



OMSI Green Exhibit Certification: A Cost-saving Tool for the Exhibition Field

by Jessica Willcox

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The museum industry has shown great interest in the green movement, but without a consistent standard of measurement there can be no way to compare the relative “green value” from one exhibition to the next.

In June of 2008, the Oregon Museum of Science and Industry (OMSI) created a *Green Exhibit Certification* guide to rate the environmental sustainability of our exhibitions and to encourage exhibition development teams to improve their sustainability efforts. The guide was inspired by the LEED (Leadership in Energy and Environmental Design) certification system for architecture and can be of value to all exhibition projects. The museum industry has shown great interest in the green movement, but without a consistent standard of measurement there can be no way to compare the relative “green value” from one exhibition to the next.

Like many museums, OMSI started “thinking green” many years ago. Our first exhibition explicitly designed to be environmentally conscious was *Innovation Station*, which opened in 2005. For this project, the designer had a goal that 80% of the materials in each component would either be recycled or recyclable/reusable at the end-life. By sourcing new materials and rethinking our fabrication methods, we were able to create an exhibition with a significant reduction in environmental impacts compared to previous endeavors.

Measuring Results

In the years following, OMSI designers and fabricators explored ways to incorporate the green strategies learned in *Innovation Station*, but there was no clear way to measure the results or to compare strategies across exhibition projects. Meanwhile, the LEED rating system was gaining public attention. The LEED system was created to define “green building” for the construction industry by establishing a common standard of measurement. It helps developers, contractors,

and clients speak a common language and set shared goals for each project. LEED requirements also serve as a guideline to encourage the industry to move toward sustainable practices.

The exhibition design field needs a similar standard if we are to objectively rate and promote green exhibitions. To start, OMSI studied the LEED requirements for materials and resources, a section of the New Construction certification. Many of these requirements mirrored the strategies museums have already been incorporating, such as using rapidly renewable materials, certified wood, and materials with recycled content and low VOCs (Volatile Organic Compounds). In addition, the LEED requirements include resource reuse, regional materials, and waste management. All of these could easily apply to exhibition construction.

Calculating a Score

In LEED, percentages of the mass and weight of the materials are calculated to achieve the score, and a formal submittal is entered for each category. This can be a very complex and time-intensive process. For the guide to work in the museum industry, it would have to rely on minimal staff time due to limited budgets and personnel. Building green shouldn’t require additional expense, especially for monitoring and certifying results.

To keep the guide simple and reduce additional costs associated with calculating the results, we narrowed the categories down to just eight key areas, with four points available in each category. The guide is designed for easy assessment: the lead designer, lead fabricator, and appropriate project managers can walk

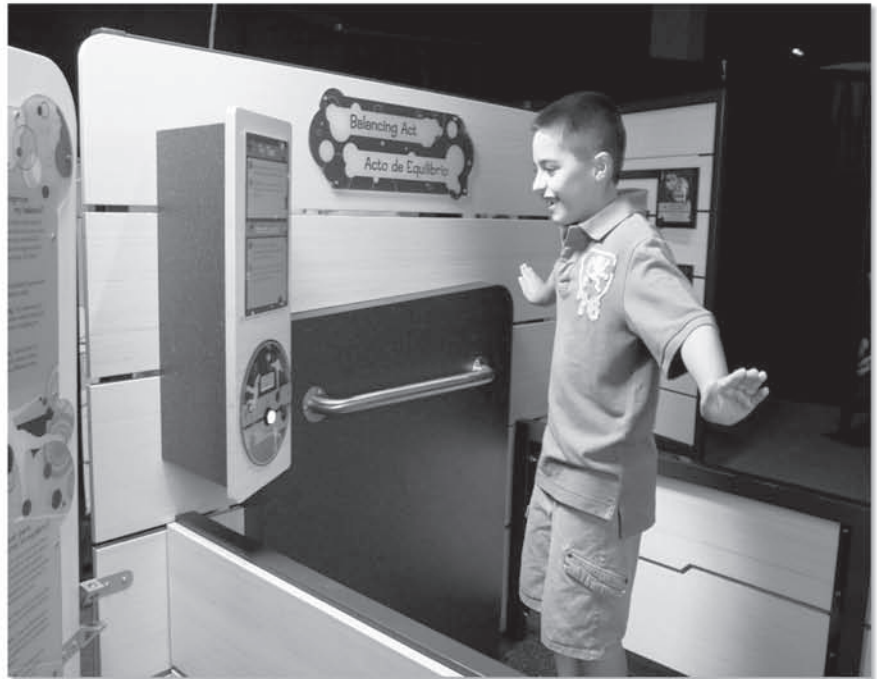
The *Green Exhibit Certification* guide is reproduced in full at the end of this article.

through the exhibition and instantly score each exhibit based on simple visual observations. A typical rating is measured in terms of “none, some, most, or all.” For instance, for recycled materials the reviewers could look at an exhibit component and immediately determine if the unit is composed of no recycled materials, some recycled materials, mostly recycled materials, or entirely recycled materials.

Reducing Costs

The first exhibition to be officially evaluated by the *Green Exhibit Certification* guide was **Let's Get Active**, an 800 square-foot exhibition on the benefits of physical fitness. Sustainable design was identified as a goal after the initial project scope was determined, which meant there was no additional production budget for “green” materials. By using the guide we were able to prioritize green decisions based on their relative impact, while still maintaining a standard build budget.

Among the eight categories listed in the guide, many are directly related to cost savings. The first is **Rapidly Renewable Materials**. For **Let's Get Active**, we used bamboo for nearly every tabletop surface. Although a sheet of bamboo costs 30% more than a sheet of plywood, there is a cost savings in the amount of labor and additional surfacing materials needed. When working with plywood, we would typically smooth the surface, glue plastic laminate to the top, and finish the edges to create a durable tabletop. With bamboo, you can simply seal the material without extra finishing work. As a result, the bamboo tabletops were actually less expensive than if we had used the traditional plywood-laminate method.



Bamboo construction was used in **Let's Get Active** to save labor costs and reduce environmental impacts. Courtesy of OMSI.



This component of **Let's Get Active** used remnant vinyl to eliminate the need for virgin goods. Courtesy of OMSI.

The second cost-saving category is **Resource Reuse** which encourages the use of remnants or secondhand goods in place of virgin materials. In the 1,000 square-foot exhibition **A View from Space**, 100% of the plastic laminate in the exhibition was from our remnant pile,



This artifact case from **Let's Get Active** showcases used products instead of brand-new items. Courtesy OMSI.

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saving significant costs when compared with purchasing over a dozen new sheets of laminate and eliminating the need for shipping new goods. Museums can also encourage vendors to reuse scrap materials. For **Let's Get Active**, a vinyl supplier created a custom bench using all vinyl remnants from their shop. In addition, exhibition designers can be creative about sourcing common household items. One exhibit in **Let's Get Active** featured exercise products in a display case. We were able to purchase these from Goodwill and eBay rather than buy brand-new products.

The third category, **Regional Materials**, also takes into account budget constraints. By purchasing locally whenever possible, museums can save on shipping costs as well as reduce the negative environmental impact caused by transporting goods. This also supports the regional economy and encourages the museum to build relationships with local vendors, who then may be more willing to work together on creative solutions. In **Let's Get Active**, we sourced rubber flooring from a local vendor and hired a nearby metal shop to weld standard

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leg frames. Both products would have cost much more to ship from other areas.

Finally, the **Conservation** category encourages the exhibition team to consider ways to reduce the consumption of energy, water, or other consumables. In **Let's Get Active** there are loose pieces that visitors can slide under a scanner. To reduce the cost of supplying spares, as well as the material waste, these cards were made of a very durable resin laminate. They are designed to last for years, rather than needing to be replaced every month. To save energy, some exhibits were built with motion sensors that turn on the unit when a visitor approaches, rather than running all the time. Even the overhead lights in the museum gallery could run on motion sensors to reduce wasted energy.

Encouraging design teams to choose rapidly renewable materials, reuse resources, purchase locally, and conserve resources will result in exhibitions that are both better for the environment and economically feasible. By following *Green Exhibit Certification*, design and development teams can prioritize green choices. This allows exhibition teams to consider the value of each decision and weigh both the cost and environmental benefits. For example, by looking at bamboo in terms of the labor required to finish, rather than just the purchase price, the savings becomes more apparent.

