TEST REPORT

Lucideon Reference:	N253224 (QT-78995/1/JB)/Ref. 1
Project Title:	Static Load Testing of Ryno Ltd's Ryno Porcelain Pavers and RPS-FR10 Low Height Non-Conbustible Pedestals with Hidden Wind Uplift Fixings
Client:	Ryno Ltd Castle Point Castle Way Ellon Aberdeenshire AB41 9RG
For the Attention of:	Mr Amos Whiteside
Author(s):	Mr Justin Fryer
Report Date:	14 August, 2025
Purchase Order No.:	17753

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CONTENTS

1 INTRODUCTION

Lucideon Limited were contracted by Ryno Ltd to conduct a static load test on their Ryno Porcelain Pavers and RPS-FR10 Low Height Non-Combustible Pedestals with Hidden Wind Uplift Fixings.

Ryno Ltd supplied Lucideon Limited with: -

Nine 600 mm x 600 mm x 20 mm Ryno Porcelain Pavers, Kerfed for wind uplift.

Twelve RPS-FR10 Low height Non-Combustible Pedestals with wind uplift fixings.

Datasheets for the components of the system can be found in Appendix A.

Representatives from Ryno Ltd attended Lucideon Limited's Structures Laboratory on Friday 1 August to install the system as per the Installation Guide found in Appendix B.

2 TEST METHOD

The sample was constructed on large timber bearers, such that, there was sufficient space beneath the sample to install a hydraulic ram.

A hydraulic ram was positioned at the geometric centre of the sample and a load cell was positioned at the top of the ram, to measure the forces applied during testing.

A scaffold framework was constructed spanning diagonally across the sample from corner to corner, such that, three Linear Voltage Displacement Transducers (LVDT's) could be sited above the geometric of three diagonal tiles, to measure the deflection during loading of the central tile (loaded tile) and two of the corner tiles.

The LVDT's and the load cell were connected to a Data Logger and laptop to record data during testing at a frequency of 1 Hz.

A load was applied to the central tile at a steady rate by way of a hydraulic hand pump, until such time, as a failure of the system occurred.

Photographs of the test set-up can be seen in the Plates Section of this Report.

The testing was performed at the Lucideon Structures Laboratory at Queens Road, Penkhull, Stoke-on-Trent, Staffordshire, ST4 7LQ, UK on 1 August 2025.

3 RESULTS

The sample withstood a maximum load of 1.19 kN before the bottom lip, of the Kerfed edge, at the point where the wind uplift clip was situated, of the central tile sheared and the central tile lifted independently.

Photographs of the failure can be seen in the Plates Section of this Report.

NOTE: The results given in this report apply only to the samples that have been tested.

