



Carpet Fibres

Is it a good idea to purchase Carpet based only on Fibre Type?

SUMMARY:

A carpet (in roll, tile or plank form) is produced by the insertion of fibre or yarns composed of fibres/filaments, into a backing.

The use surface of the carpet is referred to as the pile and it may be cut or loop or a mixture of both. Numerous methods of manufacturing exist to achieve the desired style.

Carpets offer great value, aesthetic beauty, comfort and warmth, insulation and sound absorption and, are made to a predetermined specification based on the intended end-use in residential or commercial installations.

It is unwise to only base a decision to purchase on fibre type alone. The Carpet Institute of Australia (CIAL) recommends viewing the Australian Carpet Classification Scheme (ACCS) grading labels on the back of the carpet swatch samples, to establish the performance level or grading required and then let personal preferences determine the selection of fibre type, colour, texture, handle and style.

What are the Fibre Type Choices?

Quality carpets are designed and manufactured to meet a particular set of installation durability and appearance retention performance requirements. Examples of specific requirements include people traffic, (number of people and trafficking patterns, walking safety), acoustic and thermal comfort and, steps and stairs.

Both natural and synthetic fibres can be used to form the pile of a carpet. Some examples are: Natural Fibres: Wool – other natural fibres that are more often made into area rugs, include coir, sisal, seagrass, jute, cotton, silk, bamboo and mohair. The main Synthetic Fibres used in carpet production are Nylon, Polypropylene, Triexta and Polyester.

There are also carpets with pile made from a blending of the fibres.

While the 80% Wool/20% Nylon blend is well known, other majority wool percentage blend examples are Wool/Polyester and Wool/Polyester/Polypropylene, and Wool/Bamboo.

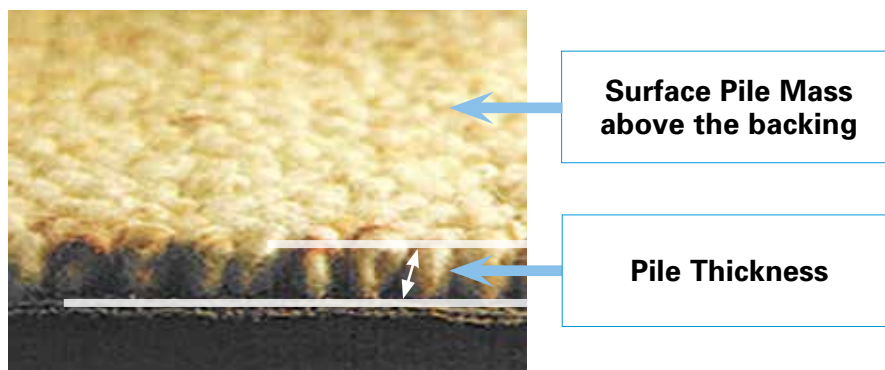
Do the individual fibres have properties or characteristics that automatically mean the carpet will have satisfactory performance?

With the electronic resources readily available to everyone, it is easy to view information about carpet fibre characteristics as well as fibre to fibre comparisons.



While this may be useful information, the answer to the question is 'NO' as fibre properties need to be converted to the carpet Chain of Properties in constructions that will perform 'on the floor'.

This converting operation is carried out by the carpet manufacturer as the yarn construction (the appropriate yarn diameter, fibre/filament mass and twist level suited to the machinery that will produce the carpet) needs to achieve carpet surface pile mass and pile thickness product construction specifications to meet overall product performance criteria and achieve an ideal Chain of Properties.



What is a Carpet's Ideal Chain of Properties?

Initial Properties

- Acoustic Comfort
- Walking Comfort
- Walking Safety
- Thermal Comfort

Group 2 Properties

- Durability
- Tuft Bind
- Dimensional Stability
- Appearance Retention – Texture
- Appearance Retention – Colour
- Appearance Retention – Soiling

Group 3 Properties

- Flammability
- Static Control
- Hygiene

- Selection of the ACCS Grading after consideration of the specific requirements of the installation.
- The objective is consumer satisfaction with the in-service durability, appearance retention and comfort performance of the carpet.



The ideal carpet has certain attributes considered to be essential for performance, aesthetics and ease of maintenance.

The product must satisfy the aesthetic requirements of the interior design as well as a range of technical requirements. In addition, it should be easy and economical to maintain. A good product may be regarded as having a Chain of Properties each of which must be sound if the product is to perform satisfactorily.

These properties fall into three groups:

- The initial properties provided in the new carpet are acoustic comfort (provided by the construction), walking comfort, walking safety (assured by the non slip surface and cushioning effects) and thermal comfort (warm underfoot, can be designed for suitability with underfloor heating and also provide a buffer for changes in humidity).
- For the second group to avoid loss of the initial properties and excessive deterioration of appearance, the carpet should have good durability, tuft bind, dimensional stability, resistance to texture change, good colour fastness, resistance to soiling and staining and, ease of soil removal.
- The third group of properties are special ones relevant to the particular installation e.g. in a hospital, the carpet may need to have a backing impervious to spillages as well as meeting relevant flammability specifications. The carpet should also resist soiling and staining and, readily release both airborne and tracked-in soiling. Knowledge of the intended location is needed to determine the requirements of durability, appearance retention and maintenance.

