

LEED CERTIFICATION TOOLKIT

Users, owners and developers of Industrial and Office Real Estate are at the beginning of a period of learning how to manage the gathering and evaluating of the relevant data concerning the costs, criteria and processes of including LEED certification in the design and construction of new facilities, as well as upgrading existing buildings to LEED standards. As with anything new, there is a learning curve. The purpose of this paper is to summarize who the players are, what the steps are, and how the process is designed to work.

It is beyond the scope of this paper to address the basic questions about what LEED and LEED certification are. For this information please refer to www.usgbc.org, where complete information of that sort is available. The starting point here is that the assumption that building sustainable facilities is in our own and society's best interest, and that we need guidance in how to proceed.

For the purposes of this discussion we will assume that we are considering either (a) building a new building, or (b) remodeling an existing building, for occupancy by a specific company in a specific location. We will assume that the principals are disposed to operating in this new location with sustainability as one of their goals. We will not attempt to differentiate the motivations, or consequently how much extraordinary expense, the owner or occupant is willing to incur for the sake of its sustainability goals.

USGBC has created a convenient matrix specifying the elements of a sustainable building for LEED certification purposes. The matrix is composed of the following major categories, each of which is capable of being rated in a specified set of sub-categories. The following is a list of the major categories and the possible "LEED" points they can contribute to the certification process,:

- Sustainable Sites (14 Possible Points)
- Water Efficiency (5 Possible Points)
- Energy & Atmosphere (17 Possible Points)
- Materials & Resources (13 Possible Points)
- Indoor Environmental Quality (15 Possible Points)
- Innovation & Design Process (5 Possible Points)

These are the four levels of LEED certification and the number of points required for each:

Certified (Threshold Level):	26 – 32 Points
Silver	33 – 38 Points
Gold	39 – 51 Points
Platinum	52 – 69 Points

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It is critical to note that there is a gradation in the ease of achieving various certification points. One approach to the certification process is to select the easiest and least costly items in each category and begin the assessment of cost and benefit based on this initial group. Once into the process, additional items may be determined to be feasible as the costs and benefits are more fully understood.

This is a list of the Sub-Categories within each major Category, with the identity of the person/professional most likely suitable to managing each, and the number of points assigned to each Sub-Category:

<u>ITEM</u>	<u>PROBABLE MANAGER</u>	<u>POSSIBLE POINTS</u>
<u>Sustainable Sites</u>		
Prereq.1. Construction Activity Pollution Prevention	Contractor	Required
Credit 1. Site Selection	Owner/Occupant	1
Credit 2. Development Density & Community Connectivity	Owner/Occupant	1
Credit 3. Brownfield Redevelopment	Owner/Occupant	1
Credit 4.1 Alternative Transportation, Public Transportation Access	Owner/Occupant	1
Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms	Architect	1
Credit 4.3 Alternative Transportation, Low Emitting & Fuel Efficient Vehicles	Owner/Occupant	1
Credit 4.4 Alternative Transportation, Parking Capacity	Architect	1
Credit 5.1 Site Development, Protect or Restore Habitat	Architect	1
Credit 5.2 Site Development, Maximize Open Space	Architect	1
Credit 6.1 Stormwater Design, Quantity Control	Architect	1
Credit 6.2 Stormwater Design, Quality Control	Architect	1
Credit 7.1 Heat Island Effect, Non-Roof	Architect	1
Credit 7.2 Heat Island Effect, Roof	Architect	1
Credit 8 Light Pollution Reduction	Architect	1
Total Potential Sustainable Sites Points:		14

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<u>ITEM</u>	<u>PROBABLE MANAGER</u>	<u>POSSIBLE POINTS</u>
<u>Water Efficiency</u>		
Credit 1.1 Water Efficient Landscaping, Reduce by 50%	Architect	1
Credit 1.2 Water Efficient Landscaping, No Potable Use or Irrigation	Architect	1
Credit 2 Innovative Wastewater Technologies	Architect	1
Credit 3.1 Water Use Reduction, 20% Reduction	Architect	1
Credit 3.2 Water Use Reduction, 30% Reduction	Architect	1
Total Potential Water Efficiency Points:		5
<u>Energy & Atmosphere</u>		
Prereq. 1 Fundamental Commissioning of The Building Energy Systems	Electrical Eng.	Required
Prereq. 2 Minimum Energy Performance	Architect	Required
Prereq. 3 Fundamental Refrigerant Management	Mech. Eng.	Required
Credit 1 Optimize Energy Performance	Electrical Eng.	1 - 10
Credit 2 On-site Renewable Energy	Energy Consult.	1 – 3
Credit 3 Enhanced Commissioning	Energy Consult.	1
Credit 4 Enhanced Refrigerant Management	Mech. Eng.	1
Credit 5 Measurement & Verification	Mech. Eng.	1
Credit 6 Green Power	Energy Consult.	1
Total Potential Energy & Atmosphere Points:		17
<u>Materials & Resources</u>		
Prereq. 1 Storage & Collection of Recyclables	Owner/Occupant	Required
Credit 1.1 Building Reuse, Maintain 75% of Existing Walls, Floors & Roof	Arch/Exist. Bldg.	1
Credit 1.2 Building Reuse, Maintain 95% of Existing Walls, Floors & Roof	Arch/Exist. Bldg.	1
Credit 1.3 Building Reuse, Maintain 50% of Interior Non-Structural Elements	Arch/Exist. Bldg.	1
Credit 2.1 Construction Waste Management, Divert 50% from Disposal	Contractor	1