END OF REPORT

PLATES

Plate 1 − Test Set-Up and Failure Mode

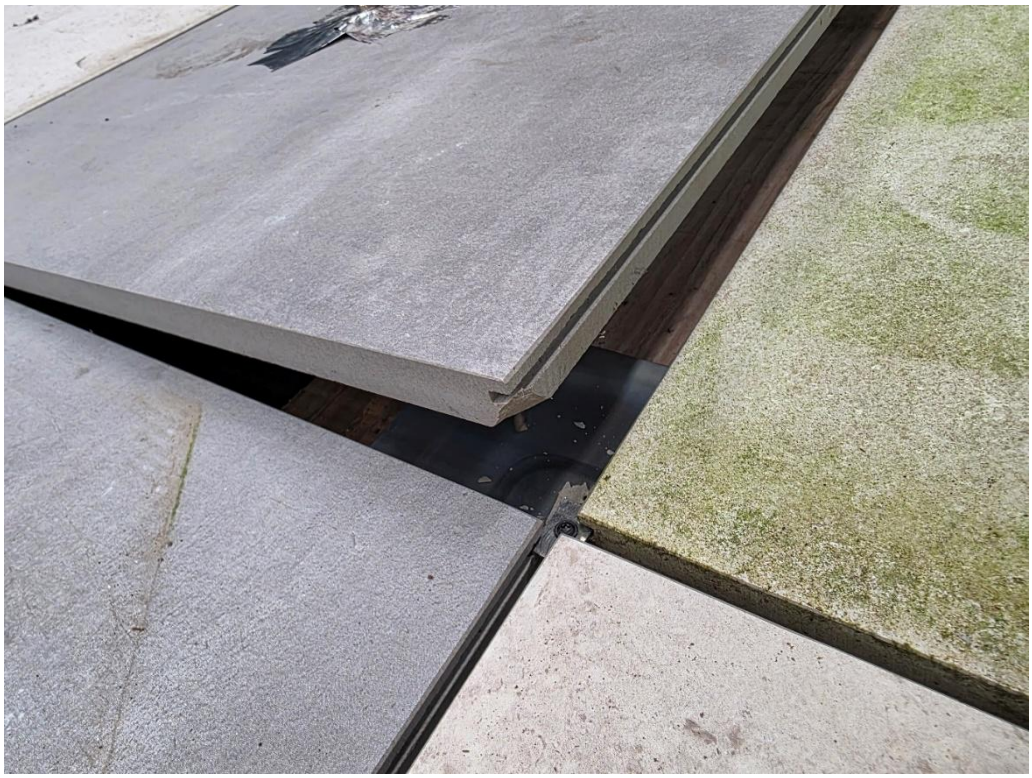

Plate 2 − Failure of Kerfed Edge at Wind Uplift Clip Location

Chart 1 - Wind Uplift Testing of Ryno Ltd.s Ryno Porcelain Pavers and RPS-FR10 Low Height Non-Combustible Pedestals with Hidden Wind Uplift Fixings.

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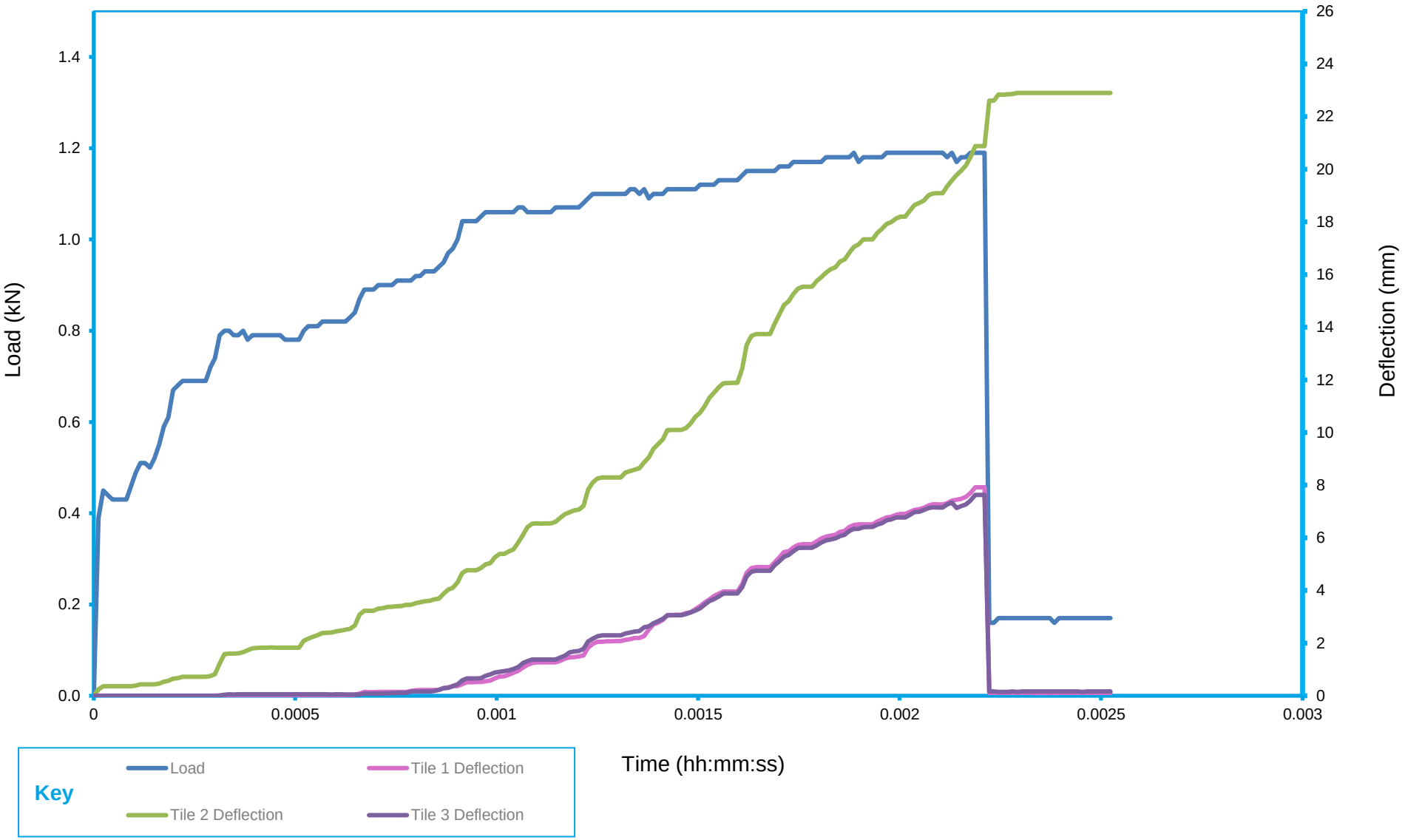

