



WALNUT NATURAL

NATURAL INDIAN SANDSTONE - PAVING SLABS & COBBLES

Technical Data Sheet · External Use · BS EN 1341 (Paving) & BS EN 1342 (Setts) Compliant

1. PRODUCT IDENTIFICATION

Commercial Name	Raj Green Indian Sandstone
Also Known As	Autumn Green Sandstone, Raj Green Stone, Walnut Sandstone (mixed khaki/purple variant)
Material Type	Natural Sandstone (Sedimentary Rock - Silica / Quartz-cemented)
Stone Family	Sandstone - fine to medium-grained arenaceous rock; multi-tonal silica-bonded formation
Country of Origin	India - Rajasthan region (Rajpura, Bundi, Kota districts)
Product Category	Natural Stone Paving Slabs (flags) and Natural Stone Setts / Cobbles
Paving Standard	BS EN 1341:2001 - Slabs of natural stone for external paving
Setts Standard	BS EN 1342:2001 - Setts of natural stone for external paving
CE / UKCA Marking	CE Marked & UKCA Marked - Declaration of Performance (DoP) available
Accreditation	UKAS-accredited third-party testing; ETI Base Code / TruStone ethically sourced

2. COLOUR & AESTHETIC DESCRIPTION

Primary Colours	Khaki green, olive-sage, buff and warm beige base
Secondary Tones	Plum-purple veining, russet-brown patches, cream and grey flecks
Colour Character	Distinctive multi-tonal blend of green, brown, beige and purple; often positioned as a natural alternative to Yorkstone
Brachot Classification	Not formally classified under the Brachot European reference scheme
Wet Appearance	Greens deepen and purple/plum tones become more pronounced; overall richer, more saturated palette
Dry Appearance	Muted khaki-buff tone dominates; purple and green flecks are more subtle
Colour Variation	High - one of the most variegated Indian sandstones; always view a full board/pack before ordering
Design Compatibility	Pairs well with red brick, timber, gravel and green planting; suited to traditional, cottage and heritage-style gardens
Iron Markings	May show occasional iron oxidation marks on new installation; weathers off naturally

Fossil Inclusions	Occasional fossil imprints and mineral inclusions - natural characteristics, not defects
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3A. AVAILABLE SIZES - PAVING SLABS (FLAGS)

Size (L x W)	Thickness (calibrated)	Tolerance	Coverage per slab	Wt. approx. (kg/m ²)
900 x 600 mm	18 mm or 22 mm	+/-2-5 mm	0.54 m ²	~48 (22mm)
600 x 600 mm	18 mm or 22 mm	+/-2-5 mm	0.36 m ²	~48 (22mm)
600 x 290 mm	18 mm or 22 mm	+/-2-5 mm	0.174 m ²	~48 (22mm)
290 x 290 mm	18 mm or 22 mm	+/-2-5 mm	0.084 m ²	~48 (22mm)
Hand-cut random sizes (275x275 to 1130x560)	30 mm	+/-5 mm	Per project pack	~65 (30mm)
Mixed Patio Pack	18-30 mm	+/-2-5 mm	~17-22 m ² per pack	~48-65
Step treads	30-50 mm	+/-5 mm	Per linear metre	~130 kg/lm
Bespoke / custom	25-100 mm	+/-5 mm	On request	Varies

NOTE: Coverage based on 10 mm joint. Hand-cut format retains natural irregular sizing typical of traditional Raj Green supply; calibrated format machine-cut to consistent thickness, tolerance +/-2-5 mm.

3B. AVAILABLE SIZES - SETTS & COBBLES

Size (L x W)	Thickness	Coverage approx.	Setts / m ²	Pack size
140 x 140 mm	20 mm	~0.02 m ²	~47	Crate / tonne (European square format)
140 x 200 mm	30-50 mm	~0.028 m ²	~33	Crate / tonne
140 x 140 mm	30-70 mm	~0.02 m ²	~47	Crate / tonne
100 x 100 mm	30-50 mm	~0.01 m ²	~80	~1,000 per crate
200 x 100 mm	50-70 mm	~0.02 m ²	~43	Tonne / loose (driveway grade)

Coverage per tonne (setts): approximately 8-10 m². Dimensional tolerance +/-5 mm plan; +/-5-10 mm thickness.

