

Note: Italicized page numbers indicate figures or tables.
Page numbers followed by a *b* in italics indicate boxes.

- Acknowledgments along the way, 28, 53
Additional requirements, in green building mandates, 63
Adoption processes: dynamics of, 119; innovation and, 42*b*, 44–45, 50, 54; for policies, 63–64, 72
Advocacy relationships, 23
Affordable housing, 152
Agricultural extension program, 43*b*
Agricultural urbanism, 153
Airport Way Center, Building C, Seattle, 164–66
Alameda County, California, 22
Alternates, in design and construction process, 97
Anderson, Ray, 16
Aoki-Kramer, Michael, xviii
Architecture 2030, 106
Arlington County, Virginia, 112
Asheville, North Carolina, 64
Aspen, Colorado, 115–16
Asset management, with CIPs, 68–69
Austin, Texas, xi, xv, 3*b*, 25–26, 86, 124
- Barker, Lynne, 50, 75, 108, 127*b*
Berkeley, California, 105, 138
Boston, Massachusetts, 20, 60
Boulder, Colorado, 31, 115
Branding and marketing, 49–50
BREEAM (British Research Establishment Environmental Assessment), 182
British Columbia, 68
Brockman, Clark, 110
Budget authority, 33
Building codes, 82–83, 106–12
Building commissioning, 137
Building efficiency upgrades, 144
Building operators/managers, 96, 98, 135
Building permits, 38–40, 82, 112–15, 129–30
Built Green, 103, 104
Burgoyne, Dan, 18–19
- Cal Anderson Park, Seattle, 69
California, 18*b*, 19*b*, 60. *See also individual cities*
- Capital improvement projects (CIP), 57–58, 65–72
Capital projects portfolios, 68–72
Carbon feebate program, Portland, 117
Carbon pricing, 146
Carkeek Park Environmental Learning Center, Seattle, 166–67
Cascadia Region Green Building Council, 85, 107
Case studies, 44–45, 84. *See also* Green building portfolio, Seattle
Cedar Water Treatment Facility Operations Building, Seattle, 168–69
Center for American Progress, 87, 127*b*
Center for Maximum Building Potential, xi, xv, xvi
Centralized project tracking, 70–71
Certified Green Professional, 87
Champions, internal, 34
Chaos, in whole systems theory, 47
Charrettes, in design process, 94–95
Chatham County, Georgia, 106
Chicago, Illinois: code barriers, 107; Green Alley Program, 119; green building program, 26–27, 31, 124; green permits program, 114; planned developments, 116; targeted climate action plan, 118–19
City governments, 5–6
Client Assistance Memos (CAMs), 82
Climate change, and green projects, 1–2, 19*b*, 118–19, 149–50
Coaching, 88–91
Code barriers to green building, 107–10
Code compliance pathways, 109
Code incentives and disincentives, 111–12
Code officials, 107, 110
Code requirements, 45, 115–17
Codes, form-based, 116–17
Codes and incentives, overview, 101
Code training, 88
Collaboration, 78*b*, 85, 93–94, 103, 127*b*
Communications and decision process, 43*b*
Communications and outreach, 50–51
Community scale impacts of development, 147–48

- Competitiveness in sustainability, 9–11
- Conservation incentive packages, 67
- Conservation programs, preexisting, 28, 41
- Construction demolition recycling, 116, 146
- Construction documents, 96–97
- Construction permit fees, 31
- Consultant hiring process, 92–93
- Continuing Education Units (CEUs), 86
- Contracting models, 93–94
- Cool Roof Rating Council, 116
- Correlation vs. causation confusion, 128
- Cost benefit studies, 64, 134
- Cross-organizational issues, 27–28
- Curitiba, Brazil, 16

- Database of State Incentives for Renewables and Efficiency, 83, 102
- Davis, Gray, 18–19
- Density bonus programs, 31–32, 111–12
- Design, regionally appropriate, 81–82
- Design and construction process, 91–98
- Design/build/operate contracting model, 94
- Design champions, 22–24, 94
- Designers, tips for, 99
- Designers as elected officials, 17
- Design process, 94–96
- Design programs and certification tools, 77–81
- Development impact fees, 31, 112
- Dieteman, Al, 108
- Diffusion of Innovations* (Rogers), 42–43*b*
- Digital building controls, 138
- Dobrovolny, Peter, 103
- Doppelt, Bob, 48
- Duany, Andres, 153
- Dubner, Stephen J., 119

