

# Contents

**Acknowledgments · VII**

**Abbreviations and Acronyms · IX**

Chapter 1 **Introduction · 1**

Contents · 2

How to Use this Guide · 3

Chapter 2 **Integrated Process for Achieving Energy Savings · 5**

Design Phase (Including Planning and Pre-Design) · 6

Construction · 11

Acceptance · 11

Occupancy · 11

Operation · 11

Energy Goals and Strategies · 12

Chapter 3 **Recommendations by Climate · 17**

Zone 1 · 20

Zone 2 · 22

Zone 3 · 24

Zone 4 · 26

Zone 5 · 28

Zone 6 · 30

Zone 7 · 32

Zone 8 · 34

Chapter 4	<b>Technology Examples and Case Studies · 37</b>
	Climate Zone 2—Happy Feet Plus · 38
	Climate Zone 3—Interface Showroom · 40
	Climate Zone 3—PETCO Energy Showcase Store · 42
	Climate Zone 3—Real Goods Solar Living Center · 44
	Climate Zone 4—Nusta Spa · 46
	Climate Zone 5—Zion National Park Visitor Center and Bookstore · 48
	Climate Zone 7—BigHorn Home Improvement Center · 50
Chapter 5	<b>How to Implement Recommendations · 53</b>
	Quality Assurance · 53
	Envelope · 58
	Opaque Envelope Components · 58
	Fenestration: Vertical Glazing and Skylights (Envelope) · 66
	Lighting · 70
	Daylighting · 70
	Electric Lighting Design · 73
	HVAC · 81
	Service Water Heating · 90
	Bonus Savings · 91
	Plug Loads · 91
	Exterior Lighting · 93
Appendix A	<b>Envelope Thermal Performance Factors · 95</b>
Appendix B	<b>Additional Resources · 97</b>