Cleaning, Maintenance and the LEED-EB™ Process

By

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I Introduction

The U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) for Existing Buildings establishes a framework that maximizes operational efficiency while minimizing environmental impacts of buildings.

The USGBC LEED-EB™ program confers certification upon buildings that garner a predetermined amount of credits based on specific performance measures and prerequisites. Of particular note, cleaning and maintenance activities can contribute a significant portion of the total points needed to obtain LEED-EB certification at a relatively low cost.

Thus suppliers of cleaning products and services can play a critical supportive role in a building owner / operator's attempt to obtain and / or maintain LEED-EB certification. In addition, those sections of LEED-EB that address cleaning and maintenance activities set forth a framework by which facilities can develop a green cleaning program.

Green2Green Solutions, through its LEEB-EB™ certification programs, will utilize those LEED-EB prerequisites and credits that are related to cleaning and maintenance, and will implement those actions necessary to achieve the maximum credit (points).

II Background

The USGBC is a coalition of leaders from every sector of the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The USGBC's core purpose is to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life. LEED-EB provides a road map for delivering economically profitable, environmentally responsible, healthy, productive places to live and work. The LEED Rating System for Existing Buildings (EB) addresses:

- Whole-building cleaning and maintenance issues including chemical use;
- Ongoing indoor air quality (IAQ);
- Energy efficiency;
- Water efficiency;
- Recycling programs and facilities;
- Exterior maintenance programs;
- System upgrades to meet green building energy, water, IAQ, and lighting and performance standards.

LEED-EB certification is based on a maximum of 85 points. A minimum of 32 points must be achieved to obtain Certified status. To earn LEED-EB certification, the applicant building must satisfy all of the prerequisites and a minimum number of points to attain the established LEED-EB project ratings as set forth below.

LEED-EB Certification Levels:

- Certified 32-39 points
- Silver 40-47 points
- Gold 48-63 points
- Platinum 64-85 points

Cleaning and maintenance services can contribute 13 or more points to the certification process, representing more than **40% of the total minimum points** needed to achieve Certified status. Thus, cleaning practices and products play an important role in the LEED-EB certification process. More specifically, cleaning operations impact three of the six major LEED-EB categories: sustainable sites; materials and resources; and indoor environmental quality.

Moreover, most of the cleaning related items in LEED-EB are relatively inexpensive and easy to implement. The following discussion identifies the specific cleaning related LEED-EB credits available based on the 2009 edition of LEED-EB.

III Sustainable Sites

Planning for Green Site and Building Exterior Management can contribute up to 2 points toward the 14 points allotted for the LEED-EB category "Sustainable Sites." One point is earned for each four items addressed in such a plan:

1. Maintenance equipment—Use maintenance equipment that minimizes noise and emissions.

2. Plantings—Avoid non-native or invasive plants.

3. Animal and vegetation pest control—Utilize Integrated Pest Management programs to minimize the use of pesticides.

4. Landscape waste—Mulching mowers and composting can significantly reduce the amount of yard waste delivered to landfills, fertilizer needs and water consumption.

5. Irrigation management—Minimize the use of water for irrigation through the adoption of green landscaping practices

6. Fertilizer use—Minimize the amount of fertilizer used; apply when exterior areas are least used to allow for efficient equipment usage and minimization of dust generation and other air quality issues; use of Gemstarr products to reduce environmental impacts and run-off to surface water;

7. Snow removal (where applicable)—Use equipment and chemicals that reduce environmental impacts; plan plowing and sweeping tasks when exterior areas are least used.

8. Cleaning of building exterior—Use green cleaning and maintenance practices and materials; use the least harsh chemical products.

9. Paints and sealants used on building exterior—Use low VOC paints and sealants, or

products otherwise recognized as green.

10. Other maintenance of the building exterior—In addition you should give consideration to cleaning and maintenance activities when upgrading or otherwise altering parking lots, walkways, stairs and landscaped areas. Give thought to the runoff from these areas, where it will go, where the chemicals will travel, and what might be the most efficient layout from a maintenance perspective.

IV Materials and Resources

Under LEED-EB, Sustainable Cleaning Products and Materials can contribute a maximum of 3 points toward the total of 16 points allotted for the Materials and Resources category. In addition, Occupant Recycling can contribute up to 3 additional credits.

Sustainable Cleaning Products and Materials. In order to obtain credit points under this category, building owners / operators must implement sustainable purchasing practices for cleaning materials, products, disposable janitorial paper products, and trash bags. Cleaning product and material purchases include building purchases for use by in-house staff or that which is used by outsourced service providers.

Building owners and operators should calculate the percentage of total sustainable material and product purchases that meet at least one of the specified sustainability criteria. The percentage of the total sustainable cleaning product and material purchases determines the number of points earned up to a maximum of 3 points. One point is awarded for each 30% of the total annual purchases of those products on a cost basis that meet one of the following sustainability criteria:

1. Cleaning products that meet the Green Seal standard if applicable.

2. Disposable janitorial paper products and trash bags that meet the minimum requirements of the US EPA Comprehensive Procurement Guidelines.

Occupant Recycling. To obtain credits under the Occupant Recycling component of LEED-EB, building owners and operators must have in place a building occupant waste reduction and recycling program that addresses the separation, collection and storage of materials for recycling, including at a minimum paper, glass, plastics, cardboard, metals, batteries and fluorescent light bulbs and diversion from landfill disposal or incineration. Specifically, this aspect of the program requires the following:

1. Collect and recycle at least 95% of the batteries used, and collect and recycle at least 95% of the fluorescent light bulbs used; **and**

2. Divert / Recycle:
   - 30% of total waste stream (by weight or volume) (1 point);
   - 40% of total waste stream (by weight or volume) (2 points); or
   - 50% of total waste stream (by weight or volume) (3 points).

