Silca System Grate

Product Technical Statement: 114086

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Silca System interlocking structural grating, engineered for the support of tiles and pavers.
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Level of assurance needed to demonstrate NZ Building Code Compliance

LOW

Supporting documentation should include self-assessment and technical information by manufacturer

Silca System confirms that this minimum level of assurance has been met or exceeded by the following:

BPIR

The following information has been provided by Silca System demonstrating how this product complies with the Building Product Information Requirements.

Technical Statement

Product Class

CLASS 1

Product Description

Silca Grates are interlocking structural support grates designed to support tiles, natural stone and pavers over elevated deck structures and above-membrane installations.

Manufactured in New Zealand from 100% recycled PCABS (recycled Polycarbonate ABS) with UV stabiliser, each grate measures 400 × 450 × 38 mm. (5.5 per m2)

Silca Grates interlock using purpose-designed Silca Lock Connectors, forming a continuous, rigid and permeable support surface beneath the finished paving. The interconnected grates distribute applied loads across the supporting substructure and provide an open-cell construction for drainage and ventilation beneath the finished surface.

The modular grate system can be mechanically fixed to timber joists or incorporated into aluminium framing and adjustable pedestal assemblies. Individual grates can be cut on site to accommodate perimeter details and structural obstructions.

Silca Grates form the principal structural support component of Silca System, with associated connectors, mechanical fixings and installation components.

Scope of use

Silca Grates are intended for external elevated architectural paving applications, including above-ground decks, balconies, terraces, roof decks, pool surrounds and external public spaces.

The system supports the installation of natural stone, porcelain tiles, concrete pavers and artificial turf over suitable supporting structures.

Applications include: Timber joist construction, with grates mechanically fixed to the supporting joists. Aluminium joist construction using EconoSpan, SuperSpan or SuperSpan Plus framing. Above-membrane and slab installations using Buzon adjustable pedestals, either supporting Silca Grates directly or integrated with aluminium framing. Hybrid structural assemblies combining the above support methodologies.

The open-cell grate construction allows water to drain through the finished surface and provides airflow beneath the paving.

Structural design, joist spacing, spans, loading and fixing requirements must be assessed against the supporting substructure and project-specific conditions. Refer to the current Silca System Design Statement, technical data sheets, span and loading tables, and installation details.

Silca System is designed in accordance with the relevant provisions of the New Zealand Building Code, including B1/VM1 (Structure), B2/AS1 (Durability) and E2/AS1 (External Moisture).Silca System design tables establish joist spans and loading capacities in accordance with NZS 3604.

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B1 Structure:** Performance B1.3.1, B1.3.2
  Structural Design Statement
- **Clause B2 Durability:** Performance B2.3.1, B2.3.1(a), B2.3.2, B2.3.2(a), B2.3.2(b)

Company Contact Details

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Durability Statement
Combined with material data sheet available upon request.
Material: Recycled PC/ABS KB00-BK with UV Stabiliser

- **Clause E2 External moisture:** Performance E2.3.3
  E2/AS1 Extract

Notes
New Zealand Building Code: B1 (Structure) – B1/VM1 | B2 (Durability) – B2/AS1 | E2 (External Moisture) – E2/AS1 | Structural Design Actions – AS/NZS 1170.1 | Timber Joist Span and Loading Tables – NZS 3604.

Evidence
The product meets the requirements set out in the following documents, or relevant parts of cited standards within the documents:

Design-statement

E2/AS1 Extract

Supporting Material Data Sheet

Supporting Evidence
The product has and can make available the following additional evidence to support the above statements:

Use in Service History
Silca System has a proven track record in architectural paving applications, with product development dating back to 2003 and supply to the New Zealand market since 2013.

Over 23 years of technical product development, the system has established a history of use across residential and commercial projects, including elevated decks, balconies, terraces, roof decks and pool surrounds.

With more than 20,000 m² supplied across New Zealand and Australia, Silca System the original, established and industry-trusted tile support system.

Product Criteria

Design requirements
Silca System is designed for external architectural paving applications including elevated decks, balconies, terraces, roof decks and pool surrounds. It supports porcelain tiles, natural stone, concrete pavers and artificial turf, subject to system configuration and design requirements.

Configurations include timber joist, aluminium framing and direct pedestal support. Timber joist spans and loading are covered by Silca design tables developed in accordance with NZS 3604. Structural design actions reference AS/NZS 1170.1. Joist spacings at 400mm centres.

A 5 mm gap around tiles or pavers supports surface permeability and level-entry applications as detailed in the E2/AS1 extract. However certain site conditions allow for a 3-4mm gap typically.

Resources: Product Guide | Design Statement & Design Tables | E2/AS1 Extract | Pedestal Information | Aluminium Frame Information. | Combined Arch Details

Installation requirements
Install over a structurally designed and suitably prepared supporting structure. Timber joists must be straight, level and correctly spaced at 400mm centres in accordance with the applicable design tables. Confirm finished floor levels, paving thickness, threshold details and drainage requirements before installation.

Silca Grates are interconnected using Silca Lock Connectors and mechanically fixed to the supporting joists. Tiles and pavers may be 1. adhesively fixed using SabreBond SMP45, 2. installed with a geotextile layer and grout or polymeric sand, or 3. dry-laid where suitable for the paver and structural design.

Installation must follow the relevant system guide and project-specific structural requirements. Work should be undertaken by competent industry professionals familiar with structural decking systems.

Resources: Timber Joist Installation Guide | Aluminium Frame Installation Guide |

Maintenance requirements
During construction, protect installed grates and components from damage, contamination and exposure to undiluted acids or solvents. Ensure adhesive is fully cured before loading or using the finished surface.Following installation, keep paving gaps and drainage paths clear of debris to maintain water passage through the finished surface. Periodically inspect the paving, joints, connectors and accessible supporting components, and address any movement, damage or obstruction.Maintenance requirements will depend on the selected paving material, installation method and site conditions. Refer to the relevant product documentation and obtain project-specific advice where required.

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Reference: Silca System Product Guide | On Timber Frame TDS | On Adjustable Pedestal TDS | On Aluminium Frame TDS | SabreBond SMP45 TDS

Warrantees

For warranty information relating to Silca System products and components, contact Merx Pacific Ltd. Refer to the applicable product documentation and terms of sale for product-specific conditions.

Terms and Conditions of Sale.

Company Product Information

Environmental

Silca System grates and connectors are manufactured in New Zealand from 100% Recycled Plastics, reducing demand for virgin materials and diverting plastic waste from landfill.

To date, 256,875 kg of recycled plastic has been incorporated into Silca System products.

The open-cell grate construction allows rainwater to drain through the finished paving surface, supporting natural water cycles, replenishment of underlying soil, drainage and reduced runoff into urban stormwater infrastructure.

Manufactured in New Zealand, Silca System combines recycled materials with a durable, modular support system for architectural paving applications.

Resources: Environmental Statement | Environmental Flyer | About us

Quality Assurance

ISO 9001 (Quality Management)

Relationships

New Zealand Made

Building Product Information Requirements

Manufacturer

Legal Trading Name:
Merx Pacific Limited

Business Email:
info@silcasystem.co.nz

Company Website:
www.silcasystem.co.nz

Contact Number/s:
+64 27-2810000

Product Identifier

6255BL0162A SILCA SYSTEM GRATE (5.5 PER SQM) 6461BL0000 CONNECTORS (18 PER SQM) 1300161 SABREBOND SMP45 (0.5 600ML PER SQM) DCS30410G75 10G X 75 SS304 SCREW (33 PER SQM)

Warnings

This product has no warnings associated with it.

Date last validated: **18 November 2026**

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