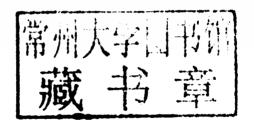


SUSTAINABILITY IN ARCHITECTURE AND URBAN DESIGN

Carl Bovill





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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.

CONTENTS

Lis	t of Tables face	xvii xix
Int	roduction	1
	RT I e Global Sustainability Problem	5
1	Solar Energy Use Through Time	7
2	Uncontrolled Growth Causes Uncontrollable Problems	14
3	Our Ecological Footprint	23
4	Global Warming and Climate Change	26
	RT II plogy and the Environment	33
5	Ecosystem Example: The Chesapeake Bay	35
6	Ecology and Architecture	43
7	Environmental Economics	54
8	Nature's Geometry	62

vi Contents

	ART III The Residential Scale 73		
9	Building Example: WaterShed House	75	
10	LEED for Residential Buildings	79	
11	The Energy Design Process	81	
12	Bioclimatic Design	85	
13	Solar Control and Shading	95	
14	Passive Solar Heating	112	
15	Passive Cooling	125	
16	Embodied Energy and Thermal Mass	134	
17	High Insulation Levels	140	
18	Green Materials	145	
	RT IV e Commercial Scale	149	
19	Building Example: The Chesapeake Bay Foundation Building	151	
20	Overview of the LEED for Commercial Buildings Rating System	157	
21	Daylighting	159	
22	Electric Lighting	172	
23	Heating and Cooling	178	
24	Indoor Air Quality	188	
25	Green Roofs	192	
26	Material Choices	196	

Contents vii
199
201
206
207
212
217
219
223
235 239 242 248 256

Index

FIGURES

1.1	The Sun is the source of all life on Earth	8
1.2	The first human collection of solar energy on a massive scale	
	was agriculture	9
1.3	The Alhambra Patio de la Acequia (Court of the Long Pond)	
	is an example of a designed microclimate	11
1.4	Earth rise taken from the Apollo 8 mission around the Moon,	
	Christmas 1968	12
2.1	World population since 1700	15
2.2	World population growth rates	15
2.3	Population age distribution for a pre-industrial society	17
2.4	Demographic transformation	17
2.5	Population age distributions for a society in transition and for a	
	modern industrial society	18
2.6	Intermediate projections of world oil supply and demand	
	through 2100	19
2.7	Beyond the Limits computer simulation results for continuing	
	with the current population and industrial growth patterns	20
2.8	Beyond the Limits computer simulation results with control of	
	population growth and green and efficient technologies	22
3.1	Comparative ecological footprints	24
4.1	United States greenhouse gas emissions in 2011 were 6,702 million	
	metric tons of CO ₂ equivalent	27
4.2	Temperature and carbon dioxide levels over the last 420,000	
	years	28
4.3	Observed temperature rise compared to human and natural causes	29
4.4	Three scenarios for global temperature rise with the range	
	of uncertainty	29