- Early adopters, 42–44, 42*b*, 103
- Earth Advantage program, 117–18, 184
- Economic downturn, 143–45
- Economic Recovery and Reinvestment Act (2009), 145, 150–52, 154
- Education programs, 32, 85–88, 130–31, 150–51
- Elected officials, 13, 16–17
- Electricity consumption, 1–2
- El Paso, Texas, 103–4

- Emergency Economic Stabilization Act (2008), 106
- EMP. *See* Environmental Management Program (EMP)
- Endangered Species Act (ESA), 119
- Energy audits, mandatory, 146
- Energy codes, 107
- Energy efficiency, 18*b*, 120, 149–50, 153–54
- Energy incentives, 104–5
- Energy Policy Act of 2005 (EPACT), 106
- Energy programs, preexisting, 28
- Energy service companies (ESCOs), 67
- Energy Star program, 3*b*, 71, 182
- Energy tax credit programs, 106
- Energy Trust of Oregon, 102
- Energy use intensity (EUI), 137
- Engineering services, 108
- Environmental awareness, 149
- Environmental Management Program (EMP), xviii, 12–13
- Environmental review processes, 117
- Evaluation programs, 28, 123–26, 135–39. *See also* Green building performance
- Existing building stock, 132, 148–49, 149*b*. *See also* Redevelopment projects
- Existing facilities, as project type, 60
- Externalities, 65

- Farr, Doug, 116–17
- Federal Transit Administration, 147–48
- Feedback loops, 46–48
- Fee waiver programs, 113
- Financial incentives, 101–6
- Financial resources. *See* Funding sources for green building programs
- First costs, 64, 101
- FIRST initiative, Berkeley, 105
- Flood control funding, 151
- Floor Area Ratio (FAR), 112
- Florida, Richard, 147
- Focus groups, 19–20
- Food security, 153
- Form-based codes, 116–17
- Funding, construction/operations separation, 67
- Funding nexus, 30–31

- Funding sources for green building programs, 29–33, 83, 154
- Funds, revolving, 65–66
- Gale, Tony, xii, xviii, 23
- General contractor/construction manager (GCCM) contracting model, 93–94
- Gladwell, Malcolm, 78*b*
- Global Warming Solutions Act (2006), 19*b*
- Google Documents, 71
- Governance and communication structure for green building programs, 27–28
- Government sector, role in green building movement, 5–6
- Grants for green building, 102
- Green, as market differentiator, 144
- Green building: benefits of, 15, 64–65; climate change and, 1–2; establishment of program context for, 13–15; future of, in the U.S., 143; harnessing collective intelligence about, 78*b*; health care and, 144; measuring impacts of, 131–39; new visions for, 149*b*; obstacles to, 49, 107–10; policy development for, 57–58; rating and certification programs, quick reference, 80–81; regulatory requirements for, 146
- Green building advisory groups, 20
- Green building certification: design process and, 77; and evaluating anticipated building performance, 133; fees for, 65; tools for, 77–81, 86–87, 146, 181–86
- Green Building Certification Institute (GBCI), 86
- Green building coaches, 89–90
- Green building codes, 106–10
- Green building community, 78*b*
- Green building industry, gaps in, 150–51
- Green building initiatives: adoption dynamics, 119; building support for, 9, 16–19, 19–22, 33–34; locally based, 145
- Green building marketplace, 37
- Green building movement, 2–4, 149
- Green building performance: actual, evaluation of, 134–39; analysis of, 132; anticipated, evaluation of, 132–34; code requirements for, 45; proof of, 62; required level, xx. *See also* Evaluation programs
- Green building portfolio, Seattle: Airport Way Center, Building C, 164–66; Carkeek Park Environmental Learning Center, 166–67; Cedar Water Treatment Facility Operations Building, 168–69; North Cascades Environmental Learning Institute, 178–80; Northgate Civic Center, 170–71; Seattle Central Library, 174–76; Seattle City Hall, 159–61; Seattle Fire Station 10, 176–78; Seattle Justice Center, 172–73; Yesler Community Center, 162–64
- Green building programs: activities, measurement of, 130; benefits of, 14–15; customers, 76; funding sources, 154; