping and falling, but in many cases the walking surface itself contributes to their fall.

Published on 1 February 2014

1st edition

**Of interest to** Designers, Architects

## Slip hazards

---

Slippery walking surfaces can be hazardous. Every year ACC pays out many millions of dollars for injuries suffered as a result of falls on the same level due to 'slipping, tripping or stumbling'.

Building users expect buildings to be safe, and the Building Code therefore includes a requirement for walking surfaces on building access routes to be slip-resistant.

## Building Code Clause D1 Access Routes

---

The Building Code in Clause D1 'Access routes' has the requirement in D1.3.3(d) that:

access routes shall have adequate slip-resistant walking surfaces under all conditions of normal use.

An 'access route' is defined in the Building Code as:

a continuous route that permits people and goods to move between the apron or construction edge of the building to spaces within a building, and between spaces within a building.

A passageway or stair in a house would therefore be an access route but the bathroom in a house is unlikely to be an access route and therefore would not be subject to the D1.3.3(d) requirement.

## Acceptable Solution D1/AS1, section 2.1 'Slip resistance'

---

Paragraph 2.1.1 specifies that level access routes used by the public need to have a coefficient of friction of at least 0.4 and it refers to a Standard, AS/NZS 3661.1:1993 'Slip resistance of pedestrian surfaces', for the method of measuring the friction coefficient.

Comment 1 notes that access routes to which the public has access include the walking surfaces on the approach to the main entrance of

houses.

Comment 2 notes that friction coefficient values less than 0.4 may be acceptable on other access routes.

Table 2 lists a range of flooring materials and indicates whether the particular material meets the required friction coefficient in dry and wet situations. The Notes following Table 2 explain that stairs and sloping surfaces need to have a slightly higher friction coefficient than 0.4. Most common flooring materials meet the 0.4 figure for level surfaces when dry.

D1/AS1 in paragraphs 3.1.4 and 4.1.4, dealing with ramps and stairs, includes the requirement for slip resistance that complies with Table 2. Table 2 indicates that painted or polyurethaned stair treads do not have an acceptable slip resistance even when dry. However, Note 3 of Table 2 provides the option of slip resistant nosings for stair treads with these surface finishes.

For buildings other than housing, paragraph 2.1.4 describes ways of providing slip resistance in the transition zone between wet and dry areas, such as the access route from a footpath into a building. In this zone, where water can be tracked indoors, a safe walking surface can be provided by using appropriate slip-resistant flooring or water absorbent matting, or a combination of the two.

## Slip resistant Standard

---

The Standard currently referenced, AS/NZS 3661.1:1993, was superseded by a later version in 2004. However, both versions use the same small swinging pendulum testing device with a rubber pad or 'slider' that replicates a shoe heel. A new version of the 2004 Standard has been published as AS 4856:2013 'Slip resistance classification of new pedestrian surface materials'.

The 2013 Standard continues to use the pendulum device but provides for an additional softer rubber slider that is more applicable to rougher surfaces like concrete and also gives useful results for 'wet barefoot' areas, such as tiles around swimming pools. The Standard includes, as an option, the 'oil-wet ramp test' for slip resistance, with test results expressed in 'R' values and ramp slopes. Imported flooring materials have often been tested by this test method and it can be relevant in commercial and industrial situations.

As the 2013 version of the Standard has the same test method but provides more options than the referenced Standard, it can always be proposed as an alternative solution.

---

All guidance related to D1 Access Routes(<https://www.building.govt.nz/building-code-compliance/d-access/d1-access-routes/>)



**MINISTRY OF BUSINESS,  
INNOVATION & EMPLOYMENT**  
HĪKINA WHAKATUTUKI

**New Zealand Government**

This information is published by the Ministry of Business, Innovation and Employment's Chief Executive. It is a general guide only and, if used, does not relieve any person of the obligation to consider any matter to which the information relates according to the circumstances of the particular case. Expert advice may be required in specific circumstances. Where this information relates to assisting people:

- with compliance with the Building Act, it is published under section 175 of the Building Act
- with a Weathertight Services claim, it is published under section 12 of the Weathertight Homes Resolution Services Act 2006.