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EnviroLube™ LEED Point Contribution

This summary report is intended to inform any and all entities or parties on their EnviroLube product applicability to the USGBC Leadership in Energy and Environmental Design for New Construction (LEED-NC) rating system. This report details the product analysis elements and showcases which LEED-NC credit achievements the EnviroLube product may contribute to and why. In summary, this product provides significant contribution in the achievement of LEED-NC credits.

Table of Contents

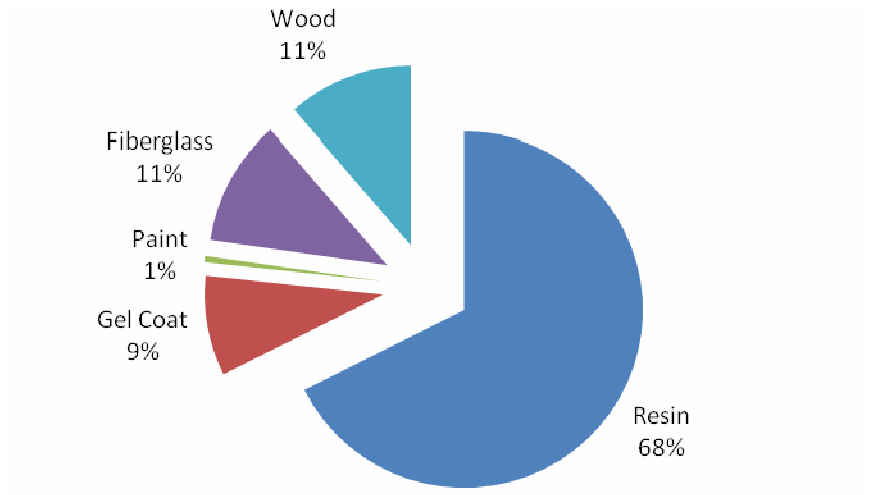
Understanding of EnviroLube Product

Brightworks' understanding of the scope (the operational and impact limits within service facilities) and service of the EnviroLube product was defined through meetings with the principals of Integrated Lube Services, Inc. along with recurring emails and phone correspondence.

EnviroLube is an automotive undercarriage access pit liner that lines what would otherwise be a bare concrete form. This lining prevents oil spillage from leaching through the concrete and ultimately into the soil. EnviroLube is considered to be a multi-occupant, regularly occupied space within the building and LEED certification boundary. As such, it would be required to follow any LEED design requirements for multi-occupant, regularly occupied spaces called out as a credit requirement.

The product scope includes any material specified in the "General Contractor Scope of Work" installation instructions, such as rebar and concrete. It also includes the entire product manufactured off site, such as lighting, electrical and plumbing conduits, all materials that comprise the product, and any materials applied to the product during installation. Integrated Lube Services, Inc. has confirmed that the EnviroLube product is comprised of 60% Resin, 12% steel, 10% fiberglass, 10% wood, 8% gel-coat and >1% paint.

EnviroLube Product Composition (by weight)



Take note that the EnviroLube product may be customized by the client into many arrangements and sizes. For the purpose of this analysis, a median shape and size were used to achieve an estimated total product cost in the calculations below.

Recommended Next Steps

As a result of our LEED application analysis, it has been determined that there is an opportunity to develop an Innovation and Design (ID) credit based on the product's capacity to prevent Brownfield sites from occurring. This unique marketing opportunity addresses the product's best practice of preventing site contamination rather than mitigating previous damage. Currently, the LEED framework rewards only remediation efforts. To capitalize on this opportunity, the next steps would be to develop an Innovation and Design credit that addresses this important issue within the LEED framework. An established ID credit for Brownfield prevention would create the precedent for any LEED project to follow and offers all projects a permanent opportunity to prevent Brownfields from occurring by using EnviroLube. To do so, Brightworks can support Integrated Lube Services, Inc. in the development of this credit language as an additional service to the current scope of work and can provide a change order at the client's request.