PT-QU
Quadro Porcelain Paver

Overview

The Quadro Porcelain Paver is a 20mm porcelain tile with a minimalist, contemporary concrete design, featuring subtle screed lines and cementitious textures. This popular porcelain slab comes in three warm tones and is available in two formats, providing various design options to complete a clean, modern, and inviting aesthetic. This high-end ceramic paver is durable, low maintenance, and non-porous, making it perfect for functional yet beautiful environments.

- Rigorously slip-tested and certified as low-risk of slip
- Environmentally safe, eco-friendly, and sustainable
- CE Marked
- 3 colour options
- Various size options

Details

Material	Ceramic
Dimensions	600x600mm 600x1200mm
Working dimensions	597x597mm 597x1195mm
Weight	44.8kg/m2
Light Reflectance Value (LRV)	See “Part information” below
Number of face patterns	See “Part information” below

Performance

Reaction to fire (BS EN 13501-1)	Inherently A1 (Decision 94-611/EC)
Performance - Reaction to fire (BS EN 13501-5)	B^{ROOF} (t4)*
Slip resistance (BS EN 7976)	Classification: Low Slip Potential Slider 55 (Dry): >102 PTV Slider 55 (Wet): >43 PTV Slider 96 (Dry): >64 PTV Slider 96 (Wet): >54 PTV
Allowable load	See "Compatible system" data below
Breaking strength (ISO 10545-4)	≥9.5kN
Repeated shock test (installation on pedestals)	QB UPEC F+ compliant

* When installed as part of a complete RYNO system

Part information

Size	Colour	LRV	Pack quantity	Pallet quantity
600x600mm	Crema Beige	48	2	64
600x600mm	Argento Grey	33	2	64
600x600mm	Nero Anthracite	16	2	64
600x1200mm	Crema Beige	48	2	32
600x1200mm	Argento Grey	33	2	32
600x1200mm	Nero Anthracite	16	2	32

Finishes

Crema Beige

Argento Grey

Nero Anthracite

Please note: Colour shades may differ between batches. If you need a specific batch to match a previous order for a project, please inform us when placing your order, although availability can't be guaranteed.

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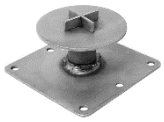
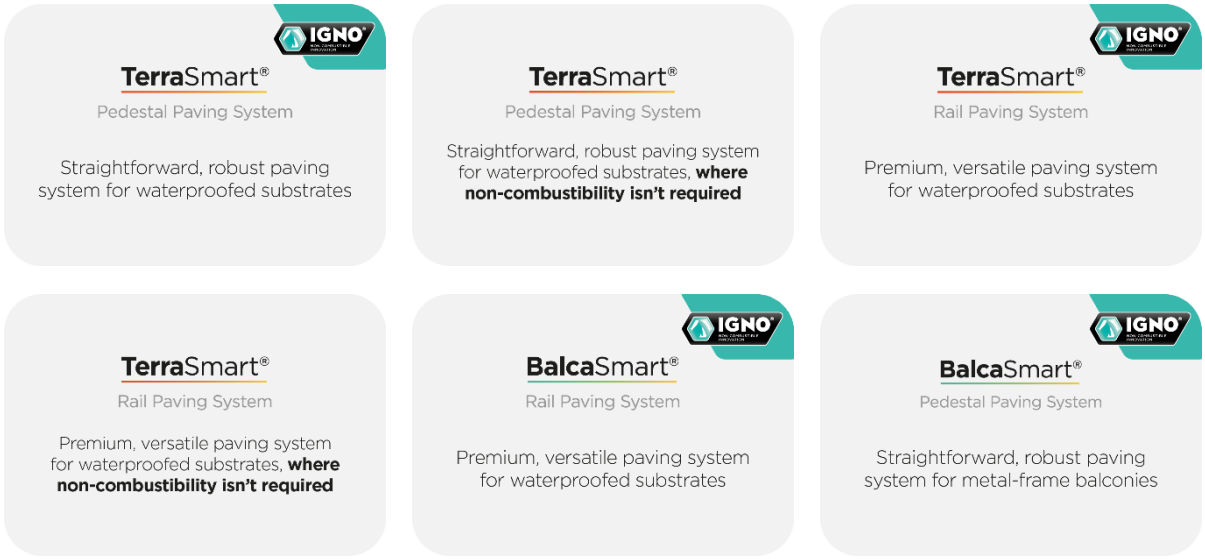
Compatible components

