

0652P FLOTEX CARPETS

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to Flotex resilient textile floorcovering (carpet) in sheet, tile and plank, by **Forbo Flooring Systems Australia**.

How to use this worksection

Customise this worksection *Template* for each project. See A guide to NATSPEC worksections (www.natspec.com.au) for information on *Template* structure, word styles, and completing a worksection.

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:

- *0181 Adhesives, sealants and fasteners* for carpet adhesives.
- *0315 Concrete finishes* for substrates.
- *0383 Decking, sheet and panel flooring* for substrates.
- *0472 Acoustic insulation* for acoustic floor underlays.
- *0541 Access floors*.
- *0651 Resilient finishes* for vinyl, rubber and epoxy floor finishes.
- *0655 Timber flooring* for substrates.
- *0656 Floor sanding and finishing* for substrates.

Related branded worksections include:

- *0651p FORBO in resilient finishes*.

Documenting this and related work

You may document this and related work as follows:

- Nominate the locations of finishes and finish abutments, joints and note fixed partitions to your office documentation policy.
- For the use of impact sound insulation in floor systems, refer to NATSPEC TECHnote DES 027.

The *Normal* style text of this worksection may refer to items as being documented elsewhere in the contract documentation. Make sure they are documented.

Search acumen.architecture.com.au, the Australian Institute of Architects' practice advisory subscription service, for notes on the following:

- Guarantees and warranties.
- Polyvinyl chloride (PVC).

Specifying ESD

FLOTEX has the following sustainable product attributes:

- Recyclable.
- Contains approximately 22% and 67% recycled content by weight for sheet and tiles respectively.
- Low VOC emission content.

The following may be specified by retaining default text:

- VOC emission limits.

The following may be specified by including additional text:

- Scrap recycling, finishes with programs for recycling offcuts.
- PVC finishes and adhesives low or no VOC emission.
- Sheets, tiles and planks not requiring underlays or adhesives, reducing materials for installation.
- Recycled material.
- Programs for materials recyclable at the end of service life (available from Forbo Flooring Systems Australia).

- Regular cleaning & periodical maintenance program (provided by Forbo Flooring Systems Australia) to increase material life expectancy and reduce chemical use, improving user health and comfort.

Refer to NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

Forbo Flooring Systems is a global manufacturer of premium commercial and residential floor coverings. All materials are designed, engineered, and manufactured within our own 100% green energy European facilities. An extensive and attractive range of environmentally friendly linoleum, high-quality vinyl flooring & LVT, entrance flooring systems, carpet tiles, needlefelt and Flotex flocked flooring is provided globally through our local service and distribution operations.

1.1 RESPONSIBILITIES

General

Requirement: Provide FLOTEX resilient textile floor coverings and underlay by FORBO to substrates, as documented.

Documented is defined in 0171 General requirements as meaning contained in the contract documents.

1.2 COMPANY CONTACTS

FORBO Flooring Systems technical contacts

Website: www.forbo.com/flooring/en-au/contact-us/.

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

0171 General requirements contains umbrella requirements for all building and services worksections.

List the worksections cross referenced by this worksection. 0171 General requirements references the 018 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.

1.4 STANDARDS

General

Installation: To AS 1884 (2021).

Slip resistance

Classification: To AS 4586 (2013).

See NATSPEC TECHnote DES 001 on slip resistance performance.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals

General information: www.forbo.com/flooring/en-au/products/flotex-flocked-flooring/cos2hx.

Technical data: www.forbo.com/flooring/en-au/downloads/textile/p2x2jq.

1.6 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 1884 (2021) and the following apply:

- Acoustic underlay: A resilient material laid between the subfloor and the flooring material to provide sound isolation.
- Flotex (Flock Textiles): A waterproof hard wearing carpet-like textile with a resilient base.

For use within education, health, aged care, retail. It is an hygienic, 100% waterproof and easy to clean floor covering, without any of the drawbacks of traditional textile floor covering. It has a velour like surface that is comfortable to walk on, warm underfoot and with excellent slip resistant and acoustic properties.

- Substrate: The surface to which a material or product is applied.

- Underlay: A non-structural layer of rubber, cork, plywood or in situ levelling compound to provide a smooth and flat surface for flooring installation. Rubber and cork underlays have acoustic sound absorbing properties.

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

1.7 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, Fire hazard properties.

Operation and maintenance manuals

Requirement: Submit manual to **COMPLETION**, Operation and maintenance manuals.

