

0473P REGUPOL ACOUSTIC FLOOR UNDERLAYS

Branded worksection

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Worksection application

This branded worksection *Template* is applicable to reducing impact sound transmission through floors using REGUPOL® acoustic underlays and systems for a range of floor finishes. NATSPEC does not have an *Acoustic floor underlay* generic worksection.

Guidance text

All text within these boxes is provided as guidance for developing this worksection and should not form part of the final specification. This *Guidance* text may be hidden or deleted from the document using the NATSPEC Toolbar or the hidden text *Hide* and *Delete* functions of your word processing system. For additional information visit FAQs at www.natspec.com.au.

Optional text

Text in this font (blue with a grey background) covers items specified less frequently. It is provided for incorporation into *Open* text where it is applicable to a project.

Related material located elsewhere in NATSPEC

If a listed worksection is not part of your subscription package and you wish to purchase it, contact NATSPEC.

Related material may be found in other worksections. See for example:

- *Thermal insulation and pliable membranes* for thermal insulation to roofs and external walls.
- *Acoustic insulation* for acoustic insulation to walls, partitions and ceilings.
- *Suspended ceilings – combined* for acoustic ceiling tile suspended ceiling systems.
- *Waterproofing – wet areas* for wet area membranes.
- *Ceramic tiling, Stone and terrazzo tiling, Resilient finishes, Carpets, Engineered panel flooring and Timber flooring* for acoustic floor underlays.

Cross references

Worksections that cross references this worksection are:

- None.

Documenting this and related work

You may document this and related work as follows:

- Make sure compatibility of underlays with other components of the flooring system, particularly wet area membranes and adhesives.

Specifying ESD

Refer to the NATSPEC TR 01 - *Specifying ESD*. This worksection contains the following in default text:

- Recycled material content.
- Low VOC content.

1 GENERAL

Regupol (Australia) Pty Ltd is the Australasian office and distribution network for the Regupol® and everroll® sustainable flooring product brands. The company has been operating in the region for over 25 years offering solution based products and technical services for all kinds of sustainable flooring and soundproofing solution based projects. The company is conveniently located at Smeaton Grange, NSW and offers nationwide distribution of the Regupol® and everroll® product lines.

1.1 RESPONSIBILITIES

General

Requirement: Provide REGUPOL® acoustic floor underlay systems, as documented and as follows:

- Conforming to the requirements of the BCA F5.4 for sound insulation ratings of floors, as applicable.
- Conforming to the detail and location drawings.
- Firmly fixed in position.

It is the responsibility of the designer to nominate and detail acoustic insulation systems conforming to the requirements of the BCA F5 for sound insulation. If the design brief calls for outcomes beyond those of the BCA, consider stating those values here or on drawings.

Documented is defined in the *General requirements* worksection as meaning contained in the contract documents.

1.2 COMPANY CONTACTS

Regupol (Australia) technical contacts

Website: www.regupol.com.au/au/contact

1.3 CROSS REFERENCES

General

Requirement: Conform to the following worksection(s):

- *General requirements*.

The *General requirements* worksection contains umbrella requirements for all building and services worksections.

- [complete/delete]

List the worksections cross referenced by this worksection. The *General requirements* worksection references the *Common requirements* subgroup of worksections. It is not necessary to repeat them here. However, you may also wish to direct the contractor to other worksections where there may be work that is closely associated with this work.

NATSPEC uses generic worksection titles, whether or not there are branded equivalents. If you use a branded worksection, change the cross reference here.

See **Related material located elsewhere in NATSPEC** in the introduction *Guidance*.

1.4 MANUFACTURER'S DOCUMENTS

Technical manuals

Technical information: www.Regupol.com.au/au/products/construction

1.5 INTERPRETATION

Definitions

General: For the purposes of this worksection the following definitions apply:

- Acoustic underlay: A resilient underlay providing acoustic isolation.
- Airborne sound: Sound or noise radiated directly from a source, such as a loudspeaker or machine, into the surrounding air.
- Attenuation: The reduction of noise or vibration, by whatever method necessary, usually expressed in decibels.
- Fire hazard properties: To BCA A2.4.

