

Slip Resistance Assessment of Carpets for Compliance to National Construction Code of Australia

Author: A. Webb & X. Lin

Report Number: EP 153410

Project Number: XC3283

Date of issue: 1 May 2020

Status: Revision D 2020 reissue

Client: Carpet Institute of Australia Limited

Original issue date 23 June 2015.

Reissued 1 May 2020. This report has been reviewed and has been revised by CSIRO prior to reissue. No further test data has been provided by the client or included in the assessment.

TERM OF VALIDITY: This report will expire on the 1st day of May 2025.

Commercial-in-confidence

Executive summary

A statistical analysis was carried out on a body of data consisting of the slip resistance test results, in accordance with AS 4586 Appendix A, on a range of carpets. The analysis assessed the likelihood of compliance with the NCC BCA Volume 1 Class 2 to 9 buildings and NCC BCA Volume 2 Class 1 and 10 buildings requirements for dry surfaces including stair treads, ramps and landings. The relevant clauses require a minimum Slip Resistance Classification (SRC) of Class P3. The statistical analysis was performed based on 102 test reports of tests from two test laboratories. A probability that a carpet of similar construction determined to have a probability of failure (Classification less than P3) of less than 0.1% was considered to provide a level of safety that will satisfy the Performance Requirements DP2 of the BCA Vol 1 2019 and Performance Requirements P2.5.1 of the BCA Vol 2 2019.

Table 1 summarises our statistical analysis results (Section 9) of whether, with 99.9% confidence (that is, 1 chance in 1,000 of a non-complying result), samples of various types of carpets can be expected to exceed the minimum value of SRC of Class P3 as required by the NCC for stairs, landings and ramps. This depends on the fibre type, style and the pile thickness (PT, the fibre length above the substrate). This implies that, for samples of carpets of the types identified, SRV values should have less than a 0.1% probability of not achieving the predicted performance if tested under AS 4586 Appendix A.

Table 1: Results from statistical modelling and analysis. Range of carpet which will achieve Classification not less than P3 and hence which can be considered to conform without further testing for stair treads, landings and ramps not steeper than 1:14.

Fibre Type ("face fibre" or "wear surface")			Style
Wool and wool rich (≥80% wool)	Nylon	Other	
OK for all PT 4.1mm≤PT≤15.2mm	OK for 3.8mm≤PT≤8.0mm		Cut Pile
	OK for 3.5mm≤PT≤6.6mm	<i>insufficient data</i>	Loop Pile

Based on the test data received and the statistical analysis of that data, carpets conforming to the above description and manufactured by Beaulieu Australia, Brintons, Cavalier Bremworth, Feltex Carpets, Godfrey Hirst Carpets, Interface, Norman Ellison Carpets, Milliken-Ontera, Quest Carpets, Supertuft, Tuftmaster Carpets and Victoria Carpets are covered by this assessment.

No conclusion could be drawn for carpet outside these ranges.

No conclusion could be made regarding Cut/Loop combination pile carpets.

No conclusion could be made regarding loop pile carpets with pile fibre of other than wool or nylon (i.e. Polypropylene, polyester and triexta).

Where a conclusion on the expected SRV value for a carpet system could not be drawn, or where a tighter specification is required than shown here, the carpet must therefore be formally tested.

Ramps steeper than 1:14 of Class 2 to 9 buildings and 1:8 of Class 1 and 10 buildings are excluded from the conclusions of the assessment as these require a test P4 result.

Note that the above results were based on statistical analysis of carpet samples tested without underlay, which means these conclusions are constrained by this test condition. The test method does not require specimens to be tested with underlay.

This report refers to 102 test reports. the sponsors of the referenced tests have provided permission for CSIRO to prepare this report in the name of the assessment sponsor being the Carpet institute of Australia Limited (CIAL).

TERM OF VALIDITY: This report will expire on the 1st day of May 2025.