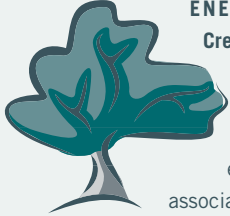


# A Green Lite <sup>for</sup> LEED® Project

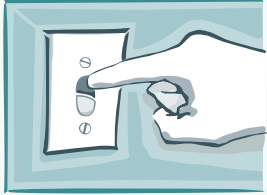
The GreenSpec® Directory designates SageGlass® glazing as a green product – and one that can help your project earn LEED\* credits in these categories:



**ENERGY & ATMOSPHERE:**  
**Credit 1 - Optimize Energy Performance**  
*(1-10 points possible)*  
**Intent:** “Achieve increasing levels of energy performance ... to reduce environmental and economic impacts associated with excessive energy use.”


- ✓ Lawrence Berkeley National Lab estimates up to 20% cooling energy savings, up to 60% lighting reduction, and up to 30% reduction in peak demand with the use of SageGlass windows. Less fossil fuel burned means fewer carbon emissions, which is good for the environment, and lower operating costs, which is good for the building owner.

**INDOOR ENVIRONMENTAL QUALITY:**  
**Credit 6.1 & 6.2 - Controllability of Systems** *(2 points possible)*  
**Intent:** “Provide a high level of lighting and thermal comfort system control by individual occupants or by specific groups in multi-occupant spaces (i.e. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.”



- ✓ SageGlass windows and skylights are highly programmable and can be set up to operate individually or in zones, by single users or for multi-occupant spaces to meet group needs.

**INDOOR ENVIRONMENTAL QUALITY:**  
**Credit 7 - Thermal Comfort Design**  
*(1 point possible)*  
**Intent:** “Provide a comfortable thermal environment that supports the productivity and well-being of building occupants.”



- ✓ SageGlass windows and skylights can be tinted to stop solar heat gain without blocking the view. In winter, when maximum solar light and heat are desired, the glazing can be kept in its high transmission state. And since the electrochromic coating is a low-emissivity surface, it works to keep heat in the room.

**INDOOR ENVIRONMENTAL QUALITY:**  
**Credit 8.1 & 8.2 - Daylight and Views** *(2 points possible)*  
**Intent:** “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.”



- ✓ The beauty of SageGlass windows is that you can control the sun’s energy without blocking the view. SageGlass glazing is always transparent, even in its darkest state, so people can always see through the glass. In a Dept. of Energy evaluation, people greatly preferred to be in a room outfitted with SageGlass windows over one with static windows.

*In addition to the LEED categories listed in GreenSpec, there are others to which SageGlass glazing could apply:*

**Sustainable Sites Credit 8 - Light Pollution Reduction.** **Intent:** “Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, ..., and reduce development impact on nocturnal environments.”

- ✓ If kept in their tinted state during the night, SageGlass windows dramatically reduce internal light trespass.

**Innovation & Design Process Credit 1–1.4 - Innovation in Design.** **Intent:** “To provide design teams and projects the opportunity to be awarded points for exceptional performance above the requirements set by [LEED] and/or innovative performance in Green Building categories not specifically addressed by the LEED-NC Green Building Rating System.”

- ✓ The solar heat gain coefficient of SageGlass glazing is 65% better than most spectrally selective glazings. This allows for the use of more glass, and often in places where it previously could not be used. This provides architects with new opportunities for innovative and high-performance design.

**Materials & Resources Credit 5.1 & 5.2 - Regional Materials: 10% and 20% Extracted, Processed & Manufactured Regionally.** **Intent:** “Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.”

- ✓ SageGlass products are fabricated in Minnesota from raw glass that is manufactured within the 500-mile radius designated by LEED.

\*The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. To earn LEED certification, a building project must meet certain prerequisites and performance benchmarks (“credits”) within each category. (Source: LEED website [www.usgbc.org](http://www.usgbc.org))



SAGE Electrochromics, Inc.  
 is a member of the  
 U.S. Green Building Council

## *Beyond LEED: The ingredients that make SageGlass glazing an environmentally friendly building product*

### **WHAT MAKES SAGEGLASS PRODUCTS GREEN?**

They conserve energy and contribute to a more comfortable interior environment for building occupants while retaining the view. This is a dramatic change from the way windows have performed in the past.

### **WHAT'S NOT GREEN ABOUT STATIC WINDOWS?**

Buildings are the largest source of energy consumption in the world, and energy lost through today's inefficient window stock accounts for ~30% of building heating and cooling energy in the U.S. So while they provide many benefits, windows and skylights have been a tremendous source of wasted energy. In addition, they admit solar heat and glare into the building causing thermal and visual discomfort for the people inside. Traditionally, building designers have attempted to mitigate the sun's negative effects by incorporating such features as oversized cooling systems, mechanical shading systems, and eyebrows or sunshades.

### **SAGEGLASS PRODUCTS: THE BEST OF BOTH WORLDS**

Because they can be tinted when it's hot and sunny but untinted when it's cloudy outside, SageGlass windows provide a

daylighting solution that does not require additional shading and blind systems. A building even partially glazed with SageGlass products can be designed to take advantage of natural light without compromising the connection to the outdoors. With SageGlass windows and skylights, architects and builders no longer have to choose between a building design that maximizes daylighting and one that attempts to minimize the negative effects of the sun.

### **WHAT HAPPENS AT THE END OF THE PRODUCT'S LIFE?**

SageGlass windows and skylights can be disposed of like any static coated glass products (such as low-e).

### **HOW MUCH ELECTRICITY IS NEEDED TO POWER THE GLAZING?**

SageGlass windows are very energy efficient to operate. In fact, on a daily basis, it takes less electricity to power and control 1,500 square feet of SageGlass glazing than it does to power a 60-Watt incandescent light bulb.

*The features of SageGlass products that lend themselves to sustainable building design:*

Effects of Installing SageGlass Products	Conservation of Natural Resources	Energy Savings	Healthier Indoor Environment	Economic Benefits
Smaller HVAC systems required, resulting in lower power usage by equipment	Equipment cycles less frequently, so it has to be replaced less often and maintenance is lower	Lawrence Berkeley Nat'l Lab estimates peak demand reduction of up to 30%	Decreased volume of airborne particulates from power plants	Lower capital and operating costs
Need for shades, blinds and sunshades eliminated	Elimination of manufacturing and packaging material for these items that need frequent replacement	Fuel used to make and transport replacement products is eliminated	Building occupants derive benefits of true glare and heat control without losing the view	Installation and transportation costs of replacement products eliminated
Windows allow interactive control of heat and light while always maintaining the view and connection to the outdoors	Lower energy translates to a reduction of dependency on oil, natural gas and coal	Lawrence Berkeley Nat'l Lab estimates cooling savings of up to 20% and lighting reduction up to 60%	Improved well-being and outlook for building occupants	Improved productivity, reduced absenteeism, lower medical costs, increased retail sales
In tinted state, windows block 98% of the solar radiation that causes fading	Frequency of replacement of interior materials such as carpets and wall coverings is reduced	Less frequent replacement means less fuel is used to make and transport materials	Lessens people's exposure to harmful radiation	Reduced cost for replacing furnishings



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