SAMSARA MATERIALS

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DOCUMENT CONTROL SHEET

Title	Version	Date
EcoBrik Installation Instructions	2.0	2025.10.24
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	SM-EB003	10

Abstract

This document provides step-by-step installation guidance for EcoBrik paving blocks, intended for above-grade paving and landscaping applications. It confirms that installation procedures are identical to conventional concrete bricks, while highlighting EcoBrik's advantages in weight, handling, and cutting. The instructions cover substrate preparation, unit placement, joint filling, compaction, safety notes, and maintenance considerations, ensuring consistent performance in real-world applications.

Change History

Date	Change	Revision	By
2025-09-18	Initial issue	00	A. Liu
2025-10-23	Add illustrations of pavement section, paving Patterns, QC table and more	01	A. Liu

Approved

Date: 2025.09.26

(Chief Operating Officer)

Installation Instructions for EcoBrik

This manual is controlled under Samsara Materials QMS (Doc ID SM-EB003). Verify the latest approved revision before use.
Units: SI primary (mm, m). Imperial values are shown in parentheses for reference

Product: EcoBrik – Cement-Free Plastic-Composite Paving Block
Manufacturer: Samsara Materials Inc.
Intended Use: Above-grade paving and landscaping applications (walkways, plazas, outdoor flooring).
Scope & Limitations (Canada): For above-grade pedestrian areas and residential driveways (cars/SUVs). Not for heavy truck or structural loads without a professional engineer's design. Maintain 1.5–2% surface slope away from structures unless an engineered permeable design is specified. Apply local frost and drainage requirements. Typical thicknesses: Bedding 25–35 mm; Base 100–150 mm (paths/patios) or 150–200 mm (driveways). Confirm utility locates before excavation.

General Note: The installation of EcoBrik paving blocks is exactly the same as regular concrete bricks. Standard practices and tools used in concrete brick paving apply directly to EcoBrik, with the added benefit of reduced weight for handling and easier cutting.

What is EcoBrik?
EcoBrik pavers are made from a composite of recycled plastic and silicate (sand). They provide superior physical strength compared to traditional concrete bricks, yet are easy to cut to the sizes you need.

Before you start
- Where you can use them: patios, paths, garden areas, and residential driveways (cars/SUVs).
- Where you shouldn't: heavy trucks or structural applications unless an engineer approves.
- Weather: Avoid heavy rain or freezing conditions—especially during bedding and jointing.
- Call before you dig to locate underground utilities.

Safety first

- Wear boots, gloves, and safety glasses.
- Use ear protection when cutting or compacting.
- Prefer wet cutting (less dust). Keep fingers away from blades.

Tools you will need

- Shovel, rake, wheelbarrow
- Straightedge/Screed rails
- Level/String line
- Plate compactor (75–100 kg) with a non-marring pad (to protect the pavers)
- Rubber mallet and hand tamper (for tight spots)
- Continuous-rim saw with a diamond blade for cutting
- Broom and garden hose/nozzle (or blower)
- PPE (eye, ear, gloves, safety boots).

Materials you will need

- EcoBrik pavers (blend boxes from multiple pallets for a consistent look)
- Base gravel: well-graded crushed stone, e.g., 19 mm (¾-in) minus
- Bedding layer: washed concrete sand (for standard builds)
- Permeable option: 2–5 mm clean stone chips for bedding and joints
- Jointing sand: dry fine/polymeric sand (standard builds)
- Edge restraints: aluminum/HDPE/steel with spikes Ø10–12 mm × 200–300 mm (Corrosion class: Hot-dip galvanized as minimum; consider stainless steel in coastal or de-icing environments.)
- Landscape fabric (optional) for soft soils

Pick your build type

- Standard (most projects): Water runs off the surface to drains.
- Permeable (optional): Water soaks through the joints into the stone below.

How deep should I dig?

Depth = base + bedding + paver thickness.

(1) Good soil & foot traffic (patios/paths):

- Base: 100–150 mm of compacted gravel
- Bedding: 25–35 mm of sand
- Paver: 60 mm

(2) Residential driveway (cars/SUVs):

- Base: 150–200 mm of compacted gravel
- Bedding: 25–35 mm of sand
- Paver: 60 mm

Tip: If your soil is soft or wet, add more gravel on the base or use fabric under the base.