Credit Contribution Summary

As a result of the EnviroLube LEED product analysis for applicability to LEED certification, Brightworks has identified those credits that the product positively contributes to, has a neutral impact on, or can potentially impact negatively. Those assessments have been made based on ongoing dialogue with Integrated Lube Services, Inc. in regard to the product understanding and as summarized above.

Marketing a product's LEED applicability must be extremely accurate and focus on the means by which it actively contributes to a credit's achievement in order for it to be valuable.

As such, we have separated the LEED credits that the EnviroLube product has a neutral impact on from those that it actively contributes to. The details of that assessment are captured below and could be further addressed in the Beyond LEED Product Analysis.

Each credit applicability description captured below includes the credit Intent, Requirements, and an Applicability section. The Intents are created by the USGBC for each credit to articulate the purpose behind each of the credits. They embody the anticipated outcome from meeting the credit requirements. The Requirements, also created by the USGBC, outline the tactics to be implemented and the performance to be achieved on a project to earn each LEED credit. The Applicability section details how the EnviroLube product contributes to the achievement of the LEED credit.

EnviroLube Significant Positive LEED Credit Impact

Positive contribution toward credit achievement signifies that the scope and/or service of the EnviroLube product has environmentally unique attributes (such as recycled material content) that meaningfully support credit compliance. EnviroLube has significant positive contribution to the following credits.

Materials & Resources Credits 4.1 and 4.2 - Recycled Content 10% and 20% *(post-consumer + 1/2 pre-consumer)*

Intent

> Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Requirements

> Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% and 20% (based on cost) of the total value of the materials in the project.
>
> The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value. Mechanical, electrical and plumbing components and specialty items such as elevators shall not be

included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7.

Recycled content shall be defined in accordance with the International Organization for Standardization document, ISO 14021—Environmental labels and declarations—self declared environmental claims (Type II environmental labeling).

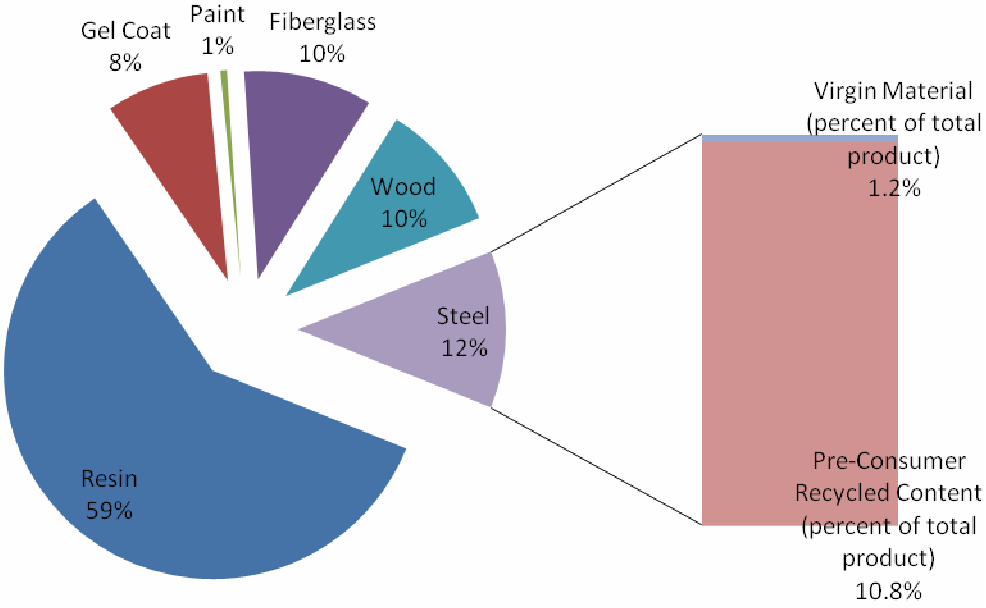
Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Applicability

Of the total EnviroLube product composition, **10.8% (by weight) is pre-consumer recycled content** found in the steel.

There is **no pre-industrial content** in the EnviroLube product composition.

EnviroLube Total Recycled Content



Documentation Example*

**based on median product cost*

To determine how much EnviroLube will assist projects in achieving this credit, the total material cost of the project must first be calculated. To derive the amount of recycled content material cost that EnviroLube contributes to the overall project's material cost one must take the total material cost divided by the total value of recycled content product value (equation 1).

EnviroLube's total material cost will comprise just a small portion of the building's total material cost and the total recycled content value will vary depending on the shape and size of the product purchased. For the purposes of this report the product median cost was estimated at $241,500. The EnviroLube product is comprised of 12 percent steel and the steel has 90 percent pre-consumer recycled content as shown in the attached Northwest Technologies manufacture letter.

Equation 1

$$\text{Percent Recycled Content} = \frac{\text{Total Value of Post-Consumer + 1/2 Pre-Consumer Content (\$)}}{\text{Total Div 2-10 Material Cost for Project (\$)}}$$

Equation 2

1/2 the value of pre-consumer content ($) =
(product cost) * (total % of steel by weight in product) * (% pre-consumer recycled content * .5)

1/2 the value of pre-consumer content ($) = ($241,500) * (12 %) * (90% * .5)

1/2 the value of pre-consumer content ($) = $13,041

Supporting LEED Documentation

Attachment A: Northwest Technologies Manufacturer letter.

Materials & Resources Credit 6 - Rapidly Renewable Materials

Intent

Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

Requirements

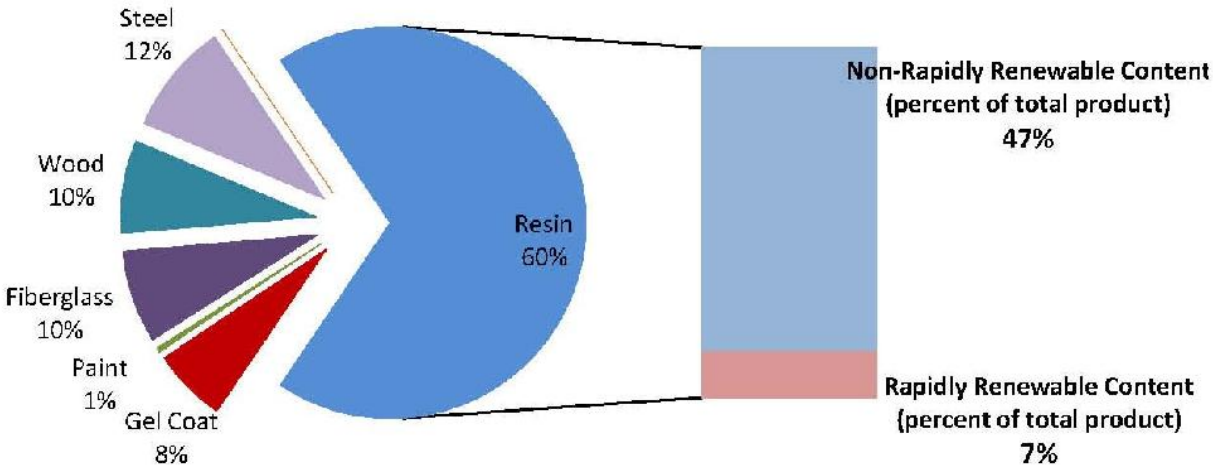
Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project, based on cost.

Rapidly renewable materials are defined as agricultural products, both fiber and animal, that takes 10 years or less to grow, raise and/or harvest in an ongoing and sustainable fashion.

Applicability

The ENVIREZ resin from Ashland Oil that is used in EnviroLube comprises 60% of the total weight of the product. The resin has a total product content of **12% rapidly renewable**, which is considered to be 100% rapidly renewable. Ashland's ENVIREZ line of unsaturated polyester resins are comprised of materials that meet the LEED definition of rapidly renewable, such as soy, vegetable oils, and other bio-derived glycols.

EnviroLube Total Rapidly Renewable Material Content



Documentation Example*

**based on median product cost*

Similar to Materials & Resources Credit 4 - Recycled Content (above), the rapidly renewable percentage is calculated by taking the total materials cost for the project divided by the total rapidly renewable materials cost (equation 1). To earn a point the project must have a percentage of 2.5 percent or higher of rapidly renewable material cost. The rapidly renewable portion is calculated by multiplying the product cost by the percentage of rapidly renewable (equation 2). The average cost of an EnviroLube product is $241,500 and the rapidly renewable portion is 7 percent of the product totaling $16,905 of rapidly renewable material value to be applied toward the project's entire rapidly renewable cost.

Equation 1

Percent Rapidly Renewable Materials = Total Cost of Rapidly Renewable ($) / Total Div 2-10 Material Cost for Project ($)

Equation 2

Rapidly Renewable Material Value = (product cost) * (% rapidly renewable material)

Rapidly Renewable Material Value = ($241,500) * (7%)

Rapidly Renewable Material Value = $16,905

Supporting LEED Documentation

Attachment B: Ashland Manufacturer letter

Attachment C: MFC Manufacturer letter

Indoor Environmental Quality Credit 4.1 - Low Emitting Materials: Sealants and Adhesives

Intent

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirements

All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards:

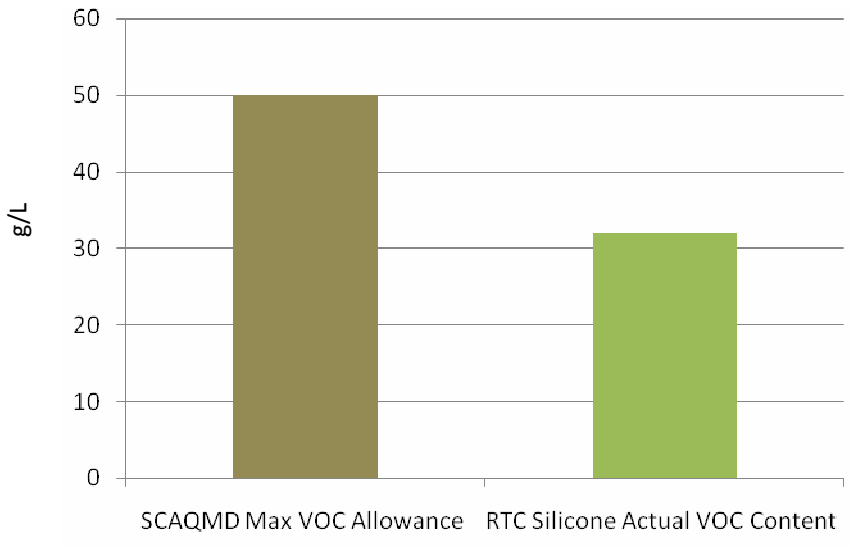
Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. Volatile Organic Compound (VOC) limits [for construction adhesive] are listed below and correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.

Architectural Applications VOC Limit Specialty Applications VOC Limit [g/L less water] for Multipurpose Construction Adhesives is 70 grams per liter.

Applicability

RTV Silicon is the only sealant used on site during product installation and is classified by SCAQMD as a Construction Adhesive. RTV silicon has a VOC amount of **32 grams (g) per liter (L).** The LEED maximum VOC limit for Construction Adhesives is 50 grams per liter.

EnviroLube VOC Content



Supporting LEED Documentation

If this credit is chosen for auditing by the USGBC, a Material Safety Data Sheet (MSDS) stating the VOC content information will be required as backup documentation.