This includes the Average specific extinction area, Critical radiant flux, Flammability index, Smoke-developed index, Smoke growth rate index, Smoke development rate or Spread-of-flame index of a material or assembly as applicable.

See NATSPEC TECHnote DES 003 for more information on fire hazard properties of insulation materials.

- Impact sound: The sound produced by the collision of two solid objects. Typical sources are footsteps, dropped objects on an interior surface (wall, floor, ceiling) of a building.
- Sound: Pressure fluctuations in air within the audible range.
- Sound absorption: The sensation perceived by the sense of hearing and the process by which sound energy is converted into heat, leading to the reduction in sound pressure level.
- Sound insulation: The reduction or attenuation of sound by a solid material or assembly between source and receiver. This may include a building wall, floor, barrier wall or acoustic enclosure.
- Structure borne sound: Generation and propagation of time-dependent motions and forces in solid materials which result in unwanted sound
- Substrate: The surface to which a material or product is applied.
- Underlay: A non-structural layer of sheet material or an in situ levelling material on the subfloor to provide a smooth and level surface.

Edit the **Definitions** subclause to suit the project or delete if not required. List alphabetically.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before fixing the underlay.
- Installed underlay before it is covered up or concealed.
- Completed installation.

Amend to suit the project, adding critical stage inspections required.

Hold points, if required, should be inserted here.

1.7 SUBMISSIONS

Fire hazard properties

General: Submit evidence of conformance to **PRODUCTS, INSULATION MATERIALS, Fire hazard properties**.

Product data

General: Submit the manufacturer's product data for each type of underlay, and the manufacturer's recommendations for its application in the project including, if relevant, the following:

- Thickness and width of sheet or size of tile.
- Adhesive method specification approved by manufacturer.

Samples

Range: Submit labelled samples of underlays illustrating the product code or range of the product.

Minimum size per sample:

- Sheet: 450 x 450 mm.
- Tiles: A whole tile or 0.09 m², whichever is the greater.

Identification: Label each sample, with brand, product name, and manufacturer's code reference (including the code for each coat of multi-coat work).

Sample panels: Provide sample panels as follows:

- Location: [complete/delete]
- Size (mm): [complete/delete]

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Evidence of experience: [complete/delete]

Delete if supplier/installer details are not required.

Tests

The *General requirements* worksection covers tests in **Definitions** and calls for an inspection and testing plan under **SUBMISSIONS, Tests**.

Type tests: Submit results, as follows:

Weighted normalized impact sound pressure level $L_{n,w}$ to AS ISO 717.2: [complete/delete]

A single-number rating, expressed in decibels, of laboratory measured frequency dependent impact sound insulation of a floor/ceiling assembly using a standardized tapping machine. It is determined by reference to AS ISO 717.2 from measurements of normalized impact sound pressure level made in accordance with AS ISO 140.6 over the third-octave band frequency range 100-3150Hz.

Type tests are carried out before the contract. However, submission of evidence of a successful type test may be called up here for items specified in **PRODUCTS**.

Other tests: Submit results, as follows:

Detail the tests required in **PRODUCTS** or **EXECUTION**, as appropriate, and list the submissions required here.

Weighted standardized impact sound pressure level $L'_{nT,w}$ to AS ISO 717.2: [complete/delete]

A single-number rating, expressed in decibels, of the field measurement of frequency dependent impact sound insulation between rooms in buildings. It is determined by reference to AS ISO 717.2 from measurements of standardized impact sound pressure level made in accordance with AS/NZS ISO 140.7 over the third octave band frequency range 100-3150Hz.

Site testing is expensive. Delete if not appropriate. See NATSPEC TECHnote DES 027 for information on the options available for BCA compliance.

Warranties

General: Register project warranty with manufacturer and submit for each product and application.

Requirement: Submit the following:

- [complete/delete]

Describe the requirements of warranties in **PRODUCTS** or **EXECUTION**, as appropriate, and list the submissions required here.

2 PRODUCTS**2.1 GENERAL****Product substitution**

Other products: Conform to **PRODUCTS, GENERAL, Substitutions** in the *General requirements* worksection.

The *General requirements* worksection clause sets out the submissions required if the contractor proposes alternative products. Refer also to NATSPEC TECHnote GEN 006 for more information on proprietary specification.

