



Hüper Optik USA film contributions to a facility seeking LEED Certification.

This is a 3rd party opinion which was prepared following dialog with representatives of Hüper Optik USA and a further review of their publicly available materials information and test data.

Initially when we review the aspirations of the LEED Ratings systems we find several aspects that parallel or perhaps one could say are supported by the goals of Hüper Optik USA.

“The LEED rating systems aim to promote a transformation of the construction industry through strategies designed to achieve seven goals:

- To reverse contribution to global **climate change**
- To enhance individual **human health** and well-being
- To protect and restore **water resources**
- To protect, enhance, and restore **biodiversity** and ecosystem services
- To promote sustainable and regenerative **material resources** cycles
- To build a **greener economy**
- To enhance social equity, environmental justice, **community** health, and quality of life”<sup>1</sup>

Hüper Optik USA high performance window films contribute to ...

- reversing the contribution to global **climate change** in buildings using their films by reducing their energy consumption. Over 100 million metric tons of carbon dioxide emissions (and counting) have been reduced by the installation of approximately 2.5 million square feet of glass in the Americas.
- Enhancing individual **human health** and well-being in buildings using their films by rejecting 99.9% of the sun’s ultraviolet rays, reflecting the heat causing infrared energy, providing glare reduction and modulating the interior glass temperature differential by up to a 23F degrees.
- Promoting sustainable and regenerative **material resources** cycles via their dedicated use of recycled and renewable resources.
- building a **greener economy** via their Corporate Sustainability practices.

As you view this terse evaluation and opinion I must first state that I firmly believe in the benefits of radiant barriers and radiant energy control products and their positive contributions to energy conservation when properly used.

When we consider the applicability and contributions that Hüper Optik USA high performance window films could potentially add to a facility being designed, constructed or updated to pursue LEED Certification those considerations are many. Primarily this paper will reference a LEED Credit Category and then make any reference to applicability of Hüper Optik USA high performance window films contribute to the attainment of credits within that Credit Category.

We must remember that products cannot be LEED Certified and can only contribute to successful certification efforts when the facilities construction and application conditions are favorable to their application.

---

<sup>1</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.  
huperoptikusa.com.



### **LEED Location and Transportation Credit Category<sup>2</sup>**

Hüper Optik USA high performance window films could provide a positive contribution to the comfort of the vehicles used and their occupant's comfort yet this benefit has no way to quantify within the current structure of the various LEED Rating Systems.



### **LEED Sustainable Sites Credit Category<sup>3</sup>**

Hüper Optik USA high performance window films could provide a positive contribution towards the Heat Island Reduction and Light Pollution Reduction Credits within both the LEED v4 for New Construction and Major Renovation and the LEED v4 for Operations & Maintenance: Existing Buildings rating systems. Regarding Heat Island Reduction, re-reflecting of radiant infrared (IR) and rejection of ultraviolet (UV) energy can be accomplished via the installation of a suitable Hüper Optik USA high performance window films. By reducing IR radiant energy heat load into the building and rejecting the damaging UV rays we are moving that energy back into the atmosphere and not causing a heat island at the immediate building envelope. This energy rejection in reducing heat island contributions can be hard to quantify in general terms yet a very thorough energy modeling that has the ability to consider these positive effects can be calculated and field tested to determine exact quantities. This benefit can be referenced as a contributor for Innovation in Design or Operations.

When considering light pollution reduction Hüper Optik USA high performance window films provide a shading factor that will mitigate the interior light appearances when viewed from the exterior and serve to reduce the light transmission trespass over distances reducing lighting levels at property limits. This light transmission reduction serves to increase night sky access as well, although hard to quantify theoretically certainly when employing this technique in an existing building before and after field measurements can be utilized to assist in the attainment of the intent of these goals.



### **LEED Water Efficiency Credit Category<sup>4</sup>**

When considering Water Efficiency initially there would seem to be no correlation between water consumption and Hüper Optik USA high performance window films yet the determining factor would be if water is used

---

<sup>2</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

<sup>3</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

<sup>4</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

## Hüper Optik USA film contributions to a facility seeking LEED Certification

for the cooling systems of a facility. If the facility has cooling towers that depend on water then the contributory positive correlation to water efficiency and consumption related to cooling demand can be made. Consider that Hüper Optik USA high performance window films help reduce the external energy load transmitted through the glazing system thus reducing the overall energy required to cool or heat a building depending on the climatic location of the facility. The application of Hüper Optik USA high performance window films can reduce the interior surface temperature of an insulated glazing unit by 13 degrees Celsius or approximately 23.4 degrees Fahrenheit. This internal surface temperature reduction as compared to an untreated insulated glazing unit correlates to a reduction in the solar IR and UV energy intrusion into the building and will consequentially reduce the cooling demand in a hot climate. Many factors will additionally affect the quantity of water consumed within a building's HVAC system's cooling towers yet the application of Hüper Optik USA high performance window films will provide a measureable differential and a reduction in required resources as compared to the equivalent building without some radiant energy reduction technology utilized. The theoretically or proposed water reductions are very difficult to quantify yet certainly when benchmarking an existing building before and after field measurements can be utilized to determine the contributions that process water use reduction can make to the attainment of the overall water reduction goals.



