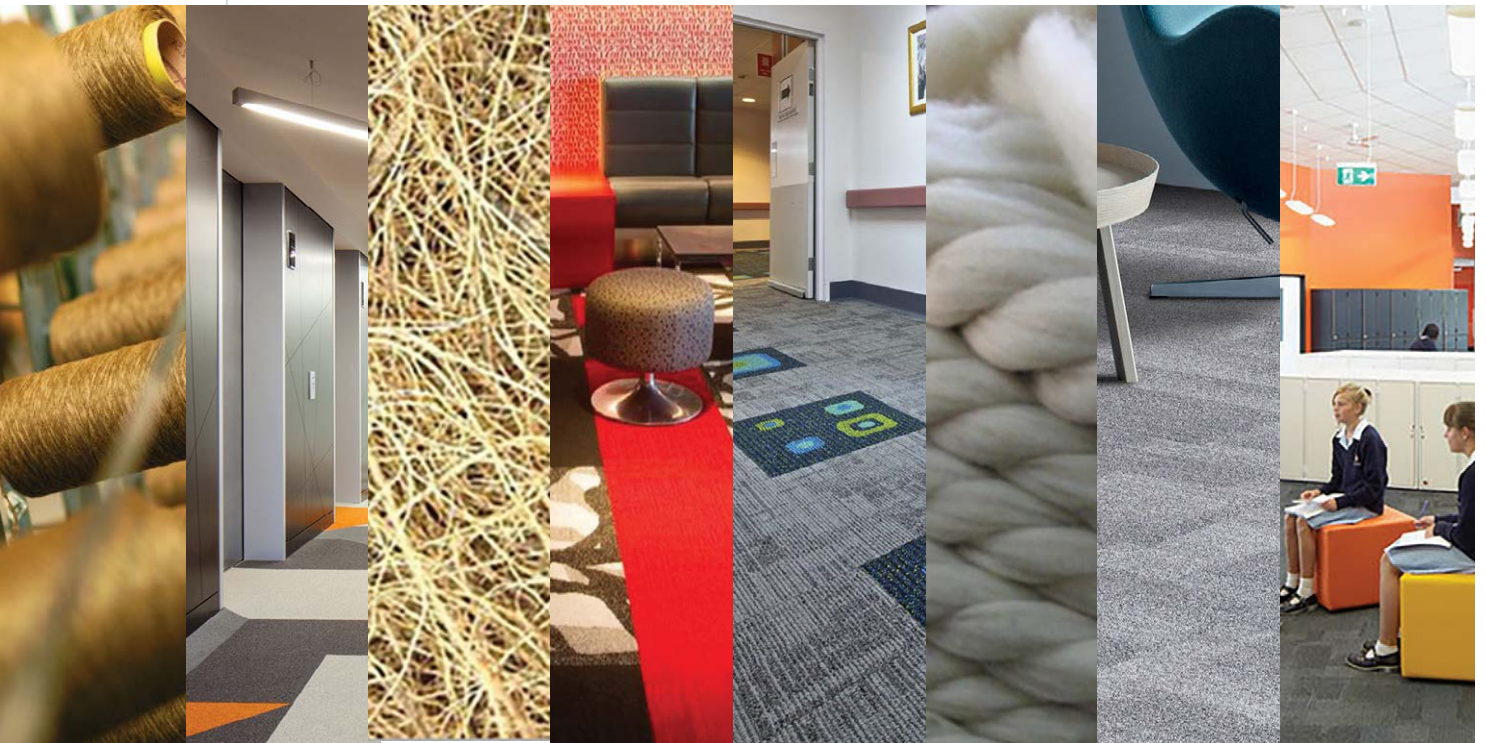




Version 1.1 2018

Technical Specification of **Contract Carpets**



DISCLAIMER

While the information in this document is believed to be accurate and reliable, there are no guarantees given regarding the veracity of any and all information, nor shall the Carpet Institute of Australia be held responsible for any and all instances of injury or damage resulting or incidental to the use of his document and its contents.



Contents

| | |
|--|----|
| INTRODUCTION | 4 |
| STANDARDS AND TEST METHODS | 4 |
| SECTION 1 – ESSENTIAL INFORMATION REQUIRED | 4 |
| 1.1 Manufacturing Process | 4 |
| 1.2 Surface Appearance (Style)..... | 4 |
| 1.3 Dimensions | 5 |
| 1.4 Colour and Design | 5 |
| 1.5 Quantity | 5 |
| 1.6 Method of Installation | 5 |
| 1.7 Pile Fibre Composition..... | 6 |
| 1.8 Extractable Matter of Pile | 6 |
| 1.9 Colourfastness | 7 |
| 1.10 Insect Resistance Treatment..... | 7 |
| 1.11 Surface Pile Mass Per Unit Area | 7 |
| 1.12 Total Pile Mass Per Unit Area..... | 7 |
| 1.13 Pile Thickness | 8 |
| 1.14 Bond Strength Between Backings..... | 8 |
| 1.15 Tuft Anchorage | 8 |
| 1.16 Appearance Retention | 9 |
| 1.17 Dimensional Stability for Modular Carpet | 9 |
| 1.18 Squareness and Trueness of Edge for Modular Carpet | 9 |
| 1.19 Antistatic Performance | 9 |
| 1.20 Specifier Responsibilities | 9 |
| SECTION 2 – ADDITIONAL INFORMATION REQUIRED | |
| 2.1 Method of Yarn Manufacturing..... | 10 |
| 2.2 Yarn Ply | 10 |
| 2.3 Yarn Count | 10 |
| 2.4 Yarn Twist Level | 10 |
| 2.5 Tuft Density | 11 |
| 2.6 Carpet Backing..... | 11 |
| 2.7 Secondary Backing..... | 12 |
| 2.8 Performance Aids | 12 |
| 2.9 Flammability | 12 |
| 3.0 Slip Resistance..... | 12 |
| 3.1 Disability Access | 12 |
| SECTION 3 – AUSTRALIAN CARPET CLASSIFICATION SCHEME | 13 |
| SECTION 4 – ENVIRONMENT CERTIFICATION SCHEME | 14 |
| APPENDIX – CARPET STANDARDS | 15 |