2.2 MARKING**Identification**

General: Deliver materials to the site in REGUPOL's original sealed containers or packaging, legibly marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.
- Material composition and characteristics such as volatility, flash point, light fastness, colour and pattern. Provide technical data sheets if not shown on labels.
- Handling and installation instructions.
- Material safety data sheets.

Edit the list to suit the project or delete if not required.

2.3 INSULATION MATERIALS**Fire hazard properties**

See NATSPEC TECHnote DES 003 for more information on fire hazard properties of insulation materials.

Critical radiant flux: As determined by AS ISO 9239.1.

Smoke development rate:

- Standard: To AS ISO 9239.1.
- Floor finishes in non-sprinklered buildings: 750 percent-minutes.

Refer to BCA Spec C1.10. Regupol underlays have been tested to AS ISO 9239.1 as a component of a floor system only. Test specimens for AS ISO 9239.1 must include the proposed floor finish, substrate, underlays and adhesives (if used) and be representative of the flooring in its end use. If smoke development rate is required, request testing of the proposed floor system to AS ISO 9239.1 here or in the relevant floor finishes worksection.

VOC limits

Total VOC limit:

- Generally: 0.5 mg/m².

Limiting VOC levels to the above limit can earn credit points for the Green Star – Office Design v3 scheme. Delete if not required.

Adhesives

General: To REGUPOL recommendations and compatible with the substrate and the applied flooring material.

Sealants

Acoustic sealant: Elastic, water based, high performing, non-hardening sealant that maintains high acoustic performance in floors and walls.

Alternatives: Fire rated sealants are claimed to satisfy most acoustic properties.

Fire rated: Non-hardening sealant compatible with the host materials and having a fire rating equal to that of the floor it seals.

Sealant strips: Closed cell resilient foam.

2.4 REGUPOL ACOUSTIC FLOOR UNDERLAYS**REGUPOL® K225**

Description: REGUPOL® K225 consists of PUR-bonded rubber granules and cork elements. REGUPOL® K225 is castor-proof according to DIN EN 12529 and suitable for under floor heating systems. REGUPOL® K225 will remain permanently elastic and non-perishable for decades. REGUPOL® K225 can be 100% recycled.

Roll length: 20 lineal metres.

Width: 1000 mm.

Thicknesses: 5 mm.

Application: Primarily used under parquetry, but also can be used under all other types of timber flooring systems.

REGUPOL® 4515

Description: REGUPOL® 4515 consists of PUR-bonded cork and PUR foam. REGUPOL® 4515 impact sound acoustic underlay is a tough, durable acoustic material used to attenuate impact sound directly at source.

Roll length: 20 lineal metres.

Width: 1000 mm.

Thicknesses: 4.5 mm, 9 mm.

Application: All types of ceramic tiles and natural stone can be bonded directly to the REGUPOL® 4515 using the approved range of Regupol Adhesives.

REGUPOL® 4515-S (Sanded)

Description: REGUPOL® 4515-S consists of PUR-bonded cork and PUR foam. Due to its special material composition it prevents plasticizer migration. REGUPOL® 4515-S is castor-proof according to DIN EN 12529 and suitable for under floor heating systems. REGUPOL® 4515-S will remain permanently elastic and non-perishable for decades. REGUPOL® 4515-S can be 100% recycled.

Roll length: 20 lineal metres.

Width: 1000 mm.

Thicknesses: 3 mm.

Application: Under approved resilient floor coverings, rubber and PVC based resilient flooring.

REGUPOL® 6015

Description: REGUPOL® 6015 consists of 100% PUR-bonded rubber granules. REGUPOL® 6015 has proven highly effective under domestic screed systems, timber and laminate floors by reducing the sound indoors. REGUPOL® 6015 is durable, age-resistant and suitable for under floor heating. REGUPOL® 6015 impact sound acoustic underlay is a tough, durable acoustic material used to attenuate impact sound directly at source.

Roll length: 20 lineal metres.

Width: 1250 mm, 1500 mm.

Thicknesses: 5 mm, 6/3 mm, 8 mm.

6/3 mm has a 6 mm nominal thickness and 3 mm dimpled surface on one side.

Application: Under bonded screeds, engineered timber flooring, plywood, T&G timber and laminate flooring.

