CHAPTER ONE

The Philosophy of Sustainable Design

An invasion of armies can be resisted...
But not an idea whose time has come...

—Victor Hugo
Chapter One—Defining Sustainable Design

Sustainable Design is an idea whose time has come. All over the country, indeed around the world, architects, engineers, developers and builders are all clamoring to understand how to market their services to reflect a new way of building and a new approach to design. Few firms in the country have not heard of sustainable design and realized, at least to some extent, that they must change the way they approach their business if they want to claim a portion of this rapidly growing market share. Those who have not heard the signals will soon realize that if they are to stay competitive they too must begin to understand what sustainable design is, and how it is transforming our buildings and the design professions.

And yet, despite the growing awareness and interest, few words in the design and construction industry have been so poorly used as that of sustainable design and green architecture. These terms have come to mean a lot of different things to different people, and many misconceptions exist that have created barriers to its adoption. This book will hopefully dispel some of these myths. Almost every architectural and engineering firm today claims, to some extent, that it practices sustainable design or at least has done a few green buildings, while in reality, most have little true understanding of the subject. The word “sustainable” has been applied to many buildings that do not deserve the designation, thus shrouding the few that do.

For many professionals a green building is something that merely incorporates a few recycled products or has good windows. This approach, as we will discuss, is not nearly enough. For the record, few buildings built today in Western society should even be called sustainable. A lot of buildings and building products get designated green or sustainable because they contain a few features that lower their environmental impact to some degree. Sustainable design is not about features. While it is disappointing that this amount of misunderstanding exists among design professionals, it is encouraging that so many are first learning the jargon and then the meaning behind the words when a few short years ago the issues were barely discussed.

Part of the problem is that the term Sustainable design is wholly inadequate to describe the movement and philosophy behind it. In the dictionary the word sustainable is defined as something that is “able to be maintained,” which doesn’t accurately portray the need to change the way we
relate to the natural world. Much better words could have been chosen such as restorative design to imply the challenge ahead or ecological design to highlight the main focus of the philosophy. Many more adjectives could have been chosen that would have been more appropriate or compelling.

And yet, as Humpty Dumpty once said, “words mean what we want them to.” Most people in the sustainable design world want the term to mean much more than “maintaining” and so it has come to mean much more to them while others want it to mean much less. The challenge, of course, is to come to a common understanding of what we mean when we talk about sustainable design. This book attempts to help the movement come to this common understanding.

Another reason for the confusion surrounding sustainable design and the label of “sustainable building” is that people are trying to articulate a movement that is still in its adolescence—one that is actively defining itself, its principles, components and philosophy. Like any immature individual, sometimes it seemingly contradicts itself or seems unclear or even irrational. And with incomplete knowledge comes the spread of incomplete information. Another reason for its misapplication is that sustainable design has operated for a long time outside the mainstream of the design and construction industry, and so for a vast number of people it means a total shift in how their profession is viewed. For many, it means unlearning as much as it means learning new things. Old habits, as they say, die hard. It is for this reason that changes in philosophy tend to occur in generational timeframes rather than individual, and sustainable design is no exception. With the exclusion of a few pioneers, it will be the youngest generation practicing today and those presently in school who will bring about the most change.

This is not a how-to-book on green building. It does not contain a bunch of case studies or lists of materials for designers to use. This book is not about sustainability in the broadest sense, as defined by the Brundtland Commission, which defines sustainability as “meeting the needs of the present without compromising the needs of the future.” Sustainability deals with all aspects of society including agriculture, transportation, industry and politics, and other than brief mention these issues are not dealt with here. These boundaries are not always solid, but necessary for the scope of this book. A lot of great books already exist on sustainability, green building techniques and general environmental issues, some of which are listed in the Green Warrior Reading List contained in the ap-
This book is about one slice of the sustainability pie...it is about **Sustainable Design**, which, as mentioned, is sometimes known by different names such as ecological design, green design, green architecture, eco-effective, holistic and environmentally friendly design, which should all encompass a similar meaning. For this book, only the terms sustainable design and green architecture will be used since these are the terms most commonly used in the industry.