	**RP-FR** Non-Combustible Adjustable Paving Support Pedestal		**RPA-FR** Non-Combustible Self-levelling Paving Support Pedestal
	**RPS-FR** Non-Combustible Stackable Paving Support Pad		**RP-FR-WU** Non-Combustible Wind Uplift Paving Support Pedestal
	**RPS** Stackable Paving Support Pad		**RPA** Self-levelling Adjustable Paving Support Pedestal
	**RPF** Fixed Head Adjustable Paving Support Pedestal		**RPF-LH** Low-Height Adjustable Paving Support Pad
	**RST** Aluminium Paving Support Rail		**FA** Furniture Anchor
	**HRSP** Self-Adhesive Head Rubber Shock Pad		**RHF-WU** Rail Wind Uplift Restraint - Hidden Fixing
	**ESC** Edge Spring Clip		**PSR** Rail Paving Spacer

Compatible systems



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Annex 2

Manufacturing tolerances

Detail	Value	Standard
Length and width	±0.3% / ±1mm(*)	ISO 10545-2
Thickness	± 5% / 0.5mm (**)	ISO 10545-2
Straightness of sides	± 0.2% (***)	ISO 10545-2
Rectangularity	± 0.2 %	ISO 10545-2

Thermo-hygrometric properties

Detail	Value	Standard
Thermal shock resistance	Pass - Resistant	ISO 10545-9
Freeze/Thaw resistance	Pass - Resistant	ISO 10545-9
Frost resistance	Pass - Resistant	ISO 10545-12

Other properties

Detail	Value	Standard
Water absorption level (in% by mass)	≤0.1%	ISO 10545-3

(*) The permissible deviation, in % or mm, of the average size for each tile (2 or 4 sides) from working dimension.

(**) The permissible deviation, in % or mm, of the average thickness for each tile from working dimension.

(***) The maximum permissible deviation from straightness, in % or mm, related to the corresponding working dimension

RPS-FR
Non-Combustible Stackable Paving Support Pad

Patent pending:
PCT/EP2021/078624

Overview

The RPS-FR Non-Combustible Stackable Paving Support Pad is an ultra-low paving pedestal designed for low-height applications. Crafted from steel and zinc-nickel electroplated for corrosion resistance, this patented design allows it to be stacked in two ways: in 2mm and 10mm increments, making it a flexible and exceptionally strong solution.

- Ideal for ultra-low height applications on terraces, podiums, roof decks, and inset balconies
- Stacks in 2mm and 10mm increments
- Spacers bend down for flexibility
- Suitable for all calibrated paving types, including porcelain, concrete, and natural stone

Details

Material	Zinc-nickel electroplated mild steel
Dimensions	170x170mm
Spacer tab thickness	4 mm
Height range	10-100mm Stacked Directly - 2mm increments Stacked at 45 degrees - 10mm increments
Weight	0.35kg

Performance

Reaction to fire (BS EN 13501-1)	Inherently A1 (Decision 94-611/EC)
Compressive strength	1000kg+
Allowable load	See “Compatible System” data
Biological and chemical	Resistant to moulds, algae, alkali, bitumen, UV
Warranty	30 years*
Design life	60 years

*when used as part of a complete RYNO IGNO system

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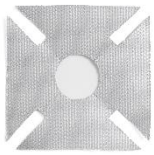
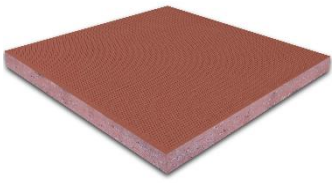
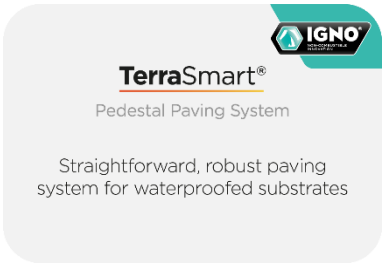
Compatible components

	**HRSP** Self-Adhesive Head Rubber Shock Pad		**HSP** Non-Combustible Head Shock Pad,
	**BRSP** Base Rubber Shock Pad		**ESC** Edge Spring Clip,
	**PT-QU** Quadro Porcelain Paver		**CP-AD** Adira Concrete Paver