INTRODUCTION

This bulletin will help commercial buyers to recognise and describe features of carpet and carpet performance through specification.

For the purposes of this document, carpet is a machine made textile floor covering and includes modular carpet (carpet tiles and sheet goods) and broadloom carpet (carpet in continuous rolls).

To avoid restricting the potential sources of supply, specifications should be as openly written as possible. The Carpet Institute of Australia favours an approach where the essential characteristics of the carpet form the primary specification. This will usually eliminate a range of carpets that are unsuitable to the end-user/consumer.

In addition to the essential characteristics of the carpet, other information on carpet construction and carpet performance may be requested. If so, it should form part of the complete specification.

All information requested by the tender should be capable of being tested or assessed by an independent and accredited testing authority – NATA in Australia or an international equivalent.

This bulletin lists specification information under two headings

1. Essential information to the tender
2. Additional information that may be requested by the tenderer

For certain projects, the specifier may consider items under “2” as additional essential information.

STANDARDS AND TEST METHODS

Relevant textile floor coverings standards are referenced throughout this bulletin. A complete list of Australian standards referred to is provided in the Appendix. Copies of these standards can be purchased from the website of SAI Global at www.saiglobal.com

1. ESSENTIAL INFORMATION REQUIRED

1.1 Manufacturing Process

The various manufacturing processes can produce carpets with quite different features. The major variables in construction relate to design flexibility, performance features and also cost. The major products / processes are:

- **modular carpet**, carpet tiles and sheet goods – from mainly the tufting process
- **tufted carpet** – from the broadloom tufting process
- **woven carpet** – from the Axminster and Wilton weaving processes
- **bonded carpet** – from U-Bond and I-Bond processes

The specification should only exclude a manufacturing process that is not acceptable. If a particular process is specified it may unnecessarily restrict the number of manufacturers/suppliers and limit choice.

Further information on manufacturing processes and carpet products is contained in AS 2454.

1.2 Surface Appearance (Style)

The most frequently specified surface texture/appearance styles are level loop; high and low loop; cut and loop; tip sheared loop and level cut.

Further information on carpet surface style is contained in AS 2454.

Standards referred to on this page

AS 2454 Textile floor coverings – Terminology

1.3 Dimensions

Carpets are manufactured to different widths, the useable width depending on the size and type of the loom used in the manufacturing process:

- carpet tiles are: 0.46m x 0.46m, 0.5m x 0.5m, 0.6m x 0.6m, 1.0m x 1.0m. Other dimensions can be specified.
- standard broadloom widths are 3.66 metres (m) and 4.0m. AS/NZS 1385 specifies the following commercial tolerances for the dimensions of tufted and woven carpet: Useable Width: $\pm 1.5\%$; Length: 0
- narrow-loom widths (usually woven only) are 0.69m, 0.9m, 1.0m, 2.0m. AS/NZS 1385 specifies the following commercial tolerances for the dimensions of tufted and woven carpet: Useable Width: $\pm 1.5\%$; Length: 0

Notes:

2.0m width is often requested for health care installations. Special widths may be required where access to the installation site is restricted. For example in multi-storey buildings, 3.66m width rolls may not be transportable in some elevator cars. The useable width of a carpet is the width of the pile surface that can be effectively used on the floor. AS/NZS 1385 commercial tolerances for width and length do not apply to carpet tiles.

1.4 Colour and Design

Colours should be specified and matched in an agreed light source to an agreed tolerance. The design will be specified, for example, plain; berber; pattern; heather; stipple and sisal.

1.5 Quantity

For an accurate assessment of the area to be carpeted, detailed building floor plans should be made available. The total installation area and carpet required for the installation should be stated according to the requirements of AS/NZS 2455.1 and AS/NZS 2455.2 for carpet tiles.

Additional factors to be considered when assessing quantity requirements include:

- dye lots - carpets from different dye lots must not be mixed in adjacent areas;
- laying losses - an allowance must be made for additional carpet consumed in laying;
- pattern matching - an allowance will be necessary for pattern matching.

