



Natura Grass Pavers For Podium Solutions

Brief Note on the System,
Functioning and Peripheries

Podium Design considerations

- Careful planning by architects and design engineers can maximise the use of valuable open spaces by covering roofs with green roof combined with or without suitable hard-landscaping to provide access for vehicles and/ Fire engine
- Building structures with wide construction spans have a limitation on roof loads. There exists a requirement for Natura light weight grass pavers for podium solutions.
- Any design will need to accommodate specific construction requirements such as the required build-up depth for elemental paving, the depth of growing medium required by the Lawn, the maximum permissible surface loads,
- Natura grass pavers & Natura Drainage Cell in a combined form provide the required solution.
- Natura's system weight approximately 5-8kgs/ SFT and consumes 500 ml/ sq foot of water and the height of the green roof is only 120mm.in which substrate height is only 50mm



Natura Grass Paver is extremely strong. Independent lab compression tests show with a load bearing capacity of 15,940 psi (2.29 million pounds per square foot – 109,906 kPA). Thus, the design safety factor is $15,940\text{psi}/120\text{ psi} = 132.8 \times$. This equates to nearly a 133 times safety factor for any street legal vehicle. Building structures with wide construction spans have a limitation on roof loads.



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Natura Grass Pavers

All grass paving reinforcement structures are designed for two primary functions -

- transfer loads through the walls of the structure to prevent compaction, and
- provide small cellular confinement areas for optimal growth and protection of the grass root zone.

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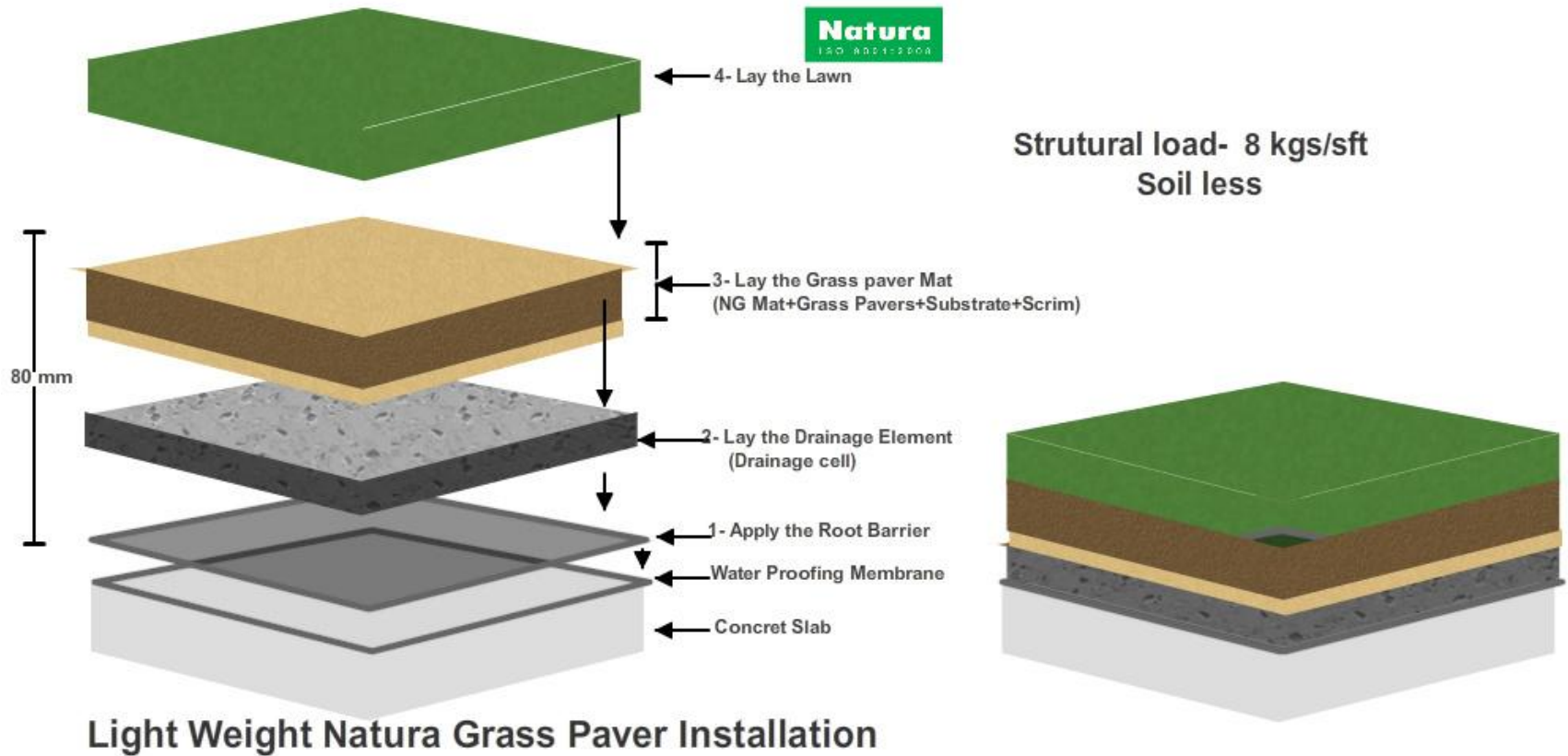
Natura Grass Pavers

