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## **Sustainability in Design: Have we heard enough?**

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In answering this question, some discussion of the meaning of the terms Design and Sustainability is required. What is Design? For most designers: architects, interior designers, graphic artists, and other associated disciplines, design is about making an aesthetic statement. The success of each design is judged both by the designer and the end users in how well the aesthetic intent is realized. We use color, form, texture, light, and space among many other things to make these statements. For engineers, product designers, and some architects, it is the functional requirements of the user that dictate what design is. These are some of the ways we have narrowed the meaning of the word design. Design has a meaning of “intent” as defined by Webster. ALL human intent is design. It is in the level of our awareness of the impacts of our choices that there is a failure in design.

What is Sustainable? Many have answered this question quite elegantly. The Brundtland Report states that “sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs”. A more poetic verse comes from Bill McDonough and Michael Braungart, “to be able to love all of the children of all of the species for all time”. That sets the bar quite high, but humanity responds well to big challenges.

Sustainable design is design that takes into account all of the ramifications or implications of the design intent. When we design a beautiful stone arch, wood floor or ceiling, or make the decision to use carpeting or vinyl composite flooring, or use one ink or paper stock over another material selection, we are designing the aesthetic and or functional quality we desire. In determining these material choices, designers rarely consider the mountain that is mined, the trees that are cut down, the landfill, the pollutants and greenhouse gasses emitted, or the energy use and fossil fuel consumption involved in that decision. The finished products are often beautiful and wonderful in their finished state and location, but in the broader definition they may have diminished beauty and/or caused damage elsewhere.

Many times, if we actually looked at all the upstream and downstream factors together, we would deem the end product as not just ugly, but toxic. In fact, the kind of information that would tell us of our total cost isn't easy to come by. As a society we don't keep track of these costs. We are too busy, they aren't in our back yard, the information isn't available, or we never even considered these impacts in our decision making process. Sometimes we don't take the time to even ask if the information is available. If we want to make good design decisions and design that which is truly beautiful, then our design decisions must be based not only on the what the finished product looks like or how it functions, but also on the total impact costs of the supply and waste

generated by our decisions. Where exactly does it come from and where does it go when we are finished with it? What does it do when it gets to its “resting place”?

No designer intends for the pollutants involved in making their buildings or finished products to end up in groundwater. No aesthetically sensitive person wants to have a forest that surrounds his/her own house cut down. No designer wants to live next door to a strip mine or a landfill (in the case of products sold in Western economies, the vast majority of products end up in landfills within 1 year, building materials and durable equipment make up less of the economy and have a considerably longer shelf life). Yet we do these things to others because it is normal and legal. We design to a standard that is quite literally as harmful as the law allows. We do this because it is accepted. We do this because of the press of our schedules to make quick decisions. We do this because reliable information is not readily available. We do this because we have a preconceived notion that being sensitive to environmental issues always costs more (Bill Browning and the folks at the Rocky Mountain Institute have put together many examples in their book “Green Development: Integrating Ecology and Real Estate” of how greening projects actually can save money on both the first cost as well as operational costs). We do this because it isn’t expedient or convenient or comfortable to examine the impact we ultimately have.

But there is hope. The species that surround us have learned how to live in unison with the biosphere. They have adapted amazing ways to perform stunning feats of production. In her book “Biomimicry” Janine Benyus uses several examples of just how amazing this development is. For example, mother of pearl is a ceramic substance that is as strong as the ceramics placed on the nose cones of missiles. The abalone is able to produce it at ambient temperatures next to its own skin using materials found in seawater. Another example is a spider’s ability to produce fibers inside their bodies that are stronger than Kevlar. When we produce Kevlar, massive amounts of sulfuric acid, extreme temperatures, and intense pressures are required. When the shells and silk are no longer used they return to biological cycles. When we can produce artefacts the way nature produces artefacts, we will have done something beautiful. As Benyus points out, our processes and products are all from nature. Many of these processes and products are not, however, well adapted to life. We have a choice. We can re-learn how to live within Earth’s biological constraints, or remain ill-adapted to no uncertain end. In the paraphrased words of David Orr, Professor and Chair of the Environmental Studies Program at Oberlin College, until we can design things that cause no harm or ugliness, human or ecological, in any place or at any time, then we can not call the product of our design truly beautiful.

Until we learn how to produce that which is truly beautiful, we have not learned nearly enough about sustainability in design. Until we can clean up our mess and produce the way an oak tree does, we can’t say that we are great designers. After all, an oak tree sequesters carbon, produces oxygen, fixes nitrogen, makes food in the form of complex carbohydrates out of current solar energy, provides habitat for other species, responds to the seasons with amazing changes of color, and self replicates. When we compare our best designs to that, they fall way short.

Can we design things that work for a particular purpose? Yes. Can we design things that are aesthetically pleasing? Yes. Until we can do those things and do them in a manner that is well adapted to life on a geologic time frame, we haven’t even come close to our potential. The

challenge is on to continue to search for better materials, better methods, and better ideas. The challenge is to stop depleting nature's capital and begin a process of regeneration. The challenge is to produce systems that act like forests, systems that produce without creating waste. When we can design products and systems on that level, then we will have learned the meaning of Sustainable Design.

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