

Filtrex International is committed to creating high performance environmentally sustainable products, not just for their intended applications, but across the entire supply chain from cradle to end use. At Filtrex International we are moving beyond the concept of *best* management practices (BMPs), and have introduced the idea of a truly *sustainable* management practice (SMP). This is not just a short-term commitment, it is part of our company mission statement.

As part of our mission we strive to protect and restore natural capital, in order to maximize the ecosystem services and benefits they provide all of us. *Natural Capital* is the stock material within the environment which provide free ecosystem services that maintain our economic, environmental, and human health (examples: forests, biodiversity, and *organic matter*). *Ecosystem Services* include soil erosion control, storm water prevention and filtration, maintenance of natural cycles (water, carbon, nutrients), waste reduction, and climate regulation (regional and global). As an example, one tree (natural capital) can evapo-transpire 2.5 million gallons of water over its lifetime, regulating the water cycle and climate (ecosystem services). According to Economist Robert Costanza (1997), ecosystem services have a global economic value of \$33 trillion/year. Ecologist Carl Jordan (1998) adds, the closer we manage landscapes to their natural design the more we save on energy, inputs, hard infrastructure, and financial expenditure...*working with nature* takes advantage of services that are both free and efficient.



Filtrex Living Walls are Sustainable Management Practices

Filtrex products are well known for their storm water quality benefits through natural biofiltration mechanisms, and now we would like to introduce you to why Filtrex is leading the industry in sustainability and maximizing the benefits of ecosystem services provided by Filtrex SMPs.

Water Absorption, Conservation, & Treatment

With approximately 50% organic matter, a high porosity, and high relative surface area, compost has the ability to absorb significant volumes of water. Data extrapolated from published University research shows that each linear ft of 12 inch diameter Soxx (which equates to 1 square foot of Living Wall) with GrowingMedia compost can absorb up to **4 gallons** of water (Faucette et al, 2005; Faucette et al 2007).

This information may be used to determine the potential volume of rainfall absorption and resulting storm water runoff reduction, or the volume of captured storm water that can be treated or used as irrigation if applied to the Filtrex Compost-Based SMP. Each of these scenarios could be extremely beneficial in drought prone or water restricted areas, or where green infrastructure or green building programs have been implemented.



FilterMedia™ Compost for SiltSoxx™

Recycled Organics

Recycling organic wastes by diverting these materials from landfills helps to preserve landfill space, prevents pollution from landfill leachate, and reduces carbon intensive greenhouse gases. The amount of organics recycled/diverted from the landfill per linear ft of 12 inch diameter SiltSoxx with FilterMedia compost = **80 lbs** organics diverted from the landfill, while 1 linear ft of 12 inch diameter GroSoxx with GrowingMedia compost = **160 lbs** organics diverted from the landfill.



GrowingMedia™ Compost for GroSoxx®

Carbon Footprint Reduction

Filtrex Compost-Based SMPs can have a significant impact on a project or site's carbon footprint. There are four key ways in which our products can significantly lower carbon footprint.

1. *Methane Avoidance*: this is the process in which methane gas is prevented from forming due to organic materials being recycled/diverted from the landfill through composting. Methane gas is 25 times more concentrated in carbon than carbon dioxide (e.g. 25 carbon dioxide equivalents or 25 CO₂e). For each linear ft of 12 inch GroSoxx with GrowingMedia compost we prevent **280 lbs** of CO₂e from going into the atmosphere, for SiltSoxx with FilterMedia compost we prevent **140 lbs** of CO₂e (Sakai, 2007).
2. *Carbon Sequestration by Permanent Vegetation*: this is the process of taking CO₂ out of the atmosphere when permanent/perennial vegetation is established in our system (not temporary vegetation). If the project is in the Eastern US the carbon removed from the atmosphere is **0.05 lbs**/linear ft of 12 in vegetated GroSoxx, and if it's in the Western US it is **0.02 lbs**/linear ft of 12 in vegetated GroSoxx (Chicago Climate Exchange, 2008).
3. *Carbon Sequestration by Storing Carbon in the Soil*: this is the process of using the stable carbon in compost, returning it to the soil, and creating a carbon sink (rather than source) as long term soil carbon. When compost is returned to the soil, part of the carbon in compost is

considered active and part is considered passive. The scientific community is currently debating which parts should be considered as long term soil carbon contributing to carbon sequestration. Using only the passive carbon fraction (where there is greater scientific consensus) each linear ft of 12 inch GroSoxx will sequester **27 lbs** of CO₂ (California Environmental Protection Agency, 2011).

