



LEED-EB: Operations and Maintenance

A Comprehensive Resource Guide to the Role of Cleaning in the LEED-EB: O&M Rating System



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THE PURPOSE OF THIS GUIDE AND HOW TO USE IT

WHAT IS THE PURPOSE OF THIS GUIDE?

The purpose of this resource guide is to clarify the role that cleaning plays in the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design Rating System for Existing Buildings: Operations & Maintenance (LEED-EB: O&M)¹. Formerly LEED-EB, this green building rating system was updated in January 2008 to include Operations and Maintenance. This resource guide addresses specific areas that could be impacted by cleaning operations, such as the selection of cleaning chemicals, janitorial paper products, cleaning equipment, entryway matting systems, etc., as well as policies and practices that affect or are affected by cleaning and the activities normally undertaken by cleaning personnel.

WHO SHOULD USE THIS RESOURCE GUIDE?

This resource guide will be valuable to those involved with routine cleaning operations, whether an in-house cleaning operation or an out-sourced janitorial company. It will also be useful for janitorial product distributors who supply the cleaning operations, and those who have responsibility for product purchasing, recycling and landscaping. Also noted in this guide are the credits which can be earned by measuring productivity or reducing occupant healthcare costs, because cleaning can affect these issues and members of the cleaning industry can work with a building's human resources department to help collect this data to earn the appropriate points with the LEED-EB: O&M.

WHO IS THE US GREEN BUILDING COUNCIL?

In 1993, a small group got together and discussed how the construction of buildings consumed enormous quantities of materials such as concrete, steel and other metals, glass, wood, wall materials, paints, floor coverings, lighting, and mechanical systems. Building construction further impacts the natural environment by consuming large quantities of energy and water, and producing massive quantities of waste during their years in operations, upgrades and renovations. In addition, a building contributes a high volume of construction debris to landfills when demolished at the end of its life.

Many people believed that current construction, operations and demolition practices were wasteful and contributed harmful burdens not only to our environment, but also to the people who occupied those buildings. Thus, the USGBC was launched with a primary goal of transforming the building industry in a way that would create

more healthy and productive buildings, while at the same time, reducing their impacts on the environment.



Today, the USGBC is the most prominent "green building" organization in America. Its once small group of visionaries and environmental advocates has grown into a robust organization with over 15,000 organizational members representing all aspects of the building industry, including

building owners, developers, third-party management firms, architects, product manufacturers, and service providers. Federal government, state governments, local municipalities, private building owners, and investors, have flocked to the USGBC for a variety of reasons, among the most important is that green buildings have become good business. For more information on the U.S. Green Building Council, visit www.usgbc.org.

WHAT IS LEED?

The LEED Rating System represents the USGBC's effort to provide a national standard for what constitutes a green building. Through its use as a design, construction, operations and maintenance guideline and third-party certification tool, LEED aims to improve occupant well-being, environmental performance, and economic returns of buildings using established and innovative practices, standards and technologies.

LEED EB: O&M CREDIT CHART SUMMARY

Below is a summary of LEED credits which are supported by cleaning activities and products.

LEED Initiative	Credit	Points
Sustainable Sites	Credit 2.0	1 point
Energy and Atmosphere	Credit 3.1	1 point
Materials and Resources	Credit 6.0	1 point
	Credits 7.1 and 7.2	1-2 points
Indoor Environmental Quality	Credit 2.1	1 point
	Credit 3.1	1 point
	Credits 3.2-3.3	1-2 points
	Credits 3.4-3.6	1-2 points
	Credit 3.8	1 point
Water Efficiency		Required
Innovation in Operations	Credits 1.1-1.4	1-4 points
		Total 10-17 points

¹LEED and LEED-EB: O&M are registered trademarks of the US Green Building Council.

THE LEED RATING SYSTEM

WHAT IS LEED-EB: O&M?