The product with the most balanced chain of properties will provide the best overall carpet performance.

Australian Carpet Classification Scheme (ACCS)

The ACCS has been designed to take a lot of the guesswork out of the selection process.

Carpets are graded according to suitability for use in residential and/or contract installations and in different walking 'traffic' conditions described as light, medium, heavy and extra heavy.

Each grading category has established proven performance standards and any product submitted must achieve compliance with the criteria. These standards are continually reviewed to take into consideration new processing and machinery technology and research findings.

ACCS graded carpets carry distinctive labels featuring a 'star' rating system. The more stars the better the durability and appearance retention properties of the graded carpet.



ACCS Residential Gradings

The yellow and blue labels identify carpets graded for residential use.

Residential carpets are rated using a 6-star classification system.

The categories are:

Residential Light Duty	
Residential Medium Duty	
Residential Heavy Duty	
Residential Heavy Duty	
Residential Extra Heavy Duty	
Residential Extra Heavy Duty	

Location Guidance for ACCS Residential Carpet Grading.

Location Guide	Trafficking passages per week ¹	RLD R1*	RMD R2*	RHD1 R3*	RHD2 R4*	REHD1 R5*	REHD2 R6*
Bedroom with light traffic flow	Less than 500	✓	✓	✓	✓	✓	✓
Living room, entertainment area with light to medium traffic flow	Less than 1,500		✓	✓	✓	✓	✓
Hallway, entertainment area with heavy traffic flow	1,500 – 2,499			✓	✓	✓	✓
Hallway, entertainment area with heavy traffic flow	2,500 – 3,999				✓	✓	✓
All surface areas with extra heavy traffic flow	4,000 – 5,500					✓	✓
All surface areas with extra heavy traffic flow	4,000 – 5,500						✓



ACCS Contract Gradings

The gold and black labels identify carpets graded for contract use and have a maximum of four stars.

Contract carpets are rated using a 4-star classification system.

The categories are:

Contract Light Duty	
Contract Medium Duty	
Contract Heavy Duty	
Contract Extra Heavy Duty	

Location Guidance for ACCS Contract Carpet Gradings.

Location Guide	Trafficking passages per week ¹	CLD C1*	CMD C2*	CHD C3*	CEHD C4*
Hotel bedroom, office, shops with light traffic flow	Less than 2,999	✓	✓	✓	✓
Shop, office, hotel lounge with frequent traffic flow	3,000 – 6,999		✓	✓	✓
Busy shop, public areas, office, club, hotel with very heavy traffic flow	7,000 – 14,999			✓	✓
Very busy shop, public area, office, club, hotel with extremely heavy traffic flow	More than 15,000				✓

Footnote

A trafficking passage is defined as one person walking through a given area of carpet once.

To estimate the trafficking passages per week, consider the most heavily trafficked area within the establishment, the number of persons using this area and how many times they move in and out across the area and, the number of days within the week that the area is used. Then multiply the numbers together and compare the result with those in Location Guide table.

Also note any other contributing factors such as severe wear patterns, wheeled trolleys, wheel chairs, walking frames, steps or stairs, wheeled desk chairs, shuffling wear, turning wear and furniture placement creating narrow defined traffic patterns. Make allowances for the contributing factor(s) when considering the choice of a suitable grading.

Example: Residential Home with hallway connecting kitchen-family room and bedrooms and bathrooms. Number of persons: 5 -all adults. Area Usage: 7 days per week. Turning wear from bedrooms to hallway, hallway to bathrooms – rated as 'high'.

Calculation: 120 passages per person/day x 5 persons x 7days = 4,200 passages per week.

Comparison with Table: Product Choice with a grading of either R5* or R6*.

With the consideration of the rating of high turning wear, the best option is to consider the product choice based on R6*.



Suitable for Use on Stairs Icon

The 'Stair' icon means the product is suitable for use on stairs in terms of its durability and appearance retention characteristics. Carpet installed on stairs is subject to severe wear and, as a result, will demonstrate change in appearance in a shorter time than a carpet installed on a level surface. This is due to the narrow trafficking pattern as well as the particular foot action that occurs on the stair tread and nosing.

A primary requirement for a carpet to be considered as 'suitable for use on stairs' is that it must meet the specifications for Residential Heavy Duty (3-stars) as a minimum. There is also a minimum pile density, a maximum pile height and the carpet must not show 'grin-through to the backing' when bent around a stair nosing.

What does the CIAL recommend?

As it is unwise to only base a decision to purchase on fibre type alone, CIAL recommends viewing the ACCS grading labels on the back of the carpet swatch samples in conjunction with the information in this document, to establish the performance level or grading required and then let personal preferences determine the selection of fibre type, colour, texture, handle and style.

Should part of the purchase decision involve environmental considerations, the ACCS Environmental Certification Scheme (ECS) is an environmental labelling scheme for carpets. Certified products must comply with a range of performance criteria and have a current ACCS grading.



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 Carpet Institute of Australia Ltd be held responsible for any and all instances of injury or damage resulting or incidental to the use of this document and its contents.

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

Email: info@carpetoz.com.au • Web: 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.