4. SURFACE FINISHES & EDGE TREATMENTS

Riven (Natural Cleft)	Standard finish; natural split along bedding planes. Textured, warm-toned surface with strong slip resistance.
Hand-Cut	Traditional Rajasthan hand-dressed format; naturally riven surface, hand-fettled irregular edges.
Tumbled / Antique	Machine tumbled for rounded arrises and softened edges; weathered heritage appearance.
Sawn & Honed (Smooth)	Machine sawn and honed to a smooth flat surface; brings out the green/purple banding clearly. Lower slip resistance when wet.
Sandblasted	Open textured surface; good anti-slip properties; enhances the multi-tonal colour blend.

Edge Treatments	Hand-cut/fettled (standard, rustic), sawn (clean, contemporary), tumbled (softened, heritage), bullnosed/rebated (steps, coping).
Sett & Cobble Finishes	Riven top with hand-cut sides (standard); Platine flat-top (comfort underfoot); fully tumbled cobbles (antique feel).

5. PHYSICAL & MECHANICAL PROPERTIES (TEST DATA)

Property	Test Standard	Declared Value	Unit
Apparent Density	EN 1936:1999	~2,500 - 2,600	kg/m ³
Apparent Porosity	EN 1936:1999	0.51	%
Water Absorption (by weight)	EN 13755:2001	0.93	% wt.
Water Absorption (by capillary)	EN 1925:1999	0.28	%
Compressive Strength	EN 1926:1999	~35 (360.1 kg/cm ²)	MPa
Flexural Strength (Dry)	EN 12372:2006	23.0	MPa
Flexural Strength after 12 freeze-thaw cycles	EN 12372:2006	21.8	MPa
Flexural Strength after 48 freeze-thaw cycles	EN 12372:2006	19.4	MPa
Slip Resistance SRV Dry	EN 14231:2004	68	SRV
Slip Resistance SRV Wet	EN 14231:2004	65	SRV
Wear / Abrasion Resistance (Bohme, average)	EN 14157:2004	5.7	mm
Wear / Abrasion Resistance (Bohme, individual)	EN 14157:2004	5.3	mm
Frost Resistance	EN 12371:2010	Pass - ≥48 cycles	-
Breaking Load (setts)	IS 13630	6.2 x 10 ³	N
Thermal Expansion Coefficient	EN 14581:2004	8 - 12	x10 ⁻⁶ /C
Modulus of Elasticity	-	8 - 22	GPa
Service Life (expected)	-	50+ years	years

6. STANDARDS & REGULATORY COMPLIANCE

Paving Slabs	BS EN 1341:2001 - Slabs of natural stone for external paving
Setts	BS EN 1342:2001 - Setts of natural stone for external paving
Kerbs	BS EN 1343:2001 - Kerbs of natural stone for external paving
CE / UKCA Marking	Required under UK Construction Products Regulations; all compliant products carry CE/UKCA mark and Declaration of Performance
UKAS Accreditation	Testing conducted at UKAS-accredited laboratories for UK market compliance
Slip Resistance	EN 14231:2004 (Pendulum Test Value / SRV)

Wear Resistance	EN 14157:2004 (Bohme disc abrasion test)
Frost Resistance	EN 12371:2010 - no cracking, spalling or delamination after minimum 48 freeze-thaw cycles
Ethical Sourcing	ETI (Ethical Trading Initiative) Base Code. TruStone initiative compliance available from some European importers.
Aggregate Standard	EN 933-1 - Tests for geometrical properties of aggregates (sieve analysis)

7. RECOMMENDED APPLICATIONS

Domestic Patios & Terraces	Primary UK application; multi-tonal colours suit traditional and cottage-style homes
Garden Pathways	Popular for path layouts; hand-cut random sizes give a natural, informal look
Driveways	50-70 mm setts or 25-50 mm thick slabs for vehicular areas; sealed surface recommended
Steps & Treads	Bullnosed, sawn or riven treads; 50 mm+ recommended
Pool Surrounds & Wet Zones	Riven finish preferred for grip; seal well
Wall Cladding	Sawn or riven Raj Green used for feature walls and property facades
Commercial Pedestrian	Suitable for pedestrian zones; consult engineer for load class and sub-base specification
Garden Paths (setts)	100x100 mm or 140x140 mm setts create charming cottage-garden path surfaces
Driveway Edging & Borders	Defines paving edges; contrasts attractively with tarmac, block paving and porcelain