Compatible systems



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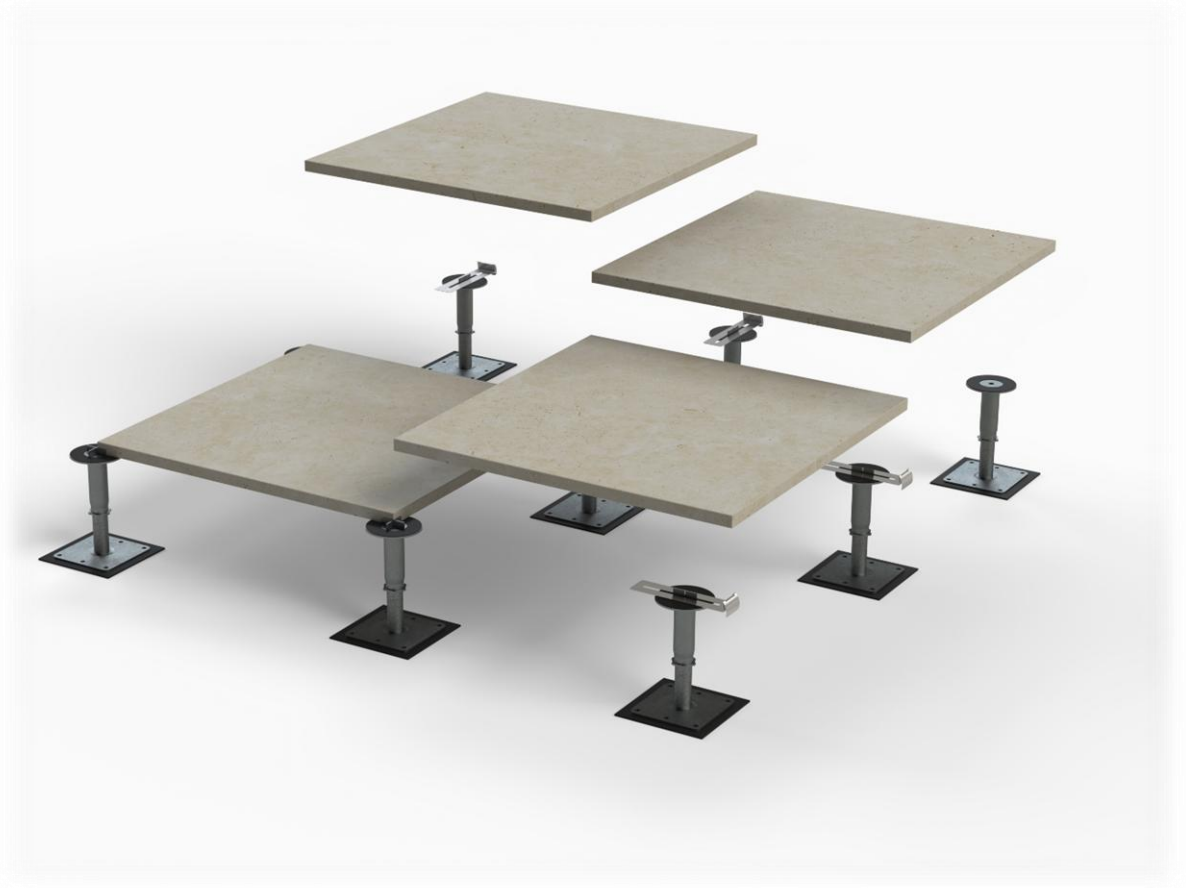
TerraSmart®

Installation Guide

TerraSmart Pedestal Paving System

The principles in this guide apply to 4 ranges of adjustable pedestals – see key on page 3

Version 1.25



RYNO® FINISH STRONG

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Equipment

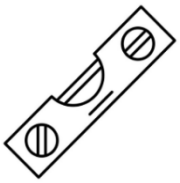
Porcelain bridge saw

Tape measure

Measure twice, cut once

Level

Rotating laser level plus a standard level are recommended



Ball ended hex key

Available from Ryno

Site PPE

Adhere to all relevant site regulations

Pedestal Identification

RP-FR Non-Combustible Fixed Head Adjustable Paving Support Pedestal

RPA-FR Non-Combustible Self-Levelling Paving Support Pedestal

RPF Fixed Head Adjustable Paving Support Pedestal

RPA Self-Levelling Adjustable Paving Support Pedestal

General Notes

- On delivery, all products should be inspected. If there are any issues, please report them immediately and do not commence installation
- Some schemes require a 10mm gap around perimeter edge of area
- Safe working practise should be observed at all times during the installation process and all necessary
- Cutting porcelain should be carried out using a water and dust suppressed diamond tipped power saw
- Personal Protective Equipment (PPE) should be worn
- Always use the correct PPE throughout installation

