



SustainAble

a handbook of materials and applications for graphic designers and their clients

Aaris Sherin

rockport
Design Field Guides



→ Every effort has been made to produce this book in a sustainable manner. The book is printed on Mohawk Options 100 percent post-consumer-waste paper. To reduce waste during the printing process, the make-ready sheets, which are a byproduct of printing the text pages and are typically disposed of, were randomly applied to the outside case of each book so that no two covers are alike. The dust jacket and endpapers were also produced with the make-ready sheets, making this book "self-sustaining." See inside for more details about the book's production and how it rates in the world of sustainable products.

SustainAble

*a handbook of materials and applications
for graphic designers and their clients*

AARIS SHERIN

Writing this book would not have been possible without the generosity of people who share an interest in, and knowledge of, sustainable issues. Designers, paper producers, printers, activists, and business people supported and helped with the project simply because they are passionate about the topic and believed it was the right thing to do.

Laura Shore and George Milner from Mohawk, Thomas Wright and Meredith Christiansen from Neenah, Lewis Fix from Domtar, and Jeff Mendelsohn of New Leaf all provided information about sustainable paper production and many contacts. Many thanks to Holly Robbins, Wendy Brawer, Don Carli, Liza Murphy, and Jaimie Cloud, all of whom spent hours giving me a foundation with which to go forward with my research. The international representation in the book was made possible by Brenda Sanderson and the extensive rolodex at ICOGRADA. Research assistance was provided by Brian Mikesell at St. John's University, who gave me peace of mind that I hadn't overlooked the obvious. I am grateful to the designers, companies, and clients who agreed to be featured in the book; their stories continued to inspire me even when the breadth of the task seemed overwhelming.

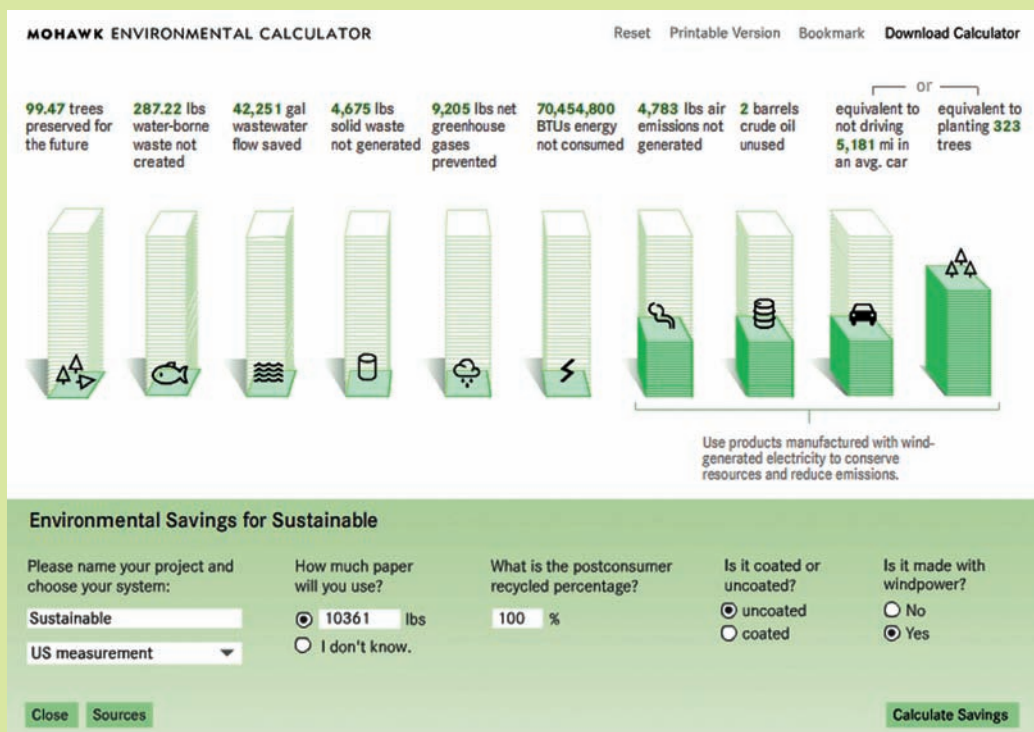
Thanks to my editor, Emily Potts, who believed that this subject merited publication, and to my friends and family, without whom the day-to-day research and writing wouldn't have been impossible.

