Exhibition Fabrication Sustainability

At the end of a project, an exhibition will still have an impact on people, whether piled in storage, disassembled for parts, languishing in a landfill, or burned in waste-to-energy plants. “Planning for people” means not only considering the immediate effects of our exhibitions on the people who visit them, but also recognizing the impact our decisions about exhibition materials will have on future generations.

The more we study the environmental impacts of the materials we use in creating exhibitions, the more we find that there are no easy answers—all of our activities and production techniques affect the environment in some way. Even recycling processes consume energy and release byproducts into our air, water, and land.

We must consider such functional issues as whether the material serves its purpose in the exhibition, makes the necessary statements, look goods, and hold ups. But we should be just as critical when examining the environmental implications of that material. Take paint or ink color, for example. Not only must we consider its effectiveness in the exhibition—does it attract, create context and drama, encourage associations, provide legibility—but we also have to think about its composition. Does it contain heavy metals such as lead, which could eventually contaminate groundwater if they leach out of a landfill? Is it a petroleum-derived product and therefore made from a nonrenewable source? Must it use drying agents that release toxic fumes into the air?

Unfortunately, there is no authoritative list of environmentally correct materials. As manufacturers and environmental organizations compile the necessary information to develop “life cycle assessments” (LCAs) for production materials, we will be able to make more informed decisions when designing exhibitions. In the meantime, as more museum professionals take on the daunting but necessary task of examining their use, consumption, and disposal of materials, the following general guidelines can help plan exhibitions with environmental considerations in mind.

- **Reduce the amount of materials.**

  Source reduction is the best solution to our problems of municipal solid waste. The old saw, “less is more,” is taking on new meaning as we try to design our exhibitions with a minimum of materials that must eventually be disposed of. If a sign needs continual updating and changing, use an easily repaintable substrate, or try a chalk board. Instead of distributing flyers or handouts, allow visitors to create their own “notes” and take away with them only what they need.

- **Design for durability; make things easy to maintain and repair.**

  In a culture laden with disposable products, thinking about durability is a basic tenet of environmentally sound design. Durable products are not discarded so readily. This is not a new idea for museum exhibitions, in which most components are expected to last for the exhibition’s entire life. But in exhibitions, designing for durability often means covering text and graphic surfaces with acrylic, using durable but highly toxic paints, and covering exhibit furniture with adhesive-backed plastic laminates, which are not recyclable. And even if an exhibition lasts 20 years, that lifetime is a fraction of the centuries the material may last in a landfill. The decisions designers must make are not necessarily as simple as recycling once an exhibition is dismantled. Each solution must be considered in light of all others, and difficult tradeoffs must sometimes be made. One of the challenges facing museum planners
today is to find solutions to the issues of durability while using materials that also meet some of the other criteria discussed here.

Durable items and solutions often cost more initially, but their extended life may offset the cost and even save money in the long run. Designing for durability can go hand-in-hand with designing for reuse. Those long-lasting exhibit components can find a second or even third life in a new exhibition.

- **Design for reuse and a second life.**

  Museum exhibitions are usually one-shot deals, with components custom designed and fabricated for use in only one exhibition. Few designers consider what will happen to the components when that exhibition has run its course. For example, what happens to traveling exhibitions, which often are designed and built for a three- to six-year life, when they complete their tour? Sometimes, museums will take them as semi-permanent exhibitions. Sometimes no one wants them. And what happens to their crates? They too are usually custom built. But what if the furniture and crates could be reused for another exhibition? Museums can design for reuse by creating an exhibition furniture vocabulary—a modular standard for exhibit components—that can accommodate a variety of configurations and arrangements. Furniture could be designed in such a way that surface treatments and detailing could change with each exhibition.

- **Consider each material’s “life cycle,” from its state as a raw material to its eventual disposal.**

  A material’s life cycle begins in the raw material, and includes the energy and other resources necessary for its extraction, shipping, manufacturing, marketing, fabrication, and disposal, as well as the byproducts that result from these processes, such as airborne waste, water effluents, and solid waste. The life cycle of an aluminum framework, for example, requires a tremendous amount of energy to mine the bauxite ore and manufacture the aluminum pieces. The process also creates industrial and mining waste, and water and air pollution. Shipping it to you consumes energy and often requires packaging (with its own life cycle). Tossing that aluminum in a landfill means it will stay there for hundreds—maybe thousands—of years. But recycling that structure into new aluminum products saves 95 percent of the energy it would take to make the products from ore.

- **Use materials that can be recycled.**

  Paper and paperboard, corrugated cardboard, wood, aluminum, steel, copper, glass, textiles, rubber, and some plastics can all be recycled. Plastic’s recyclability is currently the most difficult to assess. The outlets available to you depend on your location and your perseverance. Ask the manufacturer if the product is recyclable and, if so, where. Call the trade associations for that industry and ask about the product’s recyclability. Ask about equivalent substitutes that are more easily recycled. “Closing the loop,” or turning old products into new products, means we can save energy, money, and natural resources, reduce the amount of air and water pollution we create, as well as divert useful materials from landfills. The world is a closed-loop system, too. The pollution and waste we release into the environment stays there in some form—it doesn’t just go away. It’s much easier to pause and consider processes and products first, than to clean up the consequences later.
• **Use recycled materials.**

Many of the things you can recycle are, in turn, made into new products. Paperboard and papers, drywall, wood products, some plastic products, aluminum, and glass all can be made from recycled materials. Some of these products are more expensive than similar ones made from new resources. And some standard exhibition materials, such as plastic laminates and acrylics, are not yet made of recycled materials. But one of the most important things we all can do is to create a demand for more variety and choice in recycled products by purchasing them whenever possible. All things being equal (or nearly so), choose recycled. Once you choose to buy recycled, there are still decisions to be made. Take paper, for example. Recycled paper may contain from 10 to 100 percent “post-consumer waste,” (paper that was actually used before). Whenever possible, choose paper with the highest percentage of post-consumer waste. When enough people demand such products, more will be manufactured.

• **Design single-material products whenever possible, and design with recyclable parts.**

Design so different materials can be easily separated once their use has come to an end. The most difficult products to recycle are those made from a combination of materials, such as plastic-backed paper and adhesive-coated laminates, because the cost of recycling increases with the addition of labor-intensive separation processes. This can make the recycled products prohibitively expensive and unmarketable. If, for example, plastic is screwed to wood, rather than laminated with adhesive, both the wood and the plastic could be recycled.

• **Avoid the use of toxic materials.**

Avoid specifying materials that require toxic production processes, such as chromed metals, pigments with lead and other metals, and chlorine-bleached papers. This requires learning about production processes. Ask the manufacturer to give you information on production methods. Or design so toxic parts are easy to remove prior to disposal or recycling.

• **Design for energy efficiency.**

Consider the amount of energy exhibition lighting and other electrical components will consume. Whenever possible, specify compact fluorescent lamps, which produce a warm light, use a quarter to a third of the energy, and last 10 to 13 times longer than incandescent lamps. When designing exhibitions to travel, consider the energy consumption required to move them around the country, and try to keep their size and weight to a minimum.

• **Use exhibition design to educate the public.**

Wear your environmental consciousness proudly. Acknowledge your suppliers of recycled or recyclable materials, and encourage visitors to patronize them too. Let visitors know that your choices in exhibitions save resources, include nontoxic materials, or can be reused or recycled. Provide outlets for visitors to return and recycle the myriad flyers and handouts distributed in exhibitions. Encourage suggestions on processes and materials that would help you do an even better job.