1.6 Method of Installation

Different installation methods can be used for most carpets. They include:

broadloom carpet

- direct-stick system (carpet only)
- double-bond system (carpet with underlay)
- conventional carpet gripper system (carpet and underlay installed as separate components)

modular carpet:

- direct-stick system
- double-bond system (carpet tile with underlay) Note: Some manufacturers do not provide a warranty for carpet tiles installed on separate underlay.

Detailed descriptions or alternate installation systems are contained in AS/NZS 2455.1 or AS/NZS 2455.2. Other specialist installation methods are also available for certain products, and for certain conditions. If the preferred method or installation is known at the time of issuing the tender, it should be clearly stated.

Alternatively the carpet manufacturer can recommend the most suitable laying procedure for their product. Installation must be in accordance with the requirements of AS/NZS 2455.1 or AS/NZS 2455.2 unless otherwise agreed. Carpet underlay used in the installation should meet the requirements of AS 4288.

Standards referred to on this page

| | |
|---------------|---|
| AS/NZS 1385 | Textile floor coverings – Metric units and commercial tolerances for measurements |
| AS/NZS 2455.1 | Textile floor coverings – Installation practice – General |
| AS/NZS 2455.2 | Textile floor coverings – Installation practice – Carpet Tiles |
| AS 4288 | Soft underlays for textile floor coverings |

1.7 Pile Fibre Composition

Nylon (or polyamide), polypropylene (or polyolefin), wool and triexta are the major fibres used in Australia to make carpet. Different fibres can also be blended to produce mixed fibre carpet yarns, the most common being 80% wool /20% synthetic carpet yarn. Blending of yarns is used to achieve certain performance and economy requirements. Manufacturers can advise on appropriate blends as necessary.

For blended yarns, blend proportions should conform to the tolerances and allowances set out in AS/NZS 2622. Percentages are expressed as Commercial Standard Regain of the respective fibres.

Note:

Commercial Standard Regain is the ratio of the mass of ambient moisture in the fibre compared to an oven dry mass. Standard Conditions require testing of the specimen, and reporting of results, at standard atmospheric conditions of 20±2°C and 65±2% Relative Humidity.

Fibres can be either new or recycled. If a recycled fibre is being used, the percentage should be clearly stated. Wool fibres with an average fibre diameter of 33 micron or greater are recommended. For complete information on fibre content labelling and commercial tolerances refer to AS/NZS 2622.

1.8 Extractable Matter of Pile

All carpet yarns contain small amounts of residual oil, wax or grease. Some of these residues are inherent to the fibre and some are applied as processing lubricants during yarn and carpet manufacturing. Excess residual matter may lead to premature soiling problems in the installed carpet. Accordingly, maximum levels of extractable matter for each fibre type should be specified. When the pile is extracted in accordance with AS 2001.3.4, the volume of extractable matter should not exceed the following maximums:

- Wool - 1.5% of total weight
- Nylon/Polyamide - 1.0% of total weight
- Polypropylene / Polyolefin -1.0% of total weight

1.9 Colourfastness

Colourfastness is the ability of a textile floor covering to maintain its original colour after contact with various agents to which the material may be exposed during manufacture and in subsequent use. These agents include light, wet rubbing, dry rubbing, dry cleaning solvent and shampoo solution.

1.9.1 Colourfastness to Light

When tested in accordance with AS 2001.4.B02 all colours in the pattern shall have a minimum rating of 5. For those products which cannot achieve rating 5 it is recommended that manufacturers state this qualification when tendering.

1.9.2 Colourfastness to Water

When tested in accordance with AS 2001.4.E01, a composite sample containing all colours shall have a minimum rating of 3-4.

1.9.3 Colourfastness to Shampoo Solution

When tested in accordance with AS 2111.19.2, a composite sample containing all colours shall have a minimum rating of 3-4.

Standards referred to on this page

| | |
|---------------|--|
| AS/NZS 2622 | Textile products – Fibre content labelling |
| AS 2001.3.4 | Methods of test for textiles – Chemical tests – Determination of solvent extractable matter |
| AS 2001.3.4 | Methods of test for textiles – Chemical tests – Determination of solvent extractable matter |
| AS 2001.4.B02 | Methods of test for textiles – Colourfastness tests – Colourfastness to artificial light: Xenon arc fading lamp test |
| AS 2001.4.E01 | Methods of test for textiles – Colourfastness tests – Colourfastness to water |
| AS 2111.19.2 | Textile floor coverings – Tests and measurements – Colourfastness tests – Shampoo solution |



1.9.4 Colourfastness to Rubbing

When tested in accordance with AS 2111.19.1, a composite sample containing all colours should have a minimum rating of 3-4 to both wet and dry rubbing.

1.9.5 Colourfastness to Dry Cleaning Solvents

When tested in accordance with AS 2001.4.16, using perchloroethylene or white spirit, a composite sample containing all colours should have a minimum rating of 3-4.

It is important to note that certain colours on some fibres cannot be produced with commercially available dyestuffs to meet the specifications outlined in 1.9.1 to 1.9.5. In these cases, the manufacturer must report the expected performance of the fibre/colour in each colourfastness test. If the carpet is unsuitable for cleaning with solvent, instructions to the customer, tenants and cleaning staff are essential.