Figure 1 – Typical Pavement Section (not to scale)

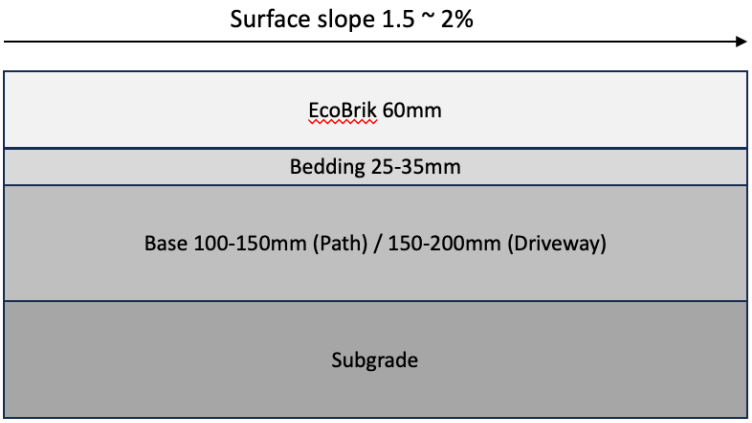
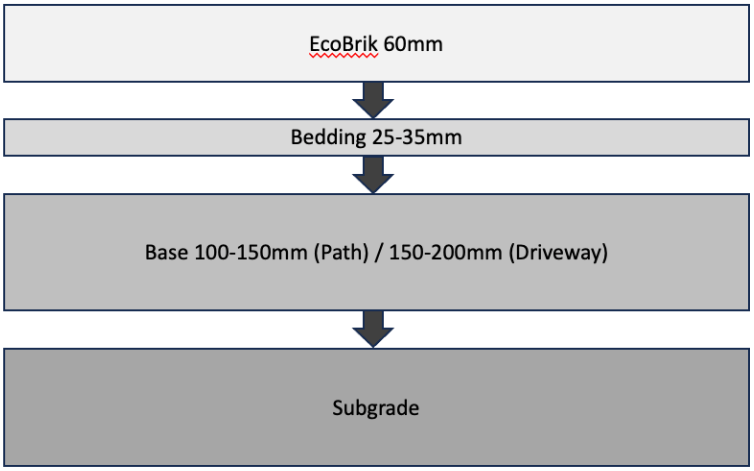


Figure 1A – Exploded Stack (not to scale)



Pre-Installation Checklist

- □ Utilities located/marked
- □ Subgrade proof-rolled; unsuitable soils remediated
- □ Weather suitable (avoid heavy rain/freeze during bedding/jointing)

□ Drainage path and slope planned

□ Access and site protection in place

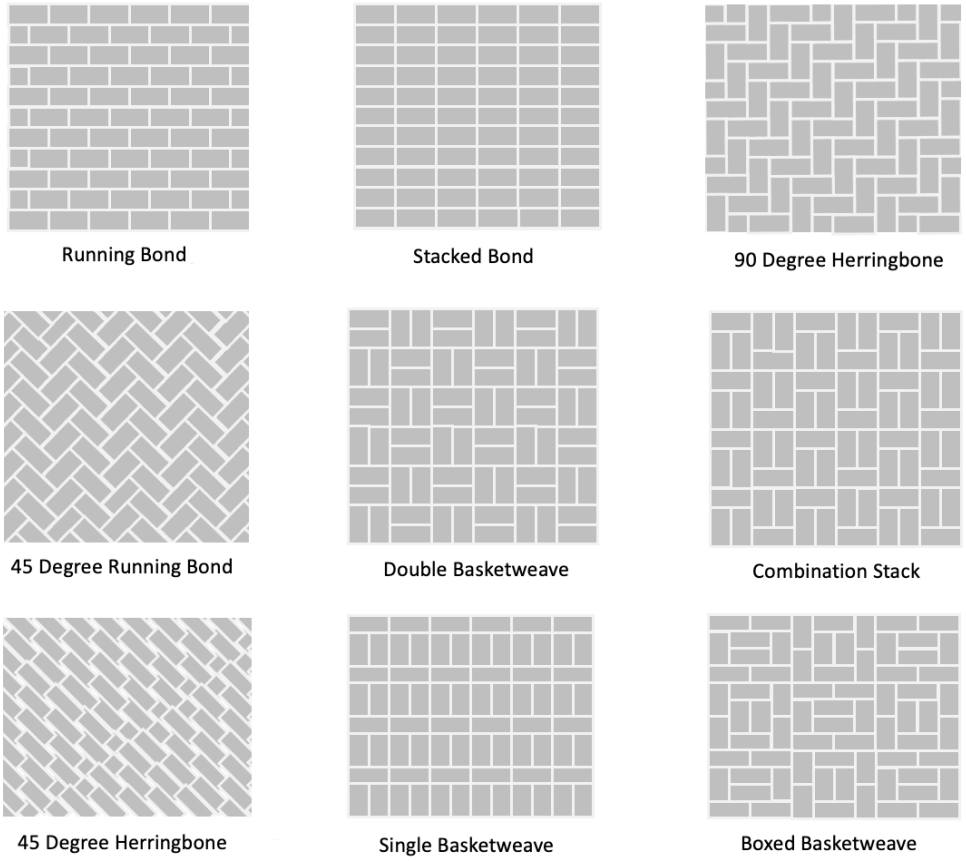
Laying Patterns

Refer to Figure 2 – Laying Patterns for bond options and orientation to follow during installation. The most common patterns are:

- **Herringbone (45° or 90°):** Best interlock and load distribution—recommended for driveways, turning areas, and high-traffic zones.
- **Stretcher/Running Bond:** Clean, efficient look—ideal for paths, patios, and walkways.
- **Basketweave:** Strong visual rhythm—use in courtyards or feature areas.
- **Stack Bond:** Geometric, modern aesthetic—reserve for light-duty areas and accents.

