



MAKING SPACES INTO **SAFE** PLACES

Slip Resistance Flooring Guide

creating better environments

forbo

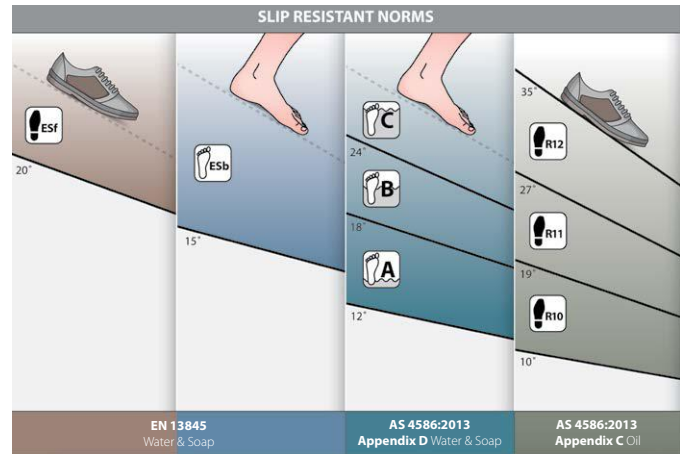
FLOORING SYSTEMS

SLIP RESISTANCE TEST METHODS EXPLAINED

Forbo has created a unique product offer that complies with the AS/NZS 4586-2013 slip resistance classification of pedestrian surface materials.

The standard outlines the main test methods based on global best practices to classify and assess the frictional properties of floor surfaces under different conditions and includes the following slip resistance test methods:

Forbo product slip test reports are available on our website, please visit www.forbo-flooring.com.au/downloads



AS/NZS 4586-2013 Appendix A, PENDULUM (P rating) – Wet pendulum test (the preferred test method for on-site testing)

- Utilises a pendulum friction tester to determine the slip resistance of the floor
- Pendulum has a rubber slider – 45 simulating a standard rubber shoe sole
- The pendulum arms swing the slider across a floor or sample in both wet and dry conditions
- The pendulum arms swings the slider over test sample/floor
- Readings are taken and referred to as a British Pendulum Number (BPN)
- The higher the number, the better the slip resistance value (SRV)

Pendulum mean BPN	Classification
>55	P5
45-54	P4
35-44	P3
25-34	P2
12-24	P1
<12	P0

AS/NZS 4586-2013 Appendix D, RAMP (R rating) – Oil/wet inclined ramp slip resistance test

- A specific viscosity engine oil is used to coat a 50 cm x 100 cm test surface on a tilting ramp
- Specific special laboratory rubber-soled shoes are worn
- The tester walks upright, backwards, and forwards as the angle of the ramp is increased
- The point at which, a safe limit of walking is reached is recorded
- Performed by two people five times each – then a mean result is determined
- Gives the “R” rating. The higher the R the better the slip resistance. Oil simulates contamination other than water often found in for example commercial kitchens

Angles, degrees	Classification
<6	no classification
≥6 <10	R9
≥10 <19	R10
≥19 <27	R11
≥27 <35	R12
≥35	R13

AS/NZS 4586-2013 Appendix C – Wet barefoot ramp slip resistance test

- This test is similar to the oil-wet inclined ramp test except:
- A soapy water solution is used during the test, not oil
- As the name suggests, no shoes are worn by the testing staff, just bare feet
- Used for wet area product testing – products such as; Safestep Aqua, Surestep Star ESb (barefoot) and Surestep Laguna, etc. for suitability for showers, en suites, and change rooms.

Mean angle of inclination, degrees	Quality group
≤12	no classification
≥12	A
≥18	B
≥24	C