8. INSTALLATION GUIDANCE

Sub-Base - Pedestrian patios & paths	Min. 100 mm compacted MOT Type 1 hardcore + 25-50 mm sharp sand blinding layer
Sub-Base - Driveways (domestic)	Min. 150 mm compacted MOT Type 1 + full mortar bed; haunching for setts; edge restraints essential
Bedding - Paving Slabs	Full-bed mortar (semi-dry 5:1 sand:cement) or proprietary flexible adhesive; NO spot bedding
Bedding - Setts & Cobbles	25-40 mm compacted semi-dry mortar bed; wet haunching mortar on all edges for driveways
Jointing - Paving Slabs (riven/hand-cut)	10 mm joints; resin jointing compound or brushed kiln-dried sand for domestic use
Jointing - Setts	6-12 mm joints; 10 mm recommended for natural size variation tolerance
Colour Blending	Open and blend from multiple crates/packs during laying to balance the natural green/purple/beige tonal range
Cutting	Diamond blade wet saw or angle grinder + diamond disc; wet cutting essential - reduces silica dust exposure
Over-ordering	Minimum 10-15% extra; natural stone variation means some pieces will be rejected for visual reasons
Curing	48 hours minimum before light foot traffic; 7+ days before vehicles

Frost precaution	Do not lay below 3C or when frost forecast within 24 hours
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9. SEALING, CLEANING & AFTERCARE

Sealing - Priority	Recommended for Raj Green - low porosity (0.51%) limits staining risk, but sealing enhances and protects the distinctive green/purple colour banding
Sealer Type	Penetrating silane/siloxane impregnator; colour-enhancing sealers intensify the green and purple tones; natural finish also available
Application Timing	Pre-seal bare stone before grouting; final seal 4-6 weeks post-installation when mortar salts have cleared and stone is dry
Reapplication	Typically every 2-5 years; re-seal when water no longer beads
Routine cleaning	Brush debris; rinse with clean water; pH-neutral stone cleaner
Stain removal	Dedicated stone degreaser for oil/grease; biological cleaner for algae/moss
Grout haze	Remove with proprietary grout haze remover within 24-48 hours; do not use acid-based products
Pressure washing	Max. 1,500 psi; diagonal angle to surface; avoid concentrated streams on joints
Avoid	Bleach, hydrochloric acid, salt de-icers, iron-based fertilisers, steam cleaners
Rust / iron marks	Treat promptly with dedicated iron stain remover product; easier to remove when fresh

10. PACKAGING, SUPPLY & ORDERING

Pack Types - Paving	Mixed-size patio packs (17-22 m2); hand-cut project packs; single-size packs; full or half pallets
Pack Types - Setts	Full wooden crates; tonne bags
Packing	ISPM-15 fumigated wooden crates or pallets; plastic wrapped; wooden spacers between layers
Paving pallet weight	Approx. 800-1,300 kg per full pallet (thickness and pack size dependent)
Coverage per tonne (setts)	Approximately 8-10 m2; dependent on size and thickness
Unit of sale	Per m2, per unit, per tonne, or per pack - confirm with supplier
MOQ	Typically 1 m2 to full pallet; varies by supplier
Lead time	UK stock: typically 2-5 working days; direct import from India: 6-10 weeks
Delivery	Kerbside delivery via 18T flatbed with tail-lift; hard road required; vehicle access essential
Over-order buffer	Order minimum 10-15% extra - important given the high natural colour variation of this stone

11. HEALTH, SAFETY & ENVIRONMENTAL INFORMATION

Silica Dust (RCS)	Contains crystalline silica (quartz). All cutting, drilling and grinding generates Respirable Crystalline Silica (RCS) dust - a known cause of silicosis. COSHH risk assessment mandatory on site. Use wet cutting, LEV, or minimum RPE FFP3.
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Manual Handling	Individual slabs/setts can be heavy. Two-person lift technique; mechanical handling preferred. PPE: steel-capped footwear, gloves, back support brace.
Slipping Hazard	Riven and hand-cut finishes offer strong slip resistance; smooth/honed finishes have lower slip resistance when wet. Anti-slip sealant recommended where required.
COSHH Compliance	COSHH assessment required before any cutting, grinding, or abrading operations on site
Ethical Sourcing	Sourced under ETI Base Code; supplier documentation available. TruStone-certified supply chains available for European-sourced product.
Environmental Benefits	Natural, 100% geological resource. 50+ year design life; fully reusable/recyclable at end of life.
REACH Compliance	Natural stone article; not subject to REACH substance notification requirements