PRODUCING A SUSTAINABLE BOOK

When it came time to design and print this book, Rockport Publishers was eager to produce an example of sustainable design. “The best thing about this book is that it sustains itself,” says production director Barbara States. She worked with Rockport’s existing supply chain to specify more environmentally responsible materials, and Steve Price, founder of Plan-B Studio, took up the cause by designing the book’s cover so that it reused the printing left-overs that would otherwise have been wasted.

Sustainable design means creating a communications piece that will be both innovative and visually appealing, so Price really wanted to make production part of the design. Price explains, “The production of this book (especially the cover) is about using what is ‘there’ already.” He decided to “keep all the makeready (or color tests) from the proofing phase (some needed to be printed on a heavier stock), then simply bind the book into these. For necessary cover information, we used a demi-jacket and that was also printed on to the back side of color test sheets,” says Price. The test sheets did have to go through the press a second time, but reusing this paper eliminated a great deal of the waste that would otherwise have been generated during the testing phase of the printing process.

Because Rockport prints approximately forty new graphic design titles a year, it seemed more meaningful to find ways of producing this book with eco-friendly materials using the company’s existing vendors rather than going completely outside of the normal supply chain. The added benefit for Rockport’s production staff was that this provided them with a wealth of information about environmentally responsible materials and processes that could be applied to the production of other titles. Rockport’s printer in Asia, SNP Leefung, was willing to be flexible when it came to using specific inks and paper and reusing makeready for the job. The book was printed with vegetable-based inks on Mohawk Options eighty pound smooth 100 percent postconsumer white. “We chose to use Mohawk Options because it’s beautiful paper, and Mohawk has an ongoing commitment to the environment and to working with designers by offering more sustainable choices for their projects,” says Rockport editor Emily Potts.



By using Mohawk's environmental calculator, it was possible to compare any additional costs incurred and environmental savings that were gained during the production of this book against other Rockport books. Hard data such as the information provided by environmental calculator as can help companies, vendors, and clients to make more informed decisions about the benefits and costs specifying environmentally preferable print production.

As a result of the environmental calculator, we were able to compare the environmental savings of using wind-generated electricity to power the production of this book against other Rockport books. The results showed that using wind-generated electricity for the production of this book resulted in a net environmental savings of 323 trees.

Mohawk uses 100 percent wind energy to power its mills, and in 2007, as part of its voluntary commitment to reduce greenhouse gas emissions, the company began to offer carbon neutral products within their production processes. “Designers used to worry about print quality when they specified recycled papers. Mohawk has worked hard to build performance into our recycled grades. Customer demand has grown rapidly as a result. It’s great to see people making the right choice when they don’t have to sacrifice quality and cost,” says Laura Shore, senior vice president of communications at Mohawk Paper.

As the first Rockport book to be produced with environmentally friendly print production in mind, this is the most sustainable of the company’s titles. “There are, of course, limits to how much we can do,” notes Potts. “For example, we used the makeready sheets for the cover, but we had to use a matte laminate to protect the covers from scuffing.” The reality of sustainable design is dependent on individuals making responsible choices when it comes to the materials and processes needed for the end product—whether it’s a book, an annual report, or a pair of shoes.



