



The Sustainable Museum: It's Not Easy Being Green

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Most of us who choose to work in children's museums have a hopeful outlook towards the future. We believe that by providing children with positive, stimulating learning opportunities we can help them lead fuller, richer lives. We believe that our work matters. Optimists by nature, we see ourselves working everyday, in incremental ways, to help create a better world, one child and one experience at a time. We are people who see the world as it can be, not merely as it is. As a lot, we are well suited as agents for social change within our communities. When one thinks of the role a children's museum can play in helping shape and influence children, the character of a city and its promise for the future, the possibilities of our work are myriad and exciting.

Children's museums, rooted in community, have always been more for and about people and less about reverence for objects. That commitment is, very appropriately, the bedrock of everything that we do. We strive to respond to changing community needs. We have been and must continue to be leaders in those same communities in the effort to be institutions of genuine value to our communities, to our children and to the planet.

During the next century as the human population doubles and the resources available per person drop by one-half to three-fourths, individuals, communities and organizations will be forced to drastically alter their fundamental ways of thinking and operating in order to survive. With a growing list of extinct and threatened species, an alarming increase in environmentally-linked illnesses and increasing evidence of ozone depletion and global warming, the need for change is already upon us. The number one challenge that will face the children we currently serve as they enter adulthood will be reconciling the impact of their daily lives with the limitations of our global ecosystems. How can children's museums look at these challenges proactively, with full community engagement? And why does it matter? This article hopes to shed some light on some one museum's efforts to move beyond simply pondering these issues and begin taking small steps toward becoming more sustainable.

First Feats: Why It Became Green

When staff at Madison Children's Museum first set out to research and design *First Feats*, our early childhood environment created with all natural, nontoxic materials, we had no immediate intention of creating a "green space." Our goals were simple: We wanted to create a safe, nurturing and inspiring environment for young children, and a useful resource for the community. We thought about ways in which an early learning environment might fully support children's physical, emotional and social development and proceeded from there. We also wanted to create an aesthetically beautiful, warm space that honored the child's innate connection to the natural world. As a means to this end, we chose to build and fill the space with materials such as wood, stone, cotton, wool, clay and straw, rather than the typical materials stockpiled in our exhibit shop.

As the project developed, our research uncovered heaps of information on the ill effects of a museum's standard exhibit-building materials: Plexiglas, plywood, plastics and carpeting, to name just a few. We learned about VOC's or "Volatile Organic Compounds" and phthalates and became familiar with "off-gassing" rates of carpeting, plywood and latex paints. We learned about the kinds of long term damage that can result from kids' repeated exposure to these materials, especially during early childhood when immune systems are still developing. We learned that the National Academy of Sciences estimates that 60% of the U.S. population will experience some form of environmental illness, largely from indoor air pollution and chemicals in our food supply, by 2010—now just nine years away! With children spending roughly 90% of their time indoors in increasingly machine-built, synthetic environments we began thinking about how we might use the development of *First Feats* to reinvent our

We have lived by the assumption that what was good for us would be good for the world. We have been wrong. We must change our lives, so that it will be possible to live by the contrary assumption that what is good for the world will be good for us.

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Recollected Essays

exhibit fabrication practices. How could we and why would we continue creating spaces for infants and toddlers that were essentially toxic to their systems? How could we continue to use carpeting, which is one of the most toxic yet commonly encountered materials for this young age group, just because it is soft on the knees?

With *First Feats* we approached the creation of an environment that was truly a healthy space for children, one that was free of pesticide residues, off-gassing particle-boards, unstable plastics and toxic carpeting. In the two and a half years since the exhibit opened, we have had no complaints about skinned knees or bumped heads from the wood floors. Instead, visitors seem to thoroughly enjoy the secluded space designed just for crawlers and pre-crawlers which has a custom made organic cotton futon as its cushion. We frequently change the thick flannel futon covers, making baby spills and messes a non-issue. We are able to avoid the use of dioxin-releasing chlorine bleach just by having a washing machine and enough futon covers available to switch at a moment's notice. The selection of materials also provides more interesting and diverse opportunities for sensory exploration, our emphasis with this early learning space.

The exhibit, however successful, taught us a lot about the importance of understanding sustainability as a process, not an end point. While the materials we used in the exhibit were all natural, mostly organic and healthy for the kids in the exhibit, some of our choices in materials came from nonrenewable sources which, when viewed from a global sustainability perspective, may not actually be in the best interests of kids. Every question explored in the development of *First Feats* revealed exciting new possibilities but also a slew of additional questions. The trick is to find functional parameters that work for your institution and your community, set reasonable goals and realize that it is entirely appropriate for ourselves, as museum professionals, to view our daily work as an ongoing learning process.

