



AquaShield™ Product Solutions for LEED 2009 Certification

May 2012

The purpose of this document is to demonstrate that AquaShield™ offers a number of products that either directly contribute or help contribute to LEED 2009 credits and points. Information is provided to demonstrate how AquaShield™ products can be used to earn LEED credits.

BACKGROUND INFORMATION

The U.S. Green Building Council (USGBC) is a nonprofit organization that has developed the Leadership in Energy and Environmental Design (LEED) Green Building Rating System as a critical component to achieving their mission of a sustainable built environment. According to USGBC, “The green building movement offers an unprecedented opportunity to respond to the most important challenges of our time, including global climate change, dependence on non sustainable and expensive sources of energy, and threats to human health.” The LEED 2009 Green Building Rating System for New Construction and Major Renovations is a voluntary set of performance standards for certifying the design and construction of commercial or institutional buildings and high-rise residential buildings of all sizes, both public and private. The intent is to promote healthful, durable, affordable, and environmentally sound practices in building design and construction. LEED 2009 certifications are awarded based on development points that meet or exceed LEED performance benchmarks according to the following scale:

- Certified 40-49 points
- Silver 50-59 points
- Gold 60-79 points
- Platinum 80 points and above

AQUASHIELD™ PRODUCT SOLUTIONS

AquaShield™ offers environmentally beneficial products that either directly contribute or help contribute toward LEED 2009 certification. AquaShield™ LEED Solution Categories and Product Solutions are as follows:

Solution Categories	Stormwater Treatment	Stormwater Detention/Retention	Rainwater Harvesting	Pavers	Erosion Control
Product Solutions	Aqua-Swirl®	Underground Storage	Harvesting Systems	Porous/Permeable Pavers	Go-Filter™
	Aqua-Filter™	Underground Infiltration			
	Aqua-Guardian™				
	BioFilter				

Refer to the chart below, Potential AquaShield™ Credits for LEED 2009 Certifications, to identify AquaShield™ product solutions that either Directly Contribute or Helps Contribute to the following five credit topics:

- a) Sustainable Sites (SS)
- b) Water Efficiency (WE)
- c) Materials & Resources (MR)
- d) Innovation in Design (ID)
- e) Regional Priority (RP)

Potential AquaShield™ Credits for LEED 2009 Certification

Solution Category	Stormwater Treatment	Stormwater Detention/Retention	Rainwater Harvesting	Pavers	Erosion Control
Credit Topic					
Sustainable Sites (SS)					
SS Prereq. 1: Construction Pollution Prev.					Helps
SS 1: Site Selection					Helps
SS 3: Brownfield Redevelopment	Helps	Helps	Helps	Helps	Helps
SS 5.1: Site Dev. – Protect/Restore Habitat	Helps	Helps		Helps	Helps
SS 6.1: Stormwater Design - Quantity Control	Helps	Direct	Direct	Direct	
SS 6.2: Stormwater Design – Quality Control	Direct		Direct		
SS 7.1: Heat Island Effect - Nonroof		Helps		Helps	
Water Efficiency (WE)					
WE Prereq. 1: Water Use Reduction	Helps	Helps	Helps		
WE 1: Water Efficient Landscaping	Helps	Direct	Direct		
WE 2: Innovative Wastewater Technologies		Helps	Direct		
WE 3: Water Use Reduction	Helps	Direct	Direct		
Materials & Resources (MR)					
MR 4: Recycled Content ¹	Helps		Helps		
MR 5: Regional Materials ²	Helps	Helps	Helps	Helps	Helps
Innovation in Design (ID)					
ID 1: Innovation in Design ²	Helps	Helps	Helps	Helps	Helps
Regional Priority (RP)					
RP 1: Regional Priority ²	Helps	Helps	Helps	Helps	Helps

Notes: ¹ Applies only to models constructed of Polymer Coated Steel (PCS).

² Determined on a site-specific basis.

It is evident from the reference chart above that the AquaShield™ products provide significant levels of solutions toward LEED certification. Continue reading below for further explanations of how AquaShield™ products can be used to Directly Contribute or Help Contribute to gaining LEED 2009 credits and points.