The first LEED Rating System (LEED-NC) was launched in 2000 and was specifically designed for the construction of new buildings. LEED-EB was piloted in January, 2002, with official launch in November, 2004. The USGBC launched LEED-EB to address the ongoing operations, maintenance and upgrades of existing buildings. LEED-EB was expanded to include Operation and Maintenance Standards in January, 2008, and the rating system was modified to be more intuitive and user-friendly at that time. The most significant change in LEED-EB: O&M was the removal of prerequisites related to erosion on construction sites, which are addressed in LEED-NC. The overall number of prerequisites was reduced, and documentation requirements were streamlined.

LEED-EB: O&M measures the environmental responsibility of a building's maintenance and operations, with the philosophy that greater measurement promotes better management. It addresses exterior building site maintenance programs, efficient/optimized use of water and energy, purchasing of environmentally preferred products, waste stream management and ongoing indoor environmental quality (IEQ). LEED-EB: O&M provides sustainable guidelines for whole-building cleaning / maintenance, recycling programs and systems upgrades to improve building energy, water; IEQ, and materials use.

WHY IS LEED CERTIFICATION VALUABLE FOR A BUILDING OWNER OR MANAGER?

LEED certification offers building owners and managers a number of distinct benefits. For many, green buildings have simply become good business due to the cost savings over the life of the building from more efficient operations including reduced energy and water costs.

In the commercial office buildings segment, green buildings can create a healthier, more productive indoor environment, which translates into greater productivity for occupants. In the education segment, green buildings can improve test scores for students. While in the healthcare segment, green buildings can improve health outcomes for patients in our hospitals and healthcare facilities.

Green buildings give building owners and managers a competitive marketing advantage when leasing space. It can also translate into enhanced value of the building as an asset in the mortgage and bond market. For those building owners and managers whose mission is to serve as stewards of public assets and protect our natural environment, green buildings serve to demonstrate the commitment to stewardship and sustainability, and our ability to provide for current needs without harming the opportunity for future generations to enjoy those same resources.

HOW IS LEED-EB: O&M CERTIFICATION ACHIEVED?

LEED-EB: O&M Certification is based on submitting the necessary documentation to the USGBC demonstrating that a building meets all of the prerequisites which every building must attain, plus achieving a number of more flexible credits or points, which a building can achieve based on what makes sense for that specific building. For example, a building in a rural area might easily achieve certain landscaping credits, while a similar building in an urban setting may find this same credit unattainable or too expensive, and choose not to apply for that same credit.

The LEED-EB: O&M ratings are awarded according to the following scale, of which the higher the number of points correlates to the higher the recognition.

Platinum	68-92 points
Gold	51-67 points
Silver	43-50 points
Certified	34-42 points

WHY IS GREEN CLEANING SO IMPORTANT IN LEED-EB: O&M?

"Green Cleaning" is important to achieving certification under LEED-EB: O&M due to the cost-effective nature of the various points that can be achieved. Cleaning activities, which also include landscaping, pest management and recycling, can contribute to the total number of points necessary to obtain LEED-EB: O&M certification.

Since most buildings currently budget for cleaning and related activities, switching to Green Cleaning can be an extremely easy, cost-effective and efficient way to become certified or to raise the level of certification from the basic certified level to silver, gold or platinum.

DOES LEED-EB: O&M REALLY MAKE A DIFFERENCE?

Buildings certified under LEED-EB: O&M have reported significant benefits such as savings from the energy and other utility costs, while others have found significant savings resulting specifically from Green Cleaning. Some of the specific Green Cleaning benefits reported by LEED-EB: O&M participants include reductions in the quantity and cost of janitorial paper and trashcan liners, reductions in waste hauling and tipping fees, and reductions in energy costs specifically associated with cleaning activities. For more specific information on the benefits of LEED-EB: O&M, visit the USGBC's website at www.usgbc.org.

LEED-EB: O&M Resource Guide

The following information outlines green cleaning and related productivity points that can contribute to gaining LEED-EB: O&M certification. In addition, you will find information on how Wausau Paper and your local distributor can work as partners to offer support for many of these points.

Sustainable Sites/Credit 2.0

Building Exterior and Hardscape Management Plan 1 point

Have in place over the performance period a low impact site and green building exterior management plan that addresses the topics listed below. One point is earned for the plan that addresses all of the following operational elements that occur on the building and grounds.

