

**1-05**

## Filtrexx Living Wall™ System – Overview



### **Description**

Bioengineering provides a softer approach compared to hardscapes. Replacing block walls, cement, gabions or rip rap with sustainable designs that are softer and greener is a common theme among designers wishing to keep their projects looking more like natural areas. The use of Filtrexx Living Walls™ involves stacking FilterSoxx™ on top of one another in a recessed bank situation, against the bank, with backfill media filling in

apparent open voids. The Living Wall™ is also part of the EdgeSaver™ system, where streambanks are in need of lifting banks within the design of the repair work.

The use of Living Walls™ allows the introduction of native vegetation into the system and allows it to become established before it washes away. The reinforcement provided by the FilterSoxx™ allows a good growing media, a nurse crop, irrigation, and proper staking to increase chances of success for establishment.

## **Conditions where practice applies**

Filtrexx FilterSoxx™ are used in combination with backfill to create a Living Wall™, a sustainable, customizable, scalable solution to a challenging area of steeply eroded streambanks or pond banks. Eroded edges of streams or lake edges are difficult to re-vegetate because it is hard to establish plants on an already eroding slope. Loose products like soil or mulch are commonly added to edges only to find them eroded or washed away after the first rain. As such, the Filtrexx Living Wall™ uses Filtrexx FilterSoxx™ to prevent erosion until plants become established.

Compost (Growing Media) used to manufacture FilterSoxx™ for Living Wall™ applications has been known to provide an excellent growing media for vegetation establishment. By allowing vegetation to become established prior to further slope erosion, the Living Wall helps provide sustainable, green solutions.

Other ideal locations for a Living Wall™ are in places where current construction abruptly meets a steep slope, bank, lake, or pond. In these areas, tying into native vegetation is a challenge with hard armor tools available. Additionally, clients who want a natural look will much rather have plants as the edge of a parking lot than block walls. (see above pictures as an example of a parking lot)

## **Planning considerations**

The Living Wall™ system needs to include a good source of vegetation capable of being established and growing on the banks for a long-term solution. Although turf grasses are an ideal nursery crop, they should be considered along with other perennial or shrub species that are available by seed, bare root, live cuttings, plugs or stakes. Consideration for future habitat should include water flow, wildlife habitat, concerns for spreading of invasive species, and aesthetic concerns with the surrounding area. Finally, long-term maintenance should be considered during plant selection stage to ensure that a minimal maintenance plan over the next several years helps to maintain the sustainable design of the Living Wall.

## **Specifications for Using Filtrexx Living Wall™**

Section \_\_\_\_: Filtrexx Living Wall™ installation and Maintenance

### **1.0 Description:**

This work shall consist of furnishing, installing, & maintaining a filter sock (Filtrex FilterSoxx™) to offer containment of materials capable of supporting vegetation & preventing erosion along a steep bank, stream or pond bank with the Filtrex Living Wall™ system. FilterSoxx™ will be used in combination with backfill media (see CAD drawings attached) where required to re-establish appropriate grades along banks of the slope. Backfill media will be able to support vegetation and blend in with the edge of the system (which is the FilterSoxx™ itself).