LEED 2009 CREDIT TOPICS

Sustainable Sites

❖ SS Prerequisite 1: Construction Activity Pollution Prevention, Required

Intent: To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.

Solution Category	Product Solution	Helps Contribute
Erosion Control	Go-Filter™	Sediment removal in stormwater runoff during construction activities to protect sensitive receiving waterways

❖ **SS Credit 1: Site Selection, 1 Point**

Intent: To avoid the development of inappropriate sites and reduce the environmental impact from the location of a building on a site.

Solution Category	Product Solution	Helps Contribute
Erosion Control	Go-Filter™	Sediment removal in stormwater runoff during construction activities to protect sensitive receiving waterways located within close proximity to the building site

❖ **SS Credit 3: Brownfield Redevelopment, 1 Point**

Intent: To rehabilitate damaged sites where development is complicated by environmental contamination and to reduce pressure on undeveloped land.

Solution Category	Product Solution	Helps Contribute
Stormwater Treatment	All	Water quality treatment to stormwater runoff. Pretreatment options available for storage and harvesting.
Stormwater Detention/Retention	Underground Storage	Watertight underground storage to prevent seepage into contaminated soil or groundwater. Nonpotable water use source.
Rainwater Harvesting	Harvesting Systems	Captures rainwater and stores in surface or subsurface structures for nonpotable water uses.
Pavers	Porous/Permeable Pavers	Reduces surface water runoff through infiltration. Provides opportunity for greenscape with drivable grass.
Erosion Control	Go-Filter™	Sediment removal in stormwater runoff during construction.

❖ **SS Credit 5.1: Site Development – Protect or Restore Habitat, 1 Point**

Intent: To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

Solution Category	Product Solution	Helps Contribute
Stormwater Treatment	All	Water quality treatment to stormwater runoff. Pretreatment options available for storage, infiltration and harvesting.
Stormwater Detention/Retention	Underground Storage & Infiltration	Store or infiltrate water underground. Provides opportunity for green space via underground management structures.
Pavers	Porous/Permeable Pavers	Provides surface infiltration, reduced runoff and additional greenscape via drivable grass.
Erosion Control	Go-Filter™	Stormwater quality treatment during construction activities

Note below:

- *SS Credit 6.1 is for Stormwater Quantity*
- *SS Credit 6.2 is for Stormwater Quality*

❖ **SS Credit 6.1: Stormwater Design – Quantity Control, 1 Point**

Intent: To limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff and eliminating contaminants.

Solution Category	Product Solution	DIRECTLY CONTRIBUTES
Stormwater Detention/Retention	Underground Storage & Infiltration	Store or infiltrate runoff via underground structures. Storage provides for a reduction in post-development peak discharge flows. Underground infiltration provides water quality treatment, reduces surface flow volumes and recharges groundwater table. Provides opportunity for green space thereby complementing surface infiltration practices.
Rainwater Harvesting	Harvesting Systems	Captures rainwater and stores in surface or subsurface structures for nonpotable water uses. Captures water that otherwise would have been lost. Keeps water on-site and completely reduces runoff. Provides opportunity for green space to complement surface infiltration.
Pavers	Porous/Permeable Pavers	Reduces impervious cover and peak surface water runoff volume. Enhances groundwater recharge via natural surface infiltration while providing water quality treatment.
Helps Contribute		
Stormwater Treatment	All	Water quality treatment to stormwater runoff. Options available for pre-treatment for storage, infiltration and harvesting.

❖ **SS Credit 6.2: Stormwater Design – Quality Control, 1 Point**

Intent: To limit disruption and pollution of natural water flows by managing stormwater runoff.

Solution Category	Product Solution	DIRECTLY CONTRIBUTES
Stormwater Treatment	Aqua-Swirl [®] Aqua-Filter [™] Aqua-Guardian [™]	Stormwater quality treatment. Complies with lab and field criteria of NJDEP TARP and WA DOE TAPE lab protocols. Aqua-Swirl [®] and Aqua-Filter [™] have NJCAT Verification for 80% TSS removal. Aqua-Guardian [™] uses same media as Aqua-Filter [™] .
Rainwater Harvesting	Harvesting Systems	Captures water that otherwise would have been lost. Keeps water on-site and completely reduces runoff.

❖ **SS Credit 7.1: Heat Island Effect - Nonroof, 1 Point**

Intent: To reduce heat islands to minimize impacts on microclimates and human and wildlife habitats.

Solution Category	Product Solution	Helps Contribute
Stormwater Detention/Retention	Underground Storage & Infiltration	Provides opportunity for green space.
Pavers	Porous/Permeable Pavers	Creates surface with high Solar Reflectance Index (SR) ≥ 29 . Can provide greenscape with drivable grass and surface infiltration to reduce runoff and recharges groundwater table.

Water Efficiency

❖ WE Prerequisite 1: Water Use Reduction, Required

Intent: To increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

Solution Category	Product Solution	Helps Contribute
Stormwater Treatment	All	Pretreatment options available for storage, infiltration and harvesting.
Stormwater Detention/Retention	Underground Storage	Store water for nonpotable water uses.
Rainwater Harvesting	Harvesting Systems	Provides surface or underground storage of captured rainwater for nonpotable water uses.

❖ WE 1: Water Efficient Landscaping, 2-4 Points

Intent: To limit or eliminate the use of potable water or other natural surface or subsurface water resources available on or near the project site for landscape irrigation.

❖ Stormwater Treatment

- ✓ Pretreatment for underground storage or rainwater harvesting can be accomplished by the Aqua-Swirl[®], Aqua-Filter[™], Aqua-Guardian[™] or AquaShield[™] BioFilter.

Solution Category	Product Solution	DIRECTLY CONTRIBUTES
Stormwater Detention/Retention	Underground Storage	Store runoff in underground as a source of nonpotable water for landscape irrigation.
Rainwater Harvesting	Harvesting Systems	Captures rainwater that otherwise would have been lost and use for landscape irrigation water.
Helps Contribute		
Stormwater Treatment	All	Pretreatment options available for storage and harvesting.

❖ WE 2: Innovative Wastewater Technologies, 2 Points

Intent: To reduce wastewater generation and potable water demand while increasing the local aquifer recharge.

Solution Category	Product Solution	DIRECTLY CONTRIBUTES
Rainwater Harvesting	Harvesting Systems	Reuses stormwater for on-site mechanical and/or natural wastewater treatment systems.
Helps Contribute		
Stormwater Detention/Retention	Underground Infiltration	Allows for treated water to be infiltrated to increase the aquifer recharge.

❖ **WE 3: Water Use Reduction, 2-4 Points**

Intent: To further increase water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

Solution Category	Product Solution	DIRECTLY CONTRIBUTES
Stormwater Detention/Retention	Underground Storage	Provides a source of nonpotable water for building uses including urinals, toilets, custodial uses.
Rainwater Harvesting	Harvesting Systems	Captures rainwater that otherwise would have been lost and use for nonpotable water applications.
Helps Contribute		
Stormwater Treatment	All	Pretreatment options available for storage and harvesting.

Materials & Resources

❖ **MR 4: Recycled Content, 1-2 Points**

Intent: To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Solution Category	Product Solution	Helps Contribute
Stormwater Treatment	All	When constructed of Polymer Coated Steel (PCS), these water quality treatment products can contribute to earning this credit.
Rainwater Harvesting	Harvesting Systems	PCS harvesting structures can help earn this credit.

❖ **MR 5: Regional Materials, 1-2 Points**

Intent: To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Solution Category	Product Solution	Helps Contribute
All	All	AquaShield™ products are manufactured at a number of facilities located nationwide. Products manufactured within 500 miles (800 kilometers) of the project site may be eligible for this credit.

Innovation in Design

❖ **ID 1: Innovation in Design, 1-5 Points**

Intent: To provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

Solution Category	Product Solution	Helps Contribute
All	All	AquaShield™ products can be utilized in building designs that incorporate innovative applications of these technologies.

Regional Priority

❖ RP 1: Regional Priority, 1-4 Points

Intent: To provide an incentive for the achievement of credits that address geographically-specific environmental priorities.

Solution Category	Product Solution	Helps Contribute
All	All	Regional LEED chapters may prioritize specific credit topics thereby providing an opportunity to gain additional points on a project-specific basis. AquaShield™ products can be used in all geographic regions of the country, including territories.



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May 2012