The Realities of "Going Green"

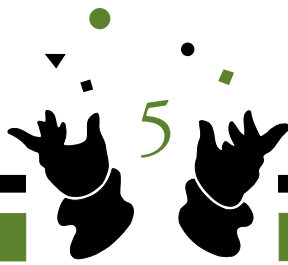
First Feats was a starting point and something of a leap for us institutionally. We had a steep learning curve and no clear understanding going into the project how much extra time would be required and how much the process would actually cost. We built the exhibit in-house, and the biggest time crunch came from learning about new materials, where to get them and how they could be used. Many of the products we used had to be ordered in advance or obtained from less conventional sources. This required more organization and less reliance on over-the-counter building supplies and paints. We were unable to use zero-VOC plywood for our subflooring, for example, because it would have taken six months to get it, and we didn't think to order it that far in advance. Instead, we ended up going with plan B, and used plywood from the local lumberyard after treating it with a solution that prevents off-gassing.

We also had to develop new relationships with builders and artists familiar with the materials and techniques used in the project. We first saw the potential of straw/clay walls in a local family child care center, got to know the provider and later her green-architect husband who showed us how to work with straw and clay and provided contacts for other green builders and sources for sustainable materials. At one point, exhibit staff found themselves baking pies in an effort to entice a somewhat reclusive but extremely gifted green builder/artist to join the project.

We had been warned that green building almost always means increased cash output up front, and some of our early forays into unknown territory seemed to bear this out. But when the dust settled, we found that this was most certainly not the case with *First Feats*. The exhibit itself, once built, cost the museum \$116 per square foot, including all materials, outside labor and staff time. Our museum typically spends between \$100 to \$160 per square foot for in-house designed and developed exhibits of this magnitude. We were happily surprised by the relatively low cost of the project, and happier still, that the next projects will cost us even less in time, because we are becoming better versed in the process. Not only that, the gallery is also showing much improved durability when compared with others in the museum. These materials tend to age gracefully and are taking on new warmth as thousands of children break them in. When the time comes we can refinish the floor for a fraction of the cost of re-carpeting, and without tossing yet another heap of carpet in the landfill.

Still, the experience called for a new means of evaluating cost-benefit scenarios as we began to evaluate our work. The initial impression that traditional materials might be less expensive only holds up in the short run and doesn't take into account either the long-term negative consequences of using them or the net positive benefit of "going green." If we are creating spaces that "feel better," provide more daylight or better air quality, that will have a direct impact upon the happiness of our customers, which could in turn mean more business. This has proven true of *First Feats*. Furthermore, if we "green" our entire operation, that could easily lead to much higher employee productivity. Many companies that have greened their buildings have shown increases in employee productivity as high as 36%. Since one of a children's museum's biggest expenses is often staff salaries, this is no insignificant savings.

It is also useful to gain an appreciation for the concept of "true cost" as project decisions are being weighed. What may appear to be the least expensive material may look much different if one factors in not only the familiar or internal costs, but also the external costs that are typically passed on to others. Most museum projects carefully account for the internal costs of achieving the desired result: the price of materials, construction, labor, marketing and so forth. All projects also incur less apparent or "external" costs that are typically passed along to the public at large. Calculating external cost is a much



more difficult proposition. For example, the public pays the external costs for the manufacture of a piece of plywood that result from land disruption, air, water and noise pollution incurred during the harvesting and processing of the wood, and noise and air pollution caused by shipping the material to the job site or retail outlet. The costs can compound even further if one is willing to consider factors such as reduced quality of life, increased taxes to deal with cleaning up the pollution or the increases in health care expenses and losses of productivity resulting from indoor air pollution

Obviously, no one in our contemporary, consumer-driven society can take on all of these “external” costs. Nor should one attempt to. The mind reels in the recognition of such interlinked and compounding consequences. The point is not to withdraw from society and live in a mountaintop yurt, but to keep an awareness of the true costs of our decisions close at hand when attempting to make responsible choices. Any effort to build institutional will for widespread changes of this sort will be strengthened in light of a fuller accounting of real costs and real benefits.

Going Even Deeper

First Feats spawned a more holistic commitment to using natural materials and an eagerness to incorporate even more sustainable materials into our exhibit practices. That means not just using materials that are safe for kids in the immediate present, but materials that by their very nature are helping build a more sustainable planet. That means getting wood from a sustainable timber source, or purchasing wood that has been salvaged rather than using just any wood from the lumberyard. While using wood for flooring rather than carpeting may help us fulfill our short-term mission of creating a space that is safe from harmful chemicals, it is still working against our larger mission of creating a sustainable future for our children if we don't use wood from sustainable sources. Incremental improvements in materials-use and environmental impact are only one facet of a much larger and more complex set of solutions.