## **2.0 Products used to fill Filtrex Living Wall™**

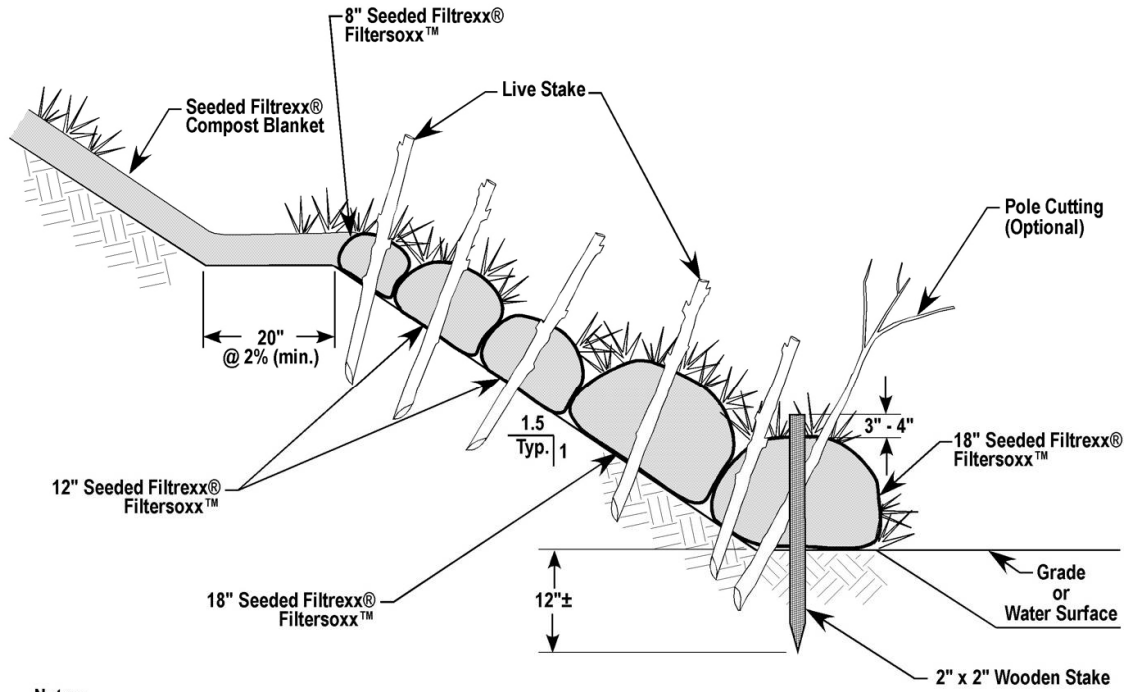
**1. Composted product:** Compost (Growing Media) used for the Living Wall™ system shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations, including time and temperature data indicating effective weed seed, pathogen and insect larvae kill. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow USCC TMECC guidelines for laboratory procedures:

- A. PH – 5.0-8.0 in accordance with TMECC 04.11-A, “Electrometric pH Determinations for Compost”
- B. Particle size – 99% passing a 1” sieve, 90% passing a ¾” sieve and a minimum of 50% passing the 3/8” sieve, in accordance with TMECC 02.02-B, “Sample Sieving for Aggregate Size Classification”
- C. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
- D. Material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.
- E. Nutrient content shall be no greater than a 1-1-1 analysis of N-P-K using traditional nutrient analysis. However, at least 95% of the nitrogen shall be in the organic form, in order to reduce concerns about nutrient transport and leaching.
- F. A sample shall be submitted to the engineer for approval prior to being used and must comply with all local, state and federal regulations.
- G. Compost product shall be an approved Filtrex Growing Media, as determined by testing procedures outlined by Filtrex International, LLC. A copy of an approved report shall be kept on file.

## **3.0 Construction and installation of Filtrex Living Wall™:**

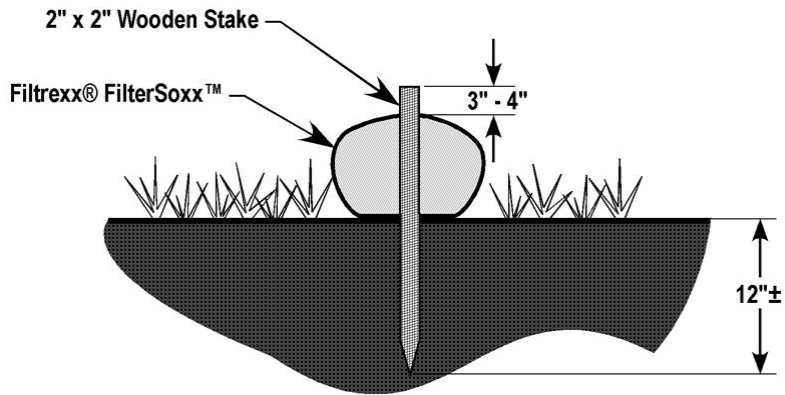
1. Filtrex Living Wall™ will be used as a form of slope or bank protection within existing streambanks, slopes or pond banks. The FilterSoxx™ filler material shall be pneumatically injected into the FilterSoxx™ on site.
2. Filtrex Living Wall shall be placed at locations indicated on plans as directed by the Engineer. Living Wall should be installed in a pattern that allows complete protection of the streambank, slope or pond bank area. When required, the design may allow for the creation of terraces within the floodplain. (See attached cad drawings).
3. Installation of Filtrex Living Wall™ will ensure a continuous sock. When completing one section of sock filling, the next section shall be ‘sleeved’ over the first full section by a minimum of at least one-foot overlap. A stake shall be placed in this overlap section, securing the two sections together.
4. For cases of terrace applications, larger diameter, heavier FilterSoxx™ will be placed on the bottom and sequentially smaller FilterSoxx™ placed on top.
5. FilterSoxx™ shall be constructed of a knitted mesh material and filled with a compost product that passes the criteria listed in section 2.
6. Living Wall™ applications must be seeded during time of installation to create better anchoring to the soil and surrounding site. Turf seed should be used as a nurse crop to other vegetation planned to naturalize the site.
7. During installation of Living Wall™, all layers of FilterSoxx™ should be staked to hold against existing banks. As vegetation grows in over time, stakes may be removed or left in for additional support.
8. Where possible, create a transition zone between the Living Wall™ and the upslope area by including a Compost Blanket above the Living Wall™. If possible, use the same vegetation in all areas for a nurse crop, followed by native plantings of plugs, seed, live stake, or bare root.