### **LEED Energy And Atmosphere Credit Category<sup>5</sup>**

“Hüper Optik USA was founded in 1998, out of a need to provide an energy saving technology that would protect consumers from harmful UV rays, and provide a green solution for energy savings.” This quote best aligns with the LEED goal “... to reverse contribution to global **climate change**” which is dependent on a reduction where possible of the use of combustion and fossil

fuels and their inherent negative impacts from overuse.

Hüper Optik USA high performance window films will provide a positive contribution within this LEED Category since their products primary goals are to provide measurable energy saving technology which typically has an ROI of less than 5 years.

Energy modeling that is used typically to evaluate energy reduction strategies for a new building differs from the benchmarking exercise that is performed on an existing building. Both practices are evaluating the effectiveness of the building's envelope for a given orientation as well as the potential performance gains that can be accomplished by changes to the building envelope in the energy model and energy audit processes. Fenestration selections are conventionally made using simply economic factors which is why we have so many energy inefficient buildings. The differential costs as well as the ROI between inefficient window replacements versus the great performance gain can be had by the application of optic films to an existing window assembly is substantially favoring the film with a cost of one tenth as compared to replacements. When considering the aesthetics and performance desires of the glazing system in the new building there's still a potential to utilize optic films in that application as well yielding an exterior glazing appearance with desired reflectivity and color and yet have the additional radiant energy

---

<sup>5</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

## Hüper Optik USA film contributions to a facility seeking LEED Certification

performance affected by utilizing film in this type of application. The building's specific energy performance improvement will vary depending on the amount of glazed area in the facility and the type of film used in its application and can certainly exceed a 40 percent reduction of the energy load at the glazing system.

Hüper Optik USA high performance window films help reduce the external energy load transmitted through the glazing system thus reducing the overall energy required to cool or heat a building depending on the climatic location of the facility. The application of Hüper Optik USA high performance window films can reduce the interior surface temperature of an insulated glazing unit by 13 degrees Celsius or approximately 23.4 degrees Fahrenheit. This internal surface temperature reduction as compared to an untreated insulated glazing unit correlates to a reduction in the solar IR and UV energy intrusion into the building and will consequentially reduce the cooling demand in a hot climate. Many factors will additionally affect the quantity of energy consumed within a building's HVAC system's components yet the application of Hüper Optik USA high performance window films will provide a measureable differential and a reduction in required resources as compared to the equivalent building without some radiant energy reduction technology utilized. The theoretically or proposed energy use reductions are very difficult to quantify yet certainly when benchmarking an existing building before and after field measurements can be utilized to determine the contributions that an energy reduction component can contribute to the attainment of the overall energy use reduction goals.



### **LEED Material Resources Credit Category<sup>6</sup>**

Hüper Optik USA high performance window films provide a positive contribution to reducing the need or desire to replace perfectly good glazings that are poor performers that keep these glazings from impacting landfill contributions. Further due to the film's ability to reject 99.9% of UV Rays there is an inherent protection of the interiors from infrared damage and premature aging increasing thus the usable life of all exposed interior products and finishes.

When considering materials and resources credits in new buildings certainly a very efficient material is desired, yet Hüper Optik USA high performance window films have a large quantity of recycled content within their films which could contribute to gaining that credit in a newly constructed building. Further within LEED v4 material disclosure and life cycle assessment is largely dependent on a manufacture sharing that data with the LEED project team this is something that Hüper Optik USA is actually proud of, they enjoy disclosing qualities, contents and characteristics of their materials used. Within the Existing Building Purchasing and Maintenance and Renovation policies is the opportunity to add products such as Hüper Optik USA films with their substantial benefits and further contributions to waste management policies considering the ability for the product to be recycled at the end of its exceedingly long service life as compared to other applied window products.

---

<sup>6</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at [usgbc.org](http://usgbc.org), [huperoptikusa.com](http://huperoptikusa.com).