Attachment D: RTV Silicon Adhesive MSDS sheet

Indoor Environmental Quality Credit 6.1 - Controllability of Systems: Lighting

Intent

Provide a high level of lighting 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.

Requirements

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

AND

Provide lighting system controllability for all shared multi-occupant spaces to enable lighting adjustment that meets group needs and preferences.

Applicability:

The EnviroLube bay, a multi-occupant space, provides local and accessible lighting system controllability (i.e. switches) within the bay, therefore actively supporting the achievement of this credit.

Supporting Documentation

Although not available at the time this report was produced, an electrical plan of the EnviroLube bay with the lighting system controllability highlighted will be available for future LEED documentation.

EnviroLube Neutral Credit Impact

The EnviroLube product neither hinders nor assists the achievement of any of the following credits listed below. The EnviroLube product is considered to have a neutral credit impact if the credit's requirement or intent is unassociated or unrelated to the EnviroLube product.

For example, some credits are unrelated to the built structure and its components such as Sustainable Sites Credit 1 - Site Selection which promotes the protection of environmentally sensitive areas such as wetlands and water ways and give points to project that do not build on or near these respected areas. Another example is Sustainable Sites credit 4.1 - Alternative Transportation: Public Transportation Access, which gives points to projects that build near public transit and existing infrastructure. Another unrelated credit is Brownfield remediation which requires a site to be declared a Brownfield site by the EPA (Environmental Protection Agency) and remediated by acceptable EPA standards.

The credits with particular nuances in their ability to employ the product's attributes towards achievement are discussed in further detail below.

- SS Prerequisite 1 Construction Activity Pollution Prevention
- SS Credit 1 Site Selection
- SS Credit 2 Development Density & Community Connectivity
- **SS Credit 3 Brownfield Redevelopment *(further applicability detail provided below)***
- SS Credit 4.1 Alternative Transportation: Public Transportation Access
- SS Credit 4.2 Alternative Transportation: Bicycle Storage & Changing Rooms
- SS Credit 4.3 Alternative Transportation: Low Emitting & Fuel Efficient
- SS Credit 4.4 Alternative Transportation: Parking Capacity
- SS Credit 5.1 Site Development
- SS Credit 5.2 Site Development: Maximize Open Space
- SS Credit 6.1 Storm water Design: Quantity Control
- SS Credit 6.2 Storm water Design: Quality Control
- SS Credit 7.1 Heat Island Effect
- SS Credit 7.2 Heat Island Effect: Roof
- SS Credit 8 Light Pollution Reduction
- WE Credit 1.1 Water Efficient Landscaping: Reduce by 50%
- WE Credit 1.2 Water Efficient Landscaping: No Potable Water Use or No Irrigation
- WE Credit 2 Innovative Wastewater Technologies
- WE Credit 3.1 Water Use Reduction: 20% Reduction
- WE Credit 3.2 Water Use Reduction: 30% Reduction
- EA Prerequisite 1 Fundamental Commissioning of the Building
- EA Prerequisite 2 Minimum Energy Performance
- EA Prerequisite 3 Fundamental Refrigerant Management
- EA Credit 1 Optimization of Energy