While recycling can contribute significantly towards LEED-EB certification, it is also an especially difficult challenge in multi-tenant buildings because recycling involves literally everyone in the

building. As a consequence, effective recycling programs rely on communication and education to make building occupants aware of the need to recycle.

Waste recycling programs require the placement of convenient recycling receptacles for paper, plastics, glass and metals; in addition to monitoring of receptacles, and proper disposal of the collected materials, all of which must become part of the regular cleaning and maintenance program.

V Indoor Environmental Quality

Cleaning activities can contribute up to a maximum of 6 points towards certification under LEED-EB under the major category Indoor Environmental Quality.

Green Cleaning Entryway Systems (1 point). It's something the cleaning industry has been advocating for years: The use of entryway systems (internal and external mats, grills and grates) reduce exposure of building occupants and maintenance personnel to potentially harmful contaminants such as dust, pollens, chemicals, and other substances that adversely impact air quality, health, building finishes, and the environment.

To obtain credit for this component, the building owner / operator must use entryway systems (grills, grates, mats, etc.) to reduce the amount of dirt, dust, pollen and other particles from entering the building at all entryways, and develop the associated cleaning strategies to maintain those entryway systems, as well as the exterior walkways.

Remember, the success of an entryway program is tied to exterior cleaning and maintenance as well. Keeping the exterior clean and well maintained will contribute greatly to the performance of your entryway systems.

Green Cleaning Isolation of Janitorial Closets (1 point). In order to obtain credit under this component, janitorial closets must be isolated to protect building occupants from the hazards associated with janitorial chemical storage, mixing and use. LEED-EB specifically requires that the janitorial closet have structural "deck-to-deck" partitions with separate outside exhausting, no air re-circulation and negative pressure in place in all janitorial closets. Such isolated janitorial closets must also be equipped with hot and cold water, and drains plumbed for appropriate disposal of liquid waste in areas where janitorial equipment and chemicals are stored and/or water and cleaning chemical concentrate mixing occurs.

If dilution equipment is installed, institute appropriate measures to prevent back-flow of chemicals into the potable water supply. In addition, the facility should implement policies, procedures, and mixing systems that minimize the exposure of cleaning staff to concentrated cleaning chemical products.

This cleaning component of LEED-EB can be a major expense in existing buildings that were not designed with this consideration in mind.

Green Cleaning Low Environmental Impact Cleaning Policy (1 point). This section addresses the overall process of cleaning and emphasizes the importance of employee training in executing a green cleaning program. In order to obtain credit for this component, building owners / operators must have a policy in place that addresses at a minimum:

1. Sustainable cleaning systems.

2. Use of sustainable cleaning products.

3. Use of chemical concentrates and appropriate dilution systems.

4. Proper training of maintenance personnel in the hazards, use, maintenance and disposal of cleaning chemicals, dispensing equipment and packaging.

5. Use of hand soaps that do not contain antimicrobial agents (other than as a preservative), except where required by health codes and other regulations (i.e., food service and health care requirements).

6. Use of cleaning equipment that reduces impacts on indoor air quality.

Training is an especially important consideration when transitioning to green cleaning products and processes. For example, some products may require more dwell time to maximize performance. This fact in turn may suggest a different order in cleaning activities to accommodate the dwell time and to maintain productivity. Cleaning employees need to be trained in these new methods to ensure not only performance but their safety and health as well.

Green Cleaning Low Environmental Impact Pest Management Policy (2 points). This component requires that facility owners and operators develop, implement and maintain a low environmental impact integrated indoor pest management policy. Any cleaning products included in the integrated pest management (IPM) program must meet the requirements for Sustainable Cleaning Products and Materials (above).

Put simply, IPM is a safer, and usually less costly option for effective pest management in the indoor environment. An IPM program uses common sense strategies to reduce sources of food, water and shelter for pests in buildings and grounds. An IPM program takes advantage of all pest management strategies, including the judicious and careful use of pesticides when necessary.

Green Cleaning Low Environmental Impact Cleaning Equipment Policy (1 point). LEED-EB also provides 1 point for the use of janitorial equipment that maximizes effective reduction of building contaminants with minimal environmental impact. To obtain credit for this component, building owners and operators must adopt a cleaning equipment policy that specifies the following:

- Vacuum cleaners meet the requirements of the Carpet & Rug Institute “Green Label” Testing Program – Vacuum Cleaner Criteria and are capable of capturing 96% of particulates 0.3 microns in size and operate with a sound level less than 70dBA.

- Hot water extraction equipment for deep cleaning carpets is capable of removing sufficient moisture such that carpets can dry in less than 24 hours.

- Powered maintenance equipment including floor buffers, burnishers and automatic scrubbers is equipped with vacuums, guards and/or other devices for capturing fine

particulates, and shall operate with a sound level less than 70dBA.

- Propane-powered floor equipment has high-efficiency, low-emissions engines.
- Automated scrubbing machines are equipped with variable-speed feed pumps to optimize the use of cleaning fluids.
- Battery-powered equipment is equipped with environmentally preferable gel batteries.
- Where appropriate, active micro fiber technology is used to reduce cleaning chemical consumption and prolong life of disposable scrubbing pads.
- Powered equipment is ergonomically designed to minimize vibration, noise and user fatigue.
- Equipment has rubber bumpers to reduce potential damage to building surfaces.
- A log or spreadsheet will be kept for all powered housekeeping equipment to document the date of equipment purchase and all repair and maintenance activities and include vendor cut sheets for each type of equipment in use in the facility. It is important to maintain equipment uptime.