	Figures	ix
4.5	Hadley Cells moving heat from the equator toward the poles	30
4.6	United States carbon dioxide emissions by industry	32
5.1	The Chesapeake Bay watershed	36
5.2	Area of land draining into the volume of water for seven major	
	bays and lakes	37
5.3	Fresh and salt water mix together in an estuary creating a	
	complex ecosystem	37
5.4	Oxygen depletion in the bottom of the Bay caused by excessive	
	nutrients coming from the land	38
5.5	Productivity levels in tons of carbon per acre per year	42
6.1	The architectural puzzle includes engineering information from	
	many disciplines	44
6.2	The psychrometric chart maps the air water vapor thermodynamic	
	mixture. Warmer temperatures can hold more water in vapor	
	form than colder temperatures	45
6.3	Alvar Alto's libraries are designed to bring in a large amount of	
	daylight in a climate where daylight is scarce half the year	47
6.4	The bioclimatic chart maps human comfort in relation to	
	temperature, humidity, mean radiant temperature, and	
	wind speed	48
6.5	Pueblo Acoma demonstrates settlement structures designed	
	for human movement in response to seasons	49
6.6	Population distributions by age comparing developing countries	
	with developed countries	51
6.7	Solar access	52
7.1	Supply and demand curves determine optimum production	55
7.2	Including the social cost of an industry's pollution with	
	regulations causes changes in price and quantity produced	57
7.3	The economics of determining optimum waste disposal into the	
,	environment doesn't consider how much waste the environment	
	can handle	58
7.4	Pollution abatement costs are a small percentage of total	
	manufacturing costs	59
8.1	The Koch curve illustrates the construction of a fractal	63
8.2	Measuring the length of the coast of England with smaller	
0.2	and smaller surveying distances produces longer and longer	
	coastline lengths	64
8.3	Measuring the fractal dimension of the coast line at Shell Beach,	
0.5	Sea Ranch, California with the box counting method	65
8.4	A connected Julia set and a disconnected Julia set	66
8.5	The Mandelbrot set is the intersection of the connected and	00
0.5	disconnected Julia sets	67
8.6	Zooming in on a stand of trees produces self-affine images	68
8.7	The Lorenz attractor	68
47 . 1	A ALC A CARCALL MICHAELOT	.,,,

x Figures

0.0	The reigenbaum diagram shows the doubling cascade into chaos	
	and the windows of order that can form in the chaotic region	69
8.9	The relationship between the Feigenbaum diagram and the	
	Mandelbrot set	70
8.10	Urban environments show fractal characteristics. Walkable	
	neighborhoods are connected into cities with local transportation	
	systems, and the cities are connected into urban regions with	
	regional transportation systems	71
9.1	WaterShed House	76
9.2	WaterShed House living room	76
9.3	WaterShed House kitchen	77
9.4	WaterShed House bathroom	77
11.1	Attention directing needs to take a broad view of the energy	
	design process to discover the best strategic approach	82
11.2	Annual energy savings for each individually applied energy	02
	design feature of a residential design	82
11.3	The net present value combines the cost of the energy design	02
11.5	feature with the savings per year from the energy design feature	
	over 20 years	83
11.4	Multiple computer program runs slowly increasing the south	0.5
11.7	window area can determine the optimum south glass area	02
12.1		83
12.1	Effective temperature comfort ranges for men and women in	
	different cities demonstrates that there is a range of comfortable	07
12.2	The biodinatic short more human confert in relation to	86
12.2	The bioclimatic chart maps human comfort in relation to	
	temperature, humidity, mean radiant temperature, and	07
12.2	wind speed	87
12.3	The bioclimatic chart from Sun, Wind, and Light (2001) maps	
	the comfort range in relationship to architectural approaches	00
12.1	to comfort design	88
12.4	Baltimore, Maryland, weather data plotted on the bioclimatic	0.0
	chart	89
12.5	Tucson, Arizona, weather data plotted on the bioclimatic chart	90
12.6	Burlington, Vermont, weather data plotted on the bioclimatic	
	chart	91
12.7	Honolulu, Hawaii, weather data plotted on the bioclimatic chart	92
12.8	Deriving the optimum orientation for a house in a temperate	
	climate as represented by New York	93
12.9	Comparing the thermal advantage of a bioclimatic designed house	
	with a traditionally designed house in winter and summer	93
13.1	Creating a flat map of the position of the Sun in the sky vault	96
13.2	The Sun path diagram for 40 degrees north latitude	96
13.3	A conceptual diagram of how shading devices map onto the Sun	
	path diagram	97