1.10 Insect Resistance Treatment

Where yarns used in the carpet are wool or wool blends, the pile fibre should be treated against moth and beetle attack by applying an approved insect resist agent in accordance with the recommendations of The Woolmark Company's CP-4 specification - Level 4 & 5 Minimum Effective Concentration using the Chemical Assay for Content of Insect Resist (IR) Agent method. If the carpet pile is tested in accordance with AS2001.6.1 – The Bioassay Test: a 'Satisfactory' result must be recorded.

1.11 Surface Pile Mass Per Unit Area

Surface Pile Mass (SPM) is the mass of pile in a given area that protrudes above the backing and forms the pile or wear surface of the carpet. SPM is an important determinant of overall carpet performance, particularly as it relates to construction density. SPM is obtained by shearing the carpet pile down to the substrate/backing and weighing the pile that is removed. When tested in accordance with AS/NZS 2111.4, the mean value should be within $\pm 5\%$ of the specified weight. Should the mean value obtained be within minus 10% of the specified weight, the manufacturer is entitled to request a retest on the remaining sample or a new sample drawn in accordance with AS/NZS 2119. The mean of the first test and the retest should then be accepted as the true result unless there is reason to suspect that either result is in error. The tender should state whether Surface Pile Mass is to be measured and reported according to Commercial Standard Regain or Standard Condition.

It should be noted that some carpets may not be suitable for specification in terms of Surface Pile Mass per unit area because of the difficulty in determining the interface between the carpet pile and the backing material. These include needle punch carpets, flocked carpets, some tufted carpets manufactured with a non-woven primary backing and bonded carpets.

1.12 Total Pile Mass Per Unit Area

Total Pile Mass of a carpet is the mass of pile yarn in a given area, including the area forming the base of the tufts, or held in the substrate. The Total Pile Mass of a woven or tufted carpet is best determined by dissecting an unbacked sample of the carpet. The specifier may require an unbacked sample from the manufacturer for this purpose. Samples should be tested in accordance with AS/NZS 2111.11 (Complete Dissection Method). When tested to AS/NZS 2111.11, the mean value should be within 5% of the specified weight. Should the mean value obtained fall within minus 10% of the specified weight, the manufacturer is entitled to a retest on the remaining sample or a new sample drawn in accordance with AS/NZS 2119. The mean of the first test and the retest will then be accepted as the true result unless there is reason to suspect that either result is in error.

Standards referred to on this page

| | |
|----------------|--|
| AS 2111.19.1 | Textile floor coverings – Tests and measurements – Colourfastness tests – Rubbing |
| AS 2001.4.16 | Methods of test for textiles – Colourfastness tests – Dry cleaning solvents |
| AS 2001.6.1 | Methods of test for textiles – Miscellaneous tests – Determination of the resistance of textiles to certain insect pests |
| AS/NZS 2111.4 | Textile floor coverings – Tests and measurements – Determination of surface pile mass above the substrate |
| AS/NZS 2119 | Textile floor coverings – Machine made – Sampling and cutting specimens for physical tests |
| AS/NZS 2111.11 | Textile floor coverings – Tests and measurements – Determination of total pile mass per unit area by complete dissection |



The specification should state whether Total Pile Mass is to be measured and reported according to Commercial Standard Regain or Standard Condition. The relationship between Surface Pile Mass and Total Pile Mass per unit area may be significantly affected by normal manufacturing variations in, for example, yarn count, pile height, stitch rate and design factors.

1.13 Pile Thickness

Pile Thickness is the measured thickness of the carpet pile above the substrate/backing.

When tested in accordance with AS/NZS 2111.5, the Pile Thickness above the backing should be that specified \pm 1mm. In multi-pile height carpet (e.g. carpets that incorporate a pattern or texture effect by using different pile heights), the maximum and minimum pile thickness should be specified.

1.14 Bond Strength Between Backings

Bond Strength refers to the amount of force, measured in newtons (N), that is required to separate the primary and secondary backing materials. For carpets with a secondary backing, the mean Bond Strength, tested to AS/NZS 2111.16, should be 40 N or greater in both machine and cross directions.

Notes:

A 40 N mean can be difficult to achieve in certain constructions and styles of tufted carpet. For example, where particular latex formulations are required, where certain backing materials are used, or where the product design incorporates significant cross-over stitching. In these situations, the specifier should discuss these factors with the carpet manufacturer beforehand and agree on an appropriate Bond Strength figure. In the examples listed above, a 35 N mean is usually sufficient to achieve satisfactory performance.

Under AS/NZS 2111.16, numerical results are sometimes not returned due to tufts pulling through the primary interface during the test procedure. When this occurs, the test method requires the result (* *) to be recorded. This result indicates that the backing materials are unlikely to delaminate when the carpet is in service.

1.15 Tuft Anchorage

Individual tufts or legs of yarn are secured into the carpet substrate or backing material with an adhesive, usually synthetic latex. Tuft security measures the force, in newtons (N), required to remove the tuft or leg of yarn from the substrate. The mean force to remove an individual tuft or loop, when tested in accordance with AS/NZS 2111.15, should be specified.

