

AngelStep® 630

acoustic underlay



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Apartment dwellers have long complained about impact noise intrusion due to footsteps and clatter of utensils and articles dropped on to the floor in apartments overhead. In addition to this impact noise, many occupants have also endured excessive airborne noise transmitted from powerful TV and audio systems.

The AngelStep® floor acoustic underlay product range is designed for the treatment of Impact and airborne noise transfer.

AngelStep® construction combines a highly effective support and cushion. It provides maximum performance for minimum thickness, uniquely combining impact, vibration damping and sound absorber.

The resilient polyester core layer absorbs impact energy and residual airborne noise from above and below, transforming wave vibrations into heat energy. AngelStep® 630 greatly reduces airborne sound waves noise above or below the floor - and complies with the Building Code of Australia in respect to separating floors between adjoining dwellings. When AngelStep® 630 is installed, it delivers optimum performance and comfort for both resident and neighbours alike

Compared to products made by others, Acoustica's AngelStep® range of underlays have been shown in independent comparison tests to offer, for a thinner solution, a more effective acoustic treatment that is also cost effective.



AngelStep® 630 acoustic underlay

The unrivalled performance of AngelStep® 630 was designed for use in apartments and townhouses, upmarket housing and professional office and consulting suites where discerning buyers expect performance beyond that mandated by the minimum requirements of the BCA.

The product has been independently tested:

- to achieve Lnt,w of 37 - better than AAAC rating 6 stars - independently tested by Vipac Engineers & Scientists Ltd May 2016; document 20E-16-0040-455704 under loose lay vinyl in a building over 50 years old
- to achieve Lnt,w of 42 - better than AAAC rating 5 stars - independently tested by Vipac Engineers & Scientists Ltd June 2016; document 20E-16-0085-455973 under 20mm solid oak on plywood with a 190mm concrete slab, 80mm cavity with no insulation & 10mm plasterboard ceiling
- to achieve Lnt,W of 43 - better than AAAC rating 5 stars - independently tested by Vipac Engineers & Scientists Ltd October 2016; document 20E-16-0192-ADM-456564-0 under Novocore vinyl with a 200mm concrete slab with bare concrete ceiling

It is 4mm thin and is supplied in tiles 1200x1200mm (1.44m²)

The unrivalled performance of AngelStep® 630 is due to its unique and patented polymer construction. No degradation of acoustic properties due to structural collapse under the weight of heavy furniture, castors and appliances. For thin vinyl or vinyl that does not interlock or clip together we recommend

Key benefits

- outstanding acoustic performance
- high sound absorption
- high impact insulations & strength
- water & most chemical resistant
- will last the life of the flooring material
- easy to install
- no VOCs, no smell
- 4mm thick
- Australian designed & manufactured
- Global Green Tag Certified

Fire Ratings

AS ISO 9705-2003

- classification Group 1 ; (SMORGArc) <100m²/s²; as required by BCA C1.10; tested 16/05/2012 BRANZ FI 4871
- ISO 9705 1993
- classification Group 1-S; smoke production rate <5.0m²/s as required by NZBC C/VM2
- EN13501-1:2007 B-s2, d0 report dated 22/07/2009

VOC emissions tested by Cetec Pty Limited (CV080408) for chemical emission & is classified as low VOC.
VOC Concentration 0.01mg/m³

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Applications

AngelStep® 630 was specially designed for the treatment of vinyl floors, carpet tiles, “klip-on” vinyl planks. In general, for floors finishes that does not allows defection movements of more than 0.25 - 0.5mm.

Acoustic tapping test

Acoustica’s product range of noise control solutions for flooring systems has been repeatedly independently tested to consistently achieve five and six stars in the Association of Australian Acoustic Consultants (AAAC) star rating system.

However, results will vary depending on the construction, substrate and surface materials of each project.

Acoustica can provide site specific testing and certification for each project site, prepared in accordance with the International Standard ISO 16283-1:2014 Acoustics -- Field measurement of sound insulation in buildings and of building elements -- Part 1: Airborne sound insulation (refer ISO 140-7:1998).

There is a charge for this service.

Technical

The BCA provides minimum construction standards for various building classes including acoustic privacy.

The BCA requirement is a weighted standardised impact sound pressure level with spectrum adaptation term C_i , of less than or equal to $62 L_{nt,w} + C_i$.

However, the reality is that this is in most cases unacceptable to occupants and can result in the need for costly reparation works.

In response the Association of Australian Acoustic Consultants (AAAC) has developed the star rating system to rank the acoustical quality of apartments and provide guidance in the design and construction process.



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the quiet Australian



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Installation methodology for vinyl floors

1. for thin vinyl or vinyl that does not interlock or clip together we recommend installation of the vinyl on top of flooring grade plywood on top of the AngelStep product
2. all surfaces should be level, clean & dust free prior to any installation
3. pour & spread an even coat of polyurethane glue (similar to Dunlop Vinyl Adhesive) using a 3-4mm “V” notched trowel - note the glue should have the consistency of toothpaste
4. allow the adhesive to become ‘tacky’ before laying the AngelStep 630, this should take 10-15 minutes depending on environmental conditions, specifically temperature & humidity
5. repeat the gluing operation on the AngelStep® 630 before laying the vinyl floor
6. you can apply an even pressure on the vinyl floor
7. the glue can take 24-48 hours to set (refer to the manufacturer’s instructions)

Custom & specialist solutions

Acoustica are specialists in refining solutions to tune your project to achieve an optimal outcome.

You are most welcome to contact us for information and advice.

	Impact Isolation of floors $L_{nt,w}$	AAAC Description
6 star	40	just audible or not audible
5 star	45	just audible
4 star	50	audible
3 star	55	clearly audible
2 star	65	clearly audible
BCA	62	clearly audible



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How is an impact test done - Test Methodology

A tapping machine is used to generate impact noise on the floor of the source apartment.

The tapping machine consists of five hammers weighing 500g each that continuously fall from a 40mm height.

The tapping machine is placed in four different positions within the room.

A Sound Level Meter is used in the receiving room (the room below the floor) to conduct the impact noise measurement.

An averaging measurement technique, for a period of 30 seconds per tapping machine position, is performed.

The field test results are then analysed and the acoustic performance of the floor is determined using Australian Standard AS ISO 717.2 "Acoustics-Rating of sound insulation in buildings and of building elements".



Case Study

Building Mandated By-law: Impact Insulation Class (IIC) 55 or less or 3 star in the AAAC (Association of Australian Acoustical Consultants) star rating guide

Installation of a timber floor over **AngelStep® 630** over a concrete slab

Result: Impact Insulation Class **IIC 68** or **L_nT_w 42** (6 star in the AAAC rating guide)

AAAC star rating	impact isolation of floors L _n T _w	AAAC description	approx IIC rating
2 star	L _n T _w 65	clearly audible	approx IIC 45
BCA	L _n T _w 62	BCA clearly audible	approx IIC 48
3 star	L _n T _w 55	clearly audible	approx IIC 55
bylaw			≥IIC 55
4 star	L _n T _w 50	clearly audible	approx IIC 60
5 star	L _n T _w 45	audible	approx IIC 65
measured result new flooring system with AngelStep 630 acoustic underlay	L _n T _w 42		IIC 68
6 star	L _n T _w 40	just audible or barely audible	approx IIC 70

The result indicate that the tested new flooring system with AngelStep® 630 acoustic underlay achieves IIC68 which significantly betters the impact noise standard mandated by the strata bylaw being ≥ IIC55