LOAD STRENGTH

- With an unfilled compression strength of 493 psi (3399 kPa) and an incredible filled strength of 6,747 psi (46,518 kPa) the NATURA Grass Paver has been independently tested to exceed AASHTO load requirements for highways and bridges with a multiple safety factor at even the highest level.



Natura Grass Pavers



Podium Site Requirements

Site Requirement:

1. 100 mm Sunken slab or 100 mm skirting to contain the system
2. Waterproofing on the application area.
3. Water source for irrigation. Minimum 2.5 – 4.5 kgs/cm² of water pressure required if rotor sprinklers are to be incorporated.
4. Access for Maintenance

Natura Grass Pavers



Grass Pavers provides the strength of pavement with the natural beauty of grass while simultaneously eliminating soil compaction, reducing reflective heat and allowing for all weather accessibility at a very cost effective price. Grass Pavers can be used for green driveway, for overflow and event parking , for fire engine access lanes , for pedestrain walkways, for utility and emergency access , for reinforcement for infiltration areas.

Size 500mmX500mmX40mm

Compressive strength >200 tons/m²

Weight 8.3 Kgs/m²

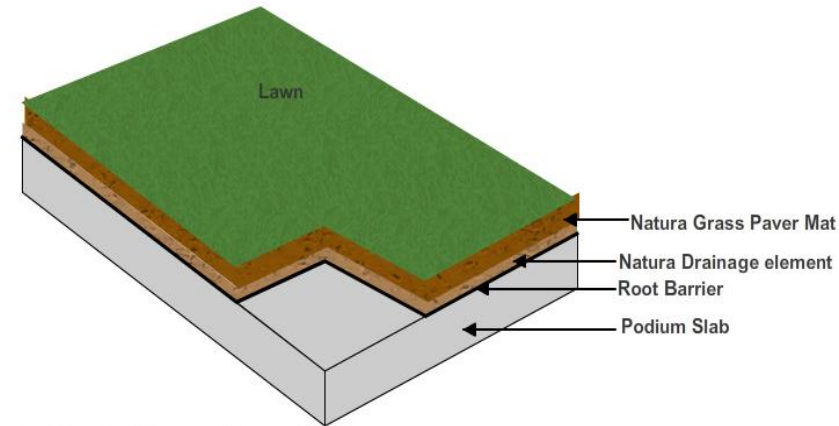
Light Weight Podium Lawns

Natura's System:

- The green roof and roof lawn system consists of the following products:
 - HDPE Root Barrier Sheet
 - ND Cell (Natura Drain Cell)
 - NGP Mat (Natura Grass Paver Mat)
 - Lawn

