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THE GUIDE

INSTALLATION MANUAL

Rombus Grid is an innovative “Modular Pavement Technology” with outstanding capabilities. It has been engineered for use in a wide range of applications as a cheaper and more sustainable substitution for even the thickest of concrete slabs

WHAT IS ROMBUS GRID?

The mechanical system is a composite pavement where tensile stress is carried out by the highly engineered Polymer, Rombus web. Therefore, huge tensile load bearing capacity is achieved compared to regular flexible and rigid pavements

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INTRODUCTION

The Rombus flexible pavement solution is a dust free gravel free, 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 new innovative technology also allows for in situ placement and filling of the grid saving considerable time and hassle of full depth repairs.

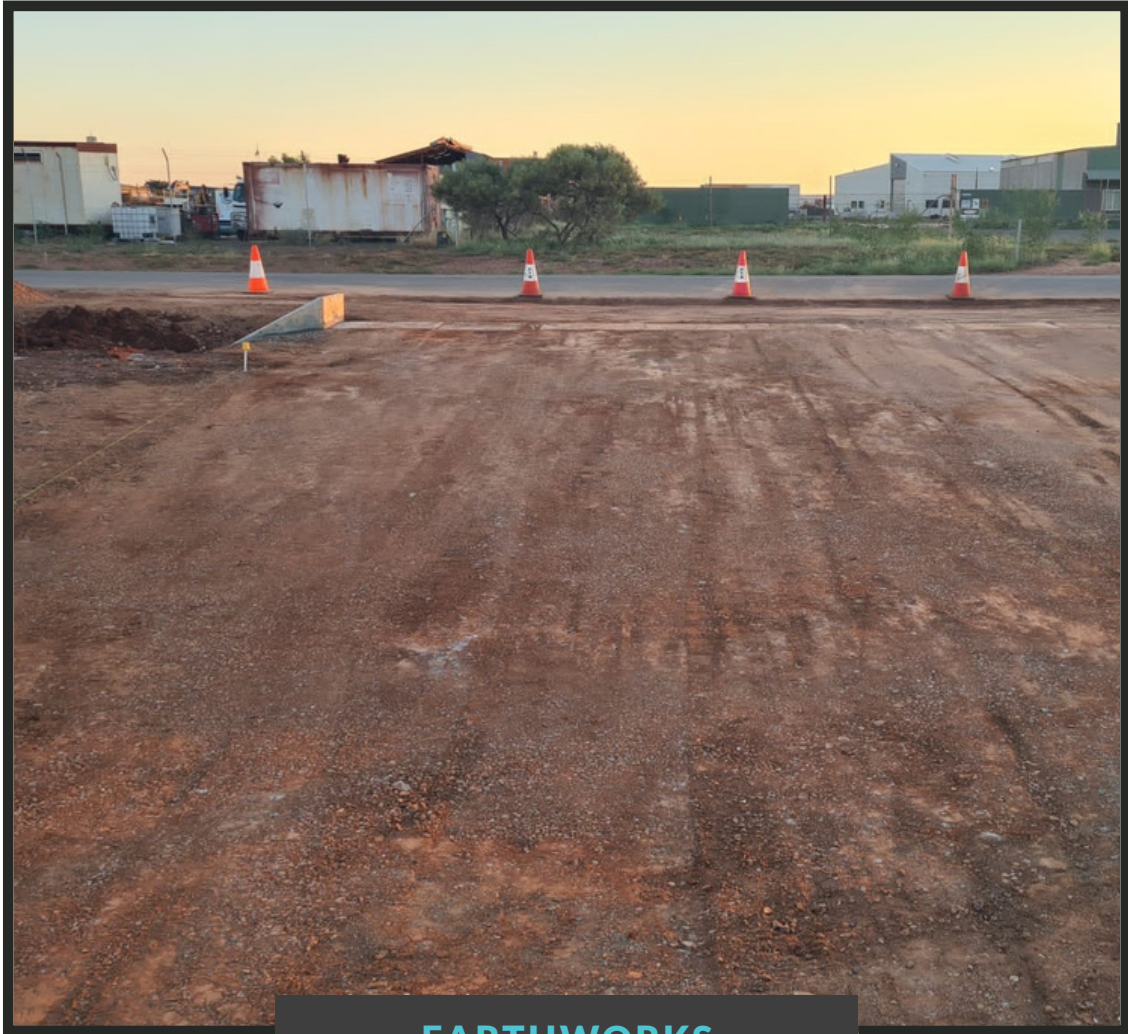
At only 40mm thick and using Australian recycled plastic, Rombus flexible pavement solutions are stronger, faster, cheaper, and greener to use.

Stronger than traditional concrete.

Cheaper than alternative options.

Faster to install.

Greener using 100% Western Australian recycled plastic & reduced carbon emissions by 65% on traditional concrete.