CONTENTS

Introduction

Part One: METHODS AND THEORY

Chapter 1: Overview of Sustainable Design

12 What is Sustainable Design? | **14** Corporate Sustainability: An Emerging Market
15 Paying the Bills with Socially Conscious Design | **16** How We Got Here
19 Best Practices to Design Sustainability | **20** Theoretical Framework | **24** Natural Capitalism
25 Best Practices | **25** The Problem with Green Washing

Chapter 2: Sustainable Motivators

26 Why Be Socially and Environmentally Responsible?
30 Building Sustainability to Last | **36** The Next Best Chance

Chapter 3: The Science and Practice of Sustainable Design Forestry

43 Forestry | **59** Paper Production | **66** Printing | **82** Recycled Paper
92 Fast Track to the Experts | **96** Waste Not, Want Not | **102** Sustainable Packaging

Part Two: PUTTING IT TO PRACTICE

Chapter 4: Living and Working Sustainably

115 Viola Eco-Graphic Design | **122** Plazm Design | **126** GuerriniIsland | **134** Nau
142 Monterey Bay Aquarium | **148** Tricycle Inc. | **164** Another Limited Rebellion
170 Green Map System | **176** Two Twelve

183 *Resources*

186 *Glossary*

188 *Endnotes*

189 *Designer Index*

192 *About the Author*

INTRODUCTION

Working sustainably can be both incredibly complicated and wonderfully simple. As graphic designers we like to see ourselves as trendsetters and leaders. It therefore comes as no surprise that many designers are interested in reevaluating professional practice and improving their environmental footprint. This book is a guide to sustainable thinking and processes for the experienced professional and the inspired novice. It contains practical how-to information about production, materials, and resources as well as inspirational stories and work by leading designers. Much of the text focuses on print production, because it is the most resource intensive area in which many graphic designers work, however the book also includes sections on sustainable packaging, Web design, and environmental graphic design (EGD).

Unlike the environmental movement of the 1980s and 1990s, the sustainability movement is not motivated by guilt or doomsday thinking. It is instead led by a varied group of people who see the long-term environmental, social, and economic benefits of working sustainably. The people I interviewed included printers, mill owners, educators, and designers, and they are uniformly some of the most generous people I have ever met. Most are eager to share their experiences and are happy to refer interested parties to colleagues or friends who might have more information than they do themselves. The scores of socially and environmentally conscious designers that I talked to while researching this book were also some of the most connected and excited practitioners that I have had the pleasure of working with. This book is not an end; it is a beginning. It's an introduction to relevant theories, a survey of current production practices, and, most of all, it is an invitation to join a community.



PART ONE

Methods and Theory

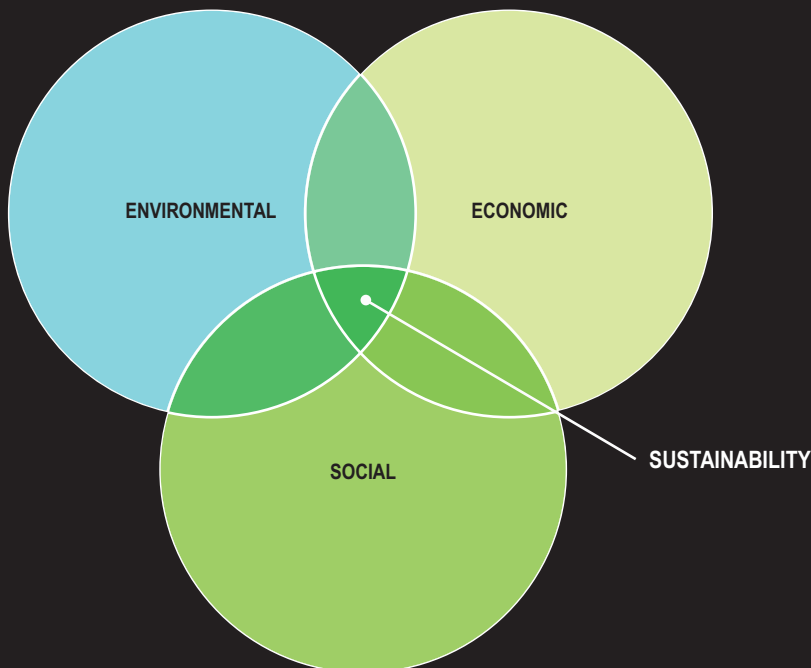


CHAPTER 1:

Overview of Sustainable Design

WHAT IS SUSTAINABLE DESIGN?