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<u>ITEM</u>	<u>PROBABLE MANAGER</u>	<u>POSSIBLE POINTS</u>
Credit 2.2 Construction Waste Management, Divert 75% from Disposal	Contractor	1
Credit 3.1 Materials Reuse, 5%	Architect	1
Credit 3.2 Materials Reuse, 10%	Architect	1
Credit 4.1 Recycled Content, 10% (post- Consumer + ½ pre-consumer)	Architect	1
Credit 4.2 Recycled Content, 20% (post- Consumer + ½ pre-consumer)	Architect	1
Credit 5.1 Regional Materials, 10% Extracted, Processed & Manufactured Regionally	Architect	1
Credit 5.1 Regional Materials, 20% Extracted, Processed & Manufactured Regionally	Architect	1
Credit 6 Rapidly Renewable Materials	Architect	1
Credit 7 Certified Wood	Contractor	1
Total Potential Materials & Resources Points:		13

Indoor Environmental Quality

Prereq. 1 Minimum IAQ Performance	Mech. Engineer	Required
Prereq. 2 Environmental Tobacco Smoke (ETS) Control	Owner/Occupant	Required
Credit 1 Outdoor Air Delivery Monitoring	Architect/M.E.	1
Credit 2 Increased Ventilation	Architect/M.E.	1
Credit 3.1 Construction IAQ Management Plan, During Construction	Contractor	1
Credit 3.2 Construction IAQ Management Plan, Before Occupancy	Contractor	1
Credit 4.1 Low-Emitting Materials, Adhesives & Sealants	Architect	1
Credit 4.2 Low-Emitting Materials, Paints & Coatings	Architect	1
Credit 4.3 Low-Emitting Materials, Carpet Systems	Architect	1
Credit 4.4 Low-Emitting Materials, Composite Wood & Agrifiber Products	Architect	1
Credit 5 Indoor Chemical & Pollutant Source Control	Mech. Engineer	1
Credit 6.1 Controllability of Systems, Lighting	Electrical Eng.	1
Credit 6.2 Controllability of Systems, Thermal Comfort	Mech. Engineer	1

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<u>ITEM</u>	<u>PROBABLE MANAGER</u>	<u>POSSIBLE POINTS</u>
Credit 7.1 Thermal Comfort, Design	Mech. Engineer	1
Credit 7.2 Thermal Comfort, Verification	Mech. Engineer	1
Credit 8.1 Daylight & Views, Daylight 75% of Spaces	Architect	1
Credit 8.2 Daylight & Views, Daylight 90% of Spaces	Architect	1
Total Potential Indoor Environmental Quality Points:		15

Innovation & Design Process

Credit 1.1 Innovation in Design	Elect./Mech. Eng.	1
Credit 1.2 Innovation in Design	Elect./Mech. Eng.	1
Credit 1.3 Innovation in Design	Elect./Mech. Eng.	1
Credit 1.4 Innovation in Design	Elect./Mech. Eng.	1
Credit 2 LEED Accredited Professional	TBD	1
Total Potential Innovation & Design Process Points:		5

To gain a detailed understanding of each of the above Categories, go to www.usgbc.org and download the document entitled "LEED for New Construction & Major Renovations Version 2.2".

It is clear from the above lists that it takes a team to achieve LEED certification. To manage the process, either (a) one team member can be empowered to be team leader and pull together all required data, oversee the compliance on the ground as work proceeds, and complete the documentation necessary for certification; OR, (b) an independent consultant may be hired to perform these functions. It should not be overlooked that the involvement of team members, and/or a team leader, in attending to the detail of LEED certification, may add to the time required for at least some of the professionals involved. Any cost differential in professional fees must be included in the ROI analysis for the project.

Once the team is in place, the challenge will be to evaluate the ROI for each item in the list of potential Sub-Category items that appear feasible for a given project. At this stage, the task is to have clear specifications for the customary building standard that is the goal of the project without regard for LEED standards, and a well-defined change to the baseline specifications to bring a particular item to the

level of meeting the LEED certification standard. The cost differential, if any, can then be established.

With all initial project costs and specifications clearly defined, the next step is to determine any differences in projected operating costs over specified time periods based on the baseline building specifications and the alternative LEED specifications. It will then be possible to compare any net increases in the initial project cost with the projected net savings in operating costs over a specified time period. Net cost savings in energy consumption, efficiency of resource utilization and maintenance expenses may well offset initial project cost increases.

In addition to the tangible issues addressed above, there are important intangible issues. The increased health and happiness of the occupants of a LEED certified facility is the intended outcome of many of the Sub-Categories of Indoor Environmental Quality. The companies who choose to acquire or create LEED certified facilities are likely to extend concern for sustainability to other domains, such as product design and production or sensitivity to resource utilization of all kinds. Focus on sustainability has broad consequences, not the least of which is the potential for becoming known as a company with a social conscience.

In an ideal outcome, it will be possible to achieve LEED certification and achieve an excellent bottom line ROI.