Tips: Start from a straight control line, check squareness and orientation regularly, keep joint widths consistent, blend units from multiple pallets for uniform appearance, and finish with a continuous edge restraint to lock the pattern in place.

Figure 2 – Laying Patterns (examples)



Step-by-step installation

1) Excavate & prepare the ground

- Mark the area and dig down to the required depth.
- Slope the sub-grade away from buildings (aim for 1.5–2%: about 15–20 mm drop per meter).
- Remove organic material and soft spots. If the soil is mushy, add landscape fabric and a bit more base gravel.

2) Base Placement and Compaction

- Spread the gravel in layers no thicker than ~100 mm lifts.
- Compact each layer with the plate compactor until it feels firm and doesn't rut under your heel.
- Verify thickness: 100–150 mm for paths/patios; 150–200 mm for driveways.
- Check level and slope with your string line and straightedge, shape base to 1.5–2% slope away from structures
- When finished, the base should be smooth and firm (≈ ±10 mm over 3 m for the base).

3) Install edge restraint

- Install continuous edge restraint along perimeters.
- Fix with Ø10–12 mm spikes, 200–300 mm long, at 300–450 mm c/c (tighten spacing on curves).
- Use hot-dip galvanized or stainless fasteners in coastal or de-icing regions.
- Optional concrete haunch may be used for added confinement and durability.

4) Screed the bedding layer

- Set two straight rails (pipes/boards) on the compacted base.
- Pour 25–35 mm of washed sand (or 2–5 mm chips for permeable) between the rails.
- Screed with a straight board to get a flat, even layer.
- Do not walk on or pre-compact the bedding once screeded.

5) Lay the pavers

- Start from a straight edge or 90° corner.
- Keep 2–5 mm gaps between pavers (use spacers if you like).
- Recommended patterns: herringbone for driveways; running bond or basket weave for patios/paths.

- Blend from several pallets as you go for consistent color/texture.
- Cutting: Use a wet saw with a diamond blade. Place cut edges against borders.

6) Initial Compaction (before joint fill)

- Compact laid units using a plate compactor with non-marring pad, at least two perpendicular passes.
- Check lippage and plane after the first pass, correct before joint filling.
- Sweep the surface clean.
- Run the padded plate compactor over the area in two directions (cross-hatch).
- Tap any high corners with a rubber mallet.

7) Fill the joints & final compaction

- Ensure the surface is completely dry for jointing/polymeric sand.
- Sweep dry jointing/polymeric sand into the joints until full.
- Compact again in two directions; top up joints and re-sweep.
- If using polymeric sand, lightly mist per the product label and keep traffic/rain off for 24–48 hours.

Figure 3 – Compaction & Joint Filling Sequence

Tolerances (apply consistently across project)

- Surface flatness: ≤6mm over 3 m straightedge (paths/patios and driveways)
- Lippage (adjacent units): ≤3 mm
- Edge alignment: ≤5 mm over 5 m
- Crossfall/longitudinal slope: 1.5–2% unless engineered otherwise

Simple checks

- Surface flatness: about 6 mm variation over 3 m.
- Adjacent edges (lippage): ≤ 3 mm height difference between neighboring pavers.
- Slope: 1.5–2% away from buildings for standard builds.

Cutting, drilling, and fixing accessories

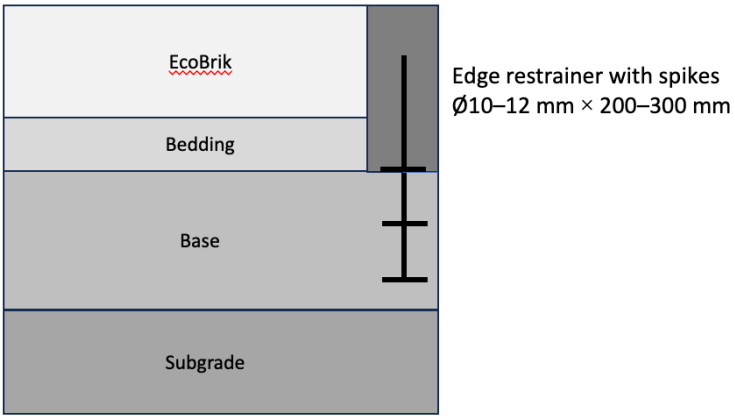
- EcoBrik is easy to cut with a diamond blade (wet cutting is best).

