

Silca
SYSTEM

PRODUCT INFORMATION SHEET



**STRUCTURAL SUPPORT GRATING
FOR ELEVATED
DECKS AND PATIOS**

PRODUCT INFORMATION SHEET

Silca System interlocking, structural deck grates are specifically designed for the support of heavy finished surface materials over elevated deck structure.

Manufactured in New Zealand from 100% recycled materials, our grates offer a robust, durable solution for installing tiles or pavers at any elevation.

Silca Grates connect together and are securely fastened directly to timber or aluminium deck joists, or on adjustable pedestal over membrane. This provides a solid, flat, permeable surface to install various paving materials such as tiles, natural stone, heavy pavers, artificial turf or porcelain tile.

Silca System enables a free draining finished surface and air circulation beneath, preventing moisture buildup in the substructure and ensuring the longevity of the decking element. Suitable for standard above-ground decks or over membrane roof and balconies.

Compliance to B1/VM1 and B2 of AS/NZS1170.1. and E2/AS1 Permeable surface - level entry through threshold. Silca System is an environment-friendly patio solution for both residential and commercial applications.





Elevated or Raised Decks **GAME CHANGER**

Transform sloping sites or upper-level living areas into robust, functional outdoor spaces with the Silca System. Ideal where ground-level slabs or traditional decking methods are impractical, Silca provides a structurally compliant, architectural solution for tiles, pavers, or stone finishes, delivering a durable, modern alternative.



Pool Decks **FREE DRAINING + NON-SLIP**





Ideal for both in-ground and above-ground pools, the Silca System enables construction of durable, free-draining pool surrounds that perform under constant exposure to moisture and heavy foot traffic. Create resort-style, low-maintenance patios finished in natural stone or porcelain tiles, delivering long-term durability, slip resistance, and architectural appeal to improve the value of your project.



Balconies **OVER MEMBRANE**

Transform apartment terraces, or membrane roof areas into functional and durable outdoor spaces with the Silca System. Designed for both residential and commercial applications, Silca provides a compliant, mechanically fixed structural base with proven structural and wind uplift performance, enabling level entry through threshold and a secure surface finish. Silca System can be installed directly on Buzon adjustable pedestals or proprietary aluminium framework. A superior patio system that enhances space function while maintaining drainage, ventilation, and long-term structural integrity compliant to AS/NZS1170.1 and E2/AS1 standards.



Product	Description and features	Product Code
	<p>Silca Grates The key element to the Patented Silca System is the Grate. This is the 400x450x38mm structural component that screws direct to the timber or aluminium deck frame and provides the solid flat surface on which to lay almost any kind of paving. (5.5 per sqm)</p> <p>Features:</p> <ul style="list-style-type: none"> a) strengthening ribs and hex cells to spread and transfer load across the decking element and down onto the joist. b) pre-formed countersunk holes designed to guide the screws into the joist at the correct position. c) a second row of fixing so grates can be uniformly trimmed to slot in between joists should more height clearance be required. d) free draining design for minimum moisture retention and maximum airflow. e) micro flex to absorb any movement within the decking element and reduce risk of any tile or grout disturbance f) UV stable g) manufactured from 100% recycled materials. Green Building Product 	6255BL0162A
	<p>Silca Connectors Lock Connectors specifically designed for use with the Grates. (3.3 per grate)</p> <p>These interlock each Silca Grate to the next on all four sides. X2 Connectors per side and greatly increase rigidity and consistency across the system, resulting in an incredibly strong, continuous decking element.</p> <p>They also provide some added spot adhesion points for during tile install.</p> <p>We specify using Lock Connectors when Grates are installed over any floating frame, typically over membrane. For over solid timber deck frame they are not 100% required, however still greatly increase strength, stability and rigidity to the decking element.</p>	6461BL0000
	<p>Screw Fixings Timber Stainless Steel screws for fixing the grates to the timber joists of the deck substructure. (x6 Screws per Grate)</p> <p>These are designed to seat perfectly into the predesignated, countersunk holes at the edges of the Silca Grates. Coarse wood tread and long shank for optimum efficiency and hold.</p>	DCS30410G75-1000 DCS30410G75-500
	<p>Screw Fixings Aluminium Stainless Steel self-drilling WingTek screws for fixing the grates to the aluminium joists. (x6 Screws per Grate)</p> <p>Designed to seat perfectly into the predesignated, countersunk holes at the edges of the Silca Grates. No pre-drilling required.</p>	SSDCKG10060QW
	<p>Tile Adhesive For spot glue adhesion of tiles and pavers direct to the Silca Grates. (x1 600ml sausage per 2 sqm)</p> <p>SabreBond SMP45 is a high grade multipurpose adhesive that boasts extremely high flexibility for demanding applications. It is suited for both industrial bonding and sealing applications, and specialised construction sealing. It has a wide adhesion range to most construction materials, including most metals, timber and most plastics.</p>	1300161