Laying Methodology for Podium Lawns:

- A thin water proof/ Root Barrier Sheet is laid on the waterproofed roof surface.
- The ND Cell is then laid on top of the above root barrier sheet.
- NGP Mat (Natura Grass Paver Mat—Manufactured by a combination of Natura Grass Paver ,NG Mat (Natura Geo Mat) and the NSAP (Natura Super Absorbent Polymer) substrate in a tile form consolidated with Scrim.
- Finally the Mexican Sod Lawn is laid on top and the system is then watered
- The compressed Super absorbent natural polymer present in the NR Mat expands 5 times to its normal size and retains water and helps the roots to set.



Light Weight Natura Grass Paver



Technical Specification

Parameters	Natura's System
<i>Weight</i>	5-8 Kgs/ Sft
<i>Layer Height</i>	Wet: 100 mm - 150 mm Dry: 65 mm – 75 mm
<i>Roof Pitch</i>	1-5°
<i>Vegetation Form</i>	Mexican Sod Lawn, Ground Covers & selected grasses
<i>Water Consumption</i>	500 ml/ SFT
<i>Watering Frequency</i>	Once every 2 days
<i>Run-Off Discharge</i>	Slow Release
<i>Modulus of Rupture (Min)</i>	16 N/mm ²

Comparative Study

Parameters	Conventional System	Natura's System
<i>Structural Weight</i>	80 Kgs/ Sft	5-8 Kgs/ Sft
<i>Depth Required</i>	300 mm Minimum	100 - 150 mm Maximum
<i>Growing Media</i>	Soil	Natura Substrate
<i>Drainage Layer</i>	Plastic	Natura Drain Cell
<i>Slab Protection</i>	No Capillary Action	Capillary Action
<i>Filter Membrane</i>	Plastic	Natura Geo Mat
<i>Filter Process</i>	Blockage Possible	No Blockage
<i>Storm Water</i>	Flooding	Gradual Release
<i>Water Requirement</i>	6 Ltrs/ Sft	0.5 Ltr/ Sft
<i>Texture</i>	Hard Lawn	Soft Lawn

BOQ Specification

Specification to be mentioned in a BOQ:

1. BOQ for Light Weight Grass paver lawn for Podium:
 - Supply of light weight Grass paver lawn for Podium system which consists of a HDPE root barrier sheet, 20 mm **Natura** Drain cell (Dry size), 50mm **Natura** grass paver system(dry size) consisting of 40 mm **Natura Grass paver** inlaid with 15mm Super **Natura** Absorbent Polymer Substrate & positioned on 10 mm **Natura** Geo Mat in a tile form consolidated with Scrim expanding to 50 mm with the addition of 4.25 ltrs of water/SFT, covered with Mexican Sod Lawn of 40 mm Thickness .
 - Entire system to weigh 8 kgs/ SFT $\pm 10\%$ in the wet form and have a height of 100 mm $\pm 10\%$

Benefits of Natura's Roof and Podium solutions:

- Reduced structural requirements. Lower steel and concrete consumption for slab.
- Reduction in water consumption.
- Reduction in maintenance.
- Thermal Insulation provides for reduction in energy consumption.
- Increase in ceiling height of podiums and building
- Added utility area for end user.
- Aesthetic utilization of Roof Tops & Podiums.
- Better breathing environments.

LEED Certification Credits of Natura's Roof and Podium solutions:

- SS 6.1 & 6.2 Storm water design –Quality control.
- SS 7.1 & 7.2 Heat Island effect.
- WE 1.1 & 1.2 Water efficient landscape.
- MR 4 & 6 Materials and Resources
- ID 1 Innovation in design

Contact Us

Natura:

- Is a landscape solutions company that specializes in Green Walls, Roof-top and Podium Lawns, Green Roofs, Terrace and Balcony gardens and design oriented landscaping.
- Natura uses a renewable material in Coir to achieve effective sustainability thorough water and energy conservation.

Contact Us:

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