TechLink Research Summary #3301

LEED® Green Building Credits Using Filtrexx® Organic BMPs

The Leadership in Energy and Environmental Design (LEED) program created and administered by the US Green Building Council (USGBC) is a point accrual and rating system that promotes and certifies environmentally sustainable building projects to create a national standard, through third party verification, in order to increase the value of green buildings in the marketplace. During the site and building design phase of construction a project team of developers, builders, architects, and consultants determine what level of LEED certification they plan to achieve by predicting how many LEED credits they plan to accrue based on material selection and design. Ultimately, the USGBC audits the finished project to determine what the project team was able to accomplish and how many LEED credits the project is awarded. In some cases, the higher the level of certification the greater the value in the market place. LEED Certified buildings generally are less expensive to operate and maintain and have been directly correlated to greater worker productivity, attendance, and well being. Increasingly, municipal and federal government agencies are requiring new construction projects for their agencies to be LEED Certified.

LEED Version 4 is the most current version of the green building and rating system, and **LEED Building Design and Construction for New Construction** is the most widely used program in which Filtrexx products and practices can be readily adopted and used to help a project team accrue credits toward LEED Certification.

Categories under the LEED BD+C rating program include the following; categories in bold are areas where Filtrexx products and practices may be used.

1.Sustainable Sites
2.Water Efficiency
3. Energy and Atmosphere
4.Materials and Resources
5. Indoor Environmental Quality
6. Innovation and Design Process

SUSTAINABLE SITES (SS)

This category is divided into 26 potential credits, although compost BMPs can contribute to a maximum of 8 credits.

Site Development - Protect or Restore Habitat (2 Credits): awards two credits for the preservation or restoration of site wildlife habitat. If the site has been previously developed the plan must restore native habitat to 30% of the site area. Compost products have been widely used for land and ecosystem restoration projects. Compost uniquely restores above and below ground biodiversity and habitat which is essential to plant community health and ecosystem function and sustainability.

Open Space (1 Credit): awards a credit for creating 30% of the site as outdoor space and 25% of this needs to be vegetated. Compost applications have been widely used for vegetation establishment and sustainability.

Rainwater Management (2-3 Credits): awards credits for implementing low impact development (LID) and green infrastructure practices to manage and treat runoff from 95% (2 credits) -98% (3 credits) of the average annual runoff event. For most of the US this is 1.0 to 1.5 inches. Compost has been used widely in LID and green infrastructure practices, including green roofs, bioretention, and bioswale applications.

Heat Island Reduction (2 Credits): awards two credits if the vegetated non-roof and roof area is equal or greater than the total paved and roof area. Compost has been used widely in both green roof and site landscape applications.

WATER EFFICIENCY (WE)

This category is divided into 10 potential credits, with a maximum of 8 credits in which compost products/practices may contribute.

Outdoor Water Use: Reduce 50-100% (1-2 Credits): awards credits for reducing irrigation from potable water supplies by 50% (1 credit) to 100% (2 credits). 100% reduction in irrigation is not required until after a 2 year establishment phase. Compost has a high water holding capacity and has been shown to reduce irrigation requirements with a variety of plant materials and crops.

Indoor Water Use: Reduce 25-50% (1-6 Credits): awards credits for reducing potable water use in building toilet systems or by reduction of wastewater discharge through on-site treatment. Compost has been widely used as a substrate combined with plant materials in water biofiltration systems and constructed wetlands used to treat wastewater, increase infiltration, adsorb/bind pollutants, and recharge aquifers and ground water systems. Composting toilet systems have also been utilized to reduce potable water use to attain this credit. This section awards a credit for each 5% increase in water use reduction starting at 25%, up to 50%.

MATERIALS AND RESOURCES (MR)

This category is divided into 14 sub-categories, with a maximum of 6 possible credits using compost products.

Building Product Disclosure/Optimization - environmental product declarations (1 Credit): awards a credit if products are documented to provide environmental benefits, including: reduce green house gas emissions, reduce nutrients in water bodies, and conserve non-renewable energy. Compost has been widely documented to reduce carbon footprint through methane avoidance and carbon sequestration; reduce nutrients through runoff reduction and biofiltration; and reduce energy use through transport reduction due to local availability and non-virgin materials use due to recycled content attributes. Note: >25% of the total value of permanent building materials must meet this requirement in order for credit award. Product extracted/manufactured/sold 100 miles from building site awarded 200% value.

Building Product Disclosure/Optimization - sourcing of raw materials (1-2 Credits): awards credits for: A. Environmentally Responsible Material/Extraction/Manufacturing/Land Use Reporting (1 credit); B. Leadership Extraction Practice: Bio-Based or Recycled Content (1 credit). Compost is typically made of organic (bio-based) materials, manufactured (recycled), and used (land applied) all within a 100 mile radius. Note: >25% of the total value of permanent building materials must meet this requirement in order for credit award. Product extracted/manufactured/sold 100 miles from building site awarded 200% value.

Building Product Disclosure/Optimization - material ingredients (1 Credit): awards a credit if 99% of material/product ingredients (by weight) can be certified to cause no health/safety issues through entire supply chain. Compost is typically made of all natural, organic materials that pose no health and safety threat throughout the supply chain from cradle to end use. Note: >25% of the total value of permanent building materials must meet this requirement in order for credit award. Product extracted/manufactured/sold 100 miles from building site awarded 200% value.

Construction & Demolition Waste Management (1-2 Credits): awards credits for diversion of construction and demolition (C&D) waste from landfills. Diverting 50% of C&D waste with 3 source separated waste streams (1 credit), or 75% of C&D waste with 4 source separated waste streams (2 credits). Some of these materials may be composted on-site or diverted to commercial composting operations.

REFERENCES

Katz, G. 2003. The Costs and Benefits of Green Building: A Report to California's Sustainable Building Task Force.

McGraw-Hill Construction, 2008. Smart Market Trends Report 2008.

*Information provided that is specific to Filtrexx products/compost has not been reviewed by the USGBC and will need to be evaluated by a LEED Accredited Professional™ on a per project basis.

For more information on LEED® and how Filtrexx BMPs may be used in attaining additional credits contact: Britt Faucette, Ph.D., CPESC, Research Director/Ecologist, Filtrexx International, ph: 404-687-8393, email: brittf@filtrexx.com

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