Installation Guidance

1. Determine the desired slab layout:
- **a.** Full slab starting in the corner of the area with cut slabs at the end
- **b.** Full slab starting in the centre of the area with cut slabs around the perimeter

2. Remove spacer tabs on the edge pedestals as required:
- **a.** All 4 spacer tabs for corner support. **Fig A.**
- **b.** Two aligning spacer tabs for edge support. **Fig B.**

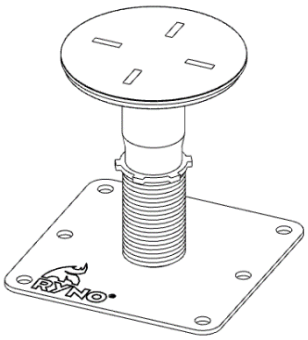


Fig A.

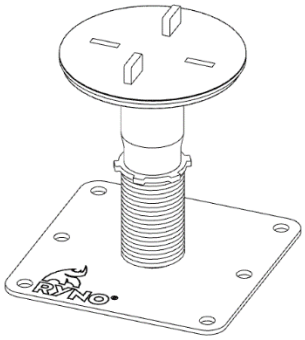


Fig B.

Note: Conventional plastic pedestal tabs feature a snap off design; Non-combustible pedestal tabs can simply be cut off or bent down using a nail punch.

3. Place head rubber shockpads on top of pedestals if using them.

4. Place the first 4 pedestals in the desired area. When positioning pedestals along the perimeter of an area, ensure edge spring clips are used to create uniform spacing along these edges. **Fig C.**

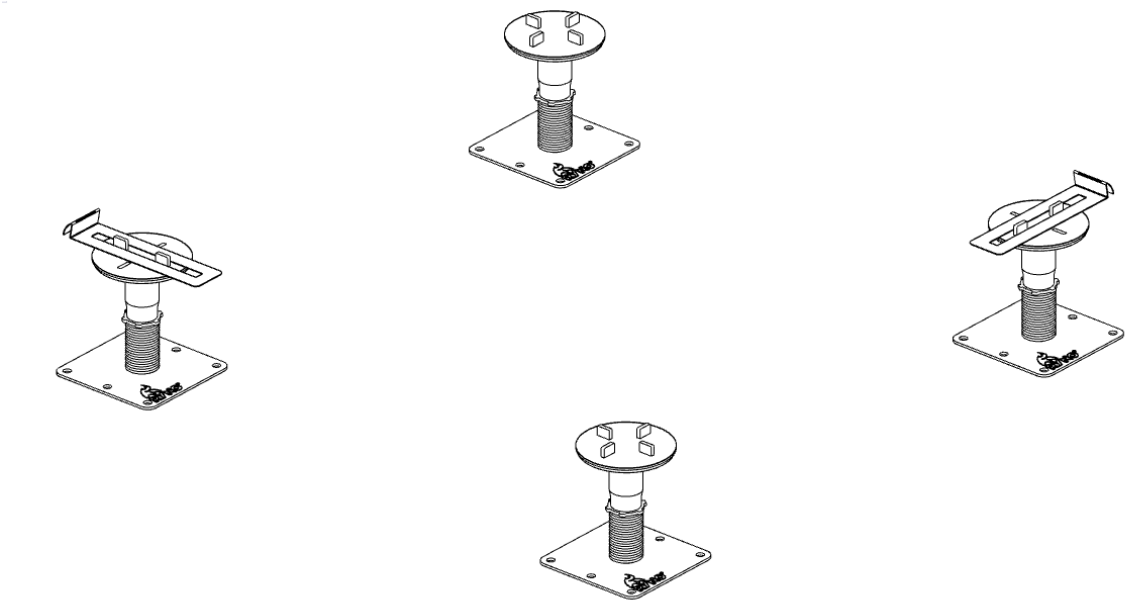


Fig C

5. Lay slab on top of pedestals. Set the height of the slab and pedestals by placing a spirit level diagonally on the slab and twisting the pedestal upper shaft clockwise (down) or anti-clockwise (up). **Fig D.**

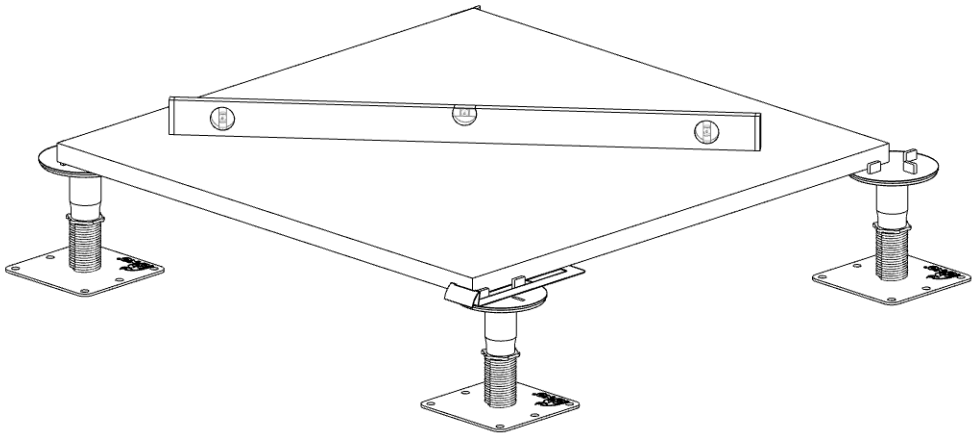


Fig D

Note: If using the RPA-FR Non-combustible self-levelling pedestal, ensure you tighten the head locking washer with a ball head hex key to lock the angle before moving to the next row of pedestals. **Fig E.**

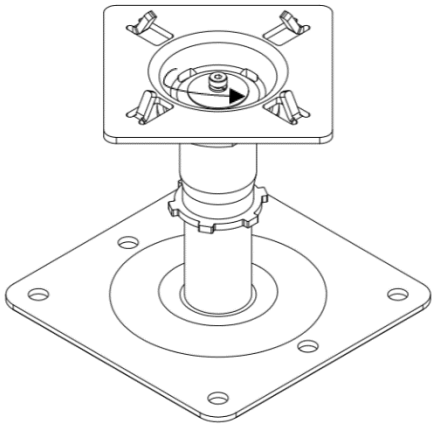


Fig E

Note: If using RP-FR or RPA-FR Non-combustible pedestals, ensure you also tighten the locking nut to lock the pedestal height. **Fig F.**

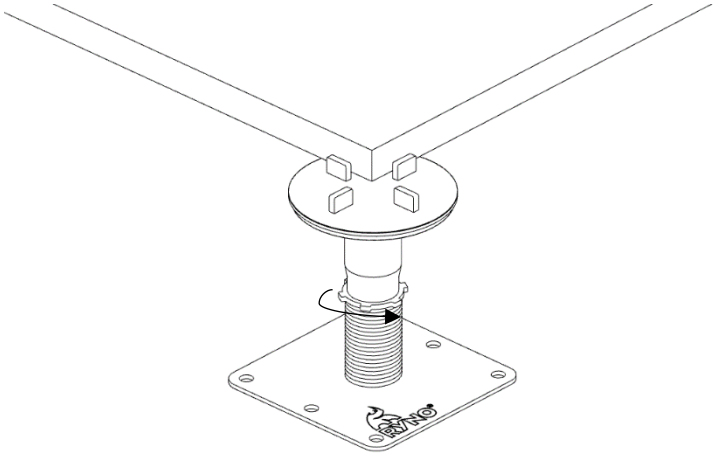


Fig F

6. Position the next set of pedestals in place and lay slab on top. **Fig G.**

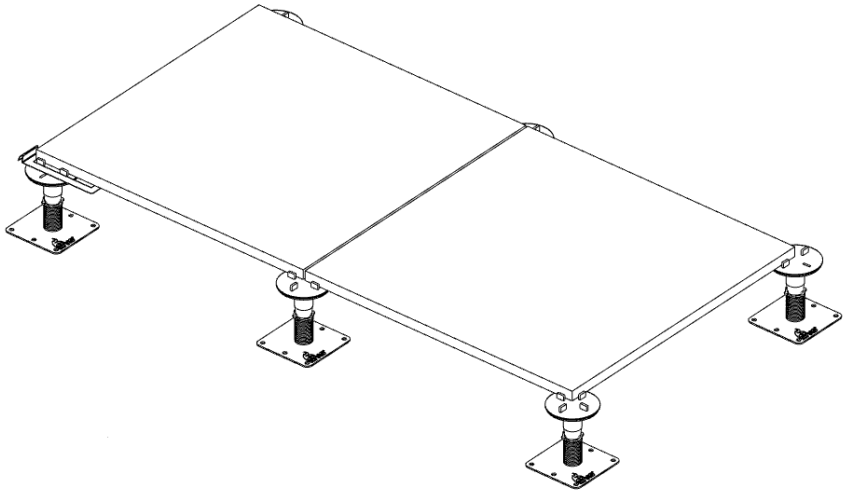


Fig G

7. Level the slab with the previous by using a spirit level and raising/lowering the pedestals as described in point 5. If necessary, you can make minor adjustments to finished surface level by adding sections of head rubber shockpads beneath the tiles. **Fig H.**