- Maintenance equipment
- Snow and ice removal (where applicable)
- Cleaning of building exterior
- Paints and sealants used on building exterior
- Cleaning of sidewalks, pavement and other landscape

Energy and Atmosphere/Credit 3.1

Building Operation & Maintenance Staff Education 1 point

Have in place over the performance period a building operation and maintenance staff education program that provides each staff person primarily working on building maintenance with at least 24 hours of education each year over the performance period. The education program should provide information on building and building systems operation, maintenance, and achieving sustainable building performance. Training must be of high quality and relevant to building operation and maintenance.

Wausau Paper can support this requirement by participating in a comprehensive training program as developed by each individual building owner and manager. For example, a Wausau Paper sales representative and distributor sales representative can work with maintenance staff to train them on the benefits of the environmentally preferable EcoSoft™ Green Seal™ and Dobl-Nature® towel and tissue products and coordinating dispensing systems that can directly support a facility's sustainability goals and objectives. A Wausau Paper distributor representative can also provide maintenance staff with training on Green Seal certified chemicals and cleaning equipment. The training can include a controlled-use dispenser program for reducing waste maintenance time, and overall costs as well as how to install and load the dispensers.

Materials & Resources/Credit 6.0

Solid Waste Management – Waste Stream Audit 1 point

Conduct a waste stream audit of the ongoing waste stream (not specific upgrade project waste) to establish a current building waste baseline that identifies the types of waste making up the waste stream and amounts of each type of waste in the waste stream. At a minimum, the audit should determine the amounts of paper, glass, plastics, cardboard and metals in the waste stream. Operate over the performance period a procurement/management policy to reduce waste stream through purchasing strategies, collection station equipment, and occupant education.

Wausau Paper can support this requirement by helping track the savings associated with the reduction of paper waste (uncontrolled product). Wausau Paper has cost savings worksheets that can be customized for any facility to help identify savings opportunities between uncontrolled dispensers and controlled-use dispensing systems. Many Wausau Paper controlled dispensers, such as the Wave'n Dry® electronic towel dispenser, offer a metered amount of toweling to encourage users to take only the toweling that is needed, which promotes source reduction. The controlled-use tissue dispensing systems offer perforated tissues and require the maximum use of each tissue roll in the dispenser before advancing to the next roll, which eliminates stub roll waste. In specialized cases, our highly skilled Wausau Paper sales representatives along with your Wausau Paper distributor can perform a facility restroom analysis including observing restroom habits, documenting paper usage and waste.



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As the first paper company to join the USGBC, Wausau Paper is a proud member and supports the Council’s goal of creating healthy places to live and work. Wausau Paper is the first and only paper company to offer a complete line of towel and tissue products certified as environmentally preferable by Green Seal, Inc. Wausau Paper’s Green Seal certified product offering includes EcoSoft™ Green Seal™ and Dubl-Nature® product lines. Both products meet or exceed the U.S. EPA guidelines for post-consumer wastepaper content, are processed chlorine free, and feature environmentally preferable packaging.

Indoor Environmental Quality/Green Cleaning Policy	
	Required
<p>As a prerequisite for attaining Indoor Environmental Quality credits, it is required to establish and have in place a written green cleaning policy over the performance period that specifically outlines the following:</p> <ul style="list-style-type: none"> • Purchase of sustainable cleaning products that meet the sustainability criteria • Purchase of cleaning equipment meeting the sustainability criteria • Establishment of standard operating procedures which addresses how an effective cleaning and maintenance system will be consistently utilized, managed, and audited. This will need to specifically address cleaning to protect building occupants • Development of strategies for promoting and improving hand hygiene. This will need to include hand washing and the use of alcohol-based waterless hand sanitizer • Development of guidelines that address the safe handling and storage of cleaning chemicals used in buildings • Provision for collecting occupant feedback and continuous improvement to evaluate new technologies, processes and procedures 	