### **LEED Interior Environmental Quality Credit Category<sup>7</sup>**

When we consider indoor environmental quality and the factors that affect systems performance, comfort, acoustics and air quality Hüper Optik USA high performance window films can enhance those indoor air quality strategies. As previously provided Hüper Optik USA high performance window films have superior thermal decoupling properties for enhanced thermal comfort reducing drafty feel caused by convection adjacent to the windows. Other beneficial properties beyond modulating the temperature adjacent to the windows include assisting with interior lighting and daylighting strategies as well as reducing glare thus increasing the occupants comfort the quality of life. Again, although Hüper Optik USA high performance window films benefit all of these mentioned scenarios it is difficult to quantify the exact number of points you could influence by implementing the product. Suffice it to say it is a very useful strategy to increase the comfort of a building's occupants in a new or existing building application as a consequence of outstanding energy performance improvements. Within LEED v4 Acoustic Performance has now become a credit earning consideration and the application of Hüper Optik USA high performance window films will inevitably contribute positively in this regard due to its sound dampening qualities that become obvious during the field measurements during acoustic STC performance testing when pursuing the respective credits.



### **LEED Innovation (ID-EP-IO) Credit Category<sup>8</sup>**

Facilities that utilize Hüper Optik USA high performance window films should pursue an Innovation Credit for the positive contributions the use of this product will always have.

When we consider innovation credits one of the great things that Hüper Optik USA high performance window films contribute to an innovation especially in an existing building is drastically increasing the energy performance of a building's envelope by its application. Additional qualities that can be addressed include glare reduction in daylighting strategies and further increasing the occupants comfort via acoustic performance where the intent is to provide work spaces and classrooms to promote occupants well-being productivity and communications through effective acoustic design. Utilizing Hüper Optik USA high performance window films as cost benefit scenario strategy is certainly grounds for somebody to start pursuing an innovation credit for its use and application.

In order to qualify for an Innovation Credit we have to achieve a significant measurable environmental performance using a strategy not addressed with in the respective LEED Green Building rating system. Further to be successful one has to “identify the following:

- the intent of the proposed innovation credit;
- proposed requirements for compliance;
- proposed submittals to demonstrate compliance; and
- the design approach or strategies used to meet the requirements.”

---

<sup>7</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

<sup>8</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

## Hüper Optik USA film contributions to a facility seeking LEED Certification

All of this respective information should be readily available by working with one of your technical experts at Hüper Optik USA potentially, the installation firm may have the expertise to provide the assistance required. Additionally Exemplary Performance in some of the energy conserving categories and credits within the LEED rating system may be aided via the implementation of Hüper Optik USA high performance window films. Of very specific note, “No strategy can achieve more than 1 point under Innovation.” So do consider where the most benefit can be attained.



### **LEED Regional Priority Credit Category<sup>9</sup>**

Regional Priority Credits are specific place based solutions that strategically address some environmental issues particular to a specific locale. These credits provide additional acknowledgement to project teams that work hard to address these issues of specific priority for each of 6 identified regional priority credits available for every location and respective rating system. The issues could be naturally occurring or manmade or affect environmental concerns typically that we have a concern for. Most areas within the Americas struggle with energy independence and resiliency. Hüper Optik USA high performance window films will provide a positive contribution may Regional Priority Credit threshold attainment.

One could make outrageous claims that a specific product automatically gets an applicant LEED Points towards LEED Certification yet any claim of the sort is simply not true and not applicable to every project seeking LEED Certification. LEED Certification is a complex process where many factors are evaluated and contribute to the success of a project seeking certification. The purpose of this assessment is to provider the reader with a terse assessment of the LEED Credit Catagories that can be positively affected via the installation of Hüper Optik USA high performance window films.

Hüper Optik USA was founded in 1998, out of a need to provide an energy saving technology that would protect consumers from harmful UV rays, and provide a green solution for energy savings.

#### **CORPORATE SUSTAINABILITY STATEMENT**

Hüper Optik USA is committed to maintaining a reduced carbon footprint through advocacy, education, recycling within all internal and business processes, dedicated use of recycled and renewable resources, and through the selection of external vendors and partners. Sustainability is not a separate program or policy, but is an adopted mindset for all employees, partners, and authorized dealers of Hüper Optik.

Daniel A. Huard, PMP, LFA, LEED AP O+M~BD+C the author of this assessment is Principal of Greenview Global, LLC a Global Sustainability and Green Building Consulting firm. The author is not an employee or shareholder of Hüper Optik USA

---

<sup>9</sup> LEED Reference Guide for EB O+M v4; LEED Reference Guide for BD+C v4.

Logos used following the trademark guidelines provided by USGBC and available publicly at usgbc.org, huperoptikusa.com.

Hüper Optik USA film contributions to a facility seeking LEED Certification