SLIP RESISTANCE GUIDELINES

SAHB 198:2014 – TABLE 3B*

Location	Wet pendulum	Oil-wet / barefoot	Suitable Forbo product(s)
Covered areas with ramps greater than 1 in 14	P5	R12	Safestep R12
Internal & covered ramps under 1:14	P4	R11	Safestep R11
Undercover car parks	P3	R10	Surestep R10**
Hotels, Offices, Public Buildings, Schools & Kindergartens			
Entries and access areas including: hotels, offices, public buildings, schools, kindergartens, common areas of public building, internal lift lobbies			
Wet area (where water often pools on the floor)	P3	R10	Surestep R10**
Transitional area	P2	R9	All Forbo products
Dry areas	P1 (see below note)	R9	All Forbo products
Toilets facilities in offices, hotel and shopping centres	P3	R10	Surestep R10**
Hotel apartment bathrooms, e.g. suits and toilets	P2	A	Surestep R10**, Surestep Star ESb (barefoot) or Surestep Laguna
Hotel apartment kitchens and laundries	P2	R9	All Forbo products
Supermarkets and Shopping Centres			
Fast food outlets, buffet food serving areas, food courts and fast food dining areas in shopping centres	P3	R10	Surestep R10**
Shop and supermarket fresh fruit and vegetable areas	P3	R10	Surestep R10**
Shop entry areas with external entrances	P3	R10	Surestep R10**
Supermarket aisles (except fresh food areas)	P1 (see below note)	R9	All Forbo products
Other separate shops inside shopping centres - wet	P3	R10	Surestep R10**
Other separate shops inside shopping centres - dry	P1 (see below note)	R9	All Forbo products
Loading Docks, Commercial Kitchens, Cold Stores, Serving Areas			
Loading docks under cover and commercial kitchens	P5	R12	Safestep 12
Serving areas behind bars in public hotels and clubs, cold stores and freezers	P4	R11	Safestep R11
Swimming Pools and Sporting Facilities			
Swimming pool ramps and stairs leading to water	P5	Class C	Safestep R12 or Safestep Aqua
Swimming pool surrounds and commercial shower rooms	P4	Class B	Surestep Laguna, Surestep Star ESb (barefoot) or Safestep R11
Communal changing rooms	P3	Class A	Surestep R10**, Surestep Star ESb (barefoot) or Surestep Laguna
Undercover concourse areas of sports stadiums	P3	R10	Surestep R10**
Hospitals and Aged Care Facilities			
Bathrooms and en suites in hospitals and aged care facilities	P3	Class B	Surestep Laguna, Surestep Star ESb (barefoot) or Safestep R11
Wards and corridors in hospital and aged care facilities	P2	R9	All Forbo products

Note: According to SA HB 198:2014, the minimum classifications are P1 and R9. Therefore, it is inappropriate for Table 3B to list the lower classification P0, as there is no lower limit on classification P0. However, some smooth and polished floor surfaces do not achieve Classification P1. These surfaces may be considered to provide a safe walking environment for pedestrians walking at a moderate pace, provided they are kept clean and dry; however, if these surfaces become contaminated by wet or dry materials, or are used by pedestrians in any other manner, they may not be safe, and they may become unsafe. Therefore, the type of maintenance, in-service inspection of floors, and other environmental conditions and use should be taken into account when selecting such products.

* This document is a guide only based on Forbo recommendations in accordance with AS 4586-2013 and the HB 198:2014. Forbo recommends all selections be referred to and agreed/checked with a project certifier prior to documentation.

** Surestep R10 collection: Surestep Original, Star, Steel, Wood and Material.

SLIP RESISTANCE REQUIREMENTS

Different areas require different slip requirements as outlined by the National Construction Code (NCC) and the HB 197:1999 & HB 198:2014 guides to slip resistance of pedestrian surfaces.

Slip resistance compliance

All Forbo floor coverings are tested to the standard AS 4586-2013 slip resistance classification of new pedestrian surface materials, by NATA-accredited laboratories and comply with the recommendations of SA HB 197:1999 & HB 198:2014, which, are guides only.

The different test area classifications

There are three main classifications for test areas. These are “wet areas” where often the floor is constantly or intermittently wet with pooled water from a shower or bath or sink. A “dry” area where the floor is predominantly always dry and any spills are cleaned up relatively quickly. This could be a classroom or even a dining hall. The third area is a “transitional” space where most of the time the area is dry, however, may become wet from an adjacent space temporarily. For example, a lobby near external doors, a floor outside of a kitchen or servery.

