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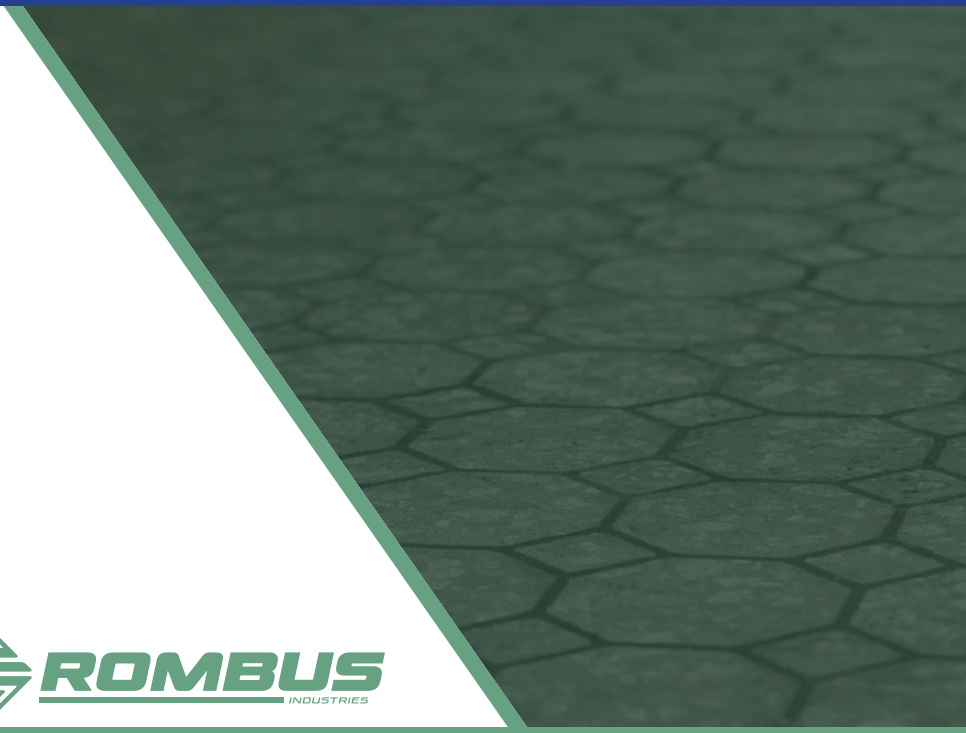

ROMBUS INDUSTRIES

INSTALLATION MANUAL

Rombus V2 is a high-strength flexible pavement system engineered for industrial, commercial, and civil applications. Using significantly less concrete than traditional slabs, it delivers exceptional load capacity, faster installation, and reduced project costs.

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INTRODUCTION

The Rombus Fusion V2 is a dust-free, gravel-free flexible pavement wearing course that serves the same function as asphalt, only with superior wearing and strength properties.

It is the first flexible pavement system with a hard concrete surface. Designed and manufactured in Australia using locally sourced recycled plastic, this innovative technology allows for in situ placement and filling of the grid, saving considerable time and hassle of full depth repairs.

At only 48mm thick and using Australian recycled plastic, Rombus Fusion V2 flexible pavement solutions are stronger, faster, cheaper, and greener to use.

PRODUCT QUICK REFERENCE

COMPRESSIVE STRENGTH	SHEET DIMENSIONS	NET COVERAGE / SHEET	CONCRETE VOLUME
>107 MPa (32 MPa fill)	1166×1166×48mm	1.18 m^2 (1085×1085mm)	0.046–0.048 m^3/m^2
SHEETS PER PALLET	**OVERLAP WIDTH**	**SYSTEM DEPTH**	**RECYCLED CONTENT**
46 sheets / 54.3m^2	81mm per side	48mm	96% PP

✓ AUSTRALIAN DESIGNED, MANUFACTURED & OWNED
✓ 96% RECYCLED POLYPROPYLENE
✓ 48MM SYSTEM DEPTH

EARTHWORKS

EARTHWORKS & GROUND PREPARATION

(This is also required when doing traditional concrete slabs.)

The ground preparation is extremely important and will make the rest of the installation a lot easier.

Determine the required base thickness. (*This will depend on the application, traffic, and Soil Type — See Sub Grade Guide, Section 5)

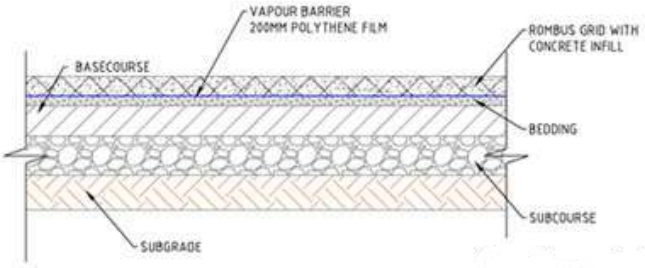
Excavate to a depth equal to (Base Thickness + 48mm) to allow for the grid thickness. This will ensure the finished product is level with the surrounding ground level.

Compact subgrade to 95% MMDD, subcourse to 96% MMDD, basecourse to 98% MMDD.

Import base material in lifts not exceeding 300mm, suited to the compactor available.

Bedding layer (cracker dust / fine crushed rock, max 5mm) only required where basecourse surface is not uniform — not a substitute for compacted base material.

EXCAVATION DEPTH CROSS-SECTION



TIP!

WHERE HIGHLY REACTIVE SOIL IS PRESENT, INSTALL A GEO-FABRIC OR COMBI-GRID ON THE SUBGRADE WITH 200MM OVERLAP AT JOINTS BEFORE IMPORTING BASE MATERIAL.

PREPARATION

If GPS/Laser levelling is not utilised or viable due to pavement area size, import cracker dust or screed sand to dress over sub grade and finish to final level as required. Screed materials are only to be used to trim up any undulations in sub grade, and are not intended to substitute compacted base material.

Complete final compaction over screed material back to prepared base with a minimum 85kg plate compactor. We recommend application of surface water to aid in compaction.

98% MMDD

COMPACTION MINIMUM

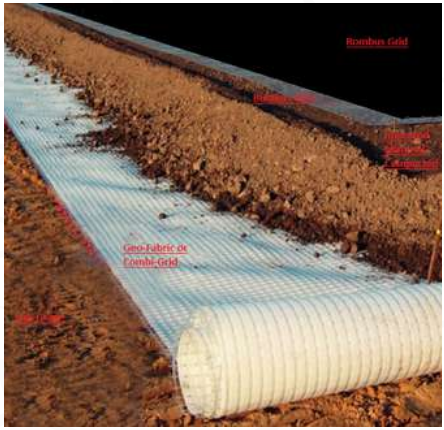
SUB GRADE GUIDE

APPLICATION	BASE DEPTH	BASE MATERIAL	COMPACTION REQUIREMENTS
Footpaths and Cycle paths with no vehicle access	0–50mm	Road Base	Basic compaction to sub grade with 80kg plate compactor, no required testing
Residential Driveways	0–100mm	Road Base	As above with a 300kg plate compactor
Commercial Driveways, Industrial & Mining Applications	100–250mm	Road Base	95%–98% (engineer design required for heavy applications)

DIAGRAM 1A

ENGINEERS NOTE

THIS IS A GUIDE ONLY AND BASED ON AREAS WITH NON-REACTIVE SOILS.
CONTACT THE TEAM AT ROMBUS INDUSTRIES FOR ASSISTANCE IF YOU DO NOT HAVE A DESIGN.



EDGE THICKENING & ANCHOR TRENCHES

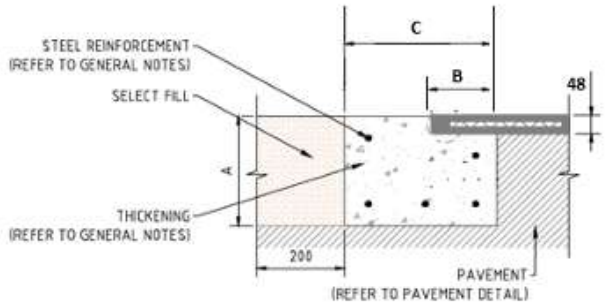
No angle edging is required with the V2 overlap jointing system. Thickening beams are required at leading edges subject to vehicular loads. The V2 footing void is pre-formed, the grid overhangs the void and the beam is poured simultaneously with the grid fill in a single pour operation.

VEHICLE LOADS	A DEPTH	B OVERHANG	C WIDTH	REINFORCEMENT
Light Vehicles	150mm	125mm	300mm	-
Medium Vehicles	200mm	150mm	300mm	2× N12 top, 3× N12 bottom
Heavy Vehicles	250mm	200mm	300mm	2× N16 top, 3× N16 bottom

ENGINEERS NOTE

REINFORCEMENT SPECIFICATIONS ARE INDICATIVE. THICKENING DIMENSIONS ARE DETERMINED BY GROUND CONDITIONS AND PROJECT-SPECIFIC REQUIREMENTS. CONSULT YOUR ENGINEER FOR HEAVY-DUTY APPLICATIONS. FOR V2, THICKENINGS ARE POURED SIMULTANEOUSLY IN THE SAME POUR AS THE GRID.

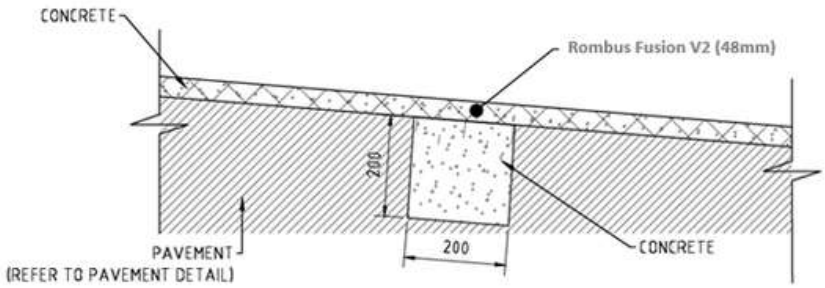
EDGE THICKENING & OVERHANG - CROSS SECTION



EDGE THICKENING & ANCHOR TRENCHES

ANCHOR TRENCHES — GRADIENT INSTALLATIONS

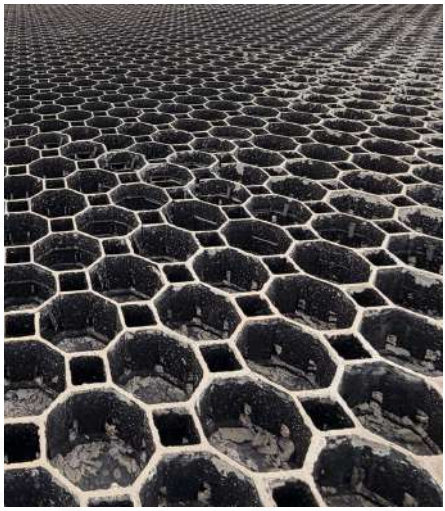
- Anchor trenches required for all gradient installations at 10–20m spacing (determined by gradient and application)
- Trench voids are pre-formed — concrete is poured through the grid into the trench in the same pour as the grid fill
- Anchor trench should be positioned in the centre of two anchor footings, no more than 20m and no less than 10m apart
- Maximum recommended gradient: 1:5 (20%). Steeper gradients require engineer consultation.



LAYING THE GRID

- Install a layer of 200µM builders film with 200mm overlaps at the joins across the prepared basecourse.
- The male edge of each sheet overlaps the female edge of the previously laid sheet — ensure sufficient pressure seats the overlap fully.
- Work in one consistent direction; place sheets behind the immediate work area and progress off completed sections of pavement to ensure minimal disturbance to completed sub grade.
- Once the Rombus Fusion V2 system is installed it is fully trafficable for mechanical handling (forklift, telehandler, etc.) prior to concrete fill — avoid wheel screwing on the empty grid.
- No angle edging required — the V2 overlap jointing system closes and contains all exposed edges.

NET COVERAGE PER SHEET: 1085 × 1085MM = 1.18M^2 EFFECTIVE. GROSS SHEET: 1166 × 1166 × 48MM. NO EXPANSION JOINTS OR SAW CUTS REQUIRED.



FILL AND FINISH

- Order the concrete. Fillable volume of the grid is ~0.046–0.048 m^3 per m^2 — always order at the upper end of this range. Allow additional volume for thickening beams and anchor trenches in the same pour.

- The concrete mix design should use 58% 10mm Coarse Aggregate to 42% Sand. 100–120 slump, low shrinkage mix is recommended. In heavy-duty applications or applications with steep inclines, the addition of recycled polypropylene fibres at 20–30mm length and 2.5–4.0 kg/m^3 should be considered.

