

ECS Level 1

Green Building Council Australia Responsible Product Value (RPV) = 2 RPV points



Fitness for purpose criterion

The aim of this criterion is to ensure that an ECS certified textile floor covering has a positive effect on indoor environmental quality and is fit for its intended use.

The performance requirements are as follows:

Current ACCS location guide rating

A certified textile floor covering must be graded by the Australian Carpet Classification Scheme (ACCS). The ACCS classifies textile floor coverings according to their suitability for use in residential and contract installations.

ACCS assesses the durability and appearance retention properties of textile floor coverings.

If at the time of application for ECS certification the ACCS grading is more than two years old, the licensee must demonstrate that the main construction parameters of the product remain within 5% manufacturing tolerance of the original specification registered with the ACCS. This requires the licensee to have the product tested at a NATA registered laboratory to the requirements of the ACCS Abbreviated Quality Assurance Test Package.

The licensee must provide an ACCS Abbreviated Quality Assurance test report from a NATA registered laboratory if the ACCS grading was awarded more than two years prior to date of the application for environmental certification.

Code of Practice for Environmental Management

The manufacturer of the carpet must sign and agree to be bound by the provisions of the attached ACCS Code of Practice for Environmental Management.

The Code of Practice provides performance standards for choice of raw materials and their production, good environmental manufacturing practices with appropriate measures to control environmental impacts, reduce raw material consumption and performance reporting. The manufacturer must provide a safe and healthy manufacturing environment.

In addition, the Code of Practice includes a section on product stewardship with recommended practices for carpet installation and uplifted carpet disposal. This requires the manufacturer to provide information about the systems available to reduce environmental impacts at installation, during use and at the end of the carpet's life.



Indoor Air Quality

The aim of the criterion is to ensure that emissions of volatile organic compounds (VOCs) from environmentally certified carpets do not exceed prescribed target levels for total emissions and 13 chemicals of concern.

The certified carpet must pass a test in which its emissions of VOCs are assessed to be below the criteria set out in the Table.

Chemical of Concern	Criterion Maximum Emission Factor (24 hr) $\mu\text{g}/\text{h}/\text{m}^2$
Acetaldehyde	20
Benzene	55
Caprolactam	120
2-Ethylhexanoic Acid	46
Formaldehyde	10
1-Methyl-2-Pyrrolidone	300
Naphthalene	20
Nonanal	24
Octanal	24
4-Phenylcyclohexene	50
Styrene	410
Toluene	280
Vinyl Acetate	400
2-Ethyl-1-Hexanol	50
Hydrocarbons ($\text{C}_{10} - \text{C}_{14}$)	300
Vinyl Cyclohexene	85
Xylenes	50
MAXIMUM TOTAL VOC	500

Testing must be undertaken according to the test method: ISO 10580:2010 Resilient, textile and laminate floor coverings – Test method for volatile organic compound (VOC) emissions.



This standard method provides a 24-hour emission rate for VOC emissions immediately after carpet manufacture. The emission rate is measured as an emission factor (EF) in micro grams per square metre of floor covering per hour.

The licensee shall provide a relevant test report from a NATA registered laboratory provided as per the declaration in Schedule 11 – Product Emissions provided in the Guidance Manual.

Acoustical Performance

Textile floor coverings function in an indoor environment to dampen the noise level by, firstly, sound absorption – carpet increases the amount of sound absorption in a room and reduces ‘reverberation’ (the term used to describe the degree to which sounds live on within a room). And secondly, – impact sound isolation – a carpeted floor almost eliminates impact noises produced by footsteps, items dropped on the floor and chair legs scraped across a floor.

These factors are critical to the indoor environment as high background noise levels can create stress and productivity loss in work areas. To ensure good speech intelligibility, a room needs a Reverberation Time (T60) not more than 1.0 seconds for normal speech¹. Australian Standard AS/NZS 2107:2000 recommendations for T60 levels are given in the table below.

The ECS technical criteria for impact sound insulation and reverberation control requirements, shown in the Table, easily exceed the National Construction Code requirements for Class 2 and 3 buildings, demonstrating that carpet provides for a superior acoustic environment.

Table: Acoustic Criteria for Textile Floor Coverings

	Impact Sound Insulation (Ln,w)	Noise Reduction Coefficient (NRC) (Reverberation Control)
ACCS ECS – Broadloom carpet	≤ 45	≥ 0.2
ACCS ECS – Modular carpet	≤ 55	≥ 0.15
NCC (Class 2 and 3 buildings)	≤ 62	none

Note: The test method used for impact sound reduction and noise attenuation is AS ISO 140.6 –2006 and AS ISO 717.2–2004 for the determination of Impact Sound Pressure Level Ln,w.

The ECS criteria for broadloom carpets having a pile thickness ≥ 6 mm are:

- Actual: NRC ≥ 0.20
- Deemed to satisfy total thickness ≥ 7 mm



The ECS criteria for modular carpets and broadloom carpets having a pile thickness $\leq 5\text{mm}$ are:

- Actual criterion: $\text{NRC} \geq 0.15$
- Deemed to satisfy total thickness $\geq 5\text{ mm}$

Thermal Insulation

The comfort factor supplied by carpet is due to its insulating and low thermal conduction properties. Thermal comfort also translates into energy and Greenhouse savings in room heating and cooling.

A certified carpet must meet the relevant criterion specified in the Table below.

The test method required for thermal insulation is ISO 8302:1991 Thermal Insulation - Determination of Steady State Thermal Resistance and Related Properties - Guarded hot plate apparatus.

NOTE. The R – value for thermal resistance, measured in metric units of watts per metre squared per degree Kelvin, varies with the thickness of the carpet installation.

The ECS criteria for broadloom textile floor coverings are:

	"R" value (m²K/W)
ACCS ECS – Broadloom carpet	≥ 0.10
ACCS ECS – Modular carpet	≥ 0.0075

- Actual: R-value ≥ 0.10
- Deemed to satisfy:
 - Synthetics (Pile thickness above backing) $^2 \times 1000$ / Surface pile mass ≥ 30 , where pile thickness is measured in mm and surface pile mass in g/m²
 - Wool and wool rich blends (Pile thickness above backing) $^2 \times 1000$ / Surface pile mass ≥ 20

The ECS actual and deemed to satisfy criteria for broadloom textile floor coverings having a pile thickness $\leq 5\text{mm}$ and modular products are:

- Actual: R-value ≥ 0.075
- Deemed to satisfy ((Pile thickness above backing) $^2 \times 1000$ / Surface pile mass ≥ 15