True sustainability requires institution-wide commitment. *First Feats* was essentially created in isolation, rather than as part of a larger institutional commitment to sustainability. Although our exhibit practices are now largely green, making sustainable choices does not yet permeate everything we do institutionally. These things take time and require a whole staff to be energized and engaged in the process. While we have long-term goals, we realize that we still have a distance to go in terms of educating our board, our community and ourselves.

As a part of this effort, the museum has assembled a staff team that will evaluate the current mission statement and articulate a set of working institutional values that will give voice to our effort to become a more sustainable institution and clarify our shared sense of direction as we approach the big decisions to come. The team will also look at ways we can change other aspects of our operations to more fully honor these values in day to day internal practices as well as in public exhibits and programs. We are looking for ways to make green thinking become second nature and for ways in which our system can more closely approximate a truly sustainable biological system. We will start with smaller, easily implemented changes and proceed from there. We have recently committed to the exclusive use of environmentally friendly cleaning products, we are switching to more energy effi-



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cient full spectrum lighting and we are searching for ways to drastically cut paper use and eliminate many other inefficiencies and areas of wasted capital throughout the organization. Working toward sustainability is not an overnight process, but a far-reaching goal that demands humility, commitment and awareness.

What Is Green Building? What Does It Mean to Be Sustainable?

“Green building” is a collection of land-use, building design and construction strategies that help reduce environmental impact. Green building protects ecosystems, reduces energy consumption and preserves health. Green building includes many things that children's museums already do, such as locating the museum on bus lines, in a central location or in an existing building. It also includes energy-efficient lighting and mechanical systems, renewable energy, improved indoor air quality, daylighting, photovoltaics, gray water recycling, storm water collection and sustainable materials selection.

“Sustainability” is a much broader and more subjective concept. Interpretations of the concept of sustainability will vary widely depending on individual or institutional priorities. In essence, the concept of sustainability is fairly transparent: it involves seeking to cultivate and maintain a set of actions, practices or beliefs over a very long period of time. Sustainability is about regeneration and continuity. “Green” and “sustainable” are often interrelated concepts but are by no means one and the same notion. A certain building material may be perfectly green and entirely unsustainable at the same time. A material that is environmentally benign but doesn't wear well or is prohibitively expensive will conflict with a sustainability strategy.

Children's museums across the country already incorporate many green and sustainable practices into their operations, from recycle arts activities to inviting communities to have a voice in the museum's programs and operations, to finding ingenious ways to reuse exhibit components and programming materials. Whether by ethic or by the sense of thrift that permeates children's museum practices, these actions serve as teaching tools for our communities and suggest that the children's museum field is perfectly suited to go the next steps.

Why Does “Going Green” Matter to the Museum Community?

As makers of culture and cultural discourse, we have a role to play in modeling civic responsibility to our young audiences and communities and fostering ownership over our shared situation. Museum exhibitions, whatever their subject matter, are always the museum's most public outward expression of the institution's core values. Who has voice in creating them, how were they conceived, how were they built, what materials were used, what tone is projected—these are all subtle ways that we convey who we are and what we believe in to our visitors. A surface finished with 220-sand paper rather than 110-grit demonstrates concern for the visitor's tactile experience with an object. Unbleached toilet paper in our bathrooms demonstrates that we care about the planet. Economically, socially and racially diverse boards and staff demonstrate our commitment to inclusiveness. Likewise, if we are thoughtful about the materials we use in construction, we'll reflect hopefulness for the future and an investment in our children.

What Does It Mean to Be a Sustainable Museum?

At Madison Children's Museum we are actively engaged in the process of determining what sustainability means for our institution. Here, sustainability and green building are closely related but distinct ideas. We intend to use green practices as one means of achieving an overall sustainability ethic, while remaining true to our first and foremost concern: supporting children as creative and visionary participants in the life of our community.

At MCM the goal is to become a museum that provides meaningful experiences for children and conducts day-to-day business in a thoughtful manner with an eye ever-focused on the future. As rhetoric, this is not especially unique, but within the context of a true institution-wide commitment to sustainable practices it has the potential to be revolutionary. We are working to conceive a true, working sustainability ethic that accommodates the diverse needs of our institution and our community. Is it possible to view every partnership with long-term lenses and make every decision based upon a core set of well-defined and functional principles? Can we operate as a museum that takes a systems view of our society and its relationship to the environment and community? Sustainability is a process rather than a product. And it is a process that begins now and requires constant refinement.