- Start pouring in a location that allows you to work your way back. For direct truck shoot: top left corner, moving right, progressing forward. One truck handles up to a 6.0m pass.

- Use a Concrete Rake to move the concrete to the top of the grid.

- Do one pass immediately using a power trowel, at slow speed, with blades set flat. Do not use the trowel machine while bleed water is present.

- Complete one more pass using the trowel machine at slow speed with blades flat. Ensure all holes and depressions have been filled.

- When concrete holds a slight thumb impression it is ready for final finish. Wind blades up enough to scrape the surface. Flicking rocks = too high. Blades scraping plastic = correct. Use aliphatic alcohol (not water) for finishing.

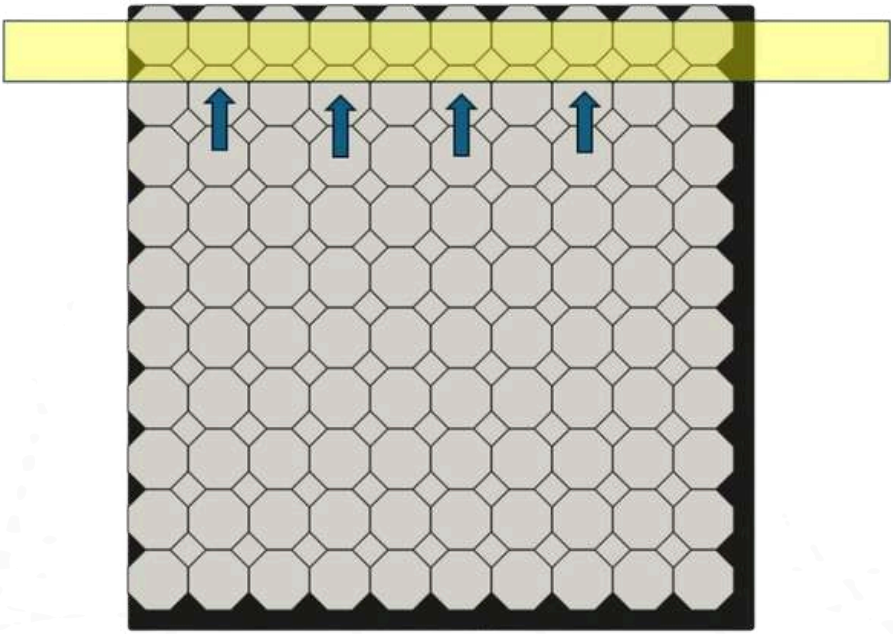
CAUTION: IT IS ADVISED THAT WATER IS NOT ADDED TO THE CONCRETE ON SITE. THE CONCRETE SHOULD ALWAYS BE ORDERED AND ARRIVE ON SITE AT THE DESIRED SLUMP.

32/100/10

32 MPA, 100 SLUMP, 10MM AGGREGATE

STOPPING POURS

When a pour must be stopped before completion, form timber (LVL) is used to hold the concrete edge cleanly. The pour must never stop on a sheet join.



- Place LVL at the bottom of the diamond to cut off any concrete from partially filling the smaller cell.
- Screw the LVL in place with landscaping screws in granular pavements, or fix to the grid if screwing into the ground is not possible.
- Pour and rake up to the LVL, ensuring that you take time to work the concrete into the outer cells that are partially covered.
- Remove the form timber at the finishing stage.

THE POUR MUST NEVER STOP ON A SHEET JOIN. CONCRETE MUST BE FULLY CURED BEFORE EXPOSING THE JOINT TO ANY TRAFFIC.

CURING

Curing is essential. Failure to cure the concrete will prevent it from hydrating and reaching the desired compressive strength. There are several methods used to cure concrete — two options are outlined below.

Option 1 — Pond Curing (Preferred)

Once the concrete is hard enough to walk on without leaving a mark, sand will need to be piled around the outside of the slab to create a bund. The area then needs to be flooded with water and remain submerged for 3 days. This is the most effective and fastest method.

Option 2 — Curing Compound

Once the concrete is hard enough to walk on without leaving a mark, a curing compound needs to be applied to the surface. A water-based membrane curing compound conforming to AS3799 is recommended. This can be applied using an industrial heavy-duty sprayer.