ADVANTAGES WHEN SPECIFYING SILCA SYSTEM

Versatile Applications: Ideal for decks, patios, stairs, ramps, paths, bridges, docks, pool areas, and various residential and commercial projects.

Permeable Surface: Level entry through threshold and permeable site coverage can be achieved, allowing rainwater to drain through the structure and replenish the earth below, without the need for channel drains, or runoff catchment.

Innovative Construction Product: A revolutionary and unique system supporting any type of paving on timber or aluminum deck joists. Compliant with AS/NZS1170.1.

Environmentally Friendly: Made from 100% recycled plastics, offering a sustainable and environment conscious alternative to hardwood decking

New Zealand Made: A trusted product originally established in the USA and Canada, now manufactured locally in New Zealand for over 12 years.

Maintenance-Free: Provides a durable, raised patio without the ongoing maintenance required by wooden decking.

All-Weather Durability: Maintains strength in extreme climates, from the Southern Alps' snow and ice to North Queensland's tropical heat and moisture.

Reduced Fire Risk: With non-combustible pavers, it prevents hot ash or embers from igniting the deck. A fire-retardant Silca Grate rated V-0 is available upon request.

Cost-Effective: More economical than hardwood decking options, and significantly cheaper than elevated concrete slabs. Substantial savings on installation labour.

Easy Installation: Quick to install, making it accessible for builders, contractors, and DIYers, reducing labour costs.

Creative Design Flexibility: Supports various tile layout and pattern designs with various fascia options, allowing for unique outdoor spaces that enhance property value.

Superior Load-Bearing Capacity: Silca Grate's design is specifically engineered to support heavy loads, preventing paver cracking or failure under heavy foot traffic or furniture.

Effective Load Distribution: Distributes load evenly across the joists and structure, providing robust support and a super solid feel underfoot.

Adaptable Cutting: Easily cut around site constraints without compromising structural integrity, ensuring continuous support for cut tiles.

Enhanced Ventilation: Minimal surface contact between Silca Grate and joists maximizes air circulation through the decking element, aiding in ventilation and drying of the sub-structure.

Structural: Acts as a structural component, reducing the need for nogging and supporting heavy surface laminates.

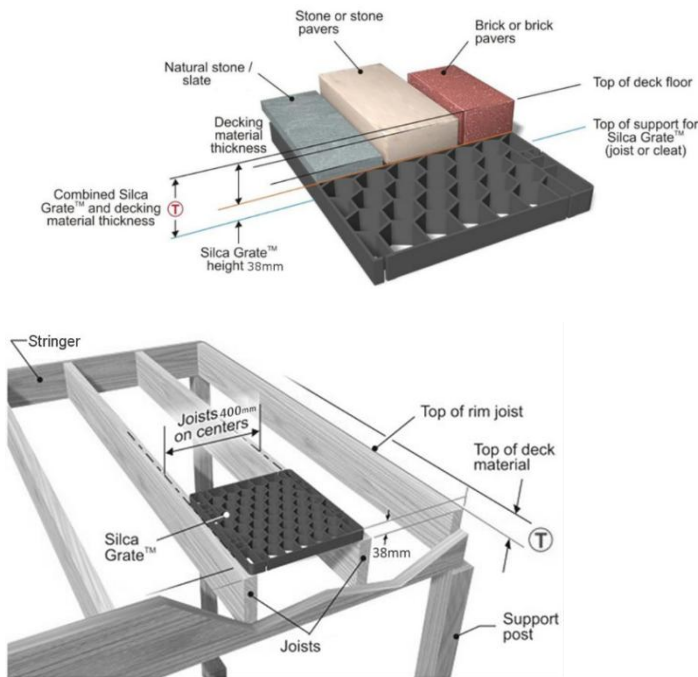
Flexible Paving Options: Allows for various paving patterns and joint designs, including full grout joints, drainage gaps, and French Laid patterns.