Tuft security requirements vary according to the carpet construction and the type of use. As a guide the following mean values are often specified for commercial/contract grades of carpet:

Woven Carpets

| | |
|-----------------|------|
| Loop | 10 N |
| Cut pile carpet | 6 N |

Tufted Carpets

| | |
|-----------------|------|
| Loop pile | 30 N |
| Cut /Stepover * | 6 N |
| Cut ** | 10 N |

* A construction of 'stepover' or 'crossover' stitching has a requirement of 6 N.

** All other cut constructions have a requirement of 10 N.

Standards referred to on this page

| | |
|----------------|--|
| AS/NZS 2111.5 | Textile floor coverings – Tests and measurements – Determination of thickness of pile above the substrate |
| AS/NZS 2111.16 | Textile floor coverings – Tests and measurements – Determination of bond strength between backing components |
| AS/NZS 2111.15 | Textile floor coverings – Tests and measurements – Determination of tuft removal force |

1.16 Appearance Retention in Carpets

Appearance Retention describes the ability for a carpet to retain an acceptable level of appearance over time. Appearance change in carpets can have a number of forms including flattening, alterations in texture and structure, soiling and staining, loss of pattern or design and colour change. Some degree of appearance change and abrasive wear will occur in a carpet as it is used. These changes are part of the natural ageing process that commences as soon as the carpet is installed.

The Hexapod Tumbler Test simulates the in-service behaviour of carpet by indicating early changes (up to 12 months) and late changes (36 months to 48 months) in structure and colour caused by non-soiling foot or walking traffic.

The Hexapod Tumbler Test is a cylindrical drum lined with textile floor covering specimens and containing a hexapod that is rotated for a specified number of revolutions.

- Early Change: 1500 revolutions (no underlay)
- Late Change: 8000 revolutions (no underlay)

A vacuuming cycle is carried out after each 2000 revolutions. An assessment of Early Change and Late Change in surface structure and colour is then conducted in 'standard' lighting and viewing conditions using 'standard' fatigued samples for comparison.

- (a) Appearance Change of Structure is rated according to the following 'grade' descriptions:
 - Grade 5:** No Change
 - Grade 4:** Slight Change
 - Grade 3:** Moderate Change
 - Grade 2:** Significant Change
 - Grade 1:** Severe Change
- (b) Colour Change is rated using Grey Scales
- (c) Pile Thickness Loss measurements are made by comparing pre-test and post-test pile thickness.

1.17 Dimensional Stability for Modular Carpet

Less than 0.2% variation to heat and water (ISO 17984)

1.18 Squareness and Straightness of Edge for Modular Carpet

When tested to ISO 13747 the tile must be within 0.15% of square.

1.19 Antistatic Performance

When tested in accordance with ISO 6356 at 20°C & 20% Relative Humidity, the carpet shall not generate a voltage greater than 3.5kV with any footwear sole type.

1.20 Specifier Responsibilities

Prototype Tender Sample

The specifier should submit with the tender a sample of carpet of similar construction and colour to that upon which the tender is based. The specifier should state the respects in which the prototype sample might differ from the requirements of the tender.

Production Samples

The specifier may be requested to submit a full width sample of finished carpet with a minimum area of 2 square metres from one or more production runs for testing. A portion of this sample should be retained for reference in case of variation of colour, texture, or other visual or tactile qualities. Other samples (e.g., unbacked carpet) may also be required for testing purposes.

Standards referred to on this page

| | |
|-----------|---|
| ISO 17984 | Machine made textile floor coverings – Determination of dimensional changes after exposure to heat and/or water |
| ISO 13747 | Textile floor coverings – Determination of size, squareness and straightness of edge of tiles |
| ISO 6356 | Textile and laminate floor coverings. Assessment of static electrical propensity. Walking test |

Warranty in Lieu of Testing

In cases where the cost of complete testing cannot be justified, the specifier may choose to call for a warranty that the carpet delivered will meet the requirements and reserve the right to spot check any or all of the parameters if a problem arises in service. An unused sample should be retained.

Specification and Non-Conformance

Where there is non-conformance to the specification, discussion should take place with the manufacturer/supplier. The manufacturer/supplier should be responsible for costs associated with retesting as a result of non-conformance.

2.0 ADDITIONAL INFORMATION REQUIRED

2.1 Method of Yarn Manufacture

Yarns used to make carpets can be manufactured from continuous filaments of fibre or from short lengths of fibre that are spun together to form a continuous length of yarn. The method of yarn manufacture may be requested, for example:

- woollen spun system
- continuous filament system
- semi-worsted spun system
- other (to specify)

2.2 Yarn Ply

Yarn Ply refers to the number of single ends of yarn that are folded or twisted together to form a multi-ply yarn. Where information on yarn ply is requested, it should be in the form described in Section 2.4.

2.3 Yarn Count

The Yarn Count is the linear density of a fibre or yarn and is expressed as weight in grams per 1000 metres. The Yarn Count must include the Resultant Tex - i.e., the weight in grams of the finished yarn taking into account the effects of twist and ply. Resultant Tex is recorded at the Commercial Standard Regain allowance for each fibre. Recommended test method AS 2001.2.23.

