Grass Block Installation Guideline

The Bosun Grass Block is unique in various aspects. It therefore also requires attention to specific details in terms of its installation.

This guideline is intended to offer simple advice on the installation of these blocks. Much of the information contained in this document was extracted from SANS 1200MJ, the official South African standard for concrete paving installation. Aspects critical and /or unique to the Bosun Grass Block are therefore highlighted in red.

Bosun cannot guarantee that the information in this document is 100% correct for any individual project and therefore can't accept any responsibility for errors or problems encountered by anyone who uses the information in this document. Further, Bosun cannot accept any liability for consequential or actual damages of any kind incurred as a result of the information and advice in this document. Bosun strongly recommend that you obtain professional, on-site advice by an engineer, as every paving project is unique with its own unique problems.

We consider this document as work in progress. Please share any further advice with your Bosun representative, in order for us to improve this set of guidelines where possible.

The Bosun Grass Block with its honeycombed cavities is designed to facilitate the growth of grass within a supporting concrete matrix, allowing grass to be cut in the conventional manner. Because of its design, the Bosun Grass Block is not recommended for heavy duty industrial applications.

Conceptually there are two applications for Bosun Grass Blocks:

- A paved surface with some degree of permeability.
- A paved surface planted with grass. In this document, these two options serve as guidelines in most aspects of installation.

In our experience, the greatest issues around this product are:

This product must be laid FLAT. If it is laid in curves, especially concave in nature, then major spalling could occur. This is why a larger jointing gap of 10mm is suggested. The 100mm height of the product does not allow for curvatures.

BASE PREPARATION

Irrespective of its application, it is critical to the long lasting stability of Bosun Grass Block paving that the supporting base for the blocks be properly constructed. The four main aspects of the base preparation are:

- Drainage
- Subgrade
- Base-course
- Bedding course

DRAINAGE

- The Bosun Grass Block, is a permeable form of interlocking paving for areas where the stability of paving is needed, but the function and aesthetics of grass is desirable. The Grass Block system allows some stormwater to infiltrate through the grass cells, decreasing the volume of runoff that leaves the site.
- Where permeability is of critical importance it is recommended that the system should not be planted but rather for the cavities to be filled with 6.7mm single size stone.
- For a system where permeability is of critical importance, it is recommended to consult an engineer about the design of suitable layer works. (The Bosun Waterwise Paver Installation Guidelines could serve as a basic introductory reference.)

The remainder of this document will focus on the installation of Grass Blocks to be planted with grass.

SUB GRADE

- The sub grade is the upper part of the soil, natural or constructed, which supports the loads transmitted by overlying paving.
- All vegetation and top soil must be removed.
- Must be well drained and compacted.
- Insufficiently prepared sub grade will cause a Grass Block installation to fail in the long term.

BASE COURSE

- The base-course is the foundation for the Grass Blocks. The subgrade could serve as base course where the sub-grade material is compact and uniform. (Consult an engineer for advice.)
- The base course should be compacted with a roller.
- The compacted surface should be tight or close knit to prevent downward migration of bedding course material.
- Insufficiently prepared base course will cause a Grass Block installation to fail in the long term.

BEDDING COURSE

- The bedding course is the layer that the Grass Blocks rest on.
    - Well-graded, washed river sand is recommended as a bedding course material for Grass Blocks.
        - It is essential for bedding sand to be graded to the following specifications as per SANS 1200MJ and it may contain no foreign objects:

Nominal Sieve size (mm)	Passing
9.524.752.36	10095-10080-100
1.18	50-85
0.600	25-60
0.300	10-30
0.150	5-15
0.075	0-100

- The uncompacted bedding course should be 25mm thick as recommended by SANS 1200MJ.
- Carefully screed (level) the bedding course with a straight edge.
- Do not use topsoil or compost as bedding course even if grass will be planted in the blocks.
- Bedding sand MUST be moist when the pavers are packed.
- (According to SANS 1200MJ only enough bedding sand should be spread out for one day’s installation at the most. (If more bedding sand is spread out - it will become too dry.)

- A well prepared, moist bedding course is the most important aspect of the installation of Grass Blocks. Apart from determining the accuracy of the installation, Grass Blocks will eventually fail if the bedding course was not sufficiently prepared.

EDGE RESTRAINTS

Restrain the perimeter of the laid grass blocks to prevent the washing out of the bedding sand and grout (this will cause subsidence of Grass Blocks on the edge and could result in movement of the blocks).

Good edge restraints are:

- Kerbs like the Bosun Figure 12 garden kerb for small domestic applications or Bosun heavy duty kerbs for larger sites.

Kerbs should be in place before levelling bedding sand

HANDLING OF PRODUCTS

To minimize damage to Grass Blocks during transport:

- Transport in packs. Place packs as close as possible to the laying surface to prevent excessive handling.
- Carry blocks by hand to the laying area.
- Blocks could also be transported in specially prepared wheelbarrows and packed / unpacked individually by hand. Wheelbarrows should have a padding lining and even between layers of blocks, similar to the thick fabric used by moving contractors.

SETTING OUT

Ensuring that your pattern stays aligned:

- Use taut setting out lines, this is a grid of string or nylon lines spaced at exact intervals.
- Constantly re-check your lines in all directions while installing the pavers as it is very difficult & time consuming to straighten lines at a later stage.

LAYING PATTERNS

The Bosun Grass Block could be installed two laying patterns.

- A stack bond pattern where blocks are laid directly next to each other in a grid, similar to common tiles.
- A stretcher bond pattern where Grass Blocks overlap. Ensure that the honeycomb pattern stay aligned by carefully matching the straight edges with each other. (Recommended.)

CUTTING

If necessary, Grass Blocks can be cut:

- With a brick cutting machine or,
- With an angle grinder with a carborundum masonry disc or diamond blade.
- Use the ridges on the blocks as guidelines where possible.

LAYING THE BOSUN GRASS BLOCK

- Wooden spacers are available to use when installing Bosun Grass blocks.
  - Consult your Bosun representative in this regard.
  - These spacers are to be placed between the Grass Blocks in order to prevent the chipping of paving post installation, prior to grass growing, adding further structural integrity to the system.
  - These spacers are designed in order to eventually disintegrate when soil and grass settles, interlocking the blocks to a certain degree.
  - These spacers will ensure spacing of 10mm between Grass Blocks.
- Concrete is brittle. Consequently expect up to 5% of the product to have small chips when delivered. Chipped products should be used for cutting where possible. It is imperative that the home owner, quantity surveyor and/or contractor allow for wastage of 5% in order to replace blocks that are chipped or damaged through handling during the laying process.

COMPACTION OF PAVING

It is recommended that newly laid Grass Blocks be compacted by:

- A plate compactor with rubber mat.
- Ensure bedding sand is moist, yet not saturated with water when compacting at this stage.

JOINT FILLING

- Riversand is used as jointing and filler material in the installation of Grass Blocks.
- Sweep the riversand over the paved area in order to fill the voids and gaps between Grass Blocks.
- Grass seeds and fertiliser could be mixed with the Riversand.
- Compost and lawn dressing are not recommended as joint filling.
- Compact the paved area again after filling the joints and voids and sweep additional sand onto the area if required.
- It is recommended that the final level of riversand be 5mm- 10mm below the top surface. This will provide protection to grass from vehicle tyres and lawnmowers.

General

- Creeping grasses like Kikuyu and LM are recommended to plant in Grass Blocks.
- Tufts of non-creeping grass could be used when it is required to maintain the concrete pattern of the blocks between the grass. Consult a horticulturist for a non-creeping grass suitable for this purpose in your climate.