

4384FM FORTE MILLBOARD® DECKING

1 GENERAL

If you have pre-customised this work section using the "questions and answers" provided as part of the downloading process, it may be necessary to amend some clauses to suit the final project-specific version.

The section must still be checked and customised to suit the project being specified, by removing any other irrelevant details and adding project-specific details and selections.

This section relates to the fabrication and installation of **Forte Millboard®** decking for exterior residential, commercial and public space applications.

It includes:

- Millboard® decking comprised of polyurethane / resin mineral composite (RMC) and glass fibre reinforcement
- Millboard® Plas-Pro recycled plastic sub-framing system (optional)
- Millboard® Durafix concealed screw fixing system

Modify / expand this clause to suit requirements of this specification section.

1.1 RELATED WORK

Refer to ~ for ~

Include cross references only to other work sections where they include directly related work.

Refer to appropriate timber framing section for support framing.

Refer to 4851 EXTERIOR HANDRAILS AND TIMBER BALUSTRADES

Refer to 8422 TIMBER STRUCTURES, DECKS AND PERGOLAS (If using Masterspec Landscapes)

Refer to membrane roofing and waterproofing sections for membrane decks

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

SED	Specific Engineering Design
LOSP	Light Organic Solvent Preservative
RMC	Resin Mineral Composite
UDL	Uniform Distributed Load

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC D1/AS1	Access Routes
NZS 3602	Timber and wood based products for use in buildings
NZS 3604	Timber-framed buildings
AS/NZS 4586	Slip resistance classification of new pedestrian surface materials - Appendix A, B, C & D

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents.

The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

NZBC B2/AS1	Durability
NZBC F4/AS1	Safety from falling
AS/NZS 3661.1	Slip resistance of pedestrian surfaces - Requirements
NZS 4121	Design for access and use of buildings and facilities by disabled persons
BRANZ BU 495	Stair design
ICC-ES ESR-1573	Evaluation report

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:

Millboard® Architectural Guide
Millboard® Installation Guide
Millboard® Maintenance Guide
Millboard® Material Safety Data Sheets

List documents relating to this part of the work, i.e. technical product/system specifications, test reports, appraisals, certification, etc. Normally they will be referred to in the text by the abbreviated title.

Manufacturer/supplier contact details

Company: **Forte**
Web: www.forteflooring.co.nz
Email: info@forteflooring.co.nz
Telephone: 058 35 66 77

It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

25 years	For materials - residential applications
5 years	For materials - limited warranty, refer to Forte Flooring Ltd for details and conditions

- Provide this warranty on Forte standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

~ years to ~ years are the sort of warranty periods that can be expected depending on material selection and project conditions. Check with the manufacturer/supplier for their specific periods.

Modify or expand the clause to suit project or manufacturer/supplier requirements, options include:

- *Modify the form to be used*
- *Commence the warranty from the date of purchase (check with the manufacturer/supplier)*

