



## How to MAXIMIZE LEED points with lighting that is Beautiful, Sustainable, and Achievable

LEED 2009 for Commercial Interiors contains 37 points under Energy and Atmosphere (EA). Task-Vertical-Ambient lighting strategies are an easy way to hit 6 of those points. Daylighting response, motion sensors, time scheduling and shade controls, cannot earn more than a total of 4 points combined.

The reason for the greater number of points in Energy and Atmosphere is because of the emphasis placed on being energy efficient. When we talk about energy efficiency and lighting, we have to look at two distinct topics:

- Efficiency of the fixture
- Effectiveness of how the fixture's light output is used.

How can we use both the efficiency of the fixture and the effectiveness of it's output to help create beautiful spaces which utilize sustainable strategies of reduced fixture material and energy, and make achievable the goals of "within-time, within-budget"? Simply put, the answer lies in how we use the fixtures to light the different surfaces.

Finelite has collaborated with the California Energy Commission and New York State Energy Research Development Authority on demonstration research projects which clearly show that (3) steps work together for Beautiful, Sustainable, Achievable lighting



### STEP ONE:

#### Light the task first

Use task lighting where tasks and user preference require higher lighting levels. (Refer to Finer Point "Age and Vision"). The best light source for task lighting is the LED.

### STEP TWO:

#### Light vertical surfaces

Light provides the visual definition of our environment, and vertical surfaces are the most important. Use wall wash fixtures in open plan spaces to reduce overall fixture quantity and lighting energy while improving appearance.

### STEP THREE:

#### Provide ambient lighting

When task and vertical surfaces are properly lit, ambient lighting should be around 30 footcandles, which can be accomplished at 0.40 w/ft<sup>2</sup> in open plan office spaces. As the examples in Design Solution templates show, the total energy consumption with Task-Vertical-Ambient is a game-changing 0.50 w/ft<sup>2</sup>.

As a result of this common-sense approach, Finelite pioneered the Integrated Classroom Lighting System (ICLS) and the Integrated Office Lighting System (IOLS) to provide users with solutions that are Beautiful, Sustainable, and Achievable.

This sound and simple design path is richly rewarded in LEED points. Here is an example from LEED 2009 for Commercial Interiors:

### **Energy and Atmosphere (EA) Credit 1.1**

- 5 points for lighting energy 35% or more below the standard (ASHRAE 90.2-2007).  
*Refer to Open Plan templates for design examples.*

#### **EA Credit 1.1: Optimize Energy Performance—Lighting Power**

**1–5 points**

##### **Intent**

To achieve increasing levels of energy conservation beyond the referenced standard to reduce environmental and economic impacts associated with excessive energy use.

##### **Requirements**

Reduce connected lighting power density below that allowed by ANSI/ASHRAE/IESNA Standard 90.1-2007 (with errata but without addenda<sup>1</sup>) using either the space-by-space method or by applying the whole building lighting power allowance to the entire tenant space.

The points earned for reducing lighting power density below the standard are as follows:

Lighting Power Density Reduction below the Standard	Points
15%	1
20%	2
25%	3
30%	4
35%	5

Project teams in California may use Title 24-2005, Part 6 in place of ANSI/ASHRAE/IESNA Standard 90.1-2007.

##### **Potential Technologies & Strategies**

Design the connected lighting power to maximize energy performance. If the project warrants, consider a computer simulation model to assess the performance and identify the most cost-effective energy efficiency measures.

### **Indoor Environmental Quality (IEQ) Credit 6.1**

- 1 point for task lighting that provides individual user control to adjust for preferences and tasks.

#### **IEQ Credit 6.1: Controllability of Systems—Lighting**

**1 point**

##### **Intent**

To provide a high level of lighting system control for individual occupants or groups in multi-occupant spaces (e.g., classrooms and conference areas) and promote their productivity, comfort and well-being.

##### **Requirements**

Provide individual lighting controls for: 90% (minimum) of the tenant space occupants to enable adjustments to suit individual task needs and preferences.

Provide lighting system controls for all shared multi-occupant spaces to enable adjustments that meet group needs and preferences.

##### **Potential Technologies & Strategies**

Design the tenant space with occupant controls for lighting. Strategies to consider include lighting controls and task lighting. Integrate lighting systems controllability into the overall lighting design, providing ambient and task lighting while managing the overall energy use of the building.