Sustainability can be defined in many ways, but perhaps the easiest way to describe it is as the balanced use of natural, social, and economic capital for the continued health of the planet and future generations. Designers can enter into the discussion and begin to adopt sustainable practices at a variety of levels depending on their individual situations. Even professionals who have spent decades immersed in this issue agree that we have yet to find the perfect ways of balancing our economic needs with the needs of the planet. Therefore, sustainable practice is more about working toward many small goals than it is about living with absolutes.



As global citizens, we have a duty to ensure that our work practices are sustainable, whatever the industry. In simple terms, it's about ensuring that the actions of today do not compromise the needs of future generations.

ANNA CARLILE – principal and founder of Viola Eco-Graphic Design

Definition of Terms

Continued debate about the legitimacy of the words “sustainable” and “sustainability” suggests that there is a need to reexamine the definitions and proper usage of these terms. In its 2002 update, the *Oxford English Dictionary* defines “sustainable” in two ways that are applicable in this text.

sus·tain·a·ble, *adjective*

1. Of, relating to, or designating forms of human economic activity and culture that do not lead to environmental degradation, esp. avoiding the long-term depletion of natural resources.
2. Utilization and development of natural resources in ways which are compatible with the maintenance of these resources, and with the conservation of the environment, for future generations.

When Brian Mikesell, associate librarian for systems and services at St. John's University (Queens, New York), was asked whether sustainability is in fact a “real” word, he responded, “of course it is.” He explains, “The contemporary use of the term in relation to the environment is merely a shorthand reference and could easily be expressed more lengthily by something like sustainable development or sustainable agriculture or environmentally sustainable tourism etc., thus the term in its new usage becomes a derivative of the original, and its full meaning can only be determined by context.”

“Eco-friendly,” “green,” “eco-design,” and similar expressions are frequently used to refer to processes and concepts that value environmental responsibility. Some designers and experts prefer to use these terms in addition to or instead of “sustainable.” While not necessarily incorrect, it is important to understand that terms such as “green” and “eco-friendly” primarily refer to the environment, whereas “sustainability” also considers the social and economic implications of materials, designs, and production processes.

CORPORATE SUSTAINABILITY: AN EMERGING MARKET

Practicing sustainable design isn't just about doing the right thing; it's also a way of taking advantage of an emerging market. Hank Stewart of Green Team Advertising in New York has seen an increase in the number of brands that want to make social and environmental ideals part of their core brand values. "Consumers are awakening to the power they wield in the marketplace, and companies are afraid that they are losing out because their competition stands for something that they don't." In recent years, Nike, Chiquita, and BP have all chosen to use environmentally preferable production practices for their annual reports, and many Fortune 500 companies also produce corporate sustainability reports or corporate citizenship reports (CSR) in addition to traditional annual reports. CSRs highlight the environmental and social commitment of a company and almost always require some degree of sustainable production. Derek Smith, a consultant on paper and the environment says, "Many large organizations today have strong environmental philosophies, but too frequently those philosophies don't end up in the companies' practices."





PAYING THE BILLS WITH SOCIALLY CONSCIOUS DESIGN

There is little point in making a hard distinction between socially and environmentally conscious design because sustainability requires the melding of the two. However, there is an emerging specialization in design for social causes and nonprofits. Though definitely still a niche market, this area of practice is growing, and today studios that have chosen to limit their client base are thriving. Design Action Collective in Oakland, California, balances their efforts to reduce their environmental footprint with a desire to work with clients and vendors that share their values. Innosanto Nagara, founding member of Design Action Collective, explains, “Most of our clients are actively working for a sustainable world. There is little point in saving a few trees by using recycled paper if the client you are working for is destroying the environment or harming the community.” He notes that even if a designer is working for a nonprofit company, it is vital to consider both the social and environmental record of the vendors that one chooses. He says, “We are a certified green business, a worker-owned cooperative, and a union shop; amongst our vendors we give strong preference to those who are similarly organized.” Mixing values and creative passion is a powerful combination, and many graphic designers find that they can work with like-minded organizations, support social causes, and still pay the bills.

