

NETAFIM USA



**NETAFIM USA
& LEED® POINTS**

**A QUICK GUIDE FOR EARNING CREDIT
TOWARD LEED® POINTS**



INTRODUCTION

What is LEED®?

LEED, or Leadership in Energy and Environmental Design, is an internationally-recognized green building certification system. Developed by the U.S. Green Building Council (USGBC) in March 2000, LEED provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

LEED promotes sustainable building and development practices through a suite of rating systems that recognize projects that implement strategies for better environmental and health performance.

Netafim Sustainability Commitment

For over four decades, in 110 countries, Netafim has helped people to grow more and better - with less. Striving to find solutions that work with nature is at the core of what we do and who we are.

But Netafim is much more than a prompt, efficient response to global crisis. From the start, we have known that it is up to all of us not only to sustain what exists but to create and ensure dependable supplies for tomorrow, and the day after. To that end we have focused on three key areas: environmental sustainability, social responsibility and corporate governance.

With over 100 million pounds of plastics being used in Agricultural applications, Netafim has commitment to a program (<http://www.netafimrecycling.com/>) that collects used tubing and produces recycled resin that is reused in landscape drip tubing applications.

The following will help guide you through the qualifications to earn credit toward LEED points.

LEED® Rating System Products

LEED covers many different types of buildings and construction under the following LEED products:

- LEED for New Construction and Major Renovations (“LEED-NC”)
- LEED for Existing Buildings (“LEED-EB”)
- LEED for Commercial Interiors (“LEED-CI”)
- LEED for Core and Shell (“LEED-CS”)
- LEED for Schools
- LEED for Homes
- LEED for Retail
- LEED for Healthcare
- Under development: LEED for Neighborhoods

NOTE:

This guide provides general information on the LEED Green Building Rating System. It is not intended to provide professional design, legal or construction management advice and should not be relied on for those purposes. Such advice may only be provided by licensed professionals in the jurisdiction applicable to the construction project. LEED is a registered trademark of the USGBC.



INTRODUCTION

Points for Certification for LEED® 2009 New Construction

The LEED rating system addressed in this document is the LEED for New Construction and Major Renovations. There are seven topics which are broken down into individual LEED Credit points. A certain number of points must be achieved to obtain certification. The categories and the number of points available are as follows:

A building requires at least 40 points to achieve certification.

The levels of certification are:

- Certified (40 - 49 points)
- Silver (50 - 59 points)
- Gold (60 - 79 points)
- Platinum (80 + points)

Detailed information on obtaining credits and the project certification process is available from the USGBC on their LEED website: www.usgbc.org. The website outlines the intent, requirements, and strategies for meeting each credit.

NEW CONSTRUCTION RATING SYSTEM

CATEGORY	POINTS
Sustainable Sites (SS)	26
Water Efficiency (WE)	10
Energy and Atmosphere (EA)	35
Materials and Resources (MR)	14
Indoor Environmental Quality (IEQ)	15
Innovation and Design Process (ID)	6
Regional Priority (RP)	4
TOTAL POINTS	110

Netafim USA and LEED® for New Construction

Netafim USA supports the strategies of LEED to achieving a prosperous and sustainable future through cost-efficient and energy-saving green buildings. The LEED system does not certify individual products, however, the combination of products contribute to the overall building project's earning of LEED credits. Netafim USA's products can contribute to the following credits in the LEED for New Construction system:

- Water Efficiency Credit 1.1: Reduce Irrigation need by 50% (2 points)
- Water Efficiency Credit 1.2: No Potable Water Use or No Irrigation (2 points)
- Materials and Resources Credit 4.1 and 4.2: Recycled Content (1-2 point)

Other areas where Netafim drip irrigation products and/or landscape design strategies can contribute to LEED credits are as follows:

- Sustainable Sites Credit 5.1: Site Development: Protect or Restore Habitat (1 point)
- Sustainable Sites Credit 6.1: Stormwater Design: Quantity Control 1 point)
- Sustainable Sites Credit 7.2: Heat Island Effect (1 point)
- Energy and Atmosphere Credit 1: Optimize Energy Performance (1-19 points)
- Innovation in Design Credit 1: Innovation in Design (5 points)
- Innovation in Design Credit 2: LEED Accredited Professional (1 point)
- Regional Points Credit 1 (4 points)

NOTE: LEED Credit Points are awarded to certifying the design and construction of commercial or institutional buildings and high-rise residential buildings of all sizes, both public and private. LEED Credit Points are not awarded to individual components or products. The components or products help in achieving points for the building, but are not rated by themselves.



