



August 18<sup>th</sup>, 2016

To Whom It May Concern,

Please accept this letter as our verification of Kingspan Insulated Panel's potential contributions to LEEDv4 – Applicable to: New Construction; Core 7 Shell; Schools; Retail; Data Centers; Warehouses & Distribution Centers; Hospitality; Healthcare

### **Integrated Process**

Intent is to support resilient, high-performance, cost-effective project outcomes through an early analysis of the interrelationships among systems.

Kingspan's "**energiservices**", when brought in early in the preliminary design stage, can provide the project team predictive energy modeling analysis of envelope and thermal solutions and hygrothermal performance to assist in making more informed decisions for an optimized high performance, low carbon envelope first strategy to reduce demand side energy.

### **Sustainable Sites:**

#### **Heat Island Reduction**

The intent is to minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

#### **Option 1.**

#### **Nonroof and Roof (2 points except Healthcare, 1 point Healthcare)**

Benchmark by Kingspan architectural sunscreens, grills and louvers, and products provide shade including structures covered by solar panels that have a three-year aged solar reflectance (SR) value of at least 0.28

#### **High-Reflectance Roof**

#### **KingZip Insulated roof panels have an SRI equal to or greater than the values in Table 1.**

Kingspan uses paints from Valspar® Cool Color Pallet. Twenty-eight of Valspar's colors meet LEED standards for steep slope roofs, while three colors meet low slope requirements. By using Valspar, Kingspan also meets standards for the ENERGY STAR qualified roof products for reflectivity.

**TABLE 1. Minimum solar reflectance index value, by roof slope**

	<b>Slope</b>	<b>Initial SRI</b>	<b>3-year aged SRI</b>
Low-sloped roof	≤ 2:12	82	64
Steep-sloped roof	> 2:12	39	32

### **Energy and Atmosphere – EA**

The intent is to reduce the environmental and economic harms of excessive energy use by achieving a minimum level of energy efficiency for the building and its systems including the envelope (enclosure).

Kingspan's "**energiservices**" is a predictive energy modeling service designed to help design teams understand comparative system scenarios contributing to optimization of the energy efficiency of insulated metal panel envelope assemblies based on ASHRAE 90.1. To be considered early in the project to assist in better informed decisions.

## **Prerequisite Minimum Energy Performance**

### **Option 1. Whole-Building Energy Simulation**

Kingspan's insulated metal panels potentially contribute to the opaque envelope energy efficiency with in the prerequisites and minimum energy requirements as well as optimized energy efficiency. Performance energy modeling services by Kingspan's in-house Certified Energy Manager (CEM) are available on select projects to help design teams understand scenarios contributing to optimizing the energy efficiency of insulated metal panel envelop assemblies envelope based on meeting or exceeding ASHRAE 90.1 requirements that contribute to Whole Building Energy Simulation.

## **Enhanced Commissioning**

### **Option 2. Envelope Commissioning**

Kingspan insulated metal panels are ideal for inclusion in Enclosure Commissioning including functional mockups, field assembly testing to ensure an optimized high performance envelope following ASTM E2813 - 12e1 Standard Practice for Building Enclosure Commissioning. Building Enclosure Commissioning intended to serve as a concise, authoritative, and technically sound practice for Building Enclosure Commissioning (BECx) that establishes two levels of BECx: Fundamental and Enhanced.

ASTM-E2947 › Standard Guide for Building Enclosure Commissioning is a guide that provides procedures, methods and documentation techniques that may be used in the application of the building enclosure commissioning (BECx) process. This guide is complementary to Practice E2813 and is aligned with ANSI/ASHRAE/IES Standard 202 and ASHRAE Guideline 0.

## **Optimize Energy Performance**

### **Option 1. Whole-Building Energy Simulation**

The intent is to achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic harms associated with excessive energy use.

Kingspan insulated panels, in a whole building design simulation, depending on climate zone, contribute to the building envelope (opaque: roofs and walls) relative to energy efficiency with R-8 per inch values.