EARTHWORKS

Stage 1: 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.

1. Determine the required base thickness. (*This will depend on the application, traffic, and Soil Type – See Base Guide below as a guide only)
2. Excavate to a depth equal to (Base Thickness + 40mm) to allow for the grid thickness, this will ensure the finished product is level with the surrounding ground level.
3. Condition and compact the existing subgrade to a minimum of 98%MMDD.
4. If thickening beams are required to leading edges, contact your Rombus Rep.
5. Import base material, the base material should be installed and compacted in no more than 100mm lifts.
6. If GPS/Laser levelling is not available Import cracker dust or sand screed level (a maximum of 30mm in any given area)



PREPARATION

NOTE: 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

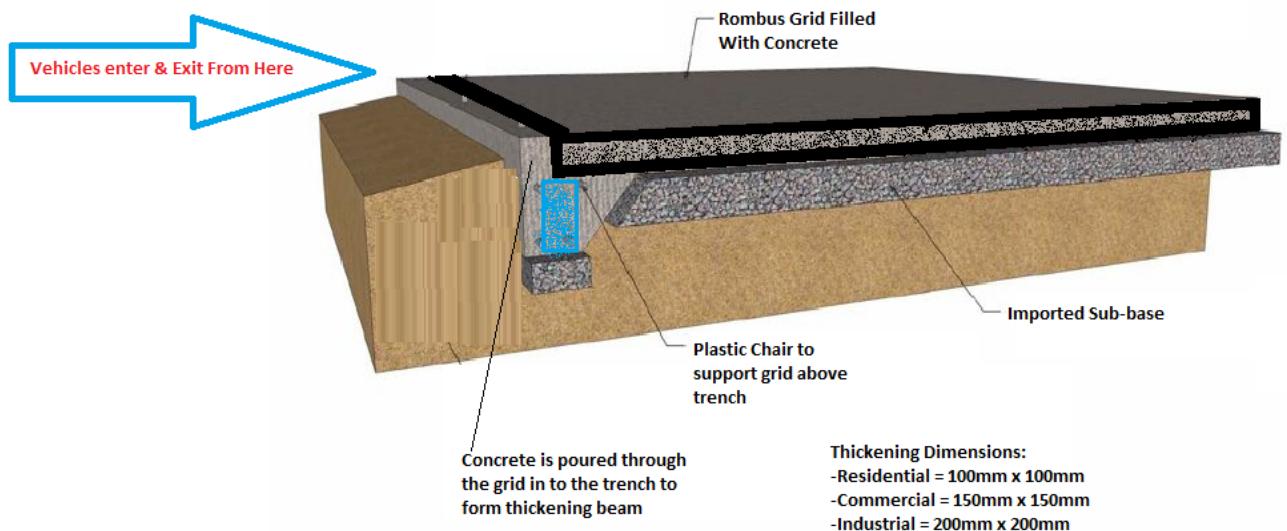
Complete final compaction over screed material back to prepared base with a minimum 85kg plate compactor. We recommend application of surface water to aid in compaction.

