

# CONTENTS

Acknowledgments	ix	
About the Author	xi	
Introduction	xii	
<b>CHAPTER 1</b>	<b>THE BUSINESS OF BUILDING GREEN</b>	<b>I</b>
<i>Beware of Greenwashing</i>		3
<i>Set Realistic Expectations</i>		4
<b>Green by Design</b>		5
<b>Green Guidelines &amp; Standards</b>		9
<i>National Green Building Standard</i>		9
<i>Leadership in Energy and Environmental Design Program (LEED)</i>		13
<i>Green Building Initiative (GBI)</i>		16

<b>CHAPTER 2</b>	<b>BUILDING HOMES THAT LAST</b>	<b>21</b>
	<i>Good Site Planning is Key</i>	27
<b>CHAPTER 3</b>	<b>USING RESOURCES WISELY</b>	<b>47</b>
	Reducing, Recycling, Reusing	48
	Enhancing Durability and Reducing Maintenance	51
	Reusing and Recycling Materials	54
	Using Renewable Materials	57
	Using Indigenous Materials	58
	Salvaging Tear-Down Components	60
	Reusing Infrastructure by Building Infill Housing	62
<b>CHAPTER 4</b>	<b>REDUCING ENERGY CONSUMPTION</b>	<b>65</b>
	The Green Building Envelope	66
	<i>Windows</i>	67
	<i>Walls</i>	68
	<i>Insulation</i>	73
	<i>Wraps</i>	77
	Air-Sealing Package	78
	<i>Windows and Doors</i>	81
	<i>Roof Trusses</i>	84
	HVAC Design, Equipment, and Installation	87
	<i>HVAC and Heat Pump Efficiency</i>	88
	<i>Geothermal Design</i>	89
	<i>Solar Power</i>	92
	<i>Water Heating Design</i>	94
	<i>Energy-Efficient Lighting and Appliances</i>	96
	Home Energy Rating Specialist (HERS)	101

<b>CHAPTER 5</b>	<b>CONSERVING WATER</b>	<b>105</b>
	Plumbing	107
	Water-Efficient Appliances	109
	Rainwater Collection Systems	111
<b>CHAPTER 6</b>	<b>CONSTRUCTING A HEALTHY HOUSE</b>	<b>115</b>
	Minimizing Potential Sources of Pollutants	116
	Managing Potential Pollutants Generated in the Home	121
	<i>HVAC and Filters</i>	121
	<i>Venting</i>	122
	<i>Appliances</i>	123
	<i>Radon</i>	124
	<i>Chlorine-Reducing Showerheads</i>	127
	<i>Green Cleaning Methods</i>	128
	Managing Moisture	130
<b>CHAPTER 7</b>	<b>LEARNING TO LIVE GREEN</b>	<b>133</b>
<b>CHAPTER 8</b>	<b>GREEN CHOICES HAVE GLOBAL IMPACT</b>	<b>141</b>
	Creating a Plus-Plus	142
	Ensuring Watershed Health	145
	Old-Growth Wood	146
	Energy Efficiency	148

## List of Figures

<b>Figure 1.</b>	Engelmohr residence	17
<b>Figure 2.</b>	Solar synapse box	24
<b>Figure 3.</b>	Tankless water heater	26
<b>Figure 4.</b>	2x6 framing	27
<b>Figure 5.</b>	Angle of the sun	29
<b>Figure 6.</b>	Homes sited side-by-side	30
<b>Figure 7.</b>	House shadow study	31
<b>Figure 8.</b>	Overhang of childhood home	33
<b>Figure 9.</b>	Topographic map of Labarque Creek site	36
<b>Figure 10.</b>	Constructed wetland	40
<b>Figure 11.</b>	GPS bulldozer with pods	41
<b>Figure 12.</b>	Mature trees saved	44
<b>Figure 13.</b>	Cultured stone	53
<b>Figure 14.</b>	Scoop of clean gravel	59
<b>Figure 15.</b>	Foundation wall panels	71
<b>Figure 16.</b>	Side view of SIPs	76
<b>Figure 17.</b>	Sealing floor joists	79
<b>Figure 18.</b>	Sealing rim joists	80
<b>Figure 19.</b>	Window cross section	82
<b>Figure 20.</b>	NFRC-rated window	83
<b>Figure 21.</b>	Door frame	85
<b>Figure 22.</b>	Roof truss energy heel detail	86
<b>Figure 23.</b>	Geothermal unit	90
<b>Figure 24.</b>	Geothermal drilling	91
<b>Figure 25.</b>	Rain barrel	112
<b>Figure 26.</b>	Tarped subfloor	117
<b>Figure 27.</b>	Tarped SIPs	118
<b>Figure 28.</b>	Sample spec sheet	119
<b>Figure 29.</b>	Radon mitigation system	126
<b>Figure 30.</b>	The Engelmohr residence (exterior)	129
<b>Figure 31.</b>	The Engelmohr's kitchen	129
<b>Figure 32.</b>	Moisture meter	131
<b>Figure 33.</b>	Home comparison chart	138
<b>Figure 34.</b>	The waste diet	139
<b>Figure 35.</b>	Hard surfaces in kitchen	142