- EA Credit 2 On-Site Renewable Energy
- EA Credit 3 Enhanced Commissioning
- EA Credit 4 Enhanced Refrigerant Management
- EA Credit 5 Measurement & Verification
- EA Credit 6 Green Power
- MR Prerequisite 1 Storage & Collection of Recyclables
- MR Credit 1.1 Building Reuse: Maintain 75% of Existing Walls, Floors & Roof
- MR Credit 1.2 Building Reuse: Maintain 95% of Existing Walls, Floors & Roof
- MR Credit 1.3 Building Reuse: Maintain 50% of Interior Non-Structural Elements
- MR Credit 2.1 and 2.2 Construction Waste Management: Divert 50% (or 75%) from disposal
- MR Credit 3.1 Materials Reuse: 5%
- MR Credit 3.2 Materials Reuse: 10%
- MR Credit 5.1 and 5.2 Regional Materials 10% Extracted, Processed & Manufactured Regionally
- MR Credit 7 Certified Wood
- EQ Prerequisite 1 Minimum IAQ Performance
- EQ Prerequisite 2 Environmental Tobacco Smoke (ETS) Control
- EQ Credit 1 Outdoor Air Delivery Monitoring
- EQ Credit 2 Increased Ventilation
- EQ Credit 3.1 Construction
- EQ IAQ Management Plan: During Construction
- EQ Credit 3.2 Construction IAQ Management Plan: Before Occupancy
- EQ Credit 4.2 Low Emitting Materials: Paints and Coatings
- EQ Credit 4.3 Low-Emitting Materials: Carpet Systems
- EQ Credit 4.4 Low-Emitting Materials: Composite Wood & Agrifiber Products
- EQ Credit 7.1 Thermal Comfort: Design
- EQ Credit 7.2 Thermal Comfort: Verification

Other Potentially Positive Impacts

The following credits have requirements that are not currently actively addressed by the EnviroLube product, although credit achievement could potentially be positively impacted by the product with a few design alterations or the development of an Innovation and Design credit. The details of those opportunities are captured below.

Site Selection Credit 3 - Brownfield Redevelopment

Intent

Rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.

Requirements

Develop on a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program) OR on a site defined as a Brownfield by a local, state or federal government agency.

Applicability

To earn a point for Brownfield Redevelopment a project must remediate a site that has been designated a Brownfield by EPA standards. EnviroLube **prevents contaminants from leaching into the soil,** thereby preventing a Brownfield from occurring, which has an enormous positive environmental impact but does not assist the project in earning a LEED credit given the credit requirements.

Opportunity

There are four possible Innovation in Design (ID) credits available to any project that shows either an exceptional performance in an existing credit or an innovative performance in a category not specifically addressed by the LEED-NC rating system. EnviroLube protects the soil from creating a possible Brownfield site and may prove worthy of achieving an ID credit. To determine if the USGBC would deem this worthy of a point, a CIR (Credit Interpretation Request) would need to be submitted to the USGBC for review. Brightworks can investigate that option at the direction of Integrated Lube Services, Inc. or the building owner.

Energy and Atmosphere Prerequisite 2 - Minimum Energy Performance and Credit 1 - Optimize Energy Performance

Intent

Prerequisite - Establish the minimum level of energy efficiency for the proposed building and systems.

AND

Credit - Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

Requirements

Prerequisite - Design the building project to comply with both the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of ASHRAE/IESNA Standard 90.1-2004 (without amendments), and the prescriptive requirements (Sections 5.5, 6.5, 7.5 and 9.5) or performance requirements (Section 11) of ASHRAE/IESNA Standard 90.1-2004 (without amendments).

AND

Credit - OPTION 1 — WHOLE BUILDING ENERGY SIMULATION (1–10 Points)*

*All other compliance options for this credit would not apply to the typical facility where the EnviroLube product would be installed.

NOTE: LEED for New Construction projects registered after June 26th, 2007 are required to achieve at least two (2) points under EAc1, or a 14% energy cost performance improvement over ASHRAE 90.1-2004.

Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard.

Appendix G of Standard 90.1-2004 requires that the energy analysis done for the Building Performance Rating Method include ALL of the energy costs within and associated with the building project. To achieve points using this credit, the proposed design must—