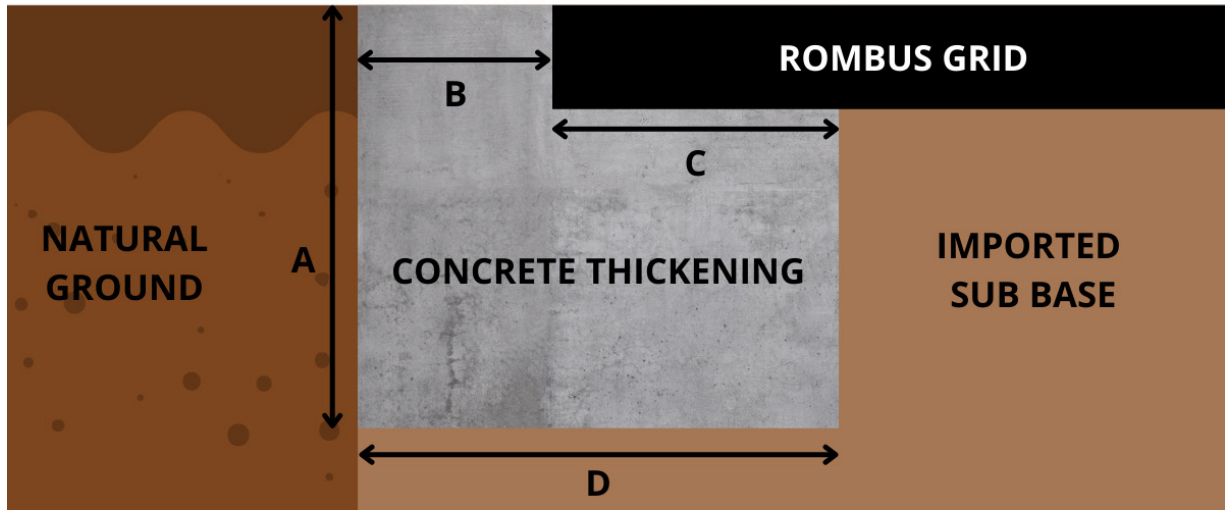
SUBGRADE GUIDE

| Application | Base Depth | Base Material | Compaction Requirements |
|--|-------------|---------------|--|
| Footpaths and Cycle paths with no vehicle access | 0mm-50mm | Road Base | Basic compaction to sub grade with 80kg plate compactor, no required testing |
| Residential Driveways | 0mm-100mm | Road Base | As above with a 300kg plate compactor |
| Commercial Driveways, Industrial & Mining Applications | 100mm-250mm | Road Base | 95% - 98% |

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 Detail - Only Required for leading edges





1. Lay the grid on the ground clipping the sheets together, ensure that enough pressure is applied above the clips to ensure they are clipped into position.
2. Leading edges that are subject to vehicular loads should have edge thickenings, refer to the below diagram and table to determine your requirements.

RECOMMENDED DIMENSIONS OF EDGE THICKENING

| Vehicle Loads | A | B | C | D |
|-----------------|-----------------|--------|--------|--------|
| Light Vehicles | 150 mm | 75 mm | 75 mm | 150 mm |
| Medium Vehicles | 200 mm | 100 mm | 100 mm | 200 mm |
| Heavy Vehicles | 250 mm | 125 mm | 125 mm | 250 mm |
| Edge Thickening | DIMENSIONS (mm) | | | |



LAYING OF ROMBUS GRID

1. Lay the grid on the ground clipping the sheets together, ensuring that enough pressure is applied above the clips to ensure they are clipped into position.
2. Laying of the grid should be setout in the correct configuration to ensure each grid section can simply be placed over the previously installed grid sections and locked into place with the Rombus clip system (some installations may require you to underlay sheets lifting previously installed sheets to allow for placement of sheet and alignment of clipping system)
3. While laying it is recommended to place all of your grid sheets behind your immediate work area and work off the completed sections of pavement to ensure minimal disturbance to completed sub grade.
4. Once Rombus pavement system is installed installers will be able to mechanically load and place sheets utilising forklift, truck telehandler etc (Rombus grid is fully trafficable once installed on sub grade even prior to any in fill works being completed)
5. To ensure integrity of edges and closeout concrete cells along edges you must install Rombus edging to all exposed edges.
6. This just slides over the clips. There are also adaptors for the female side of the grid so that edging can be installed.