3 EXECUTION

3.1 PREPARATION

Delete substrate preparation if documented in the relevant flooring worksection and add cross reference to worksection clause.

Substrates

General: To AS 1884 Section 3.

Tolerance: Conform to the **Substrate tolerance table**.

Substrate tolerance table

Property	Length of straight edge laid in any direction	Max. deviation under the straight edge
Planeness	2 m	4 mm
Smoothness	150 mm	1 mm
Projections	50 mm	0.5 mm

Planeness tolerance class: Nominate Class A in the **Flatness tolerance class table** in the *Concrete finishes and Cementitious toppings* worksections to resilient finishes locations as appropriate for the project. It is assumed smoothness and projection tolerance corrections form part of substrate preparation.

Concrete substrates

Refer to NATSPEC TECHnote DES 008 on the preparation of concrete substrates.

Surface pH: ≤ 10 when tested to AS 1884 Appendix B and compatible with the adhesive.

Testing of pH should be carried out after any surface grinding. Freshly exposed concrete has high alkalinity and problems have been encountered overseas.

Moisture content: Do not commence installation unless the moisture content of the concrete has been tested to AS 1884 Appendix A and the values in clause A3.1.2 or A3.1.3 have been obtained.

Surface treatments: Mechanically remove the following surface treatments:

- Sealers and hardeners.
- Curing compounds.
- Waterproofing additives.
- Surface coatings and contamination.

Concrete substrate correction: Remove projections and fill voids and hollows with a levelling compound compatible with the adhesive. Allow filling or levelling compound to dry to manufacturer's recommendations.

Cleaning: Remove loose materials or dust.

Timber and plywood substrates

Moisture content: Do not commence installation unless the moisture content of battens/joists or plywood substrate has been tested to AS/NZS 1080.1 for timber and AS/NZS 2098.1 for plywood and values obtained as follows:

- Air conditioned buildings: 8 to 10%.
- Intermittently heated buildings: 10 to 12.5%.
- Unheated buildings: 12 to 15%.

Timber substrate correction: Remove projections. If conformance to the **Substrate tolerance table** cannot be achieved, provide an underlay in brick pattern with joints avoiding substrate joints.

Cleaning: Remove oil, grease, traces of applied finishes and loose materials or dust.

Storage

General: Store horizontally and keep dry.

Working environment

General: Do not start work before the building is enclosed, wet work is complete and dry, and good lighting is available. Protect adjoining surfaces.

Conditioning

General: Stabilise the room temperature for seven days prior to, and two days after, installation of floor finishes, as follows:

- Areas with air conditioning installed: Run air conditioning at operational temperature.
- Air conditioned areas not operational: Maintain an ambient room temperature range of 15°C to 28°C.
- Non-air conditioned areas: Install at an ambient room temperature range of 15°C to 28°C.
- Underfloor heating: Turn off heating and allow background to stabilise at the temperature recommended by the manufacturer.

Sheet underlay: Expose both faces of each sheet of underlay for at least 24 hours before fixing.

REGUPOL® acoustic floor underlay acclimatisation: Unroll the underlay and cut to length, allowing extra length for pull back. Allow all cut lengths to relax and acclimatise for up to 24 hours.

This process allows for dimensional relaxation and temperature equilibration to the room conditions.

3.2 INSTALLATION

REGUPOL acoustic underlay

General: To REGUPOL's recommendations.

3.3 FLANKING SOUND INSULATION

To preserve the sound reduction properties of the floor system, seal the flanking sound transmission paths during installation, including junctions between partitions and other building surfaces, air gaps, recesses and cut-outs for services.

Penetrations

Ductwork and piping: [complete/delete]

Delete if not appropriate.

Abutments

The insulation of flanking sound at abutments is project specific and relies on details, particularly at partition junctions to window mullions that may be subject to horizontal deflection movements

Sealant:

- Strip: [complete/delete]
- Sealant: [complete/delete]

e.g. closed cell foam strips and gunned acoustic sealant.

Trims: [complete/delete]

e.g. project specific skirting section to protect the sealant and allow movement.