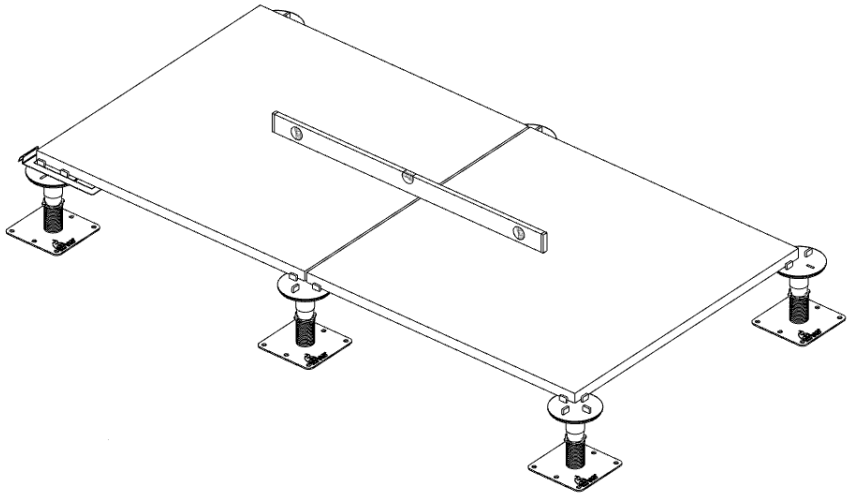
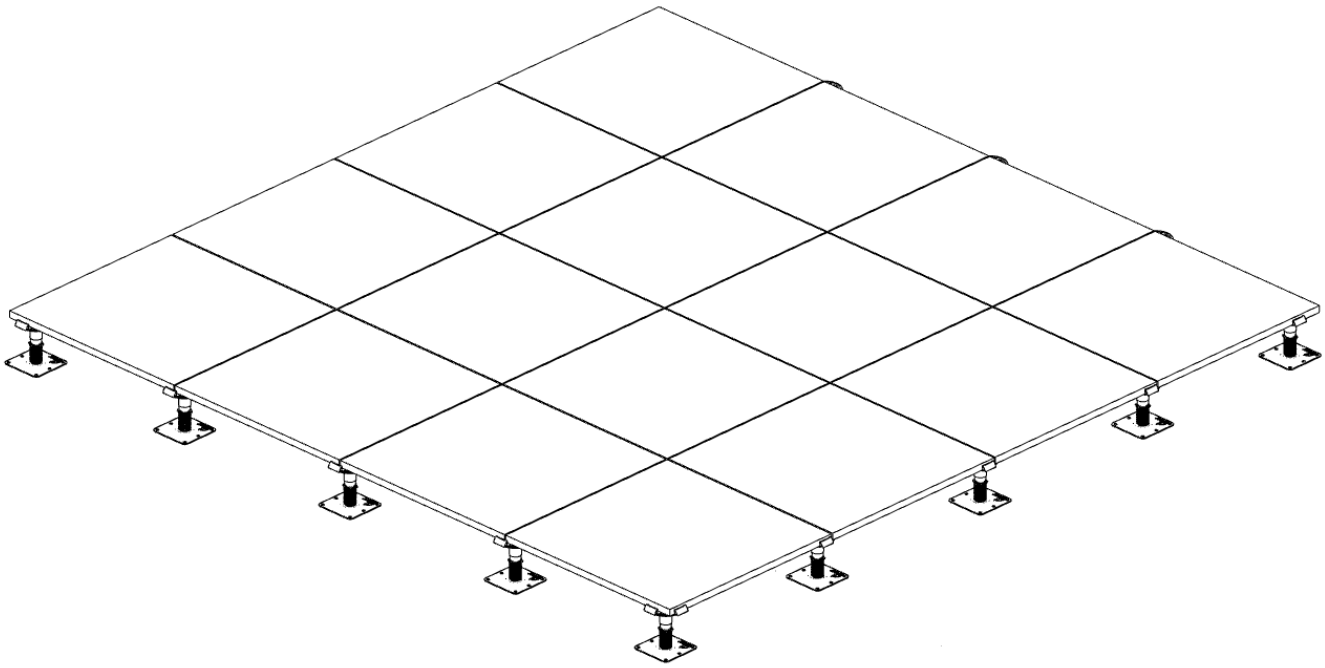


Fig H

8. Repeat steps 5-7 until the area is completed.



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