On-site slip testing

Accuracy and comparisons between laboratory and on-site testing. It is prudent to note the slip resistance testing of pedestrian surfaces is not a perfect science due to many site variables. Laboratory testing, when compared to on-site testing, can vary due to many variables including equipment, operator and environmental factors such as post-installation cleaning, construction dust, and even temperature.

True safety floor

Additionally, for a floor covering to be deemed a safety or slip resistant floor, by definition, it **must contain slip resistant particles** according to EN 13845 – sustainable slip resistance.

Forbo warrants all Step particle-based safety flooring for the life of the product warranty and on-site performance. Simply specifying any P3 rated floor without particles does not guarantee the floor won't become slippery once a contaminant is added.

General dry floor areas

For general “dry” floor area products like Eternal wood and Marmoleum or non-particle based products, laboratory results are provided, however, on-site testing may vary due to the above-mentioned variables and either a slightly lower or even higher result can occur.

For this reason and especially around the P2 and P3 rating threshold, we guarantee the products will meet a minimum of P2. Due to the variable requirements of slip ratings across floor areas, Forbo provides options for both particle-based safety and general purpose areas in the same colour base and design. These can be used in adjacent areas. The level of slip rating required, and the determination of the area will be at the discretion of the end-user and certifier.

SLIP RESISTANCE GUIDE HOSPITALS & AGED CARE FACILITIES



AGED CARE FACILITIES & HOSPITAL BATHROOMS INCLUDING EN SUITES

Slip requirements: **P3 / Class B**

Suitable product(s):

Surestep Laguna
Surestep Star ESb (barefoot)
Safestep R11

AGED CARE FACILITIES & HOSPITAL WARDS/CORRIDORS (GENERAL NON WET AREAS)

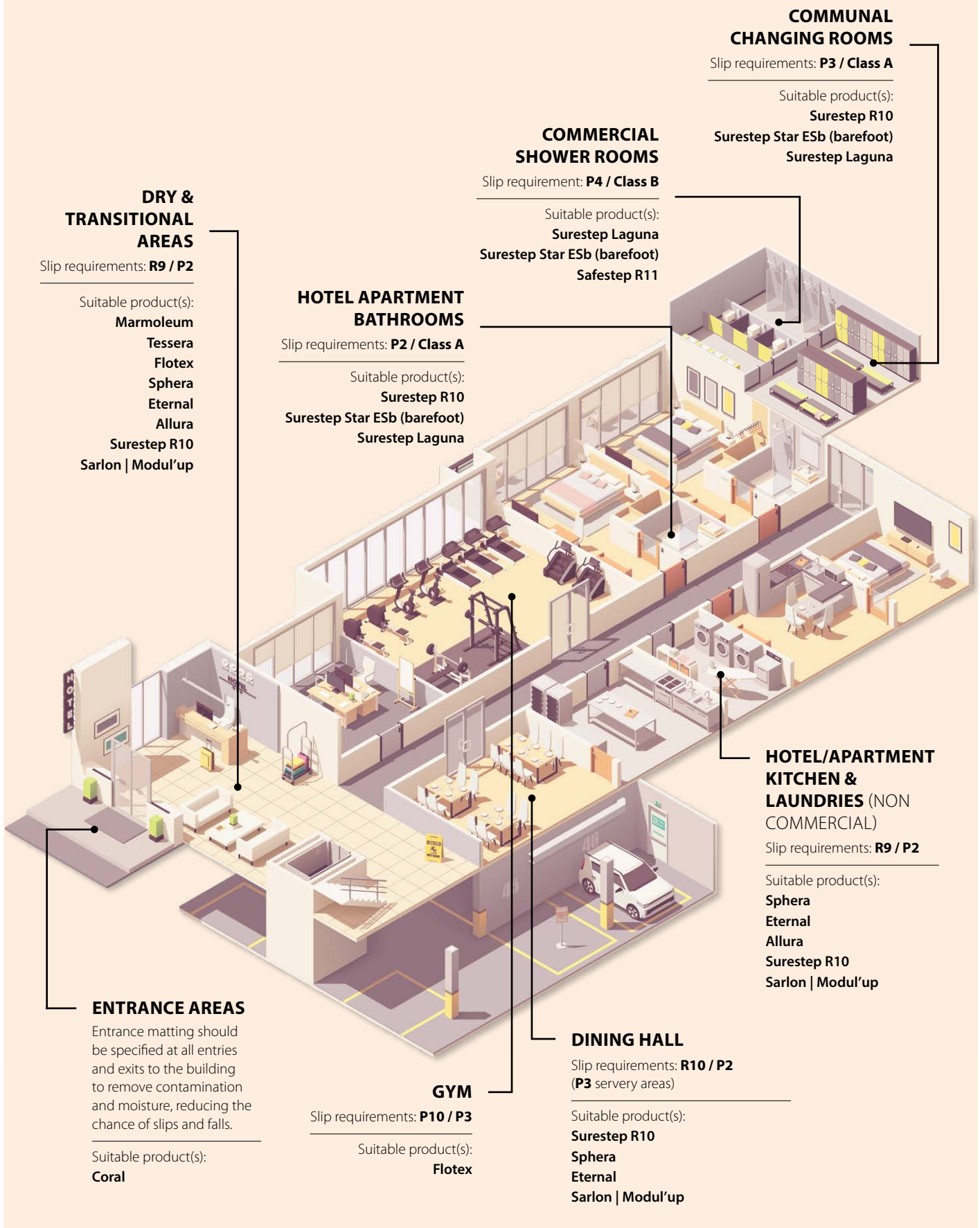
Slip requirements: **R9 / P2** (easy to clean)

Suitable product(s):

Marmoleum
Sphera
Eternal
Allura
Tessera
Flotex
Sarlon | Modul'up

SLIP RESISTANCE GUIDE

HOTELS, OFFICES, PUBLIC BUILDINGS – SCHOOLS & KINDERGARTENS



DRY & TRANSITIONAL AREAS

Slip requirements: **R9 / P2**

Suitable product(s):
Marmoleum
Tessera
Flotex
Sphera
Eternal
Allura
Surestep R10
Sarlon | Modul'up

HOTEL APARTMENT BATHROOMS

Slip requirements: **P2 / Class A**

Suitable product(s):
Surestep R10
Surestep Star ESb (barefoot)
Surestep Laguna

COMMERCIAL SHOWER ROOMS

Slip requirement: **P4 / Class B**

Suitable product(s):
Surestep Laguna
Surestep Star ESb (barefoot)
Safestep R11

COMMUNAL CHANGING ROOMS

Slip requirements: **P3 / Class A**

Suitable product(s):
Surestep R10
Surestep Star ESb (barefoot)
Surestep Laguna

HOTEL/APARTMENT KITCHEN & LAUNDRIES (NON COMMERCIAL)

Slip requirements: **R9 / P2**

Suitable product(s):
Sphera
Eternal
Allura
Surestep R10
Sarlon | Modul'up

ENTRANCE AREAS

Entrance matting should be specified at all entries and exits to the building to remove contamination and moisture, reducing the chance of slips and falls.

Suitable product(s):
Coral

GYM

Slip requirements: **P10 / P3**

Suitable product(s):
Flotex

DINING HALL

Slip requirements: **R10 / P2**
(P3 servery areas)

Suitable product(s):
Surestep R10
Sphera
Eternal
Sarlon | Modul'up

SLIP RESISTANCE GUIDE

SUPERMARKET & SHOPPING CENTRES

OTHER SEPARATE SHOPS INSIDE SHOPPING CENTRES – WET

Slip requirements: **R10 / P3**

Suitable product(s):
Surestep R10
Flotex

SUPERMARKET AISLE (EXCEPT FRESH FOOD AREAS)

Slip requirements: **R9 / P2**

Suitable product(s):
Surestep R10
Sphera
Eternal
Allura

SHOP & SUPERMARKET FRESH FRUIT & VEGETABLE AREAS

Slip requirements: **R10 / P3**

Suitable product(s):
Surestep R10

SHOP ENTRY AREAS WITH EXTERNAL ENTRANCES

Slip requirements: **R10 / P3**

Suitable product(s):
Surestep R10
Sphera
Eternal
Tessera
Flotex

OTHER SEPARATE SHOPS INSIDE SHOPPING CENTRES – DRY

Slip requirements: **R9 / P2**

Suitable product(s):
Marmoleum
Sphera
Eternal
Sarlon | Modul'up
Allura
Tessera
Flotex

COMMERCIAL KITCHENS

Slip requirements: **R12 / P5**

Suitable product(s):
Safestep R12

FAST FOOD OUTLETS/ BUFFET FOOD SERVING AREAS, FOOD COURTS & FAST FOOD DINING AREAS IN SHOPPING CENTRES

Slip requirements: **R10 / P3**

Suitable product(s):
Surestep R10
Sphera
Eternal
Sarlon | Modul'up



SLIP RESISTANCE GUIDE

LOADING DOCKS & COMMERCIAL KITCHENS – COLD STORES & SERVING AREAS

SERVING AREAS BEHIND BARS IN PUBLIC HOTELS & CLUBS, COLD STORES AND FREEZERS

Slip requirement: **R11 / P4**

Suitable product(s):
Safestep R11

LOADING DOCKS UNDERCOVER

Slip requirement: **R12 / P5**

Suitable product(s):
Safestep R12
Flotex

COMMERCIAL KITCHENS

Slip requirements: **R12 / P5**

Suitable product(s):
Safestep R12



FOOD SERVING AREAS

Slip requirements: **R10 / P3**

Suitable product(s):
Surestep R10
Sphera
Eternal
Allura
Flotex
Sarlon | Modul'up
Marmoleum

EVERY SOLUTION. ONE SUPPLIER.

We pride ourselves on offering a truly comprehensive product portfolio with leading edge products specifically designed to cater for each area of a project. From entrance to exit, our integrated flooring portfolio can help you choose the right flooring solutions for your project.

<p>step®</p>		<p>Particle-based safety flooring. Best Practice PVC certified sustainable slip-resistant sheet vinyl flooring that offers various slip-resistant ratings from R10 (Surestep Wood, Material, Star, Steel and Original) to R11/R12 (Safestep R11 and R12) in areas from commercial kitchens to shower and wetrooms (Surestep Laguna, Surestep Star ESb barefoot and Safestep Aqua).</p>
<p>marmoleum®</p>		<p>Natural CO₂ neutral (cradle to gate) linoleum flooring. A resilient floor covering made of natural raw materials including linseed oil, wood flour, limestone, pine rosin, and jute. It is plant-based not plastic and is available in sheet, tile and plank. New Topshield Pro finish offers improved slip resistance. Best for zero embodied carbon projects.</p>
<p>eternal®</p>		<p>General purpose vinyl sheet. An everyday general use floor that offers limitless design possibilities, low maintenance and lasting performance, meeting the Best Practice PVC requirements.</p>
<p>sphera®</p>		<p>Homogeneous vinyl sheet. Styled by our European design team, produced in an advanced purpose-built plant using the latest manufacturing technology. It is long-lasting and meets the best practice PVC requirements.</p>
<p>sarlon® modul'up®</p>		<p>Acoustic vinyl sheet. Loose lay. 15 & 19 dB. Offering performance and comfort, in combination with the best in class residual indentation, also available in modul'up loose lay sheet option.</p>
<p>allura® flex LVT</p>		<p>Luxury vinyl tiles. High quality, dimensionally stable heterogeneous modular vinyl tile/plank with excellent acoustic properties and meets the best practice PVC requirements.</p>
<p>flotex®</p>		<p>Flocked flooring. The only product available combines the appeal of a textile floor covering with the durable and cleaning advantages of a resilient floor. R12 when wet and dry, and works great on ramps.</p>
<p>tessera®</p>		<p>Carpet tiles. Renowned for its aesthetic styling, and outstanding performance in the most demanding heavy traffic environments.</p>
<p>coral®</p>		<p>Entrance flooring. Coral can prolong the life of your floor and reduce cleaning costs with Independent testing confirming Coral can remove up to 95% of walked in dirt and moisture.</p>

CREATING BETTER ENVIRONMENTS

From how they're made to how they perform, we make outstanding floors that are truly sustainable. That's because our floors are good for people, good for buildings and good for the environment. So, from the building they're in to the world outside, we're helping our customers work, live and relax in better environments.

It's about the things you can't see

A Forbo floor is always beautiful and stylish to look at. A floor that's comfortable to live, work and play on. But looks aren't everything; often, it's the things you can't see that really matter.

From how it's made, our footprint...

From how we run our factories to how we choose our ingredients, the way we make our floors is a big part of how we meet our mission to create better environments.

...To how it performs, your footsteps...

We include the whole life of a floor when we think about its sustainability performance. Which means we make sure our floors start performing from the moment they're fitted. For more details, please visit our website www.forbo-flooring.com.au/sustainability

Green information – EPDs

We provide environmental product declarations for our products which are available online. Please visit www.forbo-flooring.com.au/downloads to download the EPDs.

We also provide high quality electronic information such as **BIM models** with all the relevant and up-to-date information included. Visit www.forbo-flooring.com.au/BIM to find out more.

We use several transparent independent third party certification systems for our flooring products. We're also keen to include our products in the building rating systems for a sustainable environment.

It's good for Forbo because it helps us share our sustainability story and spot opportunities to improve.

And it's good for you because it shows that other environmental experts agree that our floors are among the most sustainable and high performance options available.

The **GECA, Green Tag Level A, Best Practice PVC and Declare/Red List Free** are just a few of the sustainable product labels that Forbo comply with. Visit www.forbo-flooring.com.au/sustainability to find out more.

Forbo is a responsible manufacturer and is certified to **SA8000** the ethical labour standard designed to support businesses achieve compliance to the Modern Slavery Act 2015.

GREEN STAR

Green Star is a well-known environmental assessment rating for buildings. For a full list of all our certified products, please visit www.forbo-flooring.com.au/greenstar



OUR FLOOR COVERINGS IN USE

Dolphin Discovery Centre, Bunbury

Products: **Surestep Original**

The impressive redevelopment of the Bunbury Dolphin Discovery Centre, featuring 13 aquariums, a cafe, and function areas, is housed in an impressive landmark building designed by Bunbury-based MCG Architects.

Forbo's Surestep safety floor was chosen for its optimal combination of slip resistance and ease of maintenance. Safety flooring is a function-first choice, but there is an increased demand for design and colour in these functional areas.

The Forbo Step safety collection combines design and safety into a strong visual offering, including coordinated colour options and new structures not usually associated with slip-rated flooring category.



Christian Brothers, Lewisham

Products: **Surestep Original and Material**

JDC Architects effectively incorporated the use of symbols in bright colours to contrast from the floor and rise up the wall to aid with way finding, while making the space into a fun and inspiring place for children to learn and move subliminally.

To support the design motif, Forbo's Surestep slip-resistant flooring was used, as it met slip safety requirements while also playing a significant role in creating a connection between spaces thanks to the wide, colourful visuals offered in the Surestep original collection.

OUR FLOOR COVERINGS IN USE

Sterequip, Epping

Products: **Surestep Original and Sphera Element**

Photographer: Steve Scalone

Forbo's Step safety flooring was selected by Hume Healthcare Architects for the first independent AS 4187 compliant outsourced Theatre Instrument Reprocessing facility in Australia and required a floor throughout the wet areas that could handle heavy traffic, various chemicals, and be easy to clean. The flooring design became a feature in an otherwise mundane workspace and guides the traffic and function.

Sphera homogeneous vinyl was also used on the walls throughout the wet areas. The Sphera colour palettes were developed in coordination with Forbo's Step to provide a seamless design transition from the floor up to the wall.



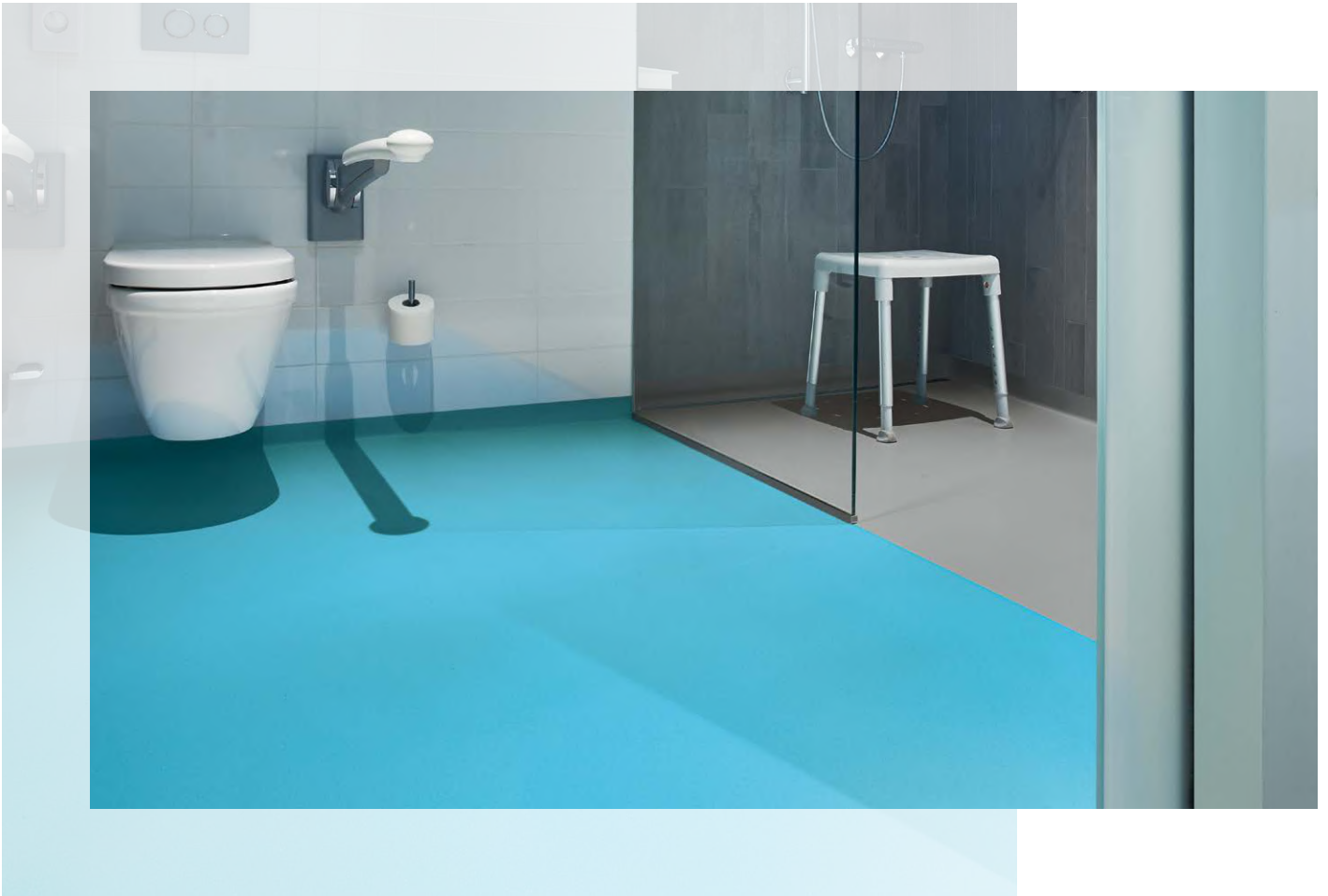
RMIT Stimulated Health, Bundoora

Products: **Marmoleum and Safestep R11**

Photographer: Kane Jarrod

RMIT University has completed a new impressive health simulation ward to train our future healthcare providers. This project included a state-of-the-art hospital situation ward, training bathroom as well as areas for community and mental health.

Vincent Chrisp & Partners selected Marmoleum flooring because of its proven performance within the healthcare sector, ease of maintenance, and leading sustainability attributes. It is produced CO₂ neutral from cradle to gate, with a vast colour pallet to choose from. The creative lines and dimensions on the floor were installed by the highly skilled Marmoleum installers from Asset Flooring Group Melbourne.



Forbo Flooring Systems is part of the Forbo Group, a global leader in flooring and movement systems, and offers a full range of flooring products for commercial and affordable housing and new build markets. High quality linoleum, vinyl, textile, flocked and entrance flooring products combine functionality, colour and design, offering total flooring solutions for any environment.

creating better environments

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FLOORING SYSTEMS