StaLok® Fiber for Multi-Use Applications
(Firelanes, Vehicular Access, Land Forms)

Frank Gehry Pavilion, Millenium Park – Chicago, IL
Materials

StaLok® Fiber

StaLok Fiber is a synthetic fiber that mimics a natural grass root. The fiber stabilizes the root zone underneath, so the turf on top can withstand impact. Many fibers intertwined with the grass roots create a network. With the fiber's flexible strength multiplied across the network, impact can be spread- increasing the turf's load bearing capacity. Application rate is approximately 1-lb per 10-sqft.

![StaLok Fiber](image)

*StaLok® Fiber is available in 30-lb bags, or 700-lb to 1,000-lb boxes*

Sub-base

The entire base system is where a great surface begins. A proper base system will give the surface stability and facilitate drainage. With a proper sub-base, StaLok® Fiber sand-based systems have been shown to support a 60,000-lb load per sqft.

![Miami Beach firetruck](image)

_Miami Beach 56,000-lb firetruck on a StaLok® Fiber Sand-based system_

To begin, grade and compact sub-base to 95% compaction (ASTM D698). The sub-base should be as smooth as possible with no wheel ruts. Install 6-inches of (15.2-cm) DOT approved base material.

Sand-Base (Sand/Peat Blend)

High-quality sand is important to the health of the rootzone and fiber system, facilitating drainage and providing a strong base for growth. The must meet the particle size analysis and physical performance criteria as shown below. A sample should be submitted to Stabilizer Solutions, Inc. for approval. The recommended tests include: grain size analysis, percentage of sand, silt, and clay, and infiltration rates. All testing of representative samples from material sources should be performed by an approved construction materials or soil laboratory. The approved sand should be available in sufficient quantities for the project.

It is important to perform quality control testing for every 500-tons of soil delivered to the site to ensure all soil meets these requirements.
Particle Size Criteria

<table>
<thead>
<tr>
<th>USDA PARTICLE NAME</th>
<th>US STANDARD SIEVE NUMBER</th>
<th>DIAMETER OF PARTICLE IN MILLIMETERS</th>
<th>ALLOWABLE RANGE % RETAINED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravel</td>
<td>6</td>
<td>3.35</td>
<td>0</td>
</tr>
<tr>
<td>Fine Gravel</td>
<td>10</td>
<td>2.000-3.35</td>
<td>0 No More</td>
</tr>
<tr>
<td>Very Coarse Sand</td>
<td>18</td>
<td>1.000-2.00</td>
<td>&lt;5% than 10 combined</td>
</tr>
<tr>
<td>Coarse Sand</td>
<td>35</td>
<td>0.500-1.00</td>
<td>&lt;25%</td>
</tr>
<tr>
<td>Medium Sand</td>
<td>60</td>
<td>0.250-0.50*</td>
<td>50% - 90%</td>
</tr>
<tr>
<td>Fine Sand</td>
<td>100</td>
<td>0.100-0.25</td>
<td>&lt;15%</td>
</tr>
<tr>
<td>Very Fine Sand</td>
<td>270</td>
<td>0.050-0.10</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Silt</td>
<td>0</td>
<td>0.002-0.05</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Clay</td>
<td>0</td>
<td>&lt;0.002</td>
<td>&lt;3%</td>
</tr>
</tbody>
</table>

*In addition, not more than 20% below 0.25 mm

Physical Performance Criteria

<table>
<thead>
<tr>
<th>Fineness Modulus: 1.4-2.0</th>
<th>Total Porosity: 35% - 55%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniformity Coefficient: &lt;4 (2.5 – 3.5)</td>
<td>Air Filled Porosity: 20% - 30%</td>
</tr>
<tr>
<td>Capillary Porosity: 15% - 25%</td>
<td>Saturated Hydraulic Conductivity: 5” – 15” per hour</td>
</tr>
</tbody>
</table>

The sand-base should have a pH in the range of 5.5 – 7.0. The recommended blend for the sand-base and sod topping is 90% sand and 10% peat by volume. The Peat should have a pH no less than 5, be of a medium grade, and have organic content no less than 90% (L.O.I).

Installing the Sand-base

Install a minimum of 6 to 10-inches (15.2 to 25.4-cm) of the approved sand-base with a loader or dozer. Take care not to leave wheel ruts in the gravel base. After the sand-base is laid fine grade and water-settle the material. Consolidate the sand-base with a roller to a dry density between 87-100-lbs per cubic foot. It is important to maintain moisture content between 8-10% during installation. After the sand-base is placed successfully it is now time to spread any soil amendments and fertilizer before spreading the fibers.
**Spreading StaLok® Fibers**

- Place the bags of fibers in a 15-ft by 15-ft grid (approximate).

- Spread the fibers by hand or with a modified straw blower at a rate of 1-lb per 10-sqft. (Do not spread fibers during strong winds. A light water spray can help keep fibers from blowing if wind occurs.)

- Mix the fiber into the sand-base to the specified depth, which is generally 4-inches (12.7-cm) for turf paving.

- To mix the fiber use an approved rototiller or a reverse tiller. Approved equipment includes an Incorporator, Rotodairon, Blecavator, or equivalent.

- The Rotodairon and the Blecavator requires 3-passes in varying directions. Other tillers may require up to 5-passes (do not exceed 5-passes).
Watering & Compacting

Thoroughly soak surface after tilling. Soil should be moistened to minimum depth of 9-inches (23-cm) and kept moist during the compaction phase.

*Saturate area with a water truck.*

Consolidate with a 1 to 5-ton roller to dry density between 87 and 100-lbs per cubic foot. For high or low areas, or irregularities hand-rake to final grade and re-roll.

*Consolidate with a 1 to 5-ton roller*

Maintenance

Grass with the StaLok® Fiber requires no special maintenance procedures.

Normal turf maintenance should be practiced.
References
StaLok® Fiber gives your turf strength without compromising aesthetics. In use internationally for over 20 years, some of the world’s greatest projects use StaLok® Fiber, here are a few.

The Nasher Sculpture Center - Dallas, TX USA

Crissy Field – San Francisco, CA USA

Teardrop Park - Battery Park City, NYC USA