Sustainable design is the philosophical basis of a growing movement of individuals and organizations that literally seeks to redefine how buildings are designed, built and operated to be more responsible to the environment and responsive to people. This movement is a powerful one, but still maturing and seeking to find its footing and vocabulary. Because of this maturing, a significant amount of disparity in understanding exists between its adherents and the definitions, terminology and jargon used to describe itself.

This book is intended as a stepping-stone in the maturing process; to firmly put forth the words necessary to define the movement and to share some of the great work and ideas of the many pioneers who for years struggled and still struggle against the barriers of change. As John Stuart Mill so aptly put it, “Every great movement must experience three stages: ridicule, discussion, adoption.” For sustainable design we are in the early transition phase between discussion and adoption. While just three years ago the attitude towards the movement was very different, no one today is ridiculing sustainable design. It is no longer viewed as a passing fad or the whims of a few environmental bleeding hearts. The next few decades will be momentous in the scale of change as sustainable design principles move from the fringe to the mainstream, in their wake changing every aspect of the built environment. Over the next few decades we will begin a new ecological age of design, first started just over thirty years ago. With this as a basis, we can define what we mean by the term sustainable design:

**Sustainable Design is a design philosophy that seeks to maximize the quality of the built environment, while minimizing or eliminating negative impact to the natural environment.**

This definition is useful because it highlights several important elements. First and foremost it establishes sustainable design as a philosophy. The philosophy of sustainable design is important because one of
the earliest barriers arose because people viewed sustainable design as a stylistic endeavor, which it most emphatically is not. Sustainable design is an approach to design and not an aesthetic exercise and thus it can never go out of style or be discussed as a fad, as some critics have described it. Secondly, because it is a philosophical approach to design, it can be used on any building type at any scale; indeed, it can transcend the design of buildings to include any object or project under design. There are no physical scale barriers to its adoption. It is a philosophy that simply asks, “What is the most we can do on a given project to enhance the quality of the built environment while minimizing or eliminating the impact to the natural environment?” However, for the purposes of this book, sustainable design will usually be referred to in the context of buildings and developments.

The next part of the definition is equally important because it establishes the fact that one of the major goals of the movement is to enhance quality. By quality, we mean creating better buildings for people, better products for our use and better places to inhabit. Early on, some people were concerned that the movement meant lowering quality and reducing comfort and well-being, when in fact the opposite was true. Sustainable design starts with the understanding that the purpose of our designs is to create physical artifacts that benefit people. This movement seeks to enhance that goal with a wider, more holistic approach.

The final part of the definition is the most obvious one. Clearly, one of the major goals of the movement is to reduce impact on the natural environment. What is not as obvious is that the ultimate goal, indeed, a necessity, as we grow from six to seven billion people and beyond is not only to reduce impact to the natural environment, but also to eliminate negative environmental impact completely through skillful, sensitive design. A project perhaps should not even be called sustainable or green until it reaches a high level of performance. The most serious adherents of the sustainable design movement are not content with merely limiting damage—and from project to project continually look to up the ante, finding ways to enhance comfort while further raising the bar in environmental performance. As Sim Van Der Ryn discusses in his very important book Ecological Design, “In many ways, the environmental crisis is a design crisis.” It is a consequence of how things are made, buildings are constructed, and landscapes are used.” Sustainable design is an approach that looks to the design process to heal as well as it has damaged. Bill Browning and Dianna Lopez Barnett also described it accurately in their Sustainable Design Primer,
by reminding us that “it represents a revolution in how we think about, design, construct and operate buildings.”

Sustainable design implies responsibility and it implies a far-reaching respect for natural systems and resources, respect for people and respect for the cycle of life.

It is helpful to think about sustainable design in terms of the word respect. The opposite of respect is contempt. Our current system of construction, materials manufacturing and design are done in such a way that it may as well be contemptful of natural systems. If you respect something you honor it, you act as its protector, as a steward or parent. It is in this vein that we describe sustainable design. When you have contempt for something you abuse it, neglect it, ignore it and use it up. Of course, the truth is that it is not really contempt for the natural world or any big conspiracy that is behind most environmental degradation but rather it is a by-product of ignorance and the inertia of progress and politics. Nature, in most cases, is just in the way. In the twenty-first century we can no longer plead ignorance and innocence for our actions. Since we know that our buildings are a big part of the current crisis, inaction and resistance to the sustainable design movement can only be viewed now as contempt.