Innosanto Nagara says, “Amazon Watch annual reports need to really take their supporters and funders in North America to the Amazon. We do show images of destruction in the reports, but the covers focus on a positive view of what is at stake. The reports were printed at 8.5” x 8.5” because it was the most efficient size for the green printer we use to get the most out of a sheet. They were printed on 100 percent postconsumer recycled paper with soy inks at Inkworks, which is a union shop.”



Buckminster Fuller in 1917

HOW WE GOT HERE

It is widely agreed that *Silent Spring*, Rachel Carson's 1962 book connecting human impact to the environment, was a catalyst for the modern day environmental movement. However, the ideas of two lesser-known visionaries, Buckminster Fuller and Victor Papanek, began inspiring designers to consider their roles in environmental degradation and social inequity long before it was cool to be green.

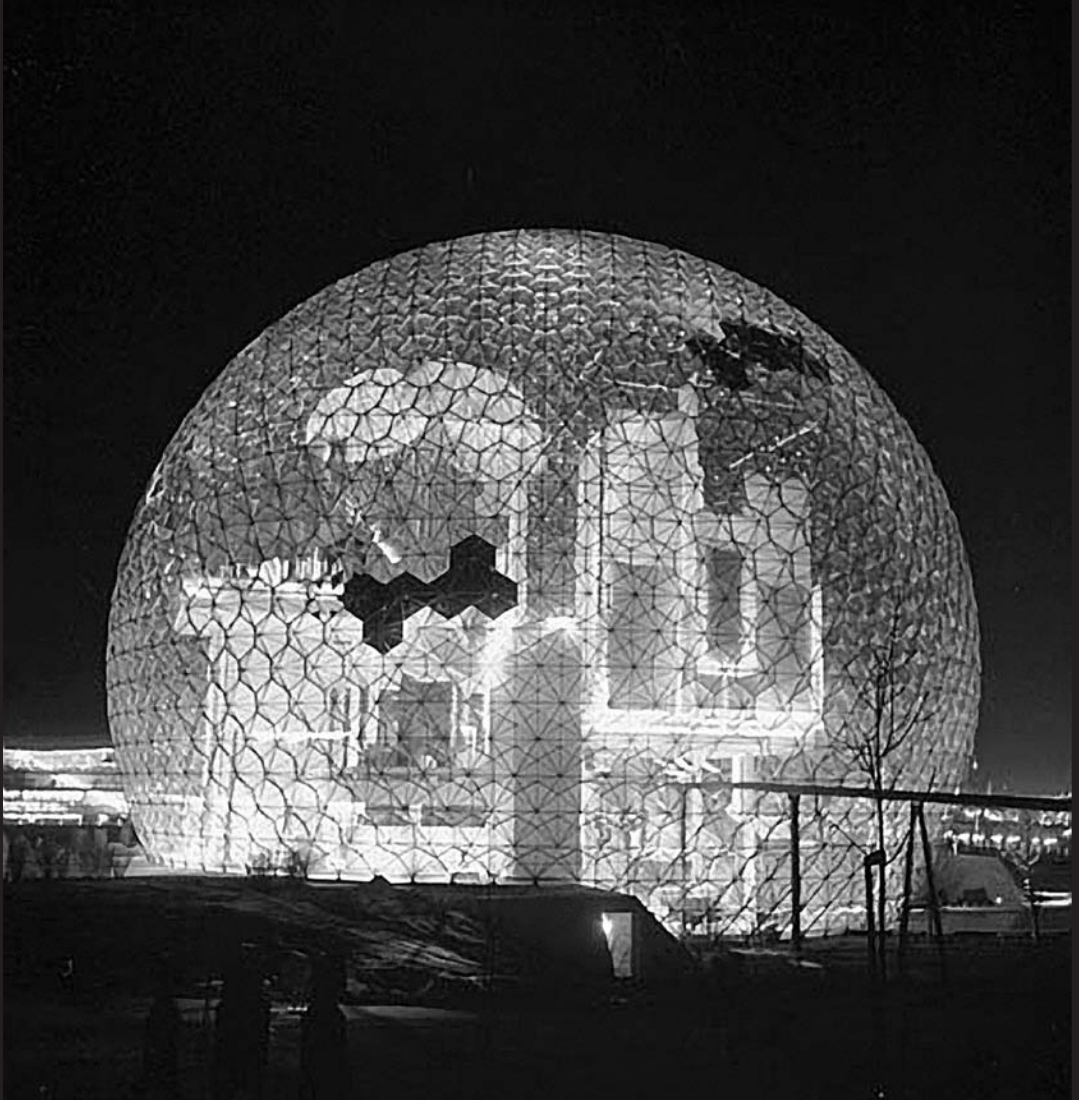
Buckminster Fuller

Buckminster Fuller's work can be seen as a forerunner to the contemporary sustainability movement. An inventor, scientist, writer, and environmental activist, Fuller believed in doing more with less. He was concerned about humanity's wasteful use of resources and observed that, "Men have felt that they could dispose of annoyingly accruing substances with which they did not know how to deal by dispatching them outward in some cosmic direction, assumedly to be defused innocuously and infinitely." He thought that humans acquire technology for the wrong reasons and was a proponent of social equity and even dispersal of wealth among the world's population. Believing that more positive alternatives were possible he wrote, "Humanity could acquire technology for the purpose of total success and enduring peace for humanity." During his life, Fuller was often ridiculed as a utopian whose work had little practical application, and few of his inventions were ever produced. Nevertheless, Fuller's ideas about the integration of natural systems and human invention and his advocacy for environmental issues have been inspirational to many designers, environmentalists, and scholars who advocate the responsible use of the planet's remaining resources.

Fuller began designing his most famous invention, the geodesic dome, in the 1950s and was awarded a patent for his invention in 1954. This image is of the geodesic dome of the American pavilion at the Montreal Expo 1967.

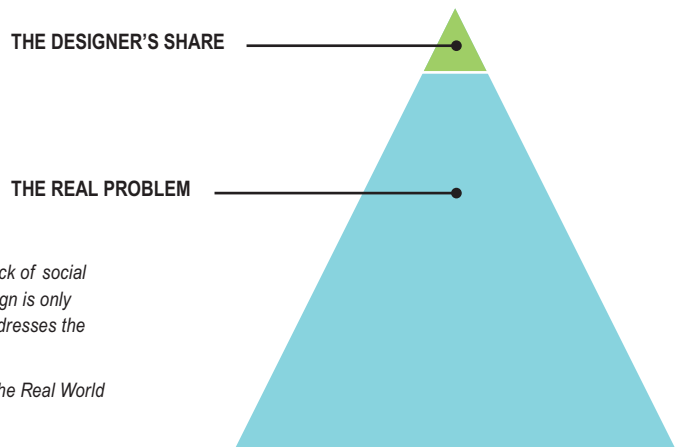
Our planet Earth is home to all humans, but scientifically speaking it belongs only to the universe. It belongs equally to all humans. This is the natural, geometrical law. Any laws of men which contradict nature are unenforceable and specious.