DO'S & DONT'S

PLEASE PAY CAREFUL ATTENTION

Any pavement designs shall be completed in line with the Technical Specification TA21004 for ground preparation and installation of Rombus Fusion V2.

The installation shall be in line with this Installation Manual and any project-specific engineering design.

- Always contact your Rombus Representative if you are unsure of anything
- Never add water to the concrete on site
- Always make sure the finished edges are level with surrounding ground and the base under the edges is very well compacted
- Never stop a pour on a sheet join
- Avoid wheel screwing on empty grid
- Always cure concrete before exposing to any traffic

CONCRETE MIX DESIGNS

Concrete mix designs are very important and vary significantly from place to place.

Contact your Rombus Representative to organise the best mix design, which will be based on the following:

- Available aggregates, sands, and mixtures
- Weather conditions on the day concrete is being installed
- Skill level of the installers
- The type of application

DISCLAIMERS

ALL SKETCHES ARE A GUIDE ONLY AND, IN SOME SITUATIONS, MAY NEED TO BE CHECKED BY AN ENGINEER. THICKENING BEAMS MAY REQUIRE STEEL IN VARIOUS APPLICATIONS. THIS MANUAL SHALL BE READ IN CONJUNCTION WITH TECHNICAL SPECIFICATION TA21004 AND ANY PROJECT-SPECIFIC ENGINEERING DESIGN.

TOOLS NEEDED

Concrete Place & Finish Labour Requirements

As a guide — 1 person per 100m^2/day. For example, if planning on completing 1,000m^2 in 1 day, 10 people would be required, unless mechanical aid is utilised for concrete placement and ride-on trowel machines are used for finishing operations.

TOOL	QUANTITY / RATE	NOTES
Pointed Trowel	1 per person	
Mag Float	1 per person	
Vibrating Screed	1 per 200m^2 per day	
Trowel Machine	1 per 200m^2 per day	Ride-on trowel machine = 3× faster
Slurry Bucket with Lid	As required	Retain slurry for void filling
Concrete Broom	As required	Only required for a broom finish
Tennis Court Squeegee	As required	Wheels may need replacing with skis
Ride-on Trowel Machine	As required	For finishing much larger areas
Surface Cure (AS3799)	As required	Water-based membrane curing compound
Heavy Duty Industrial Sprayer	As required	For applying curing compound

TOOLS NEEDED

TOOL	QUANTITY / RATE	NOTES
200µM Builders Film	As required	200mm lapped joins across basecourse
Concrete Rake	As required	Red-handled rake with Makita battery vibrator recommended
Geo-Fabric / Combi-Grid	As required	For reactive soils — 200mm overlap at joins

SUCCESS DEMANDS THE RIGHT TOOLS

PRODUCT SPECIFICATIONS

PANEL DIMENSIONS & COVERAGE

SPECIFICATION	VALUE
Overall sheet dimensions	1166mm × 1166mm × 48mm
Effective net cover	1085mm × 1085mm
Net coverage per sheet	1.18 m^2
Overlap width	81mm per side (top & left edges)
Sheet weight	~5.6 kg
Sheets per pallet	46 sheets / 54.3m^2 coverage

PANEL DIMENSIONS & COVERAGE

SPECIFICATION	VALUE
Concrete grade	32 MPa
Slump	100–120mm (low shrinkage)
Aggregate	10mm
Concrete volume per m^2	~0.046–0.048 m^3
Concrete per pallet (46 sheets)	~2.47 m^3

PRODUCT SPECIFICATIONS

MATERIAL PROPERTIES — POLYPROPYLENE GRID

PROPERTY	VALUE	TEST METHOD
Material composition	96% recycled PP copolymer + 3% carbon black + 1% additives	
Tensile strength	≥ 22 MPa	ASTM D638
Elongation at break	≥ 20%	ASTM D638
Flexural modulus	≥ 900 MPa	ASTM D790
Notched Izod impact	≥ 100 J/m	ASTM D256
Compressive strength (filled)	Exceeds 107 MPa	AS 1012.9 (Liquid Labs WA)

ROMBUS INDUSTRIES

STRONGER | FASTER | CHEAPER | GREENER

Rombus Grid is an Australian-made modular concrete pavement system manufactured from recycled plastic.

Designed to use less concrete, simplify installation, and minimise earthworks, it offers a smarter way to build durable concrete surfaces.

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