Sustainable design also implies intention—intention to seek the best solution that balances environmental concerns with comfort, aesthetics, cost and a host of traditional architectural or design concerns. While it implies intention, sometimes sustainable design can be an intuitive process among skillful designers who have successfully integrated the principles into their design process. Sustainable design should be thought of as a verb, not a noun, meaning that the act or process of sustainable design must clearly be separated from the product. As mentioned earlier, almost no buildings being built today are, in the truest sense, sustainable. This is not so much the failing of the movement, but the reality of changing the incredibly complex system that is the building industry. The sustainable design movement today has produced a lot of better, less damaging, more efficient buildings, but the buildings themselves cannot be called sustainable. It may be fine to label them as green buildings if necessary, but the word sustainable should be reserved for buildings that truly are sustainable. A truly sustainable building is one that has no negative operational impacts on the environment and few embodied ones as described in more detail in Chapter Ten—Shades of Green.

In many ways, sustainable design is simply expanding the definition of good design to include a wider set of issues. Traditionally, architecture
dealt with several factors, but cost, schedule, functionality and aesthetics drove the decision-making process, or as the ancient architectural theoretician Vitruvius discussed—firmness, commodity and delight. But sustainable architecture adds more layers and asks more questions—Is it good? Is it the responsible choice? What effect will these design decisions have on the environment? On human health? It reminds us of a wider set of issues that for too long have been ignored in the design process or, if not ignored, given a very minor role in shaping the designs of our buildings and communities—afterthoughts. As Bill McDonough, one of the pioneers in the green design movement asks, “Was Auschwitz a good design?” It certainly was efficient at what it was designed to do, but was it good? Of course not! While this is an extreme example, we can think of many others where the same process can be implied. If a building wins design awards, but suffers from sick building syndrome due to poor detailing and specifications, is it a good design? If a building was built on budget and on schedule and meets all programmatic requirements but does so by imposing an enormous ecological burden, is it a good design?

Sustainable design helps instill a sense of responsibility and higher purpose back into design. Designers who adhere to the philosophy are not merely providing a product or commodity, but they are providing a service that goes beyond the immediate client to other people, to other species and even to future generations. McDonough eloquently described this as “intergenerational tyranny” because the decisions and consequences we make today will be inherited by the innocent residents of the future. Sustainable design seeks to provide solutions that are “good for all species for all times.” For, as Edmund Burke wrote over two hundred years ago, “Society is a partnership, not only between those who are living, but between those who are living, those who are dead, and those who are to be born.”
Sustainable design is often used as an umbrella term to describe a set of strategies, components and technologies that lower environmental impact while in many cases improving comfort and overall quality. These categories include but are not limited to:

- Daylighting
- Indoor Air Quality
- Passive Solar Heating
- Natural Ventilation
- Energy Efficiency
- Embodied Energy
- Construction Waste Minimization
- Water Conservation
- Commissioning
- Solid Waste Management
- Renewable Energy
- Xeriscaping/Natural Landscaping
- Site Preservation

Many of these components are explained more fully in Chapter Nine—The Technologies and Components of Sustainable Design. And in many ways these components are the most tangible parts of the sustainable design movement as people can more readily understand things that they can point to and identify. As with any philosophy however, its true wisdom is in its principles, not its components and the sustainable design movement is no exception. Although immature, the sustainable design movement has for the last few decades been developing a set of tenets, or principles that guide sustainable design practitioners. These principles are documented for the first time in this book.

After discussing the Evolution of Sustainable Design in Chapter Two, the next few chapters will explore the philosophical underpinnings of the sustainable design movement.

“Philosophy must be a tool of realism which repeatedly permits us to rediscover ourselves and shed the linguistic obscurantism of whatever power structure is in place. In doing so, we alter or shed the structure itself.”

—John Ralston Saul