## **Materials and Resources**

### **Materials and Resources credit**

#### **Building Life-Cycle - Impact Reduction**

### **Option 1. Historic Building Reuse (5 points BD+C, 6 points Core and Shell)**

Kingspan's Insulated metal panels have been utilized in historical preservation projects as the interior insulation and weather tight wall system while maintaining the original exterior

#### **Kingspan Insulated Panels**

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### **Option 2. Renovation of Abandoned or Blighted Building**

Kingspan insulated metal panels are ideal for re-cladding projects when the existing building exterior is beyond cost effective repair and performance but the structure still has good “bones”. Request the White paper: Challenges and Opportunities in Deep Envelope Retrofitting by Paul Bertram for Deep Energy Retrofit study with one year of performance data.

### **Option 4. Whole-Building Life-Cycle Assessment (3 points)**

Kingspan contributes to this credit by posting their Environmental Product Declaration – LCA product information to databases such as the NREL LCI, Athena EcoCalculator and Talley that are used in conjunction for Whole –Building Life Cycle Assessment

### **Building Product Disclosure and Optimization— Environmental Product Declarations**

#### **Option 1. Environmental Product Declaration (EPD) (1 point)**

Kingspan’ **Product Specific** EPD (Environmental Product Declaration) Product Specific conforms to ISO 14025, 14040, 14044, and EN 15804 and ISO 21930 with a Cradle to Grave scope.

### **Building Product Disclosure and Optimization— Sourcing of Raw Materials**

#### **Option 1. Raw Material Source and Extraction Reporting (1 point)**

Products sourced from manufacturers with self-declared reports Kingspan can report where Steel coils are sourced with letter from Supplier

Kingspan has a Global Third-party verified corporate sustainability GRI Report

### **Recycled content**

Below is an example of how Kingspan reports recycled content based on the Steel Recycling Institute’s guidelines - <http://www.recycle-steel.org/en/Recycling%20Resources/LEED%20Documentation.aspx>.

Data needed to run calculation include:

- Thickness of panel
- Gage of exterior skin
- Gage of interior skin
- Total panel cost
- Where the steel was produced\*

Specific recycled content of the steel can be verified with a letter from the steel supplier upon request

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Note: for most accurate reporting specific coil information is required and typically not available until job is “run”. Any information prior to the “run” is a best estimate.

<b>Assembly Components:</b>	<b>Weight (lbs / sq.ft.)</b>	<b>% PC</b>	<b>% PI</b>
<b>Steel Facings</b>	<b>2.475</b>	<b>17%</b>	<b>14%</b>
<b>Polyisocyanurate Core</b>	<b>0.525</b>	<b>0%</b>	<b>0%</b>
<b>Totals:</b>	<b>3.00</b>	<b>17%</b>	<b>14%</b>

Assembly Recycled Content = (Component Wt. x Recycled Content / Total Wt.) x 100 %

Percentages are based on 1 sq.ft. of material at a weight of 3 lbs

Kingspan also uses the Steel Recycling Institutes defaults for recycling when specific coil data is not available

**Building Product Disclosure and Optimization—  
Material Ingredients**

**Option 1 & 2 - Material Ingredient Reporting (1 or 2 points)**

**Cradle to Cradle Material Health Certification.**

for more information, contact:

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Kingspan Director of Sustainability & Education

**Materials and Resources credit Construction and Demolition Waste Management**

**Option 1. Diversion (1–2 points)**

Kingspan IMPs are “Off-Site” prefabricated panels that eliminate related construction site waste with the exception of packaging materials that can be source separated on the job site. The prefabricated materials greatly reduce waste compared to construction site built systems.

Kingspan also has a zero landfill goal and is very close to that objective at the manufacturing operations.

**Indoor Environmental Quality (eq)**

**Option 1 Low-Emitting Materials (contributes towards 1-3 points )**

Interior adhesives and sealants applied on site (including flooring adhesive)	At least 90%, by volume, for emissions; 100% for VOC content	<ul style="list-style-type: none"> <li>• General Emissions Evaluation</li> <li>• VOC content requirements for wet applied products</li> </ul>
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Kingspan has tested for VOC levels with UL and now has achieved **Greenguard GOLD** for both office and schools.

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**Innovation**

If reducing construction waste, less environmental impacts on the construction site and the surrounding community, faster construction , optimized quality control of high performance systems and assemblies, resource efficiency, less construction errors, improved scheduling, and building and material life cycle performance are critical to your project concepts; then the Environmental and Sustainability benefits of “Off-Site Construction materials and systems should be a consideration.