Products and materials

Manufacturer's data: Submit FORBO's product data for each type of product and finish, and for its application in the project including the following, as appropriate:

- Thickness and width of sheet or size of tile or plank.
- Adhesive and jointing recommendations method.
- Resistance to wear, indentation, chemicals, light and fire.
- Flexibility and bending strength.

Type tests: Submit results as evidence of a successful type test, as follows:

Type tests are carried out off-site. However, submission of evidence of a successful type test may be called up here for requirements specified in SELECTIONS or PRODUCTS, when there are no SELECTIONS.

- Slip resistance to AS 4586 (2013).

Evidence of delivery: Submit delivery docket as evidence of delivery of [complete/delete]

If evidence of delivery to site is required for particular products, consider including this *Optional* style text by changing to *Normal* style.

Samples

General: Submit labelled production run samples demonstrating the range of colour, pattern or texture of the product.

Minimum size per sample:

- Sheet: 450 x 450 mm.
- Tiles: A whole tile or 0.09 m², whichever is the greater.
- Planks: A whole plank.
- Underlay: Submit one labelled sample at least 600 x 600 mm.

Identification: Label each sample, with brand, product name, and manufacturer's code reference

Sample panels: Provide sample panels as follows:

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

Call for sample panels only when large areas are specified. Delete if not required.

Trial set-out: Prepare a trial set-out before fixing.

Shop drawings

General: Submit a floor covering plan to a scale that best describes the detail, showing the layout and arrangement of the sheet, tile and plank flooring.

A floor covering plan of textile floor coverings is required by the purchaser for both commercial and residential applications.

Subcontractors

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

Delete if supplier/installer details are not required. Contact Forbo Flooring Systems Australia for preferred installers.

Substrate acceptance: Submit evidence of installer's acceptance of the subfloor/substrate before starting installation.

Tests

Site tests: Submit results, as follows:

- Substrate moisture content test.
- Substrate alkalinity test.
- Surface pH test.
- Impact sound insulation rating test of completed installation.

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

Warranties

Requirement: Submit warranties to **COMPLETION, Warranties.**

1.8 INSPECTION

Notice

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

- Substrate immediately before fixing floor covering and underlay.
- Trial set-outs before execution.
- Completed underlay, if any.
- Completed installation.

Amend to suit the project adding critical stage inspections required.

Hold points, if required, should be inserted here e.g. moisture content in concrete substrates.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to **SUBSTITUTIONS** in *0171 General requirements*.

SUBSTITUTIONS in *0171 General requirements* sets out the submissions required if the contractor proposes alternative products. Refer also to NATSPEC TECHnote GEN 006 for more information on proprietary specification.

Storage and handling

Requirement: Store and handle to FORBO's recommendations including:

- Store sheet rolls standing up.
- Store packs of tiles and planks on a level and dry surface.

Product identification

General: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

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

2.2 FIRE PERFORMANCE

Fire hazard properties

Critical radiant flux: Tested to AS ISO 9239.1 (2003). Critical radiant flux, as follows:

- Sheet: 9.0 kW/m².
- Tile and plank: 8.4 kW/m².
- Acoustic tile: >4.5 kW/m².

Smoke development rate: Tested to AS ISO 9239.1 (2003). Smoke development rate, as follows:

- Sheet: 96 percent-minutes.
- Tile and plank: 270 percent-minutes.
- Acoustic tile: <750 percent-minutes.

Non-sprinklered buildings: The flooring finish must have maximum *smoke development rate* of 750 percent-minutes tested to AS ISO 9239.1 (2003).

Refer to NATSPEC TECHnote DES 020 for further information on fire hazard properties.

2.3 FORBO TEXTILE FLOOR COVERINGS

Forbo Flotex

Description: A carpet-like textile floor covering comprising a densely flocked surface of nylon 6.6 fibres bonded to an impervious and resilient closed-cell reinforced vinyl base.

Flotex combines the practicality of a resilient flooring with the slip resistant and acoustic properties usually associated with textiles. It is strong, hygienic and washable. It is available as sheet, tile or plank.

Application: Any commercial specification.

Antimicrobial, insect and stain resistance treatment

Requirement: Not required.

Flotex is inert and requires no antimicrobial barrier, it is also 100% insect resistant. Flotex requires no treatment to improve stain resistance. The nylon 6.6 fibres with impervious base naturally repel soiling and is significantly stain resistant without the use of chemicals. Certified by the British Allergy Foundation.

Electrostatic propensity

Maximum electrostatic propensity value: 2.0 kV at a relative humidity of 25% to AATCC TM 134 (2019).

May be required for projects over 5000 m² in area. This is important for preventing personal discomfort and equipment damage due to static electricity in floors where computers are located.

Slip resistance

Classification: R12/P5.

Total VOC

Total VOC emission tested to ISO 10580 (2010): < 0.5 mg/m²/h.

The maximum total VOC emission limit recommended by the Green Building Council of Australia (GBCA) is 0.5 mg/m²/h.

2.4 ENTRANCE MATTING

Forbo Coral Entrance Matting

Description: A vinyl backed heavy duty entrance matting for internal and external applications.

Coral collects walked in dirt and moisture at building entrances and in high use circulation areas. Available in tiles and sheets.

Third party test results certify that Coral entrance matting should be at least 3 paces in length to remove up to 60% of dirt, but preferably 4.5 m in length, to remove up to 95% of dirt. (Certified test results are available on request from FORBO).

Incorporating Coral entrance matting increases the Flotex warranty available, refer to **COMPLETION, Warranties**.

2.5 FORBO UNDERLAYS

Sarlibase Acoustic

Description: A resilient PVC acoustic underlay incorporating a glass fleece reinforcement and foam backing.

Thickness: 2 mm.

Sarlibase Acoustic provides additional acoustic performance by increasing sound reduction values. It also significantly improves shock absorption by 70%+ (value = 19.7%) for use within indoor play areas.

Sarlibase TE

Description: An impervious loose lay underlay consisting of a glass fibre scrim, a vinyl top surface with foam backing.

Thickness: 1.5 mm

Sarlibase TE is an impervious loose lay underlay for use over damp or contaminated subfloors.

Quickfit

Description: A self-adhering, floating MDF board and foam substrate system.

Thickness: 11 mm, consisting of 7 mm cross-bonded boards and 4 mm impervious closed-core polypropylene foam.

Quickfit subfloor system is a loose lay system requiring little or no sub-floor preparation and provides its own moisture barrier. It can be overlaid onto heritage flooring to permanently protect it and can be used as an superior alternative to cementitious,

hardwood ply, or fibreboard underlays. It provides additional acoustic performance (increased impact sound reduction) and shock absorption.

Corkment

Description: A cork based acoustic underlay.

Corkment is an all-natural underlay providing impact sound reduction . Available in 2 mm and 3.2 mm thicknesses. Corkment provides increased acoustic performance without diminishing resilience or heavy traffic performance, especially where heavy trolleys are being deployed.

2.6 OTHER UNDERLAYS

Traditional underlays may be necessary and should be considered in conjunction with Forbo Sub-floor solutions. Seek advice from Forbo for specific applications.

A thin cementitious type underlay may be used as an isolating barrier of known electrical resistance beneath antistatic or conductive flooring if required. Other special underlay systems are available for the reduction of impact noise, these may be laid directly on the substrate or over an isolation pad or board. An embedded reinforcing mat is usual. Consult manufacturer of underlay and Forbo for compatibility and installation requirements.

Cementitious

General: Polymer modified cementitious smoothing and self-levelling compound.

Thickness: Minimum 3 mm.

Use to correct the substrate. Avoid a feather edge that may curl, by cutting back for a 3 mm minimum thickness. Delete if not required.

Fibre cement underlay

Standard: To AS/NZS 2908.2 (2000), Type B, category 2 minimum.

Thickness: Minimum 5 mm.

Wet process fibreboard (hardboard) underlay

Standard: To AS/NZS 1859.4 (2018).

Classification: General purpose medium board, manufactured specifically as flooring underlay.

Thickness: 5.5 mm.

2.7 MOISTURE BARRIER

FORBO moisture barrier

Eurocol: Two-part water based epoxy sealer.

For use where Quickfit or Sarlibase TE underlays are not used and if testing to AS 1884 (2021) shows the moisture content of the substrate exceeds the requirements of AS 1884 (2021) or the flooring or adhesive manufacturer's recommendations. Forbo have a range of moisture barrier solutions through the Eurocol range. Delete if not required. See NATSPEC TECHnote DES 008 on the preparation of concrete substrates.

2.8 ADHESIVES

AS 2455.1 (2019) requires the contractor and manufacturer to select the appropriate adhesive and manner of use for the installation. Ambient RH and building temperature, subfloor heating units and compounds present on the subfloor are considered. Subject to advice on suitability, adhesive fixing may be used to fix Flotex direct to concrete (but not timber) subfloors, or to hard underlays.

This resists partial rucking of textile floor coverings subject to wheeled or heavy foot traffic. The peel-up method using PS1 tackifier-type adhesive has the advantage of easy removal. The permanent stick method is preferable given Flotex's high damage and stain resistance properties.

FORBO adhesives

Eurocol 540 Eurosafe Special: An acrylic liquid adhesive.

Provides a high initial grab for resilient sheet flooring.

Eurocol 640 Eurostar Special: A low emission acrylic liquid adhesive.

Provides a very low emission with a high initial grab for resilient sheet flooring sheet.

PS1 Tile Fix: A tackifier-type pressure sensitive, plasticiser resistant adhesive.

An adhesive for Flotex & Tessera Tiles/Planks allowing tiles to be peeled up and re-placed.

3 EXECUTION

3.1 GENERAL

Subcontractors

Requirement: Use specialist installers recommended by the material manufacturers.

Contact FORBO for recommended installers throughout Australia.

Working environment

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

Protection: Protect adjoining surfaces.

3.2 PREPARATION – FLOTEX SHEET

Substrates

General: To AS 1884 (2021) Section 3.

Where substrate conformance is difficult to achieve, use Forbo Quickfit sub-floor system to resolve flatness issues, moisture, surface contaminants and prior treatments, raised areas or ridges, cracks or gaps, pH problems, or to overlay existing timber flooring or where an existing floor (including heritage timber and tiles) must be protected.

Flotex sheet - Substrate tolerance table

Property	Length of straightedge laid in any direction	Max. deviation under the straightedge
Planeness	2000 mm	4 mm
Abrupt deviation tolerance	150 mm	0.5 mm

Planeness tolerance class: Nominate Class A in the **Flatness tolerance class table** in *0315 Concrete finishes and TOLERANCES* in *0612 Cementitious toppings* for locations where resilient finishes are to be installed, 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. Refer also to *CCAA Data Sheet on Moisture in concrete and moisture-sensitive finishes and coatings (2007)*.

Requirement: Do not start installation of the Flotex sheet until the moisture content and alkalinity of the concrete substrate has been tested to **TESTING, Substrate tests** and conforms to AS 1884 (2021) clause 3.1 and FORBO's recommendations.

AS 1884 (2021) sets out minimum requirements for moisture content surface pH, and surface quality of the concrete substrate, which should be determined by inspection and testing. FORBO's recommendations may exceed these requirements. This worksection requires submission of test results.

Substrate rectification: Conform to the following:

- Surface treatments: Mechanically remove any incompatible surface treatments, including the following:
 - . Sealers and hardeners.
 - . Curing compounds.
 - . Waterproofing additives.
 - . Surface coatings and contamination.

The application of solvent based spray paint and markers during construction should be avoided as these products may cause bleed through to resilient finishes laid on concrete floors.

- Surface quality: Remove projections and fill voids and hollows with a smoothing and self-levelling compound compatible with the adhesive. Allow filling or levelling compound to dry to manufacturer's recommendations.

Moisture content rectification: Provide FORBO Eurocol moisture barrier.

If a moisture barrier or moisture suppression system is required and Quickfit or Sarlibase TE underlays are not used, consider including this *Optional* style text by changing to *Normal* style text. Changes in the design mix of concrete, admixtures and concrete surface finishing techniques, and low VOC adhesives have contributed to increased failure of resilient finishes. Consult Forbo.

Cleaning: Remove loose materials or dust.

Timber, plywood, particleboard and fibre cement sheet substrates

Requirement: Do not start installation of the resilient finishes until the timber, plywood, particleboard and fibre cement substrate conforms to AS 1884 (2021) clause 3.6.

Substrate rectification: Remove projections. If conformance to the **Flotex sheet - 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.

Conditioning

General: Stabilise the room to a temperature of 18 to 27°C for at least 48 hours prior to, during and at least 24 hours after installation.

Conditioning of floor covering and subfloor: To AS 1884 (2021) clause 4.1 and FORBO's recommendations.

Acclimatisation: Acclimatise Flotex rolls by storing upright in the laying area at a steady temperature of 18 to 27°C for at least 24 hours prior to installation.

This is of particular importance if the rolls have been stored or delivered in conditions of extreme temperature and/or humidity.

3.3 PREPARATION – FLOTEX TILES AND PLANKS

General

Pre-installation requirements: To AS 2455.1 (2019) Section 2 and AS 2455.2 (2019) Section 4.

Flotex tiles and planks are installed as per traditional carpet tiles. AS 2455.1 (2019) Section 2 details information that the subcontractor requires before installation including information it is recommended be exchanged early in the design stage. AS 2455.2 (2019) Section 4 provides additional requirements for carpet tiles.

Substrate

Where substrate conformance is difficult to achieve, use Forbo Quickfit sub-floor system to resolve flatness issues, moisture, surface contaminants and prior treatments, raised areas or ridges, cracks or gaps, pH problems, or to overlay existing timber flooring or where an existing floor (including timber and tiles) must be protected.

The requirements of AS 2455.1 (2019) Appendix A (Normative) also apply to Flotex tiles and planks. It requires the (sub)contractor to seek advice from the purchaser about relevant details of the subfloor and contains extensive contractual requirements.

General: Conform to the following:

- To AS 2455.1 (2019) or AS 2455.2 (2019), as appropriate.
- Clean and free of any deposit or finish that may impair adhesion or location and functioning of control joints.
- Free of any imperfections, including ridges, indentations and projections that may adversely affect the installed Flotex textile.

Concrete substrate rectification: Remove projections, grind as necessary and fill voids and hollows with a levelling compound compatible with the adhesive to achieve the required tolerance.

Raised areas rectified by grinding: Test the freshly exposed concrete surface for pH and obtain verification of compatibility with the adhesive.

If rectifying by grinding, consider including this *Optional* style text by changing to *Normal* style text. Freshly exposed concrete has high alkalinity and problems have been encountered overseas.

Timber substrate rectification: Remove projections. If conformance with the Flotex tile and plank - Substrate tolerance table cannot be achieved, fix a hard underlay in brick pattern of use Forbo Quickfit. Make sure joints do not coincide with substrate joints.

Moisture content and alkalinity of concrete substrate: Do not start installation until the moisture content and alkalinity of the concrete substrate has been tested to **TESTING, Substrate tests** and conforms to the values in AS 2455.1 (2019) Appendix B.

Seek advice from Forbo, if required. Where Forbo Quickfit sub-floor system is used many substrate issues are resolved. This includes alkalinity, flatness, moisture, surface contaminants and prior treatments, raised areas or ridges, cracks or gaps.

Refer to NATSPEC TECHnote DES 008 on the preparation of concrete substrates. Refer also to CCAA Data Sheet on Moisture in concrete and moisture-sensitive finishes and coatings (2007).

Moisture content of timber, plywood or particleboard substrate: Do not start installation until the moisture content of the substrate has been tested to **TESTING, Substrate tests – FLOTEX tiles and planks** and conforms to the values as follow:

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

Flotex tile and plank - Substrate tolerance table

Property	Length of straightedge laid in any direction	Max. deviation under the straightedge
Flatness Class B	3 m	6 mm
Smoothness	150 mm	1 mm
Planar	2000 mm	4 mm

Flatness tolerance class: Nominate Class B in 0315 Concrete finishes and 0612 Cementitious toppings for locations of carpet as appropriate for the project. It is assumed that smoothness and planar tolerance corrections form part of substrate preparation.

Conditioning

General: Stabilise the room to a temperature of 18 to 27°C for at least 48 hours prior to, during and at least 24 hours after installation.

Acclimatisation: Acclimatise Flotex tiles and planks by placing in opened boxes in the laying area for at least 24 hours prior to installation. Where tiles or planks have been stored or transported in temperatures below 10°C, immediately before acclimatisation, increase minimum acclimatisation period to 48 hours.

This is of particular importance if the tiles and planks have been stored or delivered in conditions of extreme temperature and/or humidity.

3.4 TESTING

Substrate tests

Moisture content: Test substrate for suitability for the installation of resilient floor coverings to AS 1884 (2021) Appendix A.

- Maximum relative humidity of concrete: To AS 1884 (2021) Appendix A3.2.
- Moisture content of timber, plywood and particleboard subfloors: To AS 1884 (2021) Appendix A3.3.

Forbo can offer a range of options that can be used on concrete slabs with a moisture content greater than the maximum allowed by AS 1884 (2021), or that require a moisture content less than the maximum allowed by AS 1884 (2021). This includes use of Quickfit underfloor system or Sarli TE underlay.

Surface pH: Test concrete subfloor for suitability for the installation of resilient floor coverings to AS 1884 (2021) Appendix C.

- Maximum pH: 10.

Testing of pH should be carried out after any surface grinding. Freshly exposed concrete has high alkalinity and problems have been encountered overseas. Forbo can offer a range of options to resolve onsite issues.

Substrate tests – FLOTEX tiles and planks

Moisture content and alkalinity of concrete substrate: Test substrate to AS 2455.1 (2019) Appendix B.

Moisture content of timber, plywood or particleboard substrate: Test substrate to AS/NZS 1080.1 (2012) for timber and particleboard or AS/NZS 2098.1 (2006).

Impact sound insulation rating tests

Impact sound insulation rating of completed installation: To AS ISO 717.2 (2004).

Weighted standardised impact sound pressure level ($L'_{nT,w}$) is a single-number rating, expressed in decibels, of the field measurement of frequency dependent impact sound insulation between rooms in buildings.

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

3.5 INSTALLATION - FLOTEX SHEETS, TILES AND PLANKS

General

Requirement: To AS 1884 (2021) Section 5 and FORBO's published installation procedures and recommendations.

Fixtures: Remove door stops and other fixtures, and refix in position undamaged on completion of the installation. Make sure fixings penetrate substrate and are stable.

Partitions: Make sure all internal partitions have been installed prior to laying Flotex flooring.

Batching

Requirement: In a single area and for each documented type, quality, or colour, use floor covering from one manufacturing batch and dye lot.

Sheet set-out

General: Set out sheets to give the minimum number of joints. Position joints away from areas of high stress. Run sheet joints parallel with the long sides of floor areas, vertically on non-horizontal surfaces. Make sure joints in underlay do not coincide with joints in Flotex flooring.

Direction: Install sheets in the same documented direction for seaming and with directional arrows on the backing all pointing in the same direction.

The arrows on the back of the sheet indicate the pile direction and should point towards the main light source, never away.

Corridors: Run directional arrows along length of the corridor.

Where corridors intersect, a decorative border is recommended as a separator to avoid pattern cross match at the intersection.

Patterns, designs and inlays: As documented.

Bespoke designs and patterns are possible and must be documented on the drawings or detailed by Forbo Floorcoverings.

Tile set-out

General: Set out tiles generally from centre of room. If possible, cut tiles at margins only to give a cut dimension of at least 100 mm x full tile width. Match edges and align patterns.

Amend text if tile layout and joints have been documented.

Direction: Install tiles in the documented direction using the directional arrows on the backing.

The arrows on the back of the tiles indicate the pile direction. Document the required direction of the tiles on the drawings. Options include Tessellated, Monolithic, Brick, Half Drop. Options for the direction of the tile installation will vary between product designs. Consult with Forbo Floorcoverings, if required.

Patterns, designs and inlays: As documented.

Bespoke designs and patterns are possible and must be documented on the drawings or detailed by Forbo Floorcoverings.

Plank set-out

General: Set out planks from centre of room. Align patterns, texture and grain in one direction.

Amend text if plank layout and joints have been documented.

Direction: Install planks in the documented direction using the directional arrows on the backing.

The arrows on the back of the planks indicate the pile direction. Document the required direction of the planks on the drawings. Options include Half Drop, Herringbone, Double Herringbone, Weave. Options for the direction of the plank installation will vary between product designs. Consult with Forbo Floorcoverings, if required.

Patterns, designs and inlays: As documented.

Bespoke designs and patterns are possible and must be documented on the drawings or detailed by Forbo Floorcoverings.

Edges

General: Make sure edges are firm, machine-cut accurately to size and square to the face, and that edges are square to each other before installation. Make sure all adjoining cut edges of Aquajet designs align correctly.

Expansion joints

General: Refer to FORBO's published installation procedures and recommendations for joint widths, and area and length limitations.

Joints

General: Butt edges together to form tight neat joints showing no visible open seam.

Doorways: Where changes of floor finish occur at doorways, locate the joint on the centreline of the door leaf in the closed position.

If the floor finish is to be divided into bays, specify here the bay size, dividing strip or joint filler.

Junctions

General: Scribe neatly up to returns, edges, fixtures and fittings. Finish flush with adjoining surfaces.

Rolling

General: If rolling is required, roll the finish in multiple directions before the adhesive sets and to FORBO's recommendations.

Change of finish

General: Maintain finished floor level across changes of floor finish, including Flotex, LVT, Marmoleum and vinyl.

Cleaning

General: Keep the surface clean as the work proceeds.

Scrap recycling

General: Retain scraps to return to Forbo Flooring Systems Australia for recycling.

Forbo Flooring Systems Australia will assist with recycling of site scrap of Forbo products.

3.6 STAIRS AND LANDINGS**Stair and landing nosing**

Type: [complete/delete]

e.g. Approved extruded slip-resisting aluminium nosing or Purpose-made moulded slip-resisting vinyl section, or specify by proprietary name. See BCA (2022) D3D14 and BCA (2022) D3D15 for slip resistance in Class 2 to 9 buildings, and BCA (2022) H5D2 for slip resistance in Class 1 and 10 buildings. See also AS 1428.1 (2009) for minimum luminance contrast. The NCC cites AS 1428.1 (2001) and AS 1428.1 (2009). The current edition is AS 1428.1 (2021).

Stair treads and risers

General: Use a separate piece of Flotex for each tread and riser.

Fixing: Use contact adhesive for risers.

Direction: As follows:

- Treads: Lay the pile (direction arrows) towards the nose of the step.
- Risers: Lay the pile (direction arrows) downwards towards the tread.

3.7 COMPLETION**Cleaning**

General: Conform to FORBO's cleaning and maintenance guidelines.

Forbo provide Cleaning and Maintenance Guidelines for their Flotex products.

Progressive cleaning: Progressively clear scrap material and debris from the floor and vacuum. Remove traces of adhesive residue from floor and skirting using warm water, a hand scrubbing brush and paper towel.

Vacuum cleaners with an electrically powered brush are recommended for use on Flotex.

Final cleaning: When the installation is complete, clean the carpet as necessary to remove extraneous matter, marks and soiling. Allow minimum of two days for adhesives to dry and cure before the final clean. Use spot cleaning method and self-contained water extraction method, as required.

Protection

Requirement: Provide fabric drop sheets. Do not use plastic sheeting. If wheeled traffic is to follow carpet installation, protect with hardboard sheets butted and fixed with adhesive tape.

Spares

Spare material: Supply spare matching materials of each type, colour and design of Flotex from the same batch for future replacement purposes.

Offcuts: Retain Flotex offcuts exceeding 0.5 m² in area and 450 mm in both length and width.

Labelling: Label spare and offcut material appropriately, including the location of the laid area corresponding to each batch. Securely and separately package each batch in a suitable wrapping.

Quantity of spare material: At least 1% of the quantity installed, in full or part length rolls, tiles or planks.

Storage locations: [complete/delete]

Operation and maintenance manuals

For major carpet installations. Delete if not required.

Requirement: Prepare a manual that includes FORBO's recommendations for care and maintenance for each type of finish.

Compliance with this clause targets the Operations and Maintenance requirement within the Minimum Expectation level of the Verification and Handover credit in Green Star Buildings (2021).

Warranties

Requirement: Submit FORBO's and installer's warranty of the material, workmanship and application.

Warranty items: [complete/delete]

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

Warranty terms: [complete/delete]

Consult or negotiate with FORBO for warranty terms, and specify only such terms as are actually available. State requirements. FORBO provides a 10 year product warranty for FLOTEX floor coverings. A 21 year warranty is available where Forbo Coral Entrance Matting, adhesives and underlays are used.

For detailed warranty conditions refer to FORBO's Warranty Packs at www.forbo.com/flooring/en-au/downloads/warranty/

4 SELECTIONS

Schedules are a tool to specify properties required for products or systems. If the principal permits documentation of the product or system by proprietary name, some of the properties may be unnecessary and can be deleted. Document the product or system's location or application here and/or on the drawings with a matching project code. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

4.1 SCHEDULES**Flotex textile floor covering schedule**

	A	B	C
Product	Flotex	Flotex	Flotex
Type			
Slip resistance classification			
Colour and pattern			
Dimensions (mm)			
Underlay			
Entrance matting: Type and colour			
Impact sound insulation: Laboratory value: Weighted normalised impact sound pressure level ($L_{n,w}$)			
Impact sound insulation: Field test: Weighted standardised impact sound pressure level ($L'_{nT,w}$)			
Adhesive			
Critical radiant flux (CRF) (kW/m ²)			
Smoke development			
Edge strip: Finish and colour			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Type: Select from: Sheet, tile, acoustic tile or plank (each have unique acoustic properties and fire hazard properties).

Colour and pattern: Select from:

- Sheet – Canyon, Calgary, Metro, Penang, Borders, Naturals, Vision-HD, HD-Bespoke Digital, Bespoke Aquajet.
- Tile or plank - Canyon, Calgary, Metro, Penang, Cirrus & Stratus, Integrity & Complexity, Montage, Ombre', Refract, Frameweave, Converge, Triad, Seagrass, Savannah, Box-Cross, Marble, Wood, Concrete, Bespoke Aquajet.
- Acoustic tile – Metro Grey.

Contact Forbo for the full range and availability of Flotex colours and patterns.

Dimensions: Select from:

- Sheet – 2000 mm width.
- Tiles – 500 x 500 mm.
- Plank – 1000 mm x 250 mm.

Underlay: Select from: Sarlibase Acoustic, Sarlibase TE, QuikFit or Corkment, or other traditional underlays. Quickfit is an underfloor system with acoustic benefits – combine with other underlays to further improve acoustic values and improve shock absorption.

Entrance matting: Select from: Coral Classic, Coral Brush, Coral Duo, Coral Interior, Coral Grip. Contact Forbo for the full range and availability of Coral colours and patterns.

