



**Global Safe Technologies
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Slips, Trips & Falls

Assessing Safety in Buildings

by Carl Strautins & Paul Bailey, CSIRO Appraisals

In August 2003, the Australian Building Codes Board released its report into the health and safety risks in buildings. Based on the current state of building construction and regulation in Australia, the main health and safety risks in buildings appear to be from slips, trips and falls. According to the National Occupational Health and Safety Commission, two-thirds of workers' compensation claims due to the indoor environment was attributed to slips, trips and falls for the year 1999–2000.

To illustrate how local governments perceive this problem, one Sydney council has, for the past number of years, implemented slip resistance testing on all new public and commercial areas as part of its development control plan with many other councils considering implementing this requirement to protect the public's safety.

It is important to note that not all slips and falls are preventable – the potential to slip has numerous factors, including footwear, activities, gait, contamination and the environment, and one often needs to examine how some of these factors interact in order to better determine the principal causes.

If a floor is deemed to be 'inherently slippery', how can one determine the relative influence of each factor to determine liability? Was the building suitably designed and engineered to minimise the risk of pedestrians to slip and fall? Much research is still required to develop a risk model of slip and fall incidents, including the associated societal and economic costs.

At present, the Building Code of Australia (BCA) has no specific performance requirements, however many floors in new buildings must now comply with AS 1428.1:2001, *Design for Access and Mobility: General Requirements for Access – New Building Work*, which states: 'All continuous accessible paths of travel shall have a slip-resistant surface', and furthermore, that 'ramps and stair treads or nosings are non-slip or non-skid'.



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Determination of what constitutes a non-slip surface can be a complex issue. Firstly, one must acknowledge that there is no universal minimum slip-resistance threshold that is both practical and safe.

Standards Australia Handbook (HB) 197 (1999), *An Introductory Guide to the Slip Resistance of Pedestrian Surface Materials*, provides guidance on the selection of pedestrian surface materials for specific locations, using the current risk management philosophy in terms of the likelihood and consequences of persons slipping.

HB 197 utilises the three wet contamination test methods outlined in AS/NZS 4586:1999, *Slip Resistance Classification of New Pedestrian Surfaces*, to determine the slip-resistance characteristics of particular environmental conditions.

HB 197 establishes a basis for specifying pedestrian surface materials for various locations, and it should be noted that compliance with its recommendations will not necessarily alleviate all hazards. However, conformance will reduce certain pedestrian risks. The Handbook summarises the recommendations in tables, however, the text, although often overlooked, is equally important.

While AS 1428.1 does not specify a means of compliance, Clause 12 requires that: 'all continuous paths of travel shall have a slip-resistant surface'. Note 5 of this Clause states: 'Refer to AS/NZS 4586 and HB 197:1999 for guidance on slip resistant surfaces'.

In summary, the guidance that is provided in HB 197 is generally considered to be best practice. One important element of HB 197 that should be not overlooked is that the recommendations can be modified on the basis of various design or risk management considerations. However, where such decisions are made, it is advisable to document the basis of the reasoning in order to be able to provide subsequent justification for those actions.

Every part of a building must be constructed in an appropriate manner to achieve the requirements of the BCA, using materials that are for the purpose intended.



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CSIRO's Slips and Surfaces Team, in conjunction with CSIRO Appraisals, provides an extensive range of slip-resistance testing, evaluation and technical assessment in order to determine product suitability. Also considered are the requirements of the BCA and referenced standards, as well as many fitness-for-purpose characteristics. The appropriate industry working practices are also considered to ensure a product is compatible with Australian construction techniques.

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