Environmental Benefits of “Off-Site” Construction Materials should also be a consideration for your “Integrative” Design Process a LEED prerequisite.

LEEDv4 more than previous versions provides an opportunity to expand material evaluation and specification of systems and assemblies earlier in the project as part of the integrative design process.

“Off-Site” Construction potentially contributes to Site, Energy & Atmosphere, Materials & Resources, Indoor Environmental Quality and Innovation LEED credits

**Regional Priority**

Kingspan Insulated Metal (IMPs) panels are ideal for locations where the region presents a challenge in getting site built systems into a geographic location. The “Off-Site” factory prefabricated assemblies work for both remote sites far from resources as well as inner cite projects where material storage is a premium. IMPs install in about half the time of site built systems

**Product Specific 2 Declaration** Products with a publically available, critically reviewed Life Cycle Assessment compliant with ISO 219303 are calculated at half of their cost. Products carrying a Third party certified Type III Environmental Product Declaration (EPD) including external verification are calculated at twice their cost.

**Third-party Certified Type III EPD: Product Specific** – An ISO 14025 voluntary, third party reviewed LCA-based Environmental Product Declaration based on a Product Category Rule document and program operator for specific products.

EPD Pathway	Weight
Third party certified Type III EPD	Product Specific

**[LEED Pilot Credits relative to Kingspan](#)**

**Design for Enhanced Resilience**

Design and construct buildings that can resist, with minimal damage, reasonably expected \* natural disasters and weather events (i.e. flooding, hurricanes, tornadoes/high winds, earthquakes, tsunamis, drought, and wildfires).

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Kingspan's High Performance Insulated Metal Panels Off-Site Manufactured assemblies are an alternative to traditional site build systems and related construction defects that can be impacted by environmental extremes.

### **Tornado/High Wind (including Hurricanes)**

Windborne Debris rating for Wall Panel:

Kingspan insulated metal wall panels meet requirements for high velocity hurricane zone with large missile impact when tested in accordance with FM Standard 4881 (200/300 series panels). ASTM E90: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

Reference ASCE 7: Minimum Design Loads for Buildings and Other Structures.

### **Passive Survivability and Functionality During Emergencies**

To ensure that buildings will maintain reasonable functionality, including access to potable water, in the event of an extended power outage or loss of heating fuel.

Kingspan Insulated Metal panels will continue thermal performance regardless of extreme temperatures that could disrupt power to heating and cooling systems. Air infiltration through the panel shall not exceed 0.001 cfm/sf at 20 psf air pressure differential when tested in accordance with ASTM E283.

### **Beyond LEED**

Kingspan's insulated metal panels contribute to a sustainable building envelope beyond the LEED program. Because they are a single component assembly, Insulated metal panels can save time and money during installation compared to traditional site built systems with little to no construction waste at the job site.. Kingspan's durable panels can be installed in any weather condition making them ideal for projects where winter enclosure deadlines are essential.

Kingspan Insulated Panels has three U.S. manufacturing locations- Deland, FL, Modesto, CA and Columbus OH as well as two Canadian locations in Langley, BC and Caledon, ON. Before delivery, our quality control team carefully inspects all orders to ensure customer satisfaction. Panels arrive to the job site perfectly trimmed ready to install, leaving little onsite construction waste. Kingspan is also striving for panel end of life programs, zero landfill impacts and chain of custody principles where possible.

Some tax credits, incentives and grants are available for sustainable buildings on Federal, State, and local levels including the Energy Efficient Commercial Business Deduction and the Energy Investment Tax Credit. A full list of incentives on a state-by-state breakdown can be found at [www.dsireusa.org](http://www.dsireusa.org).

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Kingspan Insulated Panels is committed to environmental responsibility and has instituted a corporate mandate to have all global facilities Net Zero Energy by 2020. Kingspan North America is also a BETA participant in the Health Product Declaration and has started sustainability reporting utilizing the GRI – Global Reporting Initiative reporting frame work.

If you have need of further information, please feel free to contact me.

Regards,

*Brent Trenga*

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