— BUCKMINSTER FULLER



Victor Papanek

Originally trained as an industrial designer, Victor Papanek challenged designers of all kinds to take responsibility for the social and environmental ramifications of their work. Beginning in the 1970s with his publication *Design for the Real World* (Academy Chicago Publishers, 1972), Papanek suggested a renewed focus on the end user and believed that designers had an obligation to work for the greater good and not just the financial well-being of their clients. He railed against built-in obsolescence saying that, “In all pollution, designers are implicated at least partially.” The definition of a designer put forth by Papanek is that of a fully thinking problem solver. It is a role both more powerful than that of visual stylist and one that requires greater accountability. In his second book, *The Green Imperative* (Thames and Hudson, 1995), Papanek included “the wisdom to anticipate the environmental, ecological, economic, and political consequences of design intervention” in his list of the skills and talents that a designer should possess. He went on to question “whether designers, architects, and engineers can be held personally responsible and legally liable for creating tools, objects, appliances, and buildings that bring about environmental deterioration.” Papanek was ahead of his time. When *Design for the Real World* was first published, he was denounced by colleagues and asked to resign from his professional association. By the mid-1990s when his second book, *The Green Imperative*, was published, public opinion had evolved, and many of Papanek’s ideas have been adopted by contemporaries who had originally been skeptical.



Papanek created this diagram to explain the lack of social engagement in design. He suggested that design is only concerned with a very small role and rarely addresses the real needs.

-From Designing for the Real World



by Eric Benson, assistant professor of graphic design at the University of Illinois and founder of re-nourish.com

BEST PRACTICES TO DESIGN SUSTAINABLY

Creating sustainable pieces should begin at the start of the design process. First, the designer must determine if the project deserves to exist in a tangible form. To do this, the designer should ask the following questions:

- Is this the best method to communicate the message?
- What is the impact of making this piece?
- How can we lessen the impact if we print the piece?

After this initial discussion, it is important to openly communicate ideas and decisions with the design team and client. It is imperative for the graphic designer to be educated about sustainability and to discuss project goals at length before embarking on any design endeavor. Educating oneself is just as important as educating one's client. As the project continues to develop, the graphic designer should work collaboratively with the client and vendors to create a solution that follows these five sustainable principles:

- Respect and care for the community.
- Improve the quality of life.
- Conserve Earth's vitality and diversity.

- Minimize the depletion of nonrenewable resources.
- Change personal attitudes and practices to keep with the planet's carrying capacity.

Each of these principles, in turn, encourage the designer to make the following, more conscious, design decisions:

- Design for re-use/longevity.
- Design cyclically, not linearly.
- Choose recycled/nontoxic materials.
- Minimize waste (e.g., use entire press sheet).
- Minimize ink coverage.
- Choose local vendors that use renewable energy and employ socially equitable and environmentally friendly business practices.
- Educate consumers about the lifecycle issues through messaging/marketing.
- Encourage others to design sustainably.

Because designers are both makers and consumers, our power to incite change is compelling. If we help to change the way our world is designed, it will allow for a better quality of life and a continuing viable economic future.

THEORETICAL FRAMEWORK

Sustainability, like good design, relies on conceptual and theoretical frameworks as well as technical competencies. Just as we wouldn't consider our software skills to be a good indicator of design ability, eco-friendly printing is largely ineffectual if one doesn't understand the thinking that makes it necessary. Graphic designers are at an advantage when it comes to adopting sustainable practices. We are accustomed to conceptual problem solving and systems thinking. For most designers, taking on sustainability will require a subtle shift in thinking and practice but not the rejection of previously held beliefs.

Biomimicry

In her 1997 book, *Biomimicry: Innovation Inspired by Nature*, author Janine Benyus suggests that because nature has spent the past 3.8 billion years engineering systems and processes that work symbiotically in their environments, it should be the standard from which to assess the “rightness of our innovations.” Biomimicry (from “bios,” meaning life, and “mimesis,” meaning to imitate) imitates or takes inspiration from natural models to create designs that solve human problems.¹ Increasingly natural systems are being disturbed and irrevocably altered by human activity. Nature-inspired designs offer some of the most hopeful solutions for ways and products that can help us live more sustainably. In the past, our inability to understand many aspects of biology and interconnected systems may have been excuses not to follow nature's lead. However, developments in observation techniques and understanding of biology at cellular and subcellular levels have allowed us greater access to the science of the natural world than ever before. Researchers, designers, engineers, architects, and even economists are studying how organisms and ecosystems work and applying that thinking to useful products and services. Nature-inspired designs are already being used with varied applications including packaging, adhesion systems, transportation, and energy production.