LEED® CREDITS

WATER EFFICIENCY CREDIT 1.1 WATER EFFICIENT LANDSCAPING (OPTION 1) REDUCE BY 50% (2 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.

Requirements

Reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case. Reductions shall be attributed to any combination of the following items:

- Plant species factor
- Irrigation efficiency
- Use of captured rainwater
- Use of recycled wastewater
- Use of water treated and conveyed by a public agency specifically for non-potable uses

Potential Technologies and Strategies

Perform a soil/climate analysis to determine appropriate plant material and design the landscape with native or adapted plants to reduce or eliminate irrigation requirements. Where irrigation is required, use high-efficiency equipment and/or climate-based controllers.

Calculations

To calculate the percent reduction in potable use for this credit, establish a baseline water use rate for your project, which represents a “typical” landscape that could be found on a similar project in the area. Then, calculate the as-designed water use rate for the project. To complete these calculations, you will need to know the landscape coefficients for the major vegetation types, and the area of each.

All calculations must be based on irrigation during the month with the highest evapotranspiration (ET) rate. Local ETo values are available from the EPA’s WaterSense website.

You will also need to document the Irrigation Efficiency (IE) for each landscape area, based on the type of irrigation used. Standard numbers for Sprinkler and Drip are given in the LEED reference guide, and should be used to calculate the baseline case water use.

Irrigation Efficiency for the Design case may use different numbers than in the Baseline case based on the efficiency numbers of the products selected for the irrigation plan.

Controller Efficiency (CE) is another number that may have to be determined, and is defined as the percent reduction in water use from any weather-based controllers or moisture sensor-based systems. It is equal to 1 minus the estimated percentage of overall irrigation water saved by the controller ($CE = 1 - \% \text{ Savings}$).

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Calculations (Continued)

If applicable, the volume of reuse water (captured rainwater, recycled graywater, or treated wastewater) available in the month with the highest irrigation demand can be added into the savings of potable water.

Once the water savings based on vegetation types, irrigation efficiency, controller efficiency, and reuse water are calculated; the total percentage reduction of potable water use must be equal to or greater than 50% to earn WE Credit 1, Option 1. The Reference Guide, and the USGBC website contain detailed explanations, examples, worksheets, and forms required to complete the calculations for all LEED Credits.

The table below lists the Netafim products that a designer can use to help achieve the required 50% reduction to earn the points for this Credit Option.

NETAFIM PRODUCTS FOR 50% REDUCTION

CATEGORY	MODELS	WATER SAVINGS	REFERENCE
Landscape Drip Tubing	Techline CV Techline Techline RW Techline EZ Polyethylene (PE)	40%	Average water savings confirmed by Bilderback, T.E. and M.A. Powell. Efficient irrigation. North Carolina Extension Service, Publication Number AG-508-6, March 1996. 21 January 2005
Landscape Drip Tubing with Check Valve	Techline CV	5+%	Any amount of slope to the piping system can lead to water draining out the lowest point of the system. In sprinklers, check valves save water by holding the water in the piping system when the irrigation system is not operating. Potential savings depends on the amount of piping in the ground, and slope in the sprinkler zone.
Landscape Drip Control Zone Kits	Low Volume Control Zone Kits	5+%	Every 5 psi reduction in pressure reduces water usage by 6-8%. A 70 psi system reduced to a recommend 30 psi can provide more than 50% in water savings. Derived from Bernoulli's equation (5.19). Refer to Roberson/Crowe, Engineering Fluid Mechanics (fourth Edition), Houghton Mifflin Co. Boston, MA 1990.
Pressure Regulators	PRV Series		



LEED® CREDITS

WATER EFFICIENCY CREDIT 1.2 WATER EFFICIENT LANDSCAPING (OPTION 2) NO POTABLE WATER USE OR NO IRRIGATION (2 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.

Requirements

Achieve WE Credit 1.1.and:

Use only captured rainwater, recycled wastewater, recycled graywater, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation.

-OR-

Install landscaping that does not require permanent irrigation systems. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation.

If the Percent Reduction of Potable Water is 100% AND the Percent Reduction of Total Water is equal to or greater than 50%, WE Credit 1.2 is earned in addition to WE Credit 1.1.

Potential Technologies and Strategies

Perform a soil/climate analysis to determine appropriate landscape types and design the landscape with indigenous plants to reduce or eliminate irrigation requirements. Consider using stormwater, graywater, and/or condensate water for irrigation.

The table below lists the Netafim products are designed for operation in non-potable systems and help achieve this credit.