13.4	The parts of the sky that are blocked out by a horizontal overhang can be defined with cutoff angles	98
13.5	Plotting the 100 percent shading mask for a horizontal overhang with a 25 degree cutoff angle and an infinite extent on either side	
	of the window	98
13.6	Plotting the 100 percent shading mask for a horizontal overhang with a 25 degree cutoff angle that extends beyond the window	
	by a limited amount	99
13.7	For a window facing 20 degrees east of south, the whole shading	
	mask armature is rotated 20 degrees	100
13.8	The parts of the sky that are blocked out by a vertical fin can be defined with cutoff angles	101
13.9	Plotting the 100 percent shading mask for fins with a 20 degree	
	cutoff angle that extend an infinite amount above the window	101
13.10	Plotting the 100 percent shading mask for fins with a 20 degree	
	cutoff angle that extend a modest amount above the window	102
13.11	The parts of the sky that are blocked out by a combination of	
	a horizontal overhang with vertical fin can be defined with	
	cutoff angles	103
13.12	Plotting the 100 percent shading mask for the combination of	
	an overhang and fins	103
13.13	Weather data for Baltimore, Maryland, plotted on the bioclimatic	
10.10	chart can be used to define the overheated months of the year	104
13.14	The overheated period can be transferred from the bioclimatic	
13.11	chart to the sun chart	105
13.15	A shading mask can be constructed that will cover the overheated	
13.13	period in order to define the cutoff angles of the required	
	horizontal overhang	106
13.16	The horizontal overhang in section and elevation that was	
13.10	determined by the shading mask constructed in 13.15	106
13.17	If the building is rotated 17 degrees east of south it receives	100
13.17	a little boost of morning sun and avoids afternoon sun	107
12 10	Trees planted to the west and east of a house act as large fins	107
13.18	*	108
12.10	making the horizontal overhang more effective	100
13.19	An optimum overhang lets the winter sun in and blocks the	
	summer sun. Trigonometric equations can be used to solve	
	for the optimum overhang dimension in relation to window	109
	height	109
13.20	The solution to the optimum overhang problem creates an	110
	interior ceiling height higher than 8 feet	110
13.21	A compromise solution to the optimum overhang problem	
	with realistic window size and ceiling height creates a two to	
	one relationship between window height and overhang	444
	depth	111

14.1	Solar radiation by wall orientation and season	113
14.2	Passive solar direct gain distributed mass	114
14.3	Energy-10 simulations to determine the optimum concrete	
	floor thickness when used as thermal mass. An R-1000 insulation	
	layer was placed under the concrete floor, which was increased	
	in thickness in inch increments	115
14.4	Energy-10 simulations to determine optimum south window area	
	for Sterling, Virginia. The floor area of the house was 2,000	
	square feet with 2,000 square feet of 4 inch thick concrete	
	floor as thermal mass	115
14.5	Computer simulations of passive solar glass area for Alturas,	
	California, with 6,553 heating degree days for three different	
	house insulation levels. The floor area of the house was	
	2,000 square feet with 2,000 square feet of 4 inch thick concrete	
	floor as thermal mass	116
14.6	Computer simulations of passive solar glass area for San Rafael,	
	California, with 2,773 heating degree days for three different	
	house insulation levels. The floor area of the house was 2,000	
	square feet with 2,000 square feet of 4 inch thick concrete floor	
	as thermal mass	117
14.7	An optimum overhang blocks out the summer sun and allows	
	the winter sun in	118
14.8	Passive solar concentrated mass	120
14.9	Passive solar thermal storage wall	121
14.10	Passive solar attached greenhouse	122
15.1	Cooling strategies are mapped out in the area above the comfort	
	zone on the bioclimatic chart	126
15.2	Ventilation cooling requires inlets and outlets for air to flow	127
15.3	Window openings need to be low enough so the air flow is at	
	the people level. Air flow evaporates moisture off of skin surfaces	
	creating a cooling sensation	128
15.4	Casement windows can create air flow into and through a room	
	with openings on only one side	129
15.5	Stack ventilation requires high and low openings and is driven	
	by the air inside being warmer than the air outside	129
15.6	Night ventilation cooling brings in cool night air to cool interior	
	thermal mass, which then cools the interior during the day	130
15.7	During the evening and through part of the night the interior	
	of a night ventilated house will be warmer than the air outside.	
	The traditional solution is to go outside on the roof	131
15.8	A cool tower in a Hassen Fathy designed school. A cool tower	
	introduces water at the top of a tower, which cools the air with	
	evaporation; then the air drops down the tower to cool the	
	spaces below	132

16.1	Marginal embodied energy payback times in years for concrete	
	thermal mass used in a direct gain passive solar heated house in	
	Alturas, California, heating degree days 6,553, and in Santa Maria,	
	California, heating degree days 2,773	137
16.2	Marginal embodied energy payback times in years comparing	
	using more concrete thermal mass, with using higher levels of	
	insulation for a solar heated house in Alturas, California, heating	
	degree days 6,553	138
17.1	Thermal bridging in traditional platform framing	141
17.2	Heat loss paths for a typical American house	142
17.3	Map of the United States with weather zones	143
19.1	The architect's design concept sketch of the Chesapeake Bay	
	Foundation's Merrill Building	152
19.2	The site plan for the Chesapeake Bay Foundation's Merrill	
	Building showing its orientation 17 degrees east of south and	
	showing that most of the site is left in its natural state	153
19.3	The south elevation of the Chesapeake Bay Foundation's	
	Merrill Building	154
19.4	The north elevation of the Chesapeake Bay Foundation's	
	Merrill Building	154
19.5	Indirect lighting provides high quality diffuse illumination	
	in the Chesapeake Bay Foundation's Merrill Building	155
19.6	North windows are modest in size but positioned to provide	
	significant illumination to work spaces on the north side of the	
	Chesapeake Bay Foundation's Merrill Building	155
21.1	An overcast sky is three times as bright overhead compared to	
	the horizon and is equally bright in all directions because clouds	
	scatter all the frequencies of light around the sky	160
21.2	A clear sky is ten times as bright near the Sun compared to	
	locations on the other side of the sky from the Sun. The sky	
	is blue because air molecules scatter only the blue light	160
21.3	The solar energy spectrum compared to the infrared radiation	
21.0	emitted from warm room surfaces	161
21.4	Radiation transfer through clear double glass	161
21.5	Radiation transfer through low-e double glass designed to	
	maximize solar heat gain through the glass and minimize heat	
	loss back out the glass	162
21.6	Radiation transfer through low-e double glass designed to	
21.0	maximize daylight penetration and limit solar thermal radiation	
	transfer	163
21.7	Energy savings from daylighting with regular double glass	164
21.8	Energy savings from daylighting using double low-e glass,	
21.0	double low-e glass and horizontal overhangs for shading, and	
	double low-e glass with shading and only north and south glass	165
	action to the parties of the parties	The state of the s

xiv Figures

21.9	The increase in energy savings from daylighting as the window	
	area is increased from 5 to 35 percent of the wall area	166
21.10	The effect on interior light levels of interior and exterior light	
	shelves	167
21.11	Daylight factor illumination levels for a 22 foot deep room	
	with 10 foot ceilings with and without a light shelf	168
21.12	Reflectors can be used under skylights to distribute daylight	
	around the room	168
21.13	White baffles can be used to block direct sun penetrating from	
	south facing monitors and distribute light in the interior	169
21.14	The construction of baffles to block direct sun penetration through	
	a vertical south facing monitor	170
21.15	The construction of baffles to block direct sun penetration through	
	a sloping south facing monitor	170
21.16	The construction of baffles to block direct sun penetration through	
	a vertical east west facing monitor	171
22.1	Commercial building energy use by source for the United	
	States	173
22.2	Commercial building electricity use by function in the United	
	States	173
22.3	Lamp types used and annual energy consumption in outdoor,	.,.
	industrial, residential, and commercial buildings	175
22.4	Potential electricity savings from the further development and	
	use of light emitting diodes	176
22.5	Electricity generation by fuel type in the United States	177
23.1	Interior and exterior zones	180
23.2	The configuration of a typical air handler unit with its	
	accompanying return fan and dampers to control exhaust air,	
	recirculated air, and outside fresh air	181
23.3	A plot on a psychrometric chart of the temperature and humidity	
	characteristics of the air as it flows through the mixing dampers	
	and the air handler unit to distribution into the conditioned	
	space	182
23.4	A single zone constant volume HVAC system	182
23.5	A variable air volume HVAC system	183
23.6	An air economizer system along with its operational temperature	100
	range	184
23.7	A cooling side economizer system often called free cooling	185
23.8	A run around coil system to recover heat or cold from the exhaust	100
	air and deliver it to the supply air	185
23.9	An energy transfer wheel can capture both heat and humidity	103
	from the exhaust air and deliver it to the supply air	186
23.10	A dual condenser chiller captures some of the heat that would	
	be rejected to the cooling tower for use in the building	186