Indoor Environmental Quality/Credit 2.1	
Occupant Comfort: Occupant Survey	1 point
<p>The intent of this credit is to provide for the assessment of the building occupants’ comfort as it relates to thermal comfort, acoustics, indoor air quality, lighting levels, and building cleanliness. An occupant survey needs to be conducted for identifying and addressing occupant’s comfort and building performance issues. Wausau Paper can provide sample surveys, which measure occupant comfort levels with towel and tissue quality, soap and dispensing systems, and overall restroom cleanliness.</p>	

Indoor Environmental Quality/Credit 3.1	
Green Cleaning: High-Performance Cleaning Program	1 point
<p>Have in place a high-performance cleaning program, supported by a green cleaning policy which includes the following:</p> <ul style="list-style-type: none"> • Appropriate staffing plans • Implementation of maintenance personnel training in the hazards, use, disposal, maintenance and recycling of cleaning equipment, packaging, and dispensing equipment • Use of chemical concentrates with appropriate dilution systems to minimize chemical use where possible • Use of sustainable cleaning materials, products, equipment, janitorial paper products, and trash bags (including microfiber tools and wipes) • Use of sustainable cleaning and hard floor and carpet care products meeting sustainability criteria • Use of cleaning equipment meeting the sustainability criteria <p>Wausau Paper can provide sales consultation and assistance in the development of standard operating procedures that address sustainable and effective cleaning, as well as product specifications, and training to support this effort.</p>	

Indoor Environmental Quality/Credit 3.2 – 3.3	
Green Cleaning: Custodial Effectiveness Assessment	1-2 points
<p>Implement, manage and audit cleaning procedures and processes by conducting an audit in accordance with APPA Leadership in Educational Facilities (APPA) “Custodial Staffing Guidelines” to determine the appearance of the facility. It is recommended to designate an individual or team to conduct a walk-through inspection of a sample of rooms in the building to evaluate the effectiveness of the cleaning program. The restroom would be ideal to include as one of the rooms evaluated for this inspection. Wausau Paper Green Seal certified products and dispensing systems would make an excellent contribution toward this presentation.</p>	

Indoor Environmental Quality/Credit 3.4 – 3.6

Green Cleaning: Purchase of Sustainable Cleaning Products and Materials

1-3 points

Implement sustainable purchasing for cleaning materials and products, disposable janitorial paper products, and trash bags. Cleaning product and material purchases include building purchases for use by in-house staff or by outsourced service providers. The percentage of the total sustainable cleaning product and material purchases determine the number of points earned up to a total of 3 points. One point will be awarded for each 30% of the total annual purchases of these products (on a cost basis) that meet one of the following sustainability criteria:

- Cleaning products that meet the Green Seal GS-37 standard for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes.
- Disinfectants, metal polish, floor finishes, strippers or other products not addressed by the above standards must meet Green Seal GS-40 standards, or use products that comply with the California Code of Regulations maximum allowable VOC levels.
- Disposable janitorial paper products and trash bags that meet the minimum requirement of U.S. EPA's Comprehensive Procurement Guidelines, or meet Green Seal GS-9 standards for paper towels and Green Seal GS-1 standards for tissue.
- Hand soaps that meet Green Seal GS-41 for industrial and institutional hand cleaners.

For example, if the total purchases for cleaning products and materials is \$10,000, then one point would be awarded for each

\$3,000 spent on green cleaning products, disposable janitorial paper products, trash bags or any combination of those products.

Wausau Paper can directly support the purchasing effort for sustainable cleaning products and materials with the first complete line of Green Seal certified towel and tissue products. Our Green Seal certified product offering includes Dubl-Nature® and EcoSoft™ Green Seal™ paper products and Wausau Paper lotion soaps. Our paper products meet or exceed the U.S. EPA guidelines for post-consumer waste content. For example, our natural toweling contains up to 82% post-consumer waste, our exclusive natural white toweling contains up to 73% post-consumer waste, and our white towels contain up to 49% post-consumer waste. The facial tissue contains 10% post-consumer waste and our seat covers contain 20% post-consumer waste, which meet EPA guidelines.