4. Transportation Reduction: when we source, manufacture, and utilize compost-based products locally we prevent carbon dioxide emissions due to reduction of transportation in shipping and freight. Many of our competitors source, manufacture, and ship their products from overseas or across the US. The US Green Building Council's LEED Rating and Certification Program also awards credits for choosing products that meet this transportation and CO₂ reduction profile. For each trucking mile reduced we prevent **4.0 lbs** of CO₂ from entering into the atmosphere (US Environmental Protection Agency, 2010). For every **4.7 tons** of CO₂ we prevent or remove from the atmosphere it is the equivalent of removing one mid-size car from the road for one year (US Environmental Protection Agency, 2014).

Transportation Reduction

To determine CO₂ reduction from transportation, you will need to determine the number of truckloads of SiltSoxx/GroSoxx and comparative product to be used, and the distance from the site of manufacture to project site location for both products.

Where:

$$A = (B-C) \times 4.2 - (D-E) \times 4.2$$

A = CO₂ reduced (lbs)

B = Competitor product truckloads (#)

C = Competitor product distance from manufacture to project site (mi)

D = Filtrexx product truckloads (#)

E = Filtrexx product distance from site of manufacture to project site (mi)

NOTE: SiltSoxx values should be used for all applications that use FilterMedia compost; GroSoxx values should be used for all applications that use GrowingMedia compost.

Sustainable Management Practices Quick Reference Guide

Water Absorption/Conservation

(max, per rainfall event)

5 in GroSoxx = 0.6 gal/ft

8 in GroSoxx = 1.7 gal/ft

12 in GroSoxx = 4 gal/ft

18 in GroSoxx = 8 gal/ft

24 in GroSoxx = 16 gal/ft

Recycled Organics Diverted

5 in SiltSoxx = 12 lbs/ft

8 in SiltSoxx = 33 lbs/ft

12 in SiltSoxx = 80 lbs/ft

18 in SiltSoxx = 160 lbs/ft

24 in SiltSoxx = 320 lbs/ft

5 in GroSoxx = 25 lbs/ft

8 in GroSoxx = 67 lbs/ft

12 in GroSoxx = 160 lbs/ft

18 in GroSoxx = 320 lbs/ft

24 in GroSoxx = 640 lbs/ft

Carbon Footprint

1. Methane Avoidance

5 in SiltSoxx = 22 lbs CO₂e/ft

8 in SiltSoxx = 59 lbs CO₂e/ft

12 in SiltSoxx = 140 lbs CO₂e/ft

18 in SiltSoxx = 280 lbs CO₂e/ft

24 in SiltSoxx = 560 lbs CO₂e/ft

5 in GroSoxx = 44 lbs CO₂e/ft

8 in GroSoxx = 118 lbs CO₂e/ft

12 in GroSoxx = 280 lbs CO₂e/ft

18 in GroSoxx = 560 lbs CO₂e/ft

24 in GroSoxx = 1120 lbs CO₂e/ft

2. Carbon Sequestered in Vegetation; Western/Eastern US

5 in GroSoxx = 0.003/0.007 lbs CO₂e/ft

8 in GroSoxx = 0.008/0.02 lbs CO₂e/ft

12 in GroSoxx = 0.02/0.05 lbs CO₂e/ft

18 in GroSoxx = 0.04/0.1 lbs CO₂e/ft

24 in GroSoxx = 0.08/0.2 lbs CO₂e/ft

3. Carbon Sequestered in Soil

5 in SiltSoxx = 4 lbs CO₂e/ft

8 in SiltSoxx = 11 lbs CO₂e/ft

12 in SiltSoxx = 27 lbs CO₂e/ft

18 in SiltSoxx = 54 lbs CO₂e/ft

24 in SiltSoxx = 108 lbs CO₂e/ft

5 in GroSoxx = 4 lbs CO₂e/ft

8 in GroSoxx = 11 lbs CO₂e/ft

12 in GroSoxx = 27 lbs CO₂e/ft

18 in GroSoxx = 54 lbs CO₂e/ft

24 in GroSoxx = 108 lbs CO₂e/ft

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