Note:

There is a functional relationship between Total Pile Mass, Pile Thickness, Tuft Density and Yarn Count. It may not therefore be possible to specify all four parameters individually. It is usual practice to only specify Surface Pile Mass or Total Pile Mass, Pile Thickness and Tuft Density. These variables will determine Yarn Count.

2.4 Yarn Twist Level

Multiple yarns are made of single yarn ends that are folded or twisted together. Yarn Twist Level is a measure of turns or twists per metre length of the yarn.

Recommended test method AS 2001.2.14

Tolerances: singles \pm 15%
 folded \pm 10%

Note:

To ensure that the information on Yarn Count, Yarn Twist and Yarn Ply are unambiguous they should be stated in the following standard form: {singles count (tex)}: {twist and ply}: R{resultant count (tex)}

Standards referred to on this page

AS 2001.2.23 Methods of test for textiles – Physical tests – Determination of linear density of textile yarn from packages
 AS 2001.2.14 Methods of test for textiles – Physical tests – Determination of twist in yarns

The twist and ply are expressed in this way:

(singles twist direction) (singles twist level (turns per metre) x (ply number)

(folding twist direction) (folding twist amount (turns per metre)

For example, a typical 2 ply BCF nylon yarn may be specified as 109 tex: Z 145 x 2 S 145: R275 tex

2.5 Tuft Density

Tuft Density is the number of tufts per unit area of the carpet. The number of tufts is measured both parallel and perpendicular to the direction of manufacture.

2.5.1 Tufts Parallel to Selvedge

This test records the number of tufts per 100mm in the direction of manufacture (tufts parallel to selvedge).

Recommended test method. AS/NZS 2111.9

Tolerance: $\pm 10\%$

2.5.2 Tufts Perpendicular to Selvedge

This test records the number of tufts per 100mm perpendicular to the selvedge. In tufted carpets this figure is determined by, and will closely approximate, the gauge of the tufting machine.

Recommended test method AS/NZS 2111.9

Tolerance: $\pm 5\%$

2.6 Carpet Backing

Backing is the part of the floor covering that lies under, and is intimately attached to, the pile. It is composed of one or more layers of material, which serve as a support of the pile, assisting to stabilise dimensions or acting as a cushion. There are two types of backing: primary backing and secondary backing.

2.6.1 Primary Backing

Primary backing is the pre-formed fabric that acts as a carrier for the use surface in a tufted carpet.

2.6.2 Backing Type and Construction

Primary backing for tufted carpets is available in two basic forms:

- woven primary backing material
- non-woven primary backing material

The tender may specify the type of primary backing material required.

2.6.3 Mass Per Unit Area of Primary Backing Material

Measurement of mass per unit area of primary backing materials is to AS 2001.2.13

Tolerance: $\pm 10\%$

2.6.4 Maximum Extractable Matter

For jute products only, the maximum extractable matter allowed is 5% when tested to AS 2001.3.4.

Standards referred to on this page

AS/NZS 2111.9 Methods of test for textile floor coverings – Determination of the number of tufts per 100mm in directions parallel to and to right angles to the selvedge

AS 2001.2.13 Methods of test for textiles – Physical tests – Determination of mass per unit area and mass per unit length of fabrics

AS 2001.3.4 Methods of test for textiles – Chemical tests – Determination of solvent extractable matter

2.7 Secondary Backing

Secondary backing is the fabric that forms an additional stabilising layer in the substrate of a textile floor covering. It often forms the final coating or layer on the back of the floor covering.

2.7.1 Secondary Backing Type(s) and Construction

Secondary backing material for tufted carpet is available in two common forms:

- woven secondary backing
- non-woven secondary backing

The tender may specify the type of secondary backing material required.

2.7.2 Mass Per Unit Area of Secondary Backing Materials

Measuring the mass per unit area of secondary backing materials is to AS 2001.2.13

Tolerance: $\pm 10\%$

2.8 Performance Aids

Product performance aids can be used to enhance certain aspects of the performance of a carpet. The performance aids should be applied in accordance with the recommendations of the supplier. The most common aids and treatments include:

- staining and/or soiling retardants
- static electricity suppressants
- ultra-violet light inhibitors
- fire retardants
- microbial treatments

2.9 Flammability

Specifiers should refer to the Building Code of Australia Specification C1.10 which outlines the flammability requirements for class 2 - 9 buildings. Class 1 buildings are not covered by these provisions. For an explanation of the test method – AS ISO 9239-1 and Code performance requirements, refer to the following CIAL publications:

- Fact sheet – Fire safety regulations for floor coverings
- Frequently asked questions on testing to AS ISO 9239.1

3.0 Slip Resistance

From 1 May 2014, subject to State and Territory transitional provisions, the Building Code of Australia adopted minimum slip resistance classifications for stairs (treads or nosings to treads) and for certain buildings the surfaces of ramps and landings. This classification is for residential housing (class 1 and 10 buildings) and multi residential, commercial and public buildings (class 2 – 9 buildings). These new requirements are derived from AS 4586. Further information is available from the Carpet Institute's Fact sheet on slip resistance.

The specifier should ensure that the application of any performance aid does not detrimentally affect other properties of the carpet.