Unlike most other towel and tissue products, Wausau Paper's Green Seal certified products are made with de-inking and bleaching processes free of chlorine and other harmful chemicals and feature environmentally preferable packaging. Along with our EcoSoft™ Green Seal™ or Dubl-Nature® towel and tissue products, your Wausau Paper distributor can supply your facility with Green Seal certified chemicals and trash bags to meet EPA guidelines to maximize your points under this credit and further support sustainable cleaning and materials.

Indoor Environmental Quality/Credit 3.8

Green Cleaning: Entryway Systems

1 point

Utilize over the performance period entryway systems (grills, grates, mats, etc.) to reduce the amount of dirt, dust, pollen and other particles entering the building at all entryways and develop the associated cleaning strategies to maintain those entryway systems, as well as the exterior walkways.



Water Efficiency (WE)/Prerequisite

Minimum Indoor Plumbing Fixture and Fitting Efficiency	Required
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As a prerequisite for attaining water efficiency credits, it is required to develop and implement an indoor plumbing policy. The policy developed requires an economic assessment of conversion to high-performance plumbing fixtures and fittings as part of any future indoor plumbing renovation. The assessment must account for potential water supply, disposal cost savings and maintenance cost savings. Water-conserving indoor plumbing fixtures and fittings (that meet or exceed the UPC 2006 or IPC 2006 fixture and fitting requirements) should be installed, as well as high-efficiency or dry fixtures and control technologies.

The intent of this effort is to reduce indoor fixture and fitting water use within buildings in order to reduce the burdens on potable water supply and wastewater systems. Wausau Paper supports this effort with controlled use dispensing systems, and product features that support maintenance ease.

Innovation in Operations/Credit 1.1 – 1.4

1-4 points

To provide building operation, design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED-EB: O&M Rating System, that provide a substantial added environmental benefit. One point can be earned for each innovation submitted, for a maximum of four points.

Provide documentation of each proposed innovation credit including a description of the action, the additional environmental benefits of the action, and the performance in delivering these additional environmental benefits over the performance period.

Wausau Paper and your Bay West® distributor can offer products and services that provide benefits that will help you further achieve a sustainable facility. EcoSoft™ Green Seal™ and Dubl-Nature® paper products, combined with Bay West® controlled-use dispensers offer excellent resource recovery and source reduction, as well as additional environmental benefits. These towels and tissue are made entirely from recovered materials, and when used along with controlled-use dispensers, promote waste reduction by controlling the amount of towel and tissue dispensed per use.



Materials and Resources/Credits 7.1 and 7.2

Solid Waste Management: Ongoing Consumables	1-2 points
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Encourage a high level of recycling by building occupants. Maintain a waste reduction and recycling program that addresses materials with a low cost per unit that are regularly used and replaced through the course of business. Materials include, but are not limited to, paper, toner cartridges, glass, plastics, cardboard and old corrugated cardboard, food waste and metals.

Credit 7.1 1 point Reuse, recycle or compost 50% of the ongoing consumables waste stream (by weight or volume)

Credit 7.2 2 points Reuse, recycle or compost 70% of the ongoing consumables waste stream (by weight or volume)



According to the U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines, a true recycling program is composed not only of a waste collection program, but also a purchasing program including recycled products. Buying recycled helps "close the recycling loop" by putting the materials we collect through recycling programs back to good use in products in the marketplace.

Wausau Paper's EcoSoft™ Green Seal™ and Dubl-Nature® towel and tissue lines are made from 100% recovered fibers and meet or, in most cases, exceed the EPA guidelines for post-consumer wastepaper content. For example, the EcoSoft™ Green Seal™ products are made from items such as: old corrugated cartons, office wastepaper, post office waste (undeliverable mail), and newspapers, which help to further this initiative. The importance of "closing the loop" is illustrated in the recycled logo. For more information on the EPA's Comprehensive Procurement Guidelines, visit www.epa.gov/cpg.

LEED-EB: O&M Resource Guide

Wausau Paper offers a Complete Line of Green Seal™ Certified Paper Products.