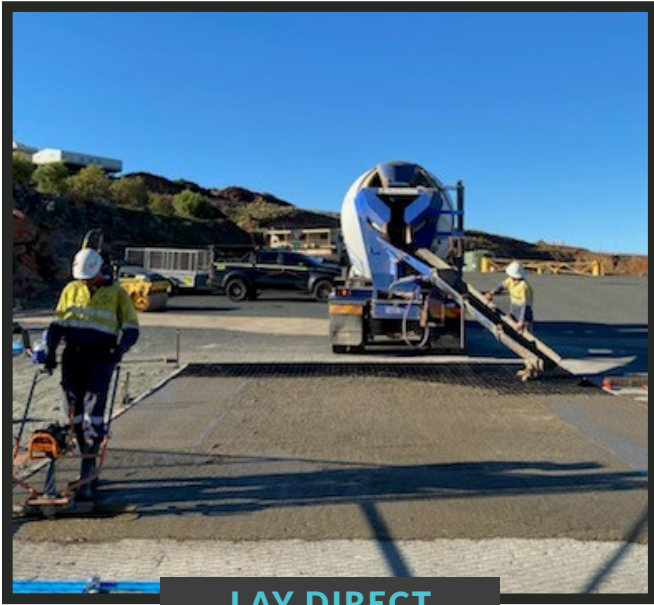
FILL & FINISH

1. Order the concrete, it requires 0.036m³ per square meter, but we recommend ordering 0.038m³ to 0.04m³ per m². Don't forget to order additional if edge thickenings are required.
2. The concrete mix design should use 58% 10mm Coarse Aggregate to 42% Sand, and the amount of cement will depend on the application and the required strength. Discuss mix designs with your Rombus Representative if you have any issues.
3. Start pouring the concrete in a location that allows you to work your way back.
4. Use a Concrete Rake to move the concrete around and get as close to the top of the grid as practicable.
5. Use the vibrating screed to complete one pass, (the vibrating screed sometimes works better when you walk forward as opposed to backwards.)
6. Use a Rubber squeegee to scrape the slurry right back so the grid is exposed and put the slurry into a bucket just in case there are any holes that need filling later. Do not be concerned if it looks like you have raked back too much, the trowel machine will fill any holes.
7. You can start finishing with the trowel machine a lot sooner than a traditional concrete slab. The blades will need to be adjusted so that they are flat for the first pass with the trowel machine. This is just to help move the paste around filling any holes if required. Once the complete area has been covered you will need to wait for the concrete to start setting. While you are waiting this is a good time to get onto any hard to access edges with the hand trowel.
8. When the time is right the trowel machine can go back on to achieve the desired finish, (ensure the angle of the finishing blades have been adjusted as required.) Always have a bottle of water with the trowel machine as it will be required to finish the concrete.
9. Surface treatments are optional as they are for the traditional concrete slabs, but will improve the life time and durability of any concrete surface. Rombus can advise on the best surface treatment for your application.
10. It is recommended that a HD surface treatment is applied for commercial and industrial applications, and it can be applied as soon as the concrete is finished or days later.



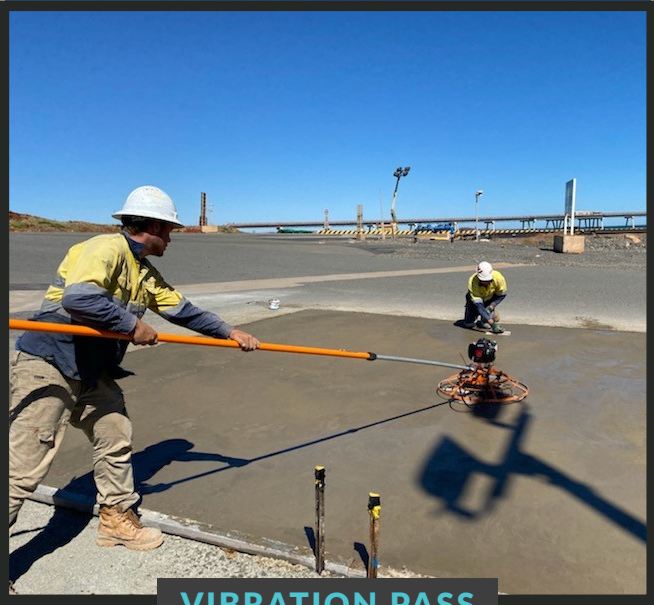
START AT BACK

Start pouring the concrete in a location that allows you to work your way back



LAY DIRECT

As you can direct lay from shoot of truck we recommend starting in the top left corner and working your way to the right, moving forward. Dependent on the size of pour and manning the one truck can comfortably do up to a 6.0m pass. It is possible to bring the second truck in alongside the first pass and continue the same sequence



VIBRATION PASS

Once you have completed first vibration pass, rake concrete back level with the grid as best as practicable



TROWEL DOWN

Once surface is completed the concrete infill should be trowelled down to the surface so that you can visibly see each and every individual cell

WHAT TO DO AND WHAT TO AVOID

ASK THE EXPERTS

Please pay careful attention

Any pavement designs shall be completed in line with the “Technical specification for ground preparation and lay of Rombus”.

The installation shall be in line with the “installation manual”.

Always contact your Rombus Rep if you are unsure of something.

Never add water to the concrete on site

Always make sure the finished edges are level with surrounding ground and that the base under the edges is very well compacted.

Concrete mix designs

Concrete mix designs are very important and vary significantly from place to place. Contact your Rombus Rep to organise the best mix design which will be based on the following.

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

A photograph of a concrete floor with a hexagonal pattern, overlaid with a dark rectangular box containing text. The floor is made of concrete with a grid of dark lines forming hexagonal shapes. The text is in a bold, cyan font. The background shows a metal structure, possibly a door or window frame, in the upper part of the image.

**STRONGER
FASTER
CHEAPER
GREENER**

CONCRETE PLACE AND FINISH LABOUR REQUIRMENTS

ASK THE EXPERTS

Concrete Place & Finish Labour Requirements

- As a guide 1 person per 100m²/day – (Example: if you were planning on completing 1,000m² in 1 day then you would need 10 people)



Pointed Trowel

1 per person



Mag Float

1 per person



Vibrating Screed

1 per 200 m2 per day



Trowel Machine

1 Per 200m2 per Day Ride on
Trowel Machine = 3 x Faster than
the above



Slurry Bucket

With Lid



Concrete Broom

Only required for a
broom finish



Concrete Rake

1 per person



Master finish 600mm Squeegee

1 per person

CONTACT THE TEAM

ROMBUS.COM.AU

FOR SALES CALL BYRON OR MICHAEL
ALL TECHNICAL ENQUIRIES PLEASE CONTACT RYAN

CONTACT

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Rombus Grid

Stronger | Faster | Cheaper | Greener | Pavement Solutions

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