3.1 Disability Access

Clause D3.3 of the Disability [Access to Premises – Buildings] Standards 2010 (Premises Standards) sets out 'deemed to satisfy' provisions for a building required to be accessible. D3.3(g) states 'clause 7.4.1(a) of AS 1428.1 does not apply and is replaced with 'the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm'.

Standards referred to on this page

| | |
|---------------|---|
| AS 2001.2.13 | Methods of test for textiles – Physical tests – Determination of mass per unit area and mass per unit length of fabrics |
| AS ISO 9239-1 | Reaction to fire tests for floor coverings – Determination of the burning behaviour using a radiant heat source |
| AS 4586 | Slip resistance classification of new pedestrian surface materials |
| AS 1428.1 | Design for access and mobility Part 1: General requirements for access – New building work |

For public transport building, Clause H2.2(8) of the Premises Standards states, in part, that ground and floor surfaces must comply with clause 9 of AS 1428.2. Sub-clause 9(b) states that where carpet is used on a ground or floor surface, the following requirements apply:

- the carpet shall be securely attached
- any pad, backing or cushioning shall provide a firm surface
- the carpet shall have a level loop, a textured loop, a level cut pile or a level cut and uncut pile texture
- the pile height shall be no more than 6 mm
- exposed edges of carpet shall be fastened to the floor surface and shall have a trim along the entire length of the exposed edge

Under Section D3.8, for a building required to be accessible, tactile ground surface indicators must be provided to warn vision impaired people that they are approaching a stairway, escalator, ramp etc. Tactile ground surface indicators must comply with sections 1 and 2 of AS/NZS 1428.4.1.

SECTION 3 – Australian Carpet Classification Scheme (ACCS)

The ACCS is one of the largest ‘all fibre’ carpet grading schemes in the world.

All ACCS carpets are independently tested and graded according to established procedures and internationally recognised tests. The minimum requirements set in Section One are the minimum requirements for carpets graded by the ACCS.

The ACCS uses a labelling system that identifies carpet according to suitability for use in Residential and/or Contract installations and different walking ‘traffic’ conditions described as light, medium, heavy and extra heavy. In determining the end-use classification, the overriding criterion is the appearance retention properties of the carpet.

Carpets graded by the ACCS carry distinctive labels featuring a ‘star’ rating system; six stars for Residential and four stars for Contract or Commercial. The more stars the better the carpet quality and performance. Some carpets will carry both Residential and Contract gradings.



When the STAIR graphic appears on the label, it is accompanied by the wording: ‘SUITABLE FOR STAIRS’, indicating that the ACCS rated carpet is suitable for use on stairs in terms of its durability and appearance retention characteristics.

The yellow and blue labels identify carpets that have been graded for residential use

The Australian Carpet Mark - a Registered Certification trademark appearing only on ACCS graded carpet

Star system of rating - allows you to quickly decide which carpet is suitable for your needs

Registered Number - identifies each graded carpet individually so grading details can be checked and confirmed

The gold and black labels identify carpets graded for contract or commercial use. Some carpets will carry both Residential and Contract gradings

Stair Icon - means the carpet is suitable for use on stairs

Standards referred to on this page

SECTION 4 – ACCS Environment Certification Scheme (ECS)

4.1 Introduction

The ACCS ECS Carpet technical Specifications provides a guide to the environmental performance of certified textile floor covering products through their full lifecycle. In this case, lifecycle is defined as the processes involved in the production of raw materials, manufacturing of carpet, installation and use of carpet through to its final disposal, recycling, or reuse.

4.2 Certification categories

The ECS consists of 5 levels of certification and requires licensees of the scheme to satisfy incrementally more demanding performance criteria.

- ECS Level 1 Entry Level Certification
- ECS Level 2 Raw Materials
- ECS Level 3 Manufacturing
- ECS Level 4 Product Stewardship¹
- ECS Level 4+ Extra Performance Criteria



ECS Levels 1, 2, 3, 4 and 4+ have been developed to align with the requirements of Green Building Council of Australia's (GBCA) Responsible Products Framework values (RPV).

4.3 Overview of performance requirements

These requirements, shown in the first column of the following Table, are accumulative. Hence the criteria for Levels 1, 2 and 3 carry through to ECS Levels 4 and / or 4+.

| ECS Level | Status | Cumulative RPV points |
|---|----------------------|-----------------------------------|
| ECS Level 1 Environmental management Current ACCS rating Achieves IAQ, acoustical and thermal insulation benchmarks (customer health) | core core core | 1 0 1 2 points |
| ECS Level 2 Raw materials (toxicity) declaration Public disclosure of raw materials Risk based chemical assessment to limit exposure Manufacturing Health & Safety Industry environmental product declaration | core core core | 0 1 0 1 1 5 points |
| ECS Level 3 Manufacturing declaration Health product declaration | core core | 0 2 7 points |
| ECS Level 4 Product stewardship | core | 0 7 points |



| ECS Level 4+ | Status | Cumulative RPV points |
|---------------------------------------|-----------------------------------|-----------------------|
| Manufacturing improvement | | |
| Energy use reduction | core | 1 |
| Water use reduction | core | 0 |
| Waste reduction | core | 2 |
| Carbon emissions reduction | core | 1 |
| Modern slavery declaration | core | 1 |
| | | 12 points |
| Product declarations | | |
| Product EPD | elective | 5 |
| Environmental impact reduction | elective | 0 |
| No chemicals of concern | elective | 2 |
| Other environmental impacts reduction | elective | 0 |
| Material extraction reduction | elective | 0 |
| Carbon neutral product | elective | 3 |
| | at the discretion of the licensee | 22 points |

To obtain ECS Level 1 (entry level) certification, licensees are required to complete the core (meaning mandatory) units shown in the Table above to achieve 2 RPV points.

ECS Levels 2 and 3 have additional performance requirements, all of which must be satisfied to achieve these certifications.

ECS Level 4 (Product stewardship) is the key performance criterion.

The top certification, ECS Level 4 +, requires licensees to:

- satisfy the requirements of ECS Levels 1, 2, 3 and 4;
- meet the core performance criteria under Manufacturing improvement;
- at the licensee’s discretion additional elective criteria may be satisfied to gain extra ECS points to a maximum of 22.

Carpet Institute Publications

[ACCS ECS Technical Guidelines](#)

[ACCS User Guide](#)

[Fact sheet – Australian Carpet Classification Scheme](#)

[Fact Sheet – Environmental Certification Scheme](#)

[Code of Practice for Environmental Management](#)



Appendix

Textile Floorcoverings Standards

| | |
|----------------|--|
| AS 2454 | Textile floor coverings - Terminology |
| AS/NZS 1385 | Textile floor coverings – Metric units and commercial tolerances for measurements |
| AS/NZS 2455.1 | Textile floor coverings – Installation practice – General |
| AS/NZS 2455.2 | Textile floor coverings – Installation practice – Carpet Tiles |
| AS 4288 | Soft underlays for textile floor coverings |
| AS/NZS 2622 | Textile products – Fibre content labelling |
| AS 2001.3.4 | Methods of test for textiles – Chemical tests – Determination of solvent extractable matter |
| AS 2001.4.B02 | Methods of test for textiles – Colourfastness tests – Colourfastness to artificial light: xenon arc fading lamp test |
| AS 2001.4.E01 | Methods of test for textiles – Colourfastness tests – Colourfastness to water |
| AS 2111.19.2 | Textile floor coverings – Tests and measurements – Colourfastness tests – Shampoo solution |
| AS 2111.19.1 | Textile floor coverings – Tests and measurements – Colourfastness tests – Rubbing |
| AS 2001.4.16 | Methods of test for textiles – Colourfastness tests – Dry cleaning solvents |
| AS 2001.6.1 | Methods of test for textiles – Miscellaneous tests – Determination of the resistance of textiles to certain insect pests |
| AS/NZS 2111.4 | Textile floor coverings – Tests and measurements – Determination of surface pile mass above the substrate |
| AS/NZS 2119 | Textile floor coverings – Machine made – Sampling and cutting specimens for physical tests |
| AS/NZS 2111.11 | Textile floor coverings – Tests and measurements – Determination of total pile mass per unit area by complete dissection |
| AS/NZS 2111.5 | Textile floor coverings – Tests and measurements – Determination of thickness of pile above the substrate |
| AS/NZS 2111.16 | Textile floor coverings – Tests and measurements – Determination of bond strength between backing components |
| AS/NZS 2111.15 | Textile floor coverings – Tests and measurements – Determination of tuft removal force |
| ISO 17984 | Machine made textile floor coverings – Determination of dimensional changes after exposure to heat and/or water |
| ISO 13747 | Textile floor coverings – Determination of size, squareness and straightness of edge of tiles |
| ISO 6356 | Textile and laminate floor coverings. Assessment of static electrical propensity. Walking test |
| AS 2001.2.23 | Methods of test for textiles – Physical tests – Determination of linear density of textile yarn from packages |
| AS 2001.2.14 | Methods of test for textiles – Physical tests – Determination of twist in yarns |
| AS/NZS 2111.9 | Methods of test for textile floor coverings – Determination of the number of tufts per 100mm in directions parallel to and to right angles to the selvedge |
| AS 2001.2.13 | Methods of test for textiles – Physical tests – Determination of mass per unit area and mass per unit length of fabrics |
| AS ISO 9239-1 | Reaction to fire tests for floor coverings – Determination of the burning behaviour using a radiant heat source |
| AS 4586 | Slip resistance classification of new pedestrian surface materials |
| AS 1428.1 | Design for access and mobility Part 1: General requirements for access – New building work |



About the Carpet Institute of Australia

The Carpet Institute of Australia Limited (CIAL) is the lead industry association for Australia's \$1.6 billion carpet industry. CIAL represents carpet manufacturers, carpet retailers and other suppliers of goods and services to the industry.

Carpet Institute of Australia Limited ABN 11 006 829 303

PO Box 7172, St Kilda Road, Melbourne 3004 Tel (03) 9804 5559 | Fax (03) 9804 5560

info@carpetoz.com.au | www.carpetinstitute.com.au



The "*Carpet It Just Feels Better*" campaign is an initiative of the Carpet Institute of Australia, a non-profit association sponsored by carpet manufacturers, their suppliers and other companies that provide goods and services to the broader carpet industry.