4 SELECTIONS

Schedules are a way of documenting a selection of proprietary or generic products or systems by their properties. Provide their locations here and/or on the drawings. When showing items in both places, identify them with a common code or tag to assist coordination. **Schedules** are well suited to multiple variants of the same item. If there is only a single instance of different items, a simple list may be sufficient. Make sure there is an entry for every item documented.

Duplicate and customise these **Schedules**, adding and deleting rows and columns, as required, e.g. delete rows if the selection is by the contractor or a proprietary product is selected. A proprietary product is usually selected on the basis of the properties it embodies, so there is generally no need to spell them out in a schedule – an exception being where they relate to options to, or variations from, a standard product.

4.1 REGUPOL SCHEDULES

Each of the following subheadings covers the REGUPOL acoustic treatment associated with a final floor finish. Delete those not required for the project.

REGUPOL® 4515 Acoustic floor insulation – Direct fix ceramic, stone, marble tiling system

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

e.g. concrete slab, plywood flooring, floorboards with fibre cement underlay.

Product: REGUPOL® 4515 Impact Sound Acoustic Underlay.

Thickness: [complete/delete]

Select 4.5 mm or 9 mm. Refer to REGUPOL for advice on the most appropriate thickness.

Installation method: Direct fix using manufacturers specified systems and warranted adhesives, screed additives and flexible grouting systems.

Primer: [complete/delete]

For porous substrates select from:

- Regupol Primer 444 for dry areas.
- Regupol Epoxy moisture sealer for wet areas.

Underlay adhesive: [complete/delete]

Select from:

- Regupol One Part Multi-Use Flooring Adhesive for internal dry areas.
- Regupol One Part Polyurethane Adhesive for wet areas and external applications.

For wet area applications install an approved waterproof membrane on the substrate and over the acoustic underlay.

Tiles should be installed over the acoustic underlay with an approved compatible tile adhesive.

Confirm with all manufacturers to make sure of compatibility of selected tiles with the underlay and adhesive/s.

REGUPOL® 4515-S Acoustic floor insulation – Resilient finishes dual bond system

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

e.g. concrete slab, particleboard flooring, floorboards with fibre cement or hardboard underlay.

Product: REGUPOL® 4515-S Impact Sound Acoustic Underlay.

Thickness: 3 mm.

Installation method: Direct stick dual bond using the manufacturer's specified systems and warranted adhesives.

Primer: [complete/delete]

For porous substrates select from:

- Regupol Primer 444 for dry areas.
- Regupol Epoxy moisture sealer for wet areas.

Underlay adhesive: [complete/delete]

Select from:

- Regupol One Part Multi-Use Flooring Adhesive for dry areas and for dual bonding of the approved resilient floor covering to the REGUPOL® 4515-S for internal areas.
- Regupol Two Part Resilient Polyurethane Adhesive for wet areas and for dual bonding of the approved resilient floor covering to the REGUPOL® 4515-S for wet areas.

Confirm with all manufacturers to make sure of compatibility of selected resilient finish flooring with the adhesive/s.

REGUPOL® 6015 Acoustic floor insulation – Bonded screed system

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

e.g. concrete slab.

Product: REGUPOL® 6015 Impact Sound Acoustic Underlay.

Thickness: 5 mm, 6/3 mm, 8 mm.

Installation method: To REGUPOL's recommendations, using the manufacturer's specified systems and warranted adhesives, screed additives and flexible grouting systems.

Primer: [complete/delete]

For porous substrates select from:

- Regupol Primer 444 for dry areas.
- Regupol Epoxy Moisture Sealer for wet areas.

Underlay adhesive: [complete/delete]

Select from:

- Regupol One Part Multi-Use Flooring Adhesive for internal dry areas.
- Regupol One Part Polyurethane Adhesive for wet areas and external applications.

For wet area applications install an approved waterproof membrane on the substrate and over the screed.

For bonded screed applications use an approved polymer additive in the screed application.

Tiles should be installed over the screed with an approved compatible tile adhesive.

Confirm with the manufacturer, to make sure of compatibility of selected tiles with the underlay and adhesive/s.

REGUPOL® 6015 Acoustic floor insulation – Engineered timber flooring

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

e.g. concrete slab, particleboard flooring, floorboards.

Product: REGUPOL® 6015 Impact Sound Acoustic Underlay.

Thickness: 5 mm, 6/3 mm, 8 mm.