The *First Feats* experience sparked an exciting new mind-set at Madison Children's Museum, one of deeper questioning and imagining of alternatives. It has set the ball rolling and it hasn't stopped. Our early forays into sustainable design have drastically changed the way we think about our work, the materials we use, and the kind of impact each decision we make has upon our audience, our community, and our planet. We didn't know, during the process of work on *First Feats*, that these tentative first steps would lead us to question our standard practices across the board. Why build a healthy space and then clean it with toxic chemicals? How might other areas of our operations become more sustainable? Can a sustainability ethic be applied to community partner and donor relationships? How do our long-term exhibit strategies work to support the highest ambitions of our institution? What kinds of programs will further reinforce these values? Can we become a truly sustainable institution? We are only

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A GREEN GLOSSARY

ACTIVE SOLAR: A system using mechanical devices such as pumps or fans to transfer collected heat to a storage medium and/or end use.

PASSIVE SOLAR: Systems that collect, move and store heat using natural heat-transfer mechanisms such as conduction and air convection currents.

INTEGRATED DESIGN: A holistic process that considers the many parts of a building project and examines the interaction between design, construction and operations to optimize the energy and environmental performance of the project.

PHOTOVOLTAICS (PVS): Solid-state cells usually made from silicon that convert sunlight into electricity.

PHTHALATES (pro. thal'-ates): Chemical plasticizers that impart flexibility to polyvinyl chloride. These chemicals are common in medical equipment and infant teething toys and are released during medical procedures or when objects, such as the toys, are chewed. Many countries have

banned the use of phthalates, particularly in products made for babies.

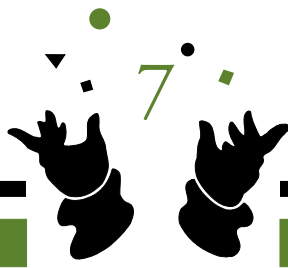
RENEWABLE RESOURCES: Resources that are created or produced as fast as they are consumed so that nothing is depleted. Properly managed renewable energy resources (e.g., solar, hydro, wind, biomass and geothermal) should last as long as the sun shines, water flows, wind blows and plants grow.

SUSTAINABILITY: Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

VOLATILE ORGANIC COMPOUNDS (VOCs): Hydrocarbon chemicals that evaporate easily and play a role in air quality issues. Many hundreds of these compounds, both natural and man-made, are present in the atmosphere.



An exhibit sign placed above this simple collection of different kinds of brooms in First Feats states: “Feeling: The many textures of our world enrich your child's mind. Use everyday objects to explore different textures and combinations.”



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now beginning to wrestle with these questions and take more serious strides toward becoming more socially, financially and environmentally sustainable.

We have learned, in no uncertain terms, that true sustainability is a lifelong proposition and an alluring but elusive goal. Greening our museum and moving toward a sustainable future is a process, not an end point. We realize we have far to go but are eagerly seeking out new ways to extend and sustain our commitment to the values that we believe in. Working toward sustainability is simply a way of changing one's thinking, and making choices from a viewpoint that considers the long-term implications of every decision. Our goal as we move forward is simply to commit to a thoughtful process of creating a sustainable museum, one that is economically, environmentally and socially sustainable. It is based on a sense of hopefulness—that our work can help better the world. Becoming green isn't something that you do once in designing a building or exhibit, and then you are done. It is a commitment to take steps toward incorporating environmental and social responsibility into our everyday operations. It is an acknowledgment that every decision we make has long term implications.

Now, nearly three years and two more green exhibits since the opening of *First Feats*, we stand at the beginning stages of planning a new museum. Our initial foray into sustainable design and the subsequent effort to become more sustainable as an institution now promises to be the backbone of our strategic planning and our new museum's character. Regardless of how successful our previous projects have been in terms of a green agenda, the process itself has already raised awareness of these issues within our community, and has raised expectations for even more. Far from being daunted by such considerations, we are energized by the process and increasingly certain that asking such questions will help us become a more valuable asset to our community and its children.



SUSTAINABLE DESIGN/GREEN BUILDING RESOURCES

Environmental Building News:
www.BuildingGreen.com

Rocky Mountain Institute:
www.rmi.org

Green Design Network
www.Greendesign.net

Global Environmental Options
www.geonetwork.org

Environmental Design & Construction
www.edcmag.com

Center for Renewable Energy & Sustainable Technology
www.Crest.org

Brenda Baker is Director of Exhibits at Madison Children's Museum where she has infused her deep respect for children and the natural world over the past ten and a half years. She spends free time with her family hiking, biking and cross country skiing amidst the fragile ecosystems she works to protect.

John Robinson is the exhibit developer at the Madison Children's Museum where he has been on staff for the past seven years. He is the father of two daughters, an experience that has deepened his conviction that nurturing a stewardship mentality towards the earth is an important contribution to make to his children's future.

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