Solid, Flat Surface: Provides a stable base for nearly any type of paving, ensuring a smooth and reliable surface with a firm feel underfoot.



SILCA GRATES – SPECIFICATIONS

Dimension	400 x 450 x 38mm
Material	PCABS - Recycled Polycarbonate ABS with UV Stabiliser
Coverage	0.180m ² (5.5 Units per m ²)
Weight per grate	1.814 kg
Floor loading with timber joist (refer to Design Statement and span tables)	(2kPa, 1.8kN) and (4kPa, 4.5kN)
Compliance	Clause B1/VM1 and B2 of NZS AS 1720.1:2022, and E2/AS1
Load deflection test (per grate)	5 ton + per unit (spanned)
Load compression test (per grate)	68 ton (with a 400mm ² paver)



Install Silca System over typical timber joist deck structure or on adjustable pedestal over membrane.

ONLINE RESOURCES AVAILABLE FOR DOWNLOAD

<https://silcasystem.co.nz/resources/>

- Technical Specification Sheet (TDS)
- Design Statement - Compliance to B1/VM1 and B2 - Joist Span / Paver Thickness - kPa / kn Loading Tables
- Silca on pedestal information sheet
- Silca on Pedestal Technical Information Sheet (TDS)
- Install Guide - Typical Timber Deck Frame
- Install Guide - Aluminium Frame
- Architectural Details Suite
- E2/AS1 Extract - Permeability and Level Entry
- Terms and Conditions of Sale
- Further product documentation and load testing data
- Gallery and project inspiration
- FAQs and Contact info



PACKING

Grates per pallet	(SP1) = 162
Pallet dimension	1 x 1.2 x 1.18H m
Coverage per pallet load	(SP1) = 29.45m ²
Weight per pallet load (incl. Pallet)	(SP1) = 311.868 kg
Grates per fcl (sp1) (standard 20')	3,564
Pallets per fcl (sp1)	22
Coverage per container	648 m ²



INSTALLATION STEPS

TYPICAL SILCA SYSTEM DECK (timber frame)



Deck Construction

Refer to Silca System design guides and details. We recommend KD (Kiln Dried) exterior use H3.2 treated timber. Deck structure must comply with local building code and if required may need to be engineered and consented site specifically depending on height and ground conditions etc. Build your deck substructure with joists spaced at 400mm centres. With a straightedge and electric plane, ensure deck joist a flat.



Install Silca System

Position Silca Grates centered on joists, butted tightly, and the spanning ribs running joist to joist. Insert the Silca I-Lock Connectors into the designated slots. Fix each grate with six 10g x 75 mm countersunk screws, ensuring heads sit below flush. Install Silca Grates across the full deck area, including steps and stairs, trimming as needed. Extra screwing options are available using the strength bands.



Tile/Paver Installation

Depending on your paver choice and application there are several laying solutions for you to choose from. Almost any tile or layout can be achieved.

Option 1 - Glue Fix (permeable)

Option 2 - Sand or Grout

Option 3 - Dry Lay



Enjoy

Maintenance free tile patio at any height.

For a more detailed breakdown of the design and installation process, or for inspiration projects, check out our resources and website.



NOTE - PLAN - SKETCH



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