Impact sound insulation (Ln,w): Nominate as follows:

- Sheet: ≥ 20 dB (+ underlay).
- Tile or plank: ≥ 19 dB (+ underlay).
- Acoustic tile: ≥ 22 dB (+ underlay).

Refer to NATSPEC TECHnote DES 027 for information impact sound insulation. The impact insulation laboratory value should meet the Deemed-to-Satisfy value nominated in the NCC. If the field test option is adopted the value for the impact insulation field test should satisfy the NCC. Impact sound insulation combines Flotex with any proposed underlay (increasing performance). Contact Forbo for further information.

Adhesive: Select from Eurocol 540, Eurocol 640 (low VOC) or PS1 Tile Fix.

Critical radiant flux: Nominate as follows:

- Sheet: 9.0 kW/m².
- Tile and plank: 8.4 kW/m².
- Acoustic tile: >4.5 kW/m².

Critical radiant flux values should meet the appropriate value from BCA (2022) Table S7C3 for the building class.

Smoke development: Nominate as follows:

- Sheet: 96% min.
- Tile and plank: 270% min.
- Acoustic tile: <750% min.

Edge strip: Stair and landing nosings to AS 1428.1 (2009). The NCC cites AS 1428.1 (2001) and AS 1428.1 (2009). The current edition is AS 1428.1 (2021).

- Finish: e.g. Hard clear anodised aluminium.
- Colour: At the nosing of each tread, a strip across the full width of the stair is required to have a minimum luminance contrast of 30% to the background.

Tactile ground surface indicators schedule

	A	B	C
Product			
Type			
Edge protector			
Material			
Colour			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Refer to manufacturer's range. Many of the following items in the schedule may not be required if the product identification is sufficient. Delete any items below if sufficiently covered by the product details nominated here.

Type: Directional, Warning or Integrated. Both warning and directional indicators may be required.

Edge protector: Button bevelled, Button round, Bar thin or Bar thick.

Material: Porcelain, Stainless steel, Thermoplastic urethane injection moulded (TPU), Rubber. Refer to manufacturer.

Colour: A colour contrast is required, in both wet and dry conditions, between the tactile indicators and the adjacent surface and that the colour provides a luminance contrast to the surrounding surface to AS/NZS 1428.4.1 (2009) Appendix E. Refer to manufacturer's range. The NCC cites AS 1428.4 (1992) and AS/NZS 1428.4.1 (2009). The current edition is AS/NZS 1428.4.1 (2009).

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/NZS 1859		Reconstituted wood-based panels - Specifications

AS/NZS 1859.4	2018	Wet process fibreboard
AS 1884	2021	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 2455		Textile floor coverings - Installation practice
AS 2455.1	2019	General
AS 2455.2	2019	Carpet tiles
AS/NZS 2908		Cellulose-cement products
AS/NZS 2908.2	2000	Flat sheets
AS 4586	2013	Slip resistance classification of new pedestrian surface materials
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
AATCC TM 134	2019	Electrostatic propensity of carpets
ISO 10580	2010	Resilient, textile and laminate floor coverings - Test method for volatile organic compound (VOC) emissions
The following documents are mentioned only in the <i>Guidance</i> text:		
AS 1428		Design for access and mobility
AS 1428.1	2001	General requirements for access - New building work
AS 1428.1	2009	General requirements for access - New building work
AS 1428.1	2021	General requirements for access - New building work
AS 1428.4	1992	Tactile ground surface indicators for the orientation of people with vision impairment
AS/NZS 1428.4.1	2009	Means to assist the orientation of people with vision impairment - Tactile ground surface indicators
BCA D3D14	2022	Access and egress - Construction of exits - Goings and risers
BCA D3D15	2022	Access and egress - Construction of exits - Landings
BCA H5D2	2022	Class 1 and 10 buildings - Safe movement and access - Stairway and ramp construction
BCA Table S7C3	2022	Fire resistance - Fire hazard properties - Floor linings and floor coverings - Critical radiant flux (CHF in kW/m ²) of floor linings and floor coverings
CCAA Data Sheet MC	2007	Moisture in concrete and moisture-sensitive finishes and coatings
GBCA Buildings	2021	Green Star Buildings
NATSPEC DES 001		Slip resistance performance
NATSPEC DES 008		Preparation of concrete substrates
NATSPEC DES 020		Fire behaviour of building materials and assemblies
NATSPEC DES 027		Impact sound insulation
NATSPEC GEN 006		Product specifying and substitution
NATSPEC GEN 024		Using NATSPEC selections schedules
NATSPEC TR 01		Specifying ESD