Primer: To REGUPOL's recommendations.

Floating timber flooring installation method: Engineered timber can be loose-laid over the underlay or dual bonded to the underlay using an approved adhesive, follow manufacturer's instructions.

REGUPOL® 6015 Acoustic floor insulation – T&G Timber strip flooring over plywood

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

Product: REGUPOL® 6015 Impact Sound Acoustic Underlay.

Thickness: 5 mm, 6/3 mm, 8 mm.

Primer: To REGUPOL's recommendations.

Installation method: To REGUPOL's recommendations using manufacturers specified systems and warranted adhesives.

REGUPOL® K225 Acoustic floor insulation – Parquet flooring

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

e.g. concrete slab, particleboard flooring, floorboards.

Product: REGUPOL® K225 Impact Sound Acoustic Underlay.

Thickness: 5 mm.

Primer: To REGUPOL's recommendations.

Installation method: To REGUPOL's recommendations using manufacturers specified systems and warranted adhesives.

Underlay adhesive: REGUPOL One Part Polyurethane Adhesive.

Parquet flooring adhesive: REGUPOL One Part Polyurethane Adhesive.

REGUPOL® K225 Acoustic floor insulation – Engineered timber flooring and bamboo flooring

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

e.g. concrete slab, particleboard flooring, floorboards.

Product: REGUPOL® K225 Impact Sound Acoustic Underlay.

Thickness: 5 mm.

Primer: To REGUPOL's recommendations.

Installation method: To REGUPOL's recommendations using manufacturers specified systems and warranted adhesives.

Engineered timber and bamboo can be loose laid over the underlay or dual bonded to the underlay using an approved adhesive.

Underlay adhesive:

- Loose-laid bamboo or engineered timber: Regupol One Part Multi-Use Flooring.
- Dual bonded bamboo or engineered timber: Regupol One Part Polyurethane Adhesive.

REGUPOL® K225 Acoustic floor insulation – Timber strip flooring and timber flooring over plywood

Location: [complete/delete]

Describe, or refer to a Finishes Schedule.

Substrate: [complete/delete]

Product: REGUPOL® K225 Impact Sound Acoustic Underlay.

Thickness: 5 mm.

Primer: To REGUPOL's recommendations.

Installation method: To REGUPOL's recommendations using manufacturers specified systems and warranted adhesives.

Underlay adhesive: Regupol One Part Multi-Use Flooring Adhesive.

Timber strip flooring and plywood adhesive: Regupol One Part Polyurethane Adhesive to bond plywood to the underlay, and to bond T&G strip timber flooring to the plywood.

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS ISO 717		Acoustics - Rating of sound insulation in buildings and of building elements
AS ISO 717.2	2004	Impact sound insulation
AS/NZS 1080		Timber - Methods of test
AS/NZS 1080.1	2012	Moisture content
AS 1884	2012	Floor coverings - Resilient sheet and tiles - Installation practices
AS/NZS 2098		Methods of test for veneer and plywood
AS/NZS 2098.1	2006	Moisture content of veneer and plywood
AS ISO 9239		Reaction to fire tests for floor coverings
AS ISO 9239.1	2003	Determination of the burning behaviour using a radiant heat source
BCA A2.4		General Provisions - Acceptance of design and construction - Fire hazard properties
BCA F5.4		Health and amenity - Sound transmission and insulation - Sound insulation of floors
DIN EN 12529	1999	Castors and wheels - Castors for furniture - Castors for swivel chairs - Requirements

The following documents are mentioned only in the *Guidance text*:

AS ISO 140		Acoustics - measurement of sound insulation in buildings and of building elements
AS ISO 140.6	2006	Laboratory measurements of impact sound insulation of floors
AS/NZS ISO 140.7	2006	Field measurements of impact sound insulation of floors (ISO 140-7:1998, MOD)
BCA Spec C1.10		Fire resistance - Fire Hazard Properties - Floors, walls and ceilings
BCA F5		Health and amenity - Sound transmission and insulation
NATSPEC DES 003	2006	Fire hazard properties of insulation materials
NATSPEC DES 008	2006	Preparation of concrete substrates
NATSPEC DES 027	2012	Impact sound insulation
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC TR 01	2013	Specifying ESD