- You can drill and fasten light accessories: keep holes at least 25 mm from edges, don't overtighten screws, and allow a tiny bit of wiggle room for temperature changes.
- These add-ons are not a substitute for proper edge restraints.

Connectors & fasteners

- Plastic/HDPE edging: galvanized landscape spikes Ø 10–12 mm, length 200–300 mm, spaced 300–450 mm (closer on curves).
- Steel edging (12 ga): stake pins at 300–450 mm spacing.
- Concrete curb/haunch: optional.

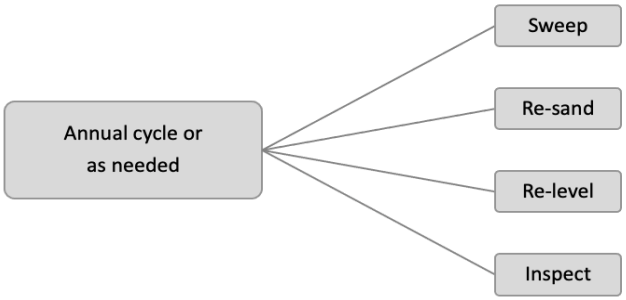
Figure 4 - Edge Restraint Detail (not to scale)



Cleaning and care

- Right after install: sweep off all sand residue (especially before wetting polymeric sand).
- Routine: sweep regularly; rinse with water and a mild detergent if needed.
- Stains: test any cleaner on a hidden piece first.
- After winters: top up any low joints and re-level settled spots.

Figure 5 - Maintenance Cycle



Common issues & quick fixes

- Wobbly or sunken spots: base wasn't thick or compacted enough → lift the area, add/compact more base, reset.
- Gaps reopening in joints: not fully filled or heavy rain during curing → refill joints; for polymeric, re-activate as directed.
- Puddles: not enough slope or clogged permeable joints → adjust grades or vacuum-sweep permeable joints and top up chips.
- Haze after polymeric sand: residue got wet on the surface → let dry; use the sand maker's haze remover if needed.

On-site QC Table

What to check	Good result	How to check
Base compaction (driveways)	High density (typical equals "98% lab maximum" many inspectors use)	Field density test or experienced proof-roll
Bedding thickness	25–35 mm, even	Probe/spot checks
Joint width	2–5 mm consistently	Visual/feeler gauge
Surface level	≤ 6 mm variation over 3 m	Straightedge
Alignment	±10 mm over 10 m	String line
Paver condition	No cracks or chips	Visual

On-site QC – Quick checklist

- ☐ Lay the base gravel in layers no thicker than 100 mm and compact each layer until it's firm.
- ☐ Make the top of the base smooth (≤10 mm over 3 m) and slope it about 2% so water drains away.
- ☐ Screed the bedding sand to 25–35 mm. Don't compact it before laying the bricks.
- ☐ Keep the pattern straight, joints about 2–5 mm, and install continuous edge restraints.
- ☐ Use the spike size and spacing called for, with corrosion protection suited to the site.
- ☐ Use a plate compactor with a non-marring pad and do the seating passes before adding joint sand.
- ☐ Sweep in the joint sand to the right level, then clean the surface.
- ☐ If using polymeric sand, activate it properly and keep it protected for 24–48 hours (follow the manufacturer's directions).

☐ Do a final walk-through and sign off.

Storage and Handling

- Store wrapped on pallets, flat on level ground;
- Avoid prolonged high heat (>50 °C) and direct sun where possible;
- Provide shade/cover.
- Do not flame-cut or heat-modify.
- Retain pallet labels for traceability.

Health, Safety, and Environment

- Cutting: Wear eye and ear protection.
- When cutting adjacent mineral products (e.g., concrete curbs), use wet cutting to suppress dust and follow local silica-dust controls.
- Compaction: Vibration and noise require appropriate hearing protection.
- Environmental: Manage runoff from wet cutting per local bylaws

Seasonal Maintenance

- Inspect after freeze–thaw, re-seat localized settlement and top-up joints as needed.
- De-icing salts are compatible with EcoBrik, verify compatibility of selected edge restraint materials.
- Keep surfaces clean; optional sealing per manufacturer guidance.

Common Issues & Remedies

- **Waviness/plane errors**: Re-check base placed in ≤100 mm lifts, re-level and re-compact.
- **Joint loss**: Top-up with properly graded jointing sand; consider polymeric in high-wash areas.
- **Edge creep:** Repair/add restraint; confirm spike length/spacing and consider haunch where needed.

References

Project-specific engineer's details govern where more stringent. Typical municipal standards for segmental paving may be referenced as informative guidance only.