



LEED™ Credits

— Shaun Darragh LC

[In this article, the sections that are *italicized* are directly referring the LEED™ Manual. Non-italicized sections are the comments of Shaun Darragh LC, the author.]

In recent years, the US Green Building Council has established the LEED™ (Leadership in Energy & Environmental Design) program as a primary driving force behind the Green Building Movement. While lighting is currently a relatively small component of the LEED™ system, it can nevertheless be instrumental in achieving at least 8 and as many as 22 points within the framework of the system.

The system is broken down into several sections. Let's take a look at the lighting component of LEED™ on a section by section basis.

Section SS: Sustainable Sites

Credit 8: Light Pollution Reduction; 1 Point
Eliminate light trespass from the building and site, improve night sky access and reduce development impact on nocturnal environments.

Michael Lane has written an excellent article discussing this topic in detail. It may be found at: http://www.lightingdesignlab.com/ldlnews/winter_2004_leep_lighting.pdf

Section EA: Energy & Atmosphere

Prerequisite 1: Fundamental Building Systems Commissioning; Required
Verify and ensure that fundamental building elements are designed, installed, and calibrated to operate as intended.

Lighting controls, like all other building systems, must be commissioned well in order to function properly. An article discussing the commissioning process in more detail may be found at: http://www.lightingdesignlab.com/ldlnews/lighting_commissioning_sd.pdf

Prerequisite 2: Minimum Energy Performance; Required
Establish the minimum level of energy efficiency for the base building and systems.

All buildings being submitted for LEED™ certification must meet either local energy code require-

ments or the provisions of ASHRAE/IESNA 90.1-1999, whichever is more stringent.

Credit 1: Optimize Energy Performance; 1-10 points
Achieve increasing levels of energy performance above the prerequisite standard to reduce environmental impacts associated with excessive energy use.

Surpassing the energy requirements of ASHRAE/IESNA 90.1-1999 by 15%-60% will result in the granting of 1-10 additional points. Remember that this energy credit is based on the whole building energy use, not just the lighting. That said, reductions in lighting energy can have profound impacts on building energy usage and may result in associated HVAC loads. For more information on lighting and HVAC: http://www.lightingdesignlab.com/articles/lighting_hvac/lighting_hvac.htm

Note that meeting the Seattle Energy Code should automatically result in 1 point for this credit.

Credit 3: Additional Commissioning; 1 Point
Verify and ensure that fundamental building elements are designed, installed, and calibrated to operate as intended.

This credit requires the use of an independent commissioning authority to review the design prior to the CD phase of design, review Construction Documents, implement commissioning strategies, and train building operators in system use.

Credit 5: Measurement & Verification; 1 Point
Provide for the ongoing accountability and optimization of building energy and water consumption performance over time.

This credit requires the implementation of a plan to verify building performance over time. Once again, lighting is one component of this credit, but should be considered a key component. Many advanced lighting control systems may perform this function automatically. A reference standard for this credit may be found at: www.ipmvp.org

Section MR: Materials & Resources

Credit 5.1: Regional Materials: 20% Manufactured Regionally; 1 Point
Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the regional economy



and reducing the environmental impacts resulting from transportation.

Lighting has a minor role in this credit, but may prove helpful in some circumstances. Specify luminaires and equipment that are manufactured within a 500 mile radius from the job site.

Section EQ: Indoor Environmental Quality

Credit 6.1: Controllability of Systems: Perimeter Spaces; 1 Point

Provide a high level of thermal, ventilation, and lighting system control by individual occupants or specific groups in multi-occupant spaces (i.e. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.

Increasing personal control of lighting in commercial spaces can lead to higher levels of personal satisfaction and productivity. Provide at least one lighting control zone per 200 square feet for all regularly occupied areas within 15 feet of perimeter walls. While it is not required for this credit, the strong preference for control should be dimming rather than switching.

Credit 6.2: Controllability of Systems: Non-Perimeter Spaces; 1 Point

Provide a high level of thermal, ventilation, and lighting system control by individual occupants or specific groups in multi-occupant spaces (i.e. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.

Increasing personal control of lighting in commercial spaces can lead to higher levels of personal satisfaction and productivity. Provide individual lighting controls for at least 50% of the occupants in non-perimeter, regularly occupied areas. While it is not required for this credit, the strong preference for control should be dimming rather than switching.

Credit 8.1: Daylight and Views; Daylight 75% of Spaces; 1 Point

Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Research shows us that people are happier, healthier, and more productive when they have good access to natural daylight and view corridors. For this credit, 75% of all critical visual task occupied space must achieve a Daylight Factor of 2%. For more information on daylighting: http://www.lightingdesignlab.com/ldlnews/Daylighting_by_Design.pdf and http://www.lightingdesignlab.com/ldlnews/light_daylight_jl.pdf

Credit 8.2: Daylight and Views; Daylight 75% of Spaces; 1 Point

Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

For this credit, occupants in 90% of all regularly occupied spaces must have a direct line of sight to vision glazing. For an excellent article on refining windows for daylight: http://www.lightingdesignlab.com/ldlnews/Refining_the_Window.pdf

Section ID: Innovation & Design Process

Credit 1: Innovation in Design; 1-4 Points

Develop some interesting new design approach that advances the state of the art and this credit may be yours.

Shaun Darragh began his fascination with light at the University of Massachusetts while studying theatre design. He has been engaged in various aspects of the lighting industry for more than 15 years, serving as a theatrical designer, lighting control system specialist, manufacturer's representative, and architectural lighting designer. Most recently, Mr. Darragh has served as a lighting designer and project manager at NBBJ Architecture and as Senior Associate at J. Miller & Associates in Seattle. He is very pleased to be currently working with the talented and dedicated staff at the Lighting Design Lab. Recent projects include the Immunex Helix Project, Seattle, WA; The Reebok World Headquarters, Canton, MA; the Reno Sparks Convention Center, Reno, NV; Sun Healthcare Systems, Anacortes, WA; the REI Flagship Store, Denver, CO; the Ala Moana Mall, Waikiki, HI; the Kangbuk Samsung Hospital, Seoul, Korea; and the Pacific Place Mall, Seattle, WA.

Mr. Darragh is currently a member of the Illuminating Engineering Society for which he sits on the Board of Managers of the Puget Sound Section. Mr. Darragh is also lighting certified by the National Council on Qualifications in the Lighting Profession.

Recent Awards:
Pacific Place, Seattle, WA
IIDA Award of Merit

Reebok World Headquarters
Canton, MA
IIDA Award of Merit

