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White Paper

# **Lagotek's Role in Achieving LEED Certification**

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## Lagotek & LEED

The following is intended to provide discussion level information about the potential role that Lagotek and SeeSmartLED, a Lagotek LED bulb replacement partner, can play in achieving the various certification levels of Leadership in Energy and Environmental Design (LEED). Since many factors influence the actual certification, it is important to note that the following information does not guarantee the Lagotek/SeeSmartLED role in reaching the levels indicated. LEED is governed by the U.S. Green Building Council <http://usgbc.org>.

LEED NC 2009 (also called v3.0) is the current certification standard in practice. It is comprised of the following point scale.

Description	Possible Points	% of Total Points
Sustainable Sites (SS)	26	23.64
Water Efficiency (WE)	10	9.09
Energy & Atmosphere (EA)	35	31.82
Material & Resources (MR)	14	12.73
Indoor Environmental Quality (IEQ)	15	13.64
<b>Bonus Points</b>		
Innovative Design (ID)	6	5.45
Regional Priority (RP)	4	3.64
<b>Totals</b>	<b>110</b>	<b>100</b>

Lagotek and SeeSmartLED will focus primarily on EA as this category most directly applies to our combined solution.

The following table shows the four certification levels. Most prestige properties want to reach Platinum status. A SeeSmartLED/Lagotek lighting control system could provide a large part of any level and as you will see shortly, by potentially providing the majority of points needed for basic certification.

Level	Lower Limit	Upper Limit
Certification	40	49
Silver	50	59
Gold	60	79
Platinum	80	110

The following table will detail a proposed Lagotek/SeeSmart certification based upon Lagotek analysis of requirements outlined in the LEED 2009 Reference Guide. Following this table, a detailed explanation of the proposed SeeSmart/Lagotek contribution will be outlined.

<b>LEED NC 2009 Summary of Credits That SeeSmartLED/Lagotek Building Automation Helps To Achieve</b>			
Credit	Description	Points Possible SeeSmart/Lagotek	% of Possible Total Points
<b>SS</b>	<b>Sustainable Sites</b>	<b>1 out of 26</b>	<b>4%</b>
Credit 8	Reduce Light Pollution	1	
<b>EA</b>	<b>Energy &amp; Atmosphere</b>	<b>24 out of 35</b>	<b>69%</b>
Credit 1	Optimize energy performance	19	
Credit 3	Enhanced commissioning	2	
Credit 5	Measurement & verification	3	
<b>MR</b>	<b>Material &amp; Resources</b>	<b>2 out of 14</b>	<b>14%</b>
Credit 4	Recycled content	2	
<b>IEQ</b>	<b>Indoor Environmental Quality</b>	<b>3 out of 15</b>	<b>20%</b>
Credit 6.1	Controllability of systems – lighting	1	
Credit 8.1	Daylight	1	
Credit 8.2	Views	1	
<b>ID</b>	<b>Innovative Design</b>	<b>5 out of 6</b>	<b>83%</b>
Credit 1	Innovative Design	5	
<b>RP</b>	<b>Regional Priority</b>	<b>2 out of 4</b>	<b>50%</b>
	From 6 point criteria	2	
	<b>Total against possible points</b>	<b>37 of 110</b>	<b>33.6%</b>

The following will highlight the potential credits identified above.

### **Sustainable Sites – SeeSmart/Lagotek could achieve 1 point under Credit 8, Light Pollution Reduction**

There are three primary reasons that this point should be earned.

1. Lagotek automatically closes motorized shades at dusk, thereby reducing the amount of light that can potentially escape through windows.
2. Occupancy sensors are used to automatically turn off lights and lower shades when building areas are unoccupied. This is executed through Lagotek’s Rules application which prevents light pollution in unoccupied areas.
3. Lagotek’s Rules application also utilizes an astronomical clock to invoke nighttime settings for lights off in all areas that do not require night light and dimming levels where safety requires certain light levels. Both events remove or minimize light pollution.

### **Energy & Atmosphere – Credit 1, Optimize Energy Performance - SeeSmart/Lagotek**

**lighting and HVAC efficiencies through energy management and building automation should achieve 19 points as follows.**

1. SeeSmartLED retrofits of lighting reduce kWh consumption by 50% or more. LED lighting also eliminates heat producing ballasts which must be managed by building HVAC systems. Savings associated with HVAC can reach 20% or great from the application of LED lighting.
2. Lagotek building automation controls HVAC directly in many cases and further reduces kWh for lighting through daylight harvesting which utilizes natural light in concert with motorized shades and light reflecting motorized louvers. Lagotek's Rules application gradually brings dimmable LEDs into proper work area levels as natural light fades because of weather, time of day and/or time of year.
3. Occupancy sensors and astronomical clock based scheduling manages HVAC and lighting to exceed mandatory lighting control requirements of ASHRAE 90.1 2007 Chapter 9.
4. The combination of HVAC, lighting and automation should produce the full 19 points. The total savings must equal 46% for existing buildings and 50% for new construction. (One point is earned for every 2% over 8% for existing buildings and 12% for new construction.)

**Energy & Atmosphere – Credit 3, Enhanced Commissioning – 2 points should be earned in this category because of superior documentation, training and ongoing support of operating personnel.**

**Energy & Atmosphere – Credit 5, Measurement & Verification – 3 points should be earned based upon;**

1. Lagotek real time energy monitoring and load shedding programs invoked from the Rules application.
2. Continuing optimization as measured from the Rules application. Lagotek support staff will suggest and implement new efficiency programs based upon corrective actions identified.

**Material and Resources – Credit 4, Recycled Content – Three points should be achieved because;**

1. The materials in Lagotek motorized shading is derived from 100% recycled fabrics (must equal at least 10% of the cost of project).

**Indoor Environmental Quality – Credit 6.1, Controllability of Systems and Credit 8.1, Daylight and 8.2, Views – SeeSmartLED/Lagotek should achieve 3 points by;**

1. 6.1 - Lagotek zoning of all lighting with automation derived from occupancy sensors, scheduled lighting schemas, daylight harvesting and manual local overrides that are set to predetermined automation controls (1 point).
2. 8.1 & 8.2 – Controlling glare and optimal views through the use of motorized shades.

**Innovation in Design – Credit 1- 5 points should be earned here because;**

1. Both SeeSmart & Lagotek utilize state-of-the-art, leading edge products that achieve exemplary performance. An example is Lagotek's load shedding schema applied



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through the Rules application that automatically lower energy consumption from a cascade of reduction techniques invoked either manually by facilities operators or automatically based upon utility notification or time of day or based upon a high energy consuming event such as massive window damage from a wind storm.