- 1.6 **WARRANTY - INSTALLER/APPLICATOR**
 Provide an installer/applicator warranty:
 2 years For installation
- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
 - Commence the warranty from the date of practical completion of the contract works.
- Refer to the general section 1237 WARRANTIES for additional requirements.
Modify or expand the clause to suit project or installer/applicator requirements, options include:
- *Modify the form to be used*
 - *Commence the warranty from the date of installation (check with the installer/applicator)*
- Requirements**
- 1.7 **QUALIFICATIONS**
 Installers to be competent and familiar with the materials and techniques specified.
This clause includes generic text which should be expanded only if there are specific qualification requirements.
- 1.8 **NO SUBSTITUTIONS**
 Substitutions are not permitted to any of the Millboard® specified systems, components or associated products listed in this section.
- 1.9 **SAMPLES**
 Refer to the general section 1270 CONSTRUCTION for details of how samples will be reviewed.
 Provide the following Millboard® samples for review by the Contract Administrator.
 ~
The general section 1270 CONSTRUCTION describes how samples are to be addressed. Use this clause to describe specific requirements for the samples and prototypes.
- 1.10 **INFORMATION FOR OPERATION AND MAINTENANCE**
 Provide Millboard® Installation and Maintenance Guide document before Practical Completion of the contract for issuing to the building owner.
- Compliance information**
- 1.11 **INFORMATION REQUIRED FOR CODE COMPLIANCE**
 Provide the following compliance documentation: -
- Manufacturer's, importers or distributors warranty
 - Installer's / applicator's warranty
 - Producer Statement - Construction from the applicator / installer
 - Other information required by the BCA in the Building Consent Approval documents.
- List the Producer Statements - Construction (PS3) required from installers that are required as a condition of carrying out this work.*
List also Producer Statements - Construction Review (PS4) required from consultants to be engaged by the Contractor.
Producer Statement - Design (PS1), may be required where certain design work is undertaken by the Contractor or manufacturer / importer / distributor.
- Performance**
- 1.12 **SLIP RESISTANCE - SURFACES EXEMPT FROM TESTING**
 Slip resistance for walking surfaces comply with **NZBC D1/AS1**, Table 2.
Table 2 identifies walking surfaces that have acceptable slip resistance for level and sloping access routes (including stairs) under dry and wet conditions. Check project surface selections against table 2 to confirm acceptable solution relates to project requirements.
Where Table 2 requires testing of a surface selection, or if slip resistance requirements are outside the scope of table 2 (for example: wet areas primarily used barefoot or walking surfaces that may be contaminated by oils and similar slip-inducing materials), then retain the following clauses below as appropriate:
- *SLIP RESISTANCE - TESTED SURFACE - where test results have previously been obtained.*
 - *TEST - SURFACES REQUIRING SLIP RESISTANCE TESTING - where you require the contractor to organize the required tests.*
- Exceptions to slip resistant requirements*
Exceptions to slip resistant requirements for level access routes expected to become wet with water in normal use include:
- *Situations where safety matting is provided (refer D1/AS1 for details)*
 - *For housing the requirements applies only to the access route on the approach to the main entrance and not to other external surfaces or inside the house. The internal access routes of housing (including kitchens and bathrooms) shall be assumed to be dry in normal use.*
- 1.13 **SLIP RESISTANCE - TESTED SURFACE**
 Slip resistance for the following walking surfaces have previously been tested and comply with **NZBC D1/AS1** requirements for testing.
 ~
Expand clause to nominate surfaces, test results and test methods.
This clause allows for the identification of surfaces that have been tested by manufacturers/suppliers, or where test results have been obtained for the surface.
- 1.14 **TEST - SURFACES REQUIRING SLIP RESISTANCE TESTING**
 Test samples for slip resistance to comply with **NZBC D1/AS1**, 2.1, Slip resistance. Refer to SELECTIONS for surface to be tested, minimum test value required and test method. Provide test results to contract administrator, including a statement that the surface complies with nominated test requirements.
Use this clause when NZBC D1/AS1 requires the surface to be tested for slip resistance (as required by table 2, or if the surface is outside the scope of table 2), and you require the Contractor to organize the test. Consider who is capable of testing and adding a requirement for further samples to be tested. As testing facilities/capabilities are limited, this may need to be agreed with the BCA and Contractor in advance.
Expand this clause as required to suit project requirements.
- 2 PRODUCTS**
- Materials**
- 2.1 **MILLBOARD® DECKING**
 Millboard® decking comprised of a blend of natural minerals bonded in a polymer resin with long fibre reinforcement for added strength and durability. The top surface is a textured, resilient Lastane® layer which is hand tinted using pigments designed to resist fading and sun damage. Boards fixed to Plas-Pro recycled plastic sub-framing system or standard timber sub-framing. Other support systems include bearer / joists on pedestals for roof terraces, patios, boardwalk and jetty constructions. Boards fixed using the Durafix concealed screw fixing system. Available in a range of profiles, finishes and colour ranges.
 Refer to SELECTIONS for options.
Millboard® decking can be drilled, sawn, fastened and routed with normal wood working tools.

- 2.2 **MILLBOARD® EDGING AND FASCIA TRIMS**
 Millboard® edging and fascia trims comprised of a blend of natural minerals bonded in a polymer resin with long fibre reinforcement for added strength and durability. The top surface is a textured, resilient Lastane® layer which is hand tinted using pigments designed to resist fading and sun damage. Edging and fascias screw fixed to supporting joists to match decking. Supplied in standard sizes - edging (33mm x 50mm x 3200mm long, bullnose or square profile), flexible (33mm x 50mm x 2400mm long, bullnose profile only) and fascia (16mm x 146mm x 3200mm long). Available in a range of finishes and colour ranges to match or contrast with the decking.
 Refer to SELECTIONS for options.
Millboard® edging and fascia trims can be drilled, sawn, fastened and routed with normal wood working tools. Standard Millboard® edging and fascia trims can be bent to a maximum radius of 3m. Flexible edging and fascia trims can be bent to a maximum radius of 1.2m. Forte Flooring recommend that edging trims be fitted to all steps and perimeters of the deck.
- Components**
- 2.3 **PLAS-PRO RECYCLED PLASTIC SUB-FRAMING SYSTEM**
 Plas-Pro recycled plastic sub-framing system, comprised of 125mm x 50mm x 3000mm joists, 125mm x 50mm x 3000mm bearers, 50mm x 50mm x 2400mm roof terrace joist batten and 100mm x 100mm x 3000mm posts.
- 2.4 **TIMBER SUB-FRAMING SYSTEM**
 Refer to the appropriate timber framing section(s) for specification details.
- 2.5 **DURAFIX CONCEALED SCREW FIXING - DECKING**
 Durafix stainless steel trimhead screws, 4.5mm x 70mm or 4.5mm x 50mm. (screw fixing required only).
- 2.6 **HEXHEAD SCREW FIXING - SUB-FRAME**
 Heavy duty coated hex flange head screws, 6.3mm x 90mm.
Suitable for both Plas-Pro sub-frames and timber sub-frames.
- Accessories**
- 2.7 **ADJUSTABLE PEDESTALS**
 Millboard® adjustable self-levelling pedestals with maximum slope correction of 6°. Available in a range of heights from 40mm to 210mm with a 100mm extension collar for larger heights.
 Refer to SELECTIONS for options.
Suitable for use on podium decks and terraces.
- 2.8 **ADJUSTABLE JOIST CRADLE**
 Millboard® adjustable joist cradle with height adjustment from 10mm to 40mm.
 Refer to SELECTIONS for options.
Suitable for use on podium decks and terraces.
- 3 EXECUTION**
- Site Conditions**
- 3.1 **DELIVERY, STORAGE AND HANDLING**
 Take delivery of Millboard® decking materials, store flat and keep dry. Protect finished surfaces, edges and corners from damage.
 Store boards on a flat surface off the ground or on level bearers a maximum of 400mm apart stacked face-to-face.
 Reject and replace goods that are damaged in transit or will not provide the required finish.
 Note: Forte Flooring recommend due to variation of possible colour variation from batch to batch that the order should be made in one delivery, or alternatively allow to mix the batches to blend the colours. If the colour variation is found to be unacceptable, or the boards are defective in any way, advise the contractor administrator immediately before proceeding with the installation.
As the product will be exposed to ultra violet light and all weathers, colours will tone slightly over time. The general section 1270 CONSTRUCTION describes how deliveries are to be managed and the goods stored.
- 3.2 **PRE-INSTALLATION REQUIREMENTS - PLAS-PRO RECYCLED PLASTIC SUB-FRAMING**
 Check work previously carried out and confirm it is of the required standard for this part of the work.
 For decking laid on Plas-Pro framing joists, spacing to be at a maximum of 400mm centres for residential applications and 300mm centres for commercial and public space applications. Minimum clearance between boards and surface beneath the deck to be 100mm.
- 3.3 **PRE-INSTALLATION REQUIREMENTS - TIMBER SUB-FRAMING**
 Check work previously carried out and confirm it is of the required standard for this part of the work.
 For decking laid on timber framing joists, spacing to be at a maximum of 400mm centres for residential applications and 300mm centres for commercial and public space applications. Minimum clearance between boards and surface beneath the deck to be 100mm. Timber framing to comply with [NZS 3604](#) and [NZS 3602](#).
Check compatibility of Millboard® decking and components with required timber treatment of timber sub-frame.
- 3.4 **PRE-INSTALLATION REQUIREMENTS - GENERAL**
 For decking laid on DPC and concrete or waterproof membranes fixed over treated timber or steel battens, consult with Forte Flooring for installation requirements. Timber battens to comply with [NZS 3602](#).
 For decking laid on steel framing consult with Forte Flooring for installation requirements.
Check compatibility of Millboard® decking and components with required timber treatment of battens. Allowance for adequate airflow and drainage are matters to be addressed as part of the consultancy process with Forte Flooring.
- 3.5 **FINISHING REQUIREMENTS**
 Check work previously carried out and confirm it is of the required standard for specified finish. Carry out such additional preparatory work as required to bring the substrate to suitable condition.
Check compatibility of Millboard® decking and components with required timber treatment of timber sub-frame.
- 3.6 **EXPANSION AND CONTRACTION**
 Allow for longitudinal expansion and contraction of the boards at the time of laying. This can be achieved by ensuring that the boards are measured and cut during similar weather conditions, preferably at cooler ambient temperatures. Refer to Forte Flooring for particular requirements.
- Installation - general**
- 3.7 **STANDARDS AND TOLERANCES**
 Refer to the general section 1270 CONSTRUCTION for general requirements.
Amend this clause to describe specific standards and tolerances to be achieved in carrying out this part of the work. Although such tolerances are typically included in Standards (NZS, AS/NZS etc) in certain circumstances it is worth restating these in this clause.
- 3.8 **LAYING OUT MILLBOARD® BOARDS**
 Lay all boards in the same direction as the grain to ensure consistency of appearance across the deck.
- 3.9 **INSTALL TIMBER BATTENS - CONCRETE SUBSTRATE**
 Loose lay the battens on DPC or waterproof membrane at maximum 400mm centres along the direction of the fall, to Millboard® requirements. Timber battens to comply with [NZS 3602](#). LOSP treated timber battens not to be used with membrane systems.
Ensure that the batten system is compatible with the proposed membrane system. Refer to Forte Flooring for ventilation below decking and installation requirements.
- 3.10 **SLIP RESISTANCE REQUIREMENTS**
 Install Millboard® where NZBC Acceptable Solution D1/AS1 Clause 2 Level Access Routes is applicable.

Installation

- 3.11 INSTALL MILLBOARD® DECKING - RESIDENTIAL, WITH PLAS-PRO SUB-FRAMING
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Space joists at 400mm centres (1.5KN/m² UDL maximum working span), provide a 4mm gap between boards and a 2mm gap at butt ends (to facilitate drainage). If required a maximum 50mm overhang can be achieved, cut boards must be supported by a minimum of 3 joists. Fix with 2 Durafix screws where a board crosses a joist and 3 screws at the ends of a board. Drill fixing holes on Plas-Pro material with an oversize drill to allow the material to expand. Leave a 10mm expansion gap between ends of bearers and joists.
 - Install posts into the ground by at least 1/3rd of the total above ground (depending on ground conditions) and a minimum into ground of 400mm.
 - 125mm x 50mm joists and bearers to span no more than 1500mm.
 - For laying 45° to the joist, reduce the joist centres to 300mm.
- Millboard™ decking can be drilled, sawn, fastened and routed with normal wood working tools.*
- 3.12 INSTALL MILLBOARD® DECKING - COMMERCIAL / PUBLIC SPACE, WITH PLAS-PRO SUB-FRAMING
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Space joists at 300mm centres (4KN/m² UDL maximum working span), provide a 4mm gap between boards and a 2mm gap at butt ends (to facilitate drainage). If required a maximum 50mm overhang can be achieved, cut boards must be supported by a minimum of 3 joists. Fix with 2 Durafix screws where a board crosses a joist and 3 screws at the ends of a board. Drill fixing holes on Plas-Pro material with an oversize drill to allow the material to expand. Leave a 10mm expansion gap between ends of bearers and joists.
 - Install posts into the ground by at least 1/3rd of the total above ground (depending on ground conditions) and a minimum into ground of 400mm.
 - 125mm x 50mm joists and bearers to span no more than 1500mm.
 - For laying 45° to the joist, reduce the joist centres to 240mm.
- Millboard™ decking can be drilled, sawn, fastened and routed with normal wood working tools.*
- 3.13 INSTALL MILLBOARD® DECKING - RESIDENTIAL, WITH TIMBER SUB-FRAMING
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Space joists at 400mm centres (0.75Kn UDL max working span) and provide a 4mm gap between boards (to facilitate drainage) and a 2mm gap at the ends. If required a maximum 50mm overhang can be achieved provided the boards are supported by a minimum of 3 joists. Drill fixing holes oversize to allow the material to expand. Leave a 10mm expansion gap between ends of bearers and joists.
 - Install posts into the ground by at least 1/3rd of the total above ground (depending on ground conditions) and a minimum into ground of 400mm.
 - For laying 45° to the joist, reduce the joist centres to 300mm.
- Millboard™ decking can be drilled, sawn, fastened and routed with normal wood working tools.*
- 3.14 INSTALL MILLBOARD® DECKING - COMMERCIAL / PUBLIC SPACE, WITH TIMBER SUB-FRAMING
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Space joists at 300mm centres (4KN/m² UDL max working span), provide a 4mm gap between boards and a 2mm gap at butt ends (to facilitate drainage). If required a maximum 50mm overhang can be achieved, cut boards must be supported by a minimum of 3 joists. Fix with 2 Durafix screws where a board crosses a joist and 3 screws at the ends of a board. Drill fixing holes on Plas-Pro material with an oversize drill to allow the material to expand. Leave a 10mm expansion gap between ends of bearers and joists.
 - Install posts into the ground by at least 1/3rd of the total above ground (depending on ground conditions) and a minimum into ground of 400mm.
 - For laying 45° to the joist, reduce the joist centres to 240mm.
- Millboard™ decking can be drilled, sawn, fastened and routed with normal wood working tools.*
- 3.15 INSTALL MILLBOARD® DECKING - FASTENING TO SUB-FRAMING
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Screw Millboard® Durafix stainless steel fixings, starting the driver slowly, then speeding up and slowing down again when driving through the Lastane® coating. Stop the screw approximately 5mm below the surface.
 - Provide 2 fixings per board where the board crosses a joist, and 3 at the end of the board on shorter lengths, at a slight angle to prevent being too close to the end of the board, positioned 20-25mm from the ends and 30mm from the sides. Support ends by a minimum of 20mm.
 - Fit boards with a 4mm spacing and a 2mm gap at the ends of the boards. Position cuts over the joist.
 - Boards may have a ± 1.7% dimensional variance on the width, accordingly, fix the boards at one end, then provide a fixing in the middle adjusting spacing as necessary, followed by the far end. Then fix to the remaining joists. A string-line is recommended for fitting the first line of boards and every 4th-5th line of boards.
- 3.16 INSTALL MILLBOARD® DECKING WITH PLAS-PRO SUB-FRAME - ROOF TERRACE
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Install Millboard® decking on a ballasted roof membrane incorporating 50mm x 50mm Plas-Pro baton joists and 10-40mm adjustable joist cradles.
- Suitable for use on podium decks and podiums.*
- 3.17 INSTALL MILLBOARD® DECKING WITH MIXED / PATIO SUPPORT SYSTEMS
Install Millboard® decking in accordance with Millboard® Installation Guide and as follows:
- Install Millboard® decking on a mixed support system comprised of 50mm x 50mm x 2400mm roof terrace joist battens, a combination of adjustable joist cradles (with minimum 10mm and maximum 40mm height adjustment) and adjustable height pedestals to the height required, supported on a sub-frame.
 - Install Millboard® decking on 50mm x 50mm x 2400mm roof terrace joist battens, on adjustable height pedestals to the height required, supported on a sub-frame.
- 3.18 INSTALL MILLBOARD® EDGING AND FASCIA TRIMS - STANDARD DECK DESIGN
Install Millboard® edging and fascia trims in accordance with Millboard® Installation Guide and as follows:
- Ensure edging is supported along its full length on a joist by a minimum of 25mm. Trim the ends to butt tightly when fitting both edging and fascias, mitres can be cut and glued with PU wood glue. Stagger the joints so that they are not in line for better visual effect. Provide a 2mm gap between the rear of the edging and the first board. The maximum radius achievable is 3m.

- 3.19 INSTALL MILLBOARD® EDGING AND FASCIA TRIMS - CURVED DECK DESIGN
Install Millboard® Ultra flexible edging and fascia trims in accordance with Millboard® Installation Guide and as follows:
- Ensure edging is supported along its full length on a joist by a minimum of 25mm. Trim the ends to butt tightly when fitting both edging and fascias, mitres can be cut and glued with PU wood glue. Stagger the joints so that they are not in line for better visual effect. Provide a 2mm gap between the rear of the edging and the first board.
 - Fix Ultra flexible edging at 300mm centres while easing the profile around the bend. Edging must be at room temperature (approximately 20°C), then bent gently. Fix edging and fascia trims to sub-frame with PU glue and Durafix fixings. The maximum radius achievable is 1.2m.

Installation - steps

- 3.20 CONSTRUCT MILLBOARD® STEPS
Construct steps and landings as shown on the drawings, to comply with **NZBC D1/AS1 4.0 Stairways**, clause 3.9, and in accordance with Millboard® Installation Guide.

Completion

- 3.21 ROUTINE CLEANING
Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

During installation remove marks by washing with hot soapy water and a firm broom immediately. To remove any cement and lime-based stains use Geocel Brick & Mortar Cleaner. Test a small area first and follow the mixing instructions, leaving for 5 minutes before washing off with soapy water.

Use this standard generic clause and add additional specific requirements.

ESD note: Re-cycling is addressed in the general section 1256 WASTE MANAGEMENT; amend this clause if it is to apply to this section.

- 3.22 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

Use this standard generic clause and add additional specific requirements.

- 3.23 PROTECTION
Provide the following temporary protection of the finished work:
Cover boards with hardboard or similar to avoid damage by other trades.
Amend this clause if protection is required from, weather, water, dust, etc. Refer to the general section 1270 CONSTRUCTION for removal as part of final clean.
If special protection is required or protection is to be supplied by others, make reference in this clause to the general section 1250 TEMPORARY WORKS & SERVICES clause SPECIAL PROTECTION.

4 SELECTIONS

For further details on selections go to www.forteflooring.co.nz.

Substitutions are not permitted to the following, unless stated otherwise.

If substitutions are permitted modify the statement above, ensure the NO SUBSTITUTIONS clause from GENERAL does not conflict.

Select the options to suit the project and delete options not specified.

Test

4.1 TEST FOR MINIMUM SLIP RESISTANCE REQUIREMENTS

Testkey	Access route	Location/surface to be tested.	Minimum test value required
LW	Level access wet	~	39 SRV
SW	Sloping access wet	~	~ BPN
WRN	Stairs wet - with slip resistant nosings	~	39 SRV
WWN	Stairs wet - without slip resistant nosings	~	50 BPN
BF	Wet areas primarily used barefoot	~	"B" Classification
CWS	Contaminated walking surfaces	~	R~
LD	Level access dry	~	0.4 COF
SD	Sloping access dry	~	~ COF
DRN	Stairs dry - with slip resistance nosings	~	0.4 COF
DWN	Stairs dry - without slip resistance nosings	~	0.525 COF

Number of samples required: ~

Type of sample required: ~

Consider type of sample - test in place or test a separate sample.

Test Key - identifying required test method

LW	SRV classification of not less than 39 from the wet pendulum test method of AS 4586, Appendix A using the Slider 96 rubber.
SW	Obtain BPN from the wet pendulum test method of AS 4586, Appendix A
WRN	SRV classification of not less than 39 from the wet pendulum test method of AS 4586, Appendix A using the Slider 96 rubber.
WWN	Obtain BPN from the wet pendulum test method of AS 4586, Appendix A
BF	Obtain classification from the ramp method of AS 4586, Appendix C
CWS	Obtain classification from the oil-wet inclining platform test method of AS 4586, Appendix D
LD	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
SD	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
DRN	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B
DWN	Obtain slip resistance value from the dry floor friction test method of AS 4586, Appendix B

(SW) Sloping access wet - minimum test values required

Refers to sloping access routes expected to become wet with water in normal use.

Based on a SRV (slip resistance value) of 39 BPN and a SDV (slope design value) obtained from AS 4586,

Appendix F, Table F1

Minimum test value required (SDV)	Approximate maximum gradient	Gradient (rounded up to 2 decimal places)	Slope in degrees
42 BPN	1 in 39	1 in 38.19	1.5°
43 BPN	1 in 29	1 in 28.64	2.0°
44 BPN	1 in 23	1 in 22.91	2.5°
45 BPN	1 in 20	1 in 19.09	3.0°
45 BPN	1 in 17	1 in 16.35	3.5°
46 BPN	1 in 15	1 in 14.30	4.0°
47 BPN	1 in 13	1 in 12.71	4.5°
48 BPN	1 in 12	1 in 11.43	5.0°
49 BPN	1 in 11	1 in 10.39	5.5°
50 BPN	1 in 10	1 in 9.52 (refer note)	6.0° (refer note)

Note: slopes wet with water with a gradient greater than 1 in 10 are excluded from the acceptable solution D1 /AS1.

(SD) Sloping access dry - minimum test values required

Refers to sloping access routes expected to remain dry under normal use.

Based on a 0.40 COF (coefficient of friction) value given for Level Access routes expected to remain dry under normal use, to obtain a slope corrected mean coefficient of friction value from AS 4586, Appendix F (calculation method). Selecting from Table F2 provides a range of COF values for the specified slope (in degrees).

Minimum test value required (COF)	Approximate maximum gradient	gradient (rounded up to 2 decimal places)	Slope in degrees
0.433	1 in 39	1 in 38.19	1.5°
0.444	1 in 29	1 in 28.64	2.0°
0.455	1 in 23	1 in 22.91	2.5°
0.466	1 in 20	1 in 19.09	3.0°
0.477	1 in 17	1 in 16.35	3.5°
0.488	1 in 15	1 in 14.30	4.0°
0.499	1 in 13	1 in 12.71	4.5°
0.504	1 in 12	1 in 12	4.76°
0.521	1 in 11	1 in 10.39	5.5°
0.525	1 in 10	1 in 10	5.7°
0.543	1 in 9	1 in 8.78	6.5°
0.557	1 in 8	1 in 8	7.125°

Note: slopes expected to remain dry under normal use with a gradient greater than 1 in 8 are excluded from the acceptable solution D1 /AS1.

Access route - explanation

LW - Level access wet

- Refers to level access routes expected to become wet with water in normal use.
- Level surfaces include surfaces with slopes no steeper than 1:50.
- An SRV classification of 39 is the minimum value required.
- A slip resistance value of 0.4 when tested under AS/NZS 3661.1 may be assumed as equivalent to a SRV of 39.
- Imported materials are often tested by a ramp test equivalent to Appendix D of AS 4586. While this is an oil wet test using an industrial work shoe, an R11 result will often be equivalent to an SRV of 39 for water wet conditions. Additionally, the ramp test is suitable for heavily profiled surfaces for which AS 4586 Appendix A is not applicable.

SW - Sloping access wet

- Refers to sloping access routes expected to become wet with water in normal use.
- Sloping surfaces include slopes greater than 1:50 but less than 1:10 for wet conditions.
- An SDV (slope design value) is the mean BPN (British Pendulum Number) required on a slope of a known maximum gradient.

WRN - Stairs wet - with slip resistant nosings

- Refers to stairs with slip resistant nosings (at least 50 mm wide) expected to become wet with water in normal use.
- The acceptability criteria is based on the requirements for Level access wet (LW).
- WWN - Stairs wet - without slip resistant nosings

WWN - Stairs wet - without slip resistant nosings

- Refers to stairs without nosings expected to become wet with water in normal use.
- The acceptability criteria is based on a slope of 1:10. The 50 BPN value indicated in the "Minimum test value required" column is derived from a SRV (slip resistance value) of BPN 39 (minimum required for level access routes expected to become wet with water) for a slope of 1:10 and should be considered as a minimum value.

BF - Wet areas primarily used barefoot

Refers to areas that are primarily used barefoot, such as around swimming pools and adjacent to communal showers.

CWS - Contaminated walking surfaces

- Refers to walking surfaces that may be contaminated by oils and similar slip-inducing materials in use, typically industrial and commercial situations.
- D1/AS1 comments indicate that table 3B of SA HB 198 lists suggested R-values for a range of commercial situations, table 3B indicates an R12 value for commercial kitchens and loading docks under cover.

LD - Level access dry

- Refers to Level Access routes expected to remain dry under normal use.
- Level surfaces include surfaces with slopes no steeper than 1:50.