24.1	Fresh outside air quantities supplied by a variable air volume HVAC	
	system with constant (adjustable) outside air control compared to	
	systems with fixed (unable to adjust) outside air control	189
24.2	Fresh outside air quantities supplied by a VAV HVAC system	
	to exterior and interior zones of a building	191
25.1	The heat island effect over an urban area	193
25.2	The green roof on the California Academy of Sciences Building	
	in Golden Gate Park, San Francisco, California. The architect	
	was Renzo Piano, and the green roof was designed and installed	
	by Ran Creek in 2008	194
25.3	A cross section through a typical green roof	195
27.1	San Francisco is surrounded on three sides by the Pacific Ocean	
	and San Francisco Bay	201
27.2	San Francisco City and County showing parks, street car lines,	
	major highways, and the Bay Area Rapid Transit system	202
27.3	Neighborhoods center around shopping areas often related to	
	and served by the street car lines	203
27.4	City centers and residential areas surrounding San Francisco Bay	
	are connected by the Bay Area Rapid Transit system (BART)	204
29.1	Neighborhoods connected together by a transit system become	
	towns and cities less dependent on the automobile	209
29.2	The cities and towns of an urban area connected together by	
	an urban transit system reduce strain on the highway system	
	and reduce the energy footprint of the urban dweller	210
29.3	Dense neighborhoods in San Francisco demonstrate the mix of	
	street sizes from connector streets to narrow neighborhood streets	210
30.1	Transit Oriented Development (TOD) creates a walkable	
	neighborhood around a commercial core with a transit stop	
	at its center	213
30.2	In the commercial core of the TOD the buildings need to front	
	on the street with generous sidewalks and street trees	214
30.3	The urban layout of the TOD needs to respect drainage land	
	and drainage patterns. Creeks and wetland areas can be part of	
	the park open space needs of the community	214
30.4	Sidewalks protected by street trees and parallel parked cars create	
	a pleasant walking environment	215
30.5	At corners, sidewalks need to widen out to the parallel parking	
	line to minimize the size of the intersection. This makes crossing	
	the street easier and slows cars down	215
31.1	Energy use in the United States by fuel source	220
31.2	Projecting oil supply and demand through 2100	220
31.3	Electricity generation in the United States by fuel source	221
31.4	The reduction of carbon dioxide emissions resulting from a	
	carbon tax of \$10, \$15, and \$25 per metric ton of carbon dioxide	222

xvi Figures

32.1	A solar tower power plant in Daggett, California	224
32.2	Photovoltaic panels produce electricity directly from the Sun	
	by exciting electrons in the photovoltaic material	225
32.3	Nellis Air Force Base 15 megawatt photovoltaic power plant	226
32.4	Wind turbines of varying size and capacity	228
32.5	Geothermal electricity generation	229
32.6	Renewable energy as a percent of total United States energy use	232
A.1	Sun path diagram for 24 degrees north latitude	235
A.2	Sun path diagram for 28 degrees north latitude	236
A.3	Sun path diagram for 32 degrees north latitude	236
A.4	Sun path diagram for 36 degrees north latitude	237
A.5	Sun path diagram for 40 degrees north latitude	237
A .6	Sun path diagram for 44 degrees north latitude	238
A.7	Sun path diagram for 48 degrees north latitude	238