NETAFIM PRODUCTS FOR NON-POTABLE SYSTEMS

CATEGORY	MODELS	CREDIT
Landscape Drip Tubing	Techline CV Techline Techline RW Techline EZ Polyethylene (PE)	Use for temporary irrigation
Landscape Drip Tubing	Techline RW	Purple stripe on brown tubing for non-potable applications
Wastewater Drip Tubing	Bioline	Purple tubing for wastewater applications



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MATERIAL AND RESOURCES CREDIT 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.

Requirements

One point is awarded if the sum of the post-consumer recycled content plus one-half of the pre-consumer recycled content constitutes at least 10% of the total value of the materials in the project. MR Credit 4.2 is similar but requires a total of 20%, based on cost.

The recycled content value of a material assembly is determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.

The table above lists the Netafim products with the required pre-consumer and post consumer recycled content and help achieve this credit.

NETAFIM PRODUCTS WITH RECYCLED CONTENT

CATEGORY	MODELS	RECYCLED CONTENT
Landscape Drip Tubing	Techline CV Techline Techline RW Techline EZ Polyethylene (PE)	20%

OTHER LEED® CREDITS

Sustainable Sites Credits 5.1: Site Development: Protect or Restore Habitat (1 point)

An efficient irrigation system is important to supporting landscape designs that conserve existing natural areas and restore native plant or adapted plants. Point source drip irrigation is ideal for shrubs and native plants with wide and/or random spacing requirements and inhibits weed growth in the areas with no plants.

Sustainable Sites Credit 6.1: Stormwater Design: Quantity Control (1 point)

Limiting disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff, and eliminating contaminants can earn points for Sustainable Sites Credit 6.1: Stormwater Design: Quantity Control. Irrigation can be used to eliminate stormwater run-off by using all captured rainwater and run-off for irrigating the landscape.

Sustainable Sites Credit 7.2: Heat Island Effect (1 point)

Installing a vegetated roof that covers at least 50% of the roof area is one option to earn credit for this category. Dripline irrigation is ideal for watering roof top vegetation since wind speeds on top of roofs can be considerably higher than they are at ground level. In some instances, gusts can reach 80 miles per hours, even when weather conditions on the ground are calm. These windy conditions could cause the water from the sprinklers to be blown away and land in another location. With a dripline irrigation system, water drips directly on to the roof garden's plants, eliminating the fears of inadvertent spraying.



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OTHER LEED® CREDITS

Materials and Resources Credit 5 - Regional Materials (1-2 points)

Using building materials and products that are extracted, harvested or recovered, as well as manufactured within the region, supports the use of indigenous resources and reduces the environmental impacts resulting from transportation. While Netafim USA Techline tubing is manufactured in Fresno, California, the resin and raw materials used are not extracted locally and therefore does not qualify for this credit.

Energy and Atmosphere Credit 1: Optimize Energy Performance (1-19 points)

The intent of this Credit is to achieve increasing levels of energy performance above a baseline standard, to reduce environmental and economic impacts associated with excessive energy use. Appropriate landscape design can aid in the sheltering of buildings from winter winds, and also shading from the summer sun. These strategies can help to reduce the heating and cooling loads, saving energy, and the impacts that energy generation can have. The surrounding landscape of the building can also have an effect on the ambient temperature near buildings, effecting energy usage. Green walls and mature trees to shade the building, and appropriate turf areas to cool the immediate area around structures, can be helpful to meet the requirements. Efficient irrigation can be important in supporting the plant material for optimum benefit.

Innovation in Design Credit 1: Innovation in Design/Exceptional Performance (5 points)

Providing 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 system. Applying irrigation strategies or measures that demonstrate a comprehensive approach and quantifiable environmental and/or health benefits can be considered for points in this category.

Innovation in Design Credit 2: LEED Accredited Professional (1 point)

One point is given if a principal participant of the project team is a LEED Accredited Professional. The irrigation industry has LEED-experienced professionals available to help maximize the points for efficient irrigation and landscaping.

Regional Points Credit (RP Credit 1) (4 points)

Earn one of the six Regional Priority credits – to a maximum of 4 credits per project (credits identified as having additional regional environmental importance by the USGBC Regional Councils and Chapters for the project's location). A database of Regional Priority credits and their geographic applicability is available as they are released on the USGBC website – www.usgbc.org. One point is awarded for each Regional Priority credit earned. No more than 4 Regional Priority credits may be earned. Non-U.S. projects are not eligible for Regional Priority credits.



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