## Filtrexx® Living Wall™ Slope/Bank Stabilization System



**Notes:**

1. All material to meet Filtersoxx™ specifications.
2. FilterSoxx™ compost/soil/rock/seed fill to meet application requirements.
3. Typical FilterSoxx™ illustrated. Modify to meet application requirements.



**Filtrexx® FilterSoxx™ Section**

### 4.0 Maintenance:

1. The contractor shall maintain the Living Wall™ system as functional at all times for a period of one year and it shall be routinely inspected. However, if seed and vegetation does not grow into the FilterSoxx™ then live staking or additional seed may need to be added at a later date. This can be done by adding a second backfill layer across the Living Wall™. It may be necessary to water this second seeding if normal rainfall is not adequate.
2. After the first season, when vegetation is established within the Living Wall™ system and growing well into the banks, it is possible to add other choices of native plants that can be planted as live stakes or plug plantings into the existing system. These choices should be made with the advice of a local naturalist familiar with such species as well as avoidance of invasive plants. This option allows the use of proper timing of planting (ie. spring for live stakes) even if the original project did not take place during this timeframe.

### **5.0 Method of measurement:**

Bid items shall show measurement as ‘Filtrexx FilterSoxx™ installed, as part of the Living Wall™ system, per linear foot installed, per diameter (8”, 12”, 18” or 24”) as specified by the Engineer. Additionally, the backfill media will show measurement as ‘Filtrexx Backfill media’, used as part of the Living Wall™ system, per cubic yard of material installed. (In extreme cases where exact engineering estimates are not available, materials may be installed on a per cubic yard basis.

### **6.0 Performance:**

1. Contractor is responsible for establishing a working bio-engineered Living Wall™ system and may, with approval of the Engineer, work outside the minimum construction requirements as needed.
2. Where the Living Wall™ system deteriorates or fails, it will be repaired or replaced with a more effective alternative.
3. Contractor is required to be a certified Filtrexx Installer as determined by Filtrexx International, LLC (440-926-8041 or visit website at Filtrexx.com). Certification shall be considered current if appropriate identification is shown during time of bid or at time of application.

### **7.0 Application guidelines:**

1. Filtrexx FilterSoxx™ shall be made on site using an approved 5 mil continuous, tubular HDPE, knitted, 3/8” mesh netting material, filled with compost (Growing Media) passing the above specifications as outlined in Section 2.0.
2. Filtrexx FilterSoxx™ netting materials are available only from Filtrexx International, LLC and are the only Certified mesh materials accepted in creating Filtrexx products on site.

## **8.0 Available Vendors**

Filtrexx Living Wall may be purchased from the following Certified Filtrexx Installers:

(Contact website for complete list of installers)

Filtrexx International, LLC  
35481 Grafton Eastern  
Grafton, OH 44044  
440-926-8041  
440-926-4021 (fax)  
[www.filtrexx.com](http://www.filtrexx.com)  
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