



Carl Bovill

SUSTAINABILITY IN ARCHITECTURE AND URBAN DESIGN



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SUSTAINABILITY IN ARCHITECTURE AND URBAN DESIGN

Sustainability in Architecture and Urban Design will help you understand the nature of the sustainability problem and show you how to implement your design for a sustainable future. Organized in six parts: the problem, the environment, the residential scale, the commercial scale, the urban scale, and energy sources, the book presents essential information in context so that you can get the full picture. Hundreds of drawings, sketches, charts, and diagrams illustrate points author Carl Bovill makes in his clear and direct style, which communicates the basics in a concise way.

You will learn:

- about environmental economics;
- how sustainable architectural design relates to ecology;
- how fractal geometry can lead to a new understanding of the structure of the world around us;
- how to design energy-efficient houses and commercial buildings;
- how to design and live in our cities to lower energy use per person;
- about LEED points at all scales;

A glossary and reading lists encourage you to explore the topics further.

Carl Bovill is an associate professor in the School of Architecture, Planning, and Preservation at the University of Maryland where he teaches materials, environmental controls, and sustainability. His publications include *Architectural Design: Integration of Structural and Environmental Control Systems* (1991) and *Fractal Geometry in Architecture and Design* (1996).

PREFACE

Making a transition from a mass production, mass consumption, high energy use, growth-addicted society, to a society that can sustain itself indefinitely into the future will be difficult but must be done. This book is an attempt to outline the nature of the problem, and to point toward solutions. Part I, “The Global Sustainability Problem,” after a short historical survey, explores the issues presented by exponential growth and global warming. Part II, “Ecology and the Environment,” looks at ecosystems and how architecture relates to ecological patterns followed by how economics relates to environmental issues, and concludes with an overview of fractal geometry, which provides a way of seeing that is helpful in observing nature. After this the book provides guidance on the design of residential scale buildings, commercial scale buildings, and on the layout of urban environments that minimize energy use in Parts III, IV, and V, respectively. Finally, Part VI provides an overview of conventional fuels and alternative energy sources. If one takes a long view of human history and assuming we have a similarly long future, the fossil fuel use epoch that we are currently in is a short blip in time. To insure a long future, humanity needs to make adjustments.

I would like to thank the students who have taken my sustainability class for their discussions. I also need to thank the faculty of the School of Architecture, Planning, and Preservation for their guidance and for the sabbatical semester that allowed me to initiate the writing process. At Routledge I would like to thank Wendy Fuller, who guided me through the proposal process, and Laura Williams, Emma Gadsden and Grace Harrison, who have guided me through the production process. And most importantly, I need to thank my wife Jean and my daughters Mia and Anna who are always an inspiration. The future belongs to the young. It is important that society presents them with one.

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