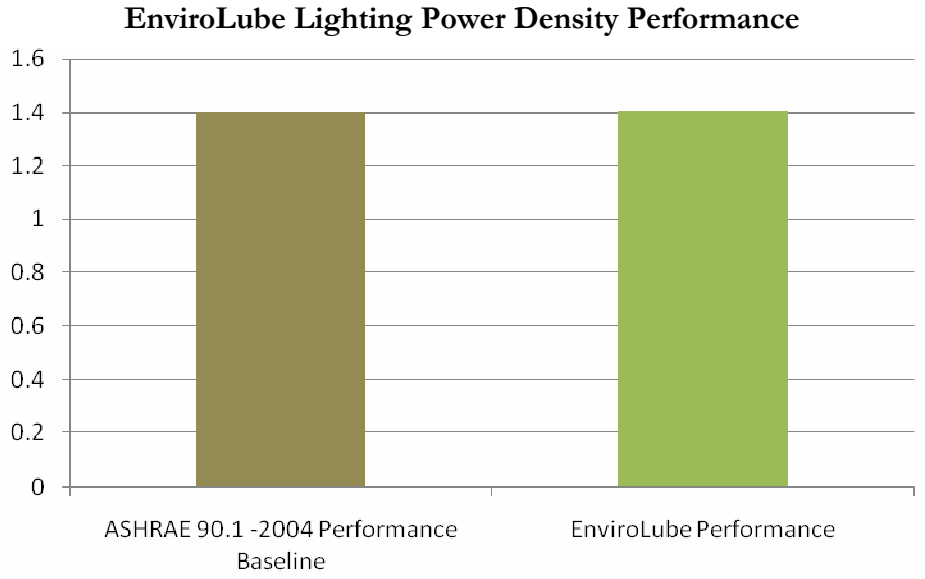
- Comply with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) in Standard 90.1-2004;
- Include all the energy costs within and associated with the building project; and
- Be compared against a baseline building that complies with Appendix G to Standard 90.1-2004. The default process energy cost is 25% of the total energy cost for the baseline building. For buildings where the process energy cost is less than 25% of the baseline building energy cost, the LEED submittal must include supporting documentation substantiating that process energy inputs are appropriate. For the purpose of this analysis, process energy is considered to include, but is not limited to, office and general miscellaneous equipment, computers, elevators and escalators, kitchen cooking and refrigeration, laundry washing and drying, lighting exempt from the lighting power allowance (e.g., lighting integral to medical equipment) and other (e.g., waterfall pumps). Regulated (non-process) energy includes lighting (such as for the interior, parking garage, surface parking, façade, or building grounds, except as noted above), HVAC (such as for space heating, space cooling, fans, pumps, toilet exhaust, parking garage ventilation, kitchen hood exhaust, etc.), and service water heating for domestic or space heating purposes. For EA Credit 1, process loads shall be identical for both the baseline building performance rating and for the proposed building performance rating. However, project teams may follow the Exceptional Calculation Method (ASHRAE 90.1-2004 G2.5) to document measures that reduce process loads. Documentation of process load energy savings shall include a list of the assumptions made for both the base and proposed design, and theoretical or empirical information supporting these assumptions.

Applicability

An energy model is required to demonstrate energy cost performance improvements above and beyond the ASHRAE 90.1-2004 performance baseline. The energy model predicts the operational building performance for the building envelope, heating, ventilation, air conditioning, plug loads, lighting, and other regulated process equipment. The only element within the EnviroLube product scope that would be considered in this analysis is the electric lighting, specifically the lighting power density.

The calculated Lighting Power Density (LPD) within the EnviroLube product is **1.4 watts per square foot**. This is based on the light fixture wattage, the number of light fixtures within the product, and the total square footage of the EnviroLube work space.

The allowable LPD for the energy performance baseline case is 1.4 watts per square foot for a "workshop area" using the Space-by-Space methodology; therefore the EnviroLube product does not offer efficiencies above and beyond that baseline.



Supporting Documentation

Attachment E: ASHRAE Table 9.6.1, Space-by-Space LPD Allowances

Attachments

Attachment A: Northwest Technologies Manufacturer Letter

Attachment B: Ashland Manufacturer Letter

Attachment C: MFC Manufacturer Letter

Attachment D: RTV Silicon Adhesive MSDS

Attachment E: ASHRAE Table 9.6.1, Space-by-Space LPD Allowances