Wausau Paper offers Bay West® EcoSoft™ Green Seal™ and Dubl-Nature® towel and tissue products that are made from 100% recycled wastepaper and are certified by Green Seal, Inc. in Washington D.C. The “Green Seal” means our products meet the Green Seal environmental standards for paper towels and tissue, making the EcoSoft™ Green Seal™ and Dubl-Nature® products among the most environmentally preferable towel and tissue lines available in the away-from-home market.

EcoSoft™ Green Seal™ and Dubl-Nature® Post-Consumer Waste Content

Product	Brand	Post-consumer waste%
Natural roll and folded towels	EcoSoft™ Green Seal™	up to 82%
Natural white roll and folded towels	EcoSoft™ Green Seal™	up to 73%
White roll and folded towels	Dubl-Nature®	up to 43%
Bath tissue	EcoSoft™ Green Seal™ Dubl-Nature®	up to 49%
CenterPull and kitchen roll towels	EcoSoft™ Green Seal™	up to 49%
Toilet seat covers	EcoSoft™ Green Seal™	20%
Facial tissue	EcoSoft™ Green Seal™	10%

Green Seal Standards for Paper Towels (GS-9)

- 100% Recycled (recovered after papermaking process)
- Minimum 40% post-consumer wastepaper content (EPA guidelines)
- Wastepaper is not de-inked using solvents containing chlorine or any of its derivatives such as hypochlorite and chlorine dioxide
- Wastepaper is not bleached using chlorine or any of its derivatives such as hypochlorite and chlorine dioxide
- Paper towels do not contain any added pigments, inks, dyes or fragrances
- Product is made in accordance with reasonable industry practice with respect to holes, tears, wrinkles, cleanliness, foreign materials or dirt; product must dispense properly from the container (dispenser) or roll
- The cores in the roll towels are made from 100% recycled materials
- Packaging materials cannot contain lead, cadmium, mercury and hexavalent chromium in excess of 100 parts per million (above trace levels)

Green Seal Standards for Tissue (GS-1)

- 100% Recycled (recovered after papermaking process)
- Minimum 20% post-consumer wastepaper content; 10% in facial tissue (EPA guidelines)
- Wastepaper is not de-inked using solvents containing chlorine or any of its derivatives such as hypochlorite and chlorine dioxide
- Wastepaper is not bleached using chlorine or any of its derivatives such as hypochlorite and chlorine dioxide
- Bath and facial tissue does not contain any added pigments, inks, dyes or fragrances
- Bath tissue contains a minimum of 40 square feet of product per roll; facial tissue contains a minimum of 70 square feet of product per box
- Product is made in accordance with reasonable industry practice with respect to holes, tears, wrinkles, cleanliness, foreign materials or dirt; product must dispense properly from the container (dispenser) or roll
- The cores in the bath tissue and the box for the facial tissue are made from 100% recycled materials
- Packaging does not contain inks, dyes, pigments, stabilizers or any additives to which lead, cadmium, mercury or hexavalent chromium has been intentionally introduced
- Packaging materials cannot contain lead, cadmium, mercury and hexavalent chromium in excess of 100 parts per million (above trace levels)

Green Seal Standards for Hand Cleaners and Hand Soaps (GS-41A)

- Must meet or exceed applicable governmental and industrial safety
- Cannot be a skin sensitizer or skin irritant
- No antibacterial, disinfecting, antiseptic or sanitizing product claims can be made
- Cannot be formulated or manufactured with phosphates, NTA, EDTA, APEOs, halogenated organic solvents, butoxy-ethanol, or with any chemicals that are proven, probable, or possible carcinogens
- Fragrances used must be produced or handled following the code of practice of the International Fragrance Association; fragrances must be declared on the product label and MSDS sheets
- Can only be formulated or manufactured with food grade dyes
- Cannot contain volatile organic compounds in excess of 1%
- Based on standard use, hand cleaners cannot be toxic to aquatic life and must be readily biodegradable
- Must include detailed instructions for proper use to maximize product performance and minimize waste
- Must not be packaged in a bag in box packaging
- Packaging must be recyclable (an exception shall be made for lightweight flexible packaging, such as pouches or bags, that represent at least 20% reduction in material use when compared with rigid packaging); efforts must be made to ensure packaging contains post-consumer recycled content



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Please Recycle