SD - Sloping access dry

- Refers to sloping access routes expected to remain dry under normal use.
- Sloping surfaces include slopes greater than 1:50 but less than 1:8 for dry conditions

DRN - Stairs dry - with slip resistance nosings

- Refers to stairs with slip resistant nosings (at least 50 mm wide) expected to remain dry in normal use.
- The acceptability criteria is based on the requirements for Level access dry (LD).

DWN - Stairs dry - without slip resistance nosings

- Refers to stairs without nosings expected to remain dry in normal use.
- The acceptability criteria is based on a slope of 1:10. The coefficient of friction value indicated in the "Minimum test value required" column is derived from AS 4586 Appendix F for a 1:10 slope, using a 0.40 COF (coefficient of friction) value, which is the minimum value given in D1/AS1 for level access routes expected to remain dry under normal use.

Materials

4.2 FORTE MILLBOARD® DECKING

Location: ~
 Manufacturer: The Millboard Company Ltd
 Supplier: Forte Flooring Ltd
 Range: ~
 Colour/code: ~
 Board size: 32mm thick x ~mm wide x ~mm long
 Application: ~
 Sub-framing: ~

Options:

Range	Colour / code	Board size (width x length) mm
Millboard Enhanced Grain	Golden Oak MDE176G	176 x 3600
	Smoked Oak MDE176D	176 x 3600
	Coppered Oak MDE176C	176 x 3600
	Jarrah MDE176	176 x 3600
	Limed Oak MDE176L	176 x 3600
	Charred MDE176E	176 x 3600
	Coppered Oak MDL200C	200 x 3600
Millboard Lasta-Grip®	Golden Oak MDL200G	200 x 3600
	Driftwood MDW320D	200 x 3200
Millboard Weathered Oak	Vintage Oak MDW320V	200 x 3200
	Embered MDW320E	200 x 3200

Application: Residential, commercial or public space

Sub-framing: Plas-Pro recycled plastic sub-framing system or timber sub-framing

4.3 FORTE MILLBOARD® EDGING AND FASCIA TRIMS

Location: ~
 Manufacturer: The Millboard Company Ltd
 Supplier: Forte Flooring Ltd
 Range: ~
 Edging type: ~
 Edging colour: ~
 Edging size: 50mm x 33mm x 3200mm (Standard), 50mm x 33mm x 2400mm (Flexible)
 Edging profile: ~
 Fascia type: Standard
 Fascia colour: ~
 Fascia size: 146mm x 16mm x 3200mm
 Application: ~
 Sub-framing: ~

Options:

Edging:	
Range	Colour
	Golden Oak
	Smoked Oak/Driftwood
	Coppered Oak
	Jarrah
	Limed Oak
	Charred/Embered
	Vintage Oak

Edging type: Standard or Flexible
Edging profile: Bullnose or square
Application: Residential, commercial or public space
Sub-framing: Plas-Pro recycled plastic sub-framing system or timber sub-framing

Fascia:	
Range	Colour
	Golden Oak
	Smoked Oak/Driftwood
	Coppered Oak
	Jarrah
	Limed Oak
	Charred/Embered
	Vintage Oak

Application: Residential, commercial or public space
Sub-framing: Plas-Pro recycled plastic sub-framing system or timber sub-framing

4.4 FORTE MILLBOARD® PLAS-PRO RECYCLED PLASTIC SUB-FRAMING

Location: ~
 Manufacturer: The Millboard Company Ltd
 Supplier: Forte Flooring Ltd
 Brand/type: Plas-Pro recycled plastic sub-framing
 Application: ~

Options:
Application: Residential, commercial or public space.

Accessories

4.5 FORTE MILLBOARD® ADJUSTABLE PEDESTALS

Location: ~
 Manufacturer: The Millboard Company Ltd
 Supplier: Forte Flooring Ltd
 Brand/type: Millboard® adjustable self-levelling pedestals
 Pedestal height: ~

Option:
Pedestal height 40-56mm, 50-70mm, 70-110mm, 110-160mm, 150-210mm, 100mm extension collar

4.6 FORTE MILLBOARD® ADJUSTABLE JOIST CRADLES

Location: ~
 Manufacturer: The Millboard Company Ltd
 Supplier: Forte Flooring Ltd
 Brand/type: Millboard® adjustable joist cradles
 Cradle height: ~

Option:
Cradle height 10mm to 40mm