OMSI is currently working to refine and distribute *Green Exhibit Certification* to the entire museum field. It is our hope that a standard system for assessing green exhibitions helps all of us work together to promote green design and increase demand for sustainable exhibition production. ☀



OMSI GREEN EXHIBIT CERTIFICATION A Model for Evaluating Exhibit Sustainability

The **Oregon Museum of Science and Industry (OMSI)** in Portland, a national leader in science exhibit design and production, has created a tool that can help museums evaluate the sustainability of exhibits.

Inspired by the Leadership in Energy and Environmental Design (LEED) rating system, which is the “gold standard” used in building design and construction, OMSI’s Green Exhibit Certification rates an exhibit in terms of its environmental impact.

The Green Exhibit Certification awards 0–4 points when evaluating each of eight elements common in exhibit design:

1. **Rapidly Renewable Materials.** Does the exhibit use resources that renew themselves quickly in nature, such as bamboo, cork, sunflower seed composite, and wheatboard?
2. **Resource Reuse.** Is the exhibit designed with materials that can be reused in other exhibits when this one is retired? And/or does this exhibit reuse materials from other sources?
3. **Recycled Content.** Does the exhibit use recycled materials rather than plastic laminates and acrylics, which are not yet made of recycled materials?
4. **End-life Assessment.** What portion of the exhibit can be reused or recycled at the end of the exhibit’s life? For example, does the exhibit use a modular construction that can be updated or modified with new content?
5. **Low-Emitting Materials.** Does the exhibit use low- or zero-Volatile Organic Compound (VOC) paints, adhesives, and sealants?
6. **Certified Wood.** Does the exhibit use wood harvested from forests that have been managed in environmentally responsible ways?
7. **Conservation.** Is the exhibit designed for energy efficiency, including types of lighting, motion sensors which turn off electrical elements when not in use, etc.?
8. **Regional Materials.** Does it use regional materials that support the economy and reduce environmental impacts from transportation of materials?

An exhibit’s total number of points determines its level of certification. For example, an exhibit that scores 6–10 points receives a “green” certification while one that scores 19–26 points receives a “gold” certification.

OMSI’s goal is to have all OMSI-built exhibits qualify for green certification or higher by 2012. Our hope is that the OMSI Green Exhibit Certification programs may help other museums worldwide plan exhibits with environmental considerations in mind and that it can also be a resource in the renting and buying of exhibits.

| OMSI GREEN EXHIBIT CERTIFICATION | |
|----------------------------------|------------------------|
| 0 - 5 | No Certification |
| 6 - 10 | Green Certification |
| 11 - 18 | Silver Certification |
| 19 - 26 | Gold Certification |
| 27 - 32 | Platinum Certification |

NEW PROJECT - EXAMPLE

Example of Green Exhibit Certification Process for New Projects

- Step 1. As the timeline, budget, and deliverables are being established, the design and production teams decide on the certification goal.
- Step 2. The designer specifies materials, mindful of the goal.
- Step 3. The production lead oversees implementation of specifications.
- Step 4. Once exhibit opens, a certification assessment is done using the checklist. The design manager, lead designer, production manager, and production lead each assess the exhibit.
- Step 5. Scores are reviewed and a final assessment is given.
- Step 6. Certification is awarded.

RAPIDLY RENEWING MATERIALS

Intent: To reduce the use and depletion of finite raw materials and long-cycle renewable materials by seeking rapidly renewable alternatives. Examples: bamboo, cork, sunflower seed composite, and wheatboard.

Does the exhibit use rapidly renewable materials for:

- 0 None of the construction materials
- 1 A few of the construction materials
- 2 Some of the construction materials
- 3 Most of the construction materials
- 4 All of the construction materials

List the rapidly renewable materials used:

RESOURCE REUSE

Intent: To reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources. Examples: furniture (benches, stools), aluminum extrusion, metal legs, speakers, buttons.

Does the exhibit reuse resources in:

- 0 None of the components
- 1 A few of the components
- 2 Some of the components
- 3 Most of the components
- 4 All of the components

List materials that are reused:

RECYCLED CONTENT

Intent: To increase the demand for construction materials that have incorporated recycled content, thereby reducing the impacts associated with the extraction and processing of virgin materials. Examples: regrind HDPE, recycled rubber flooring, steel, aluminum.

Does the exhibit use material with recycled content for:

- 0 None of the construction materials
- 1 A few of the construction materials
- 2 Some of the construction materials
- 3 Most of the construction materials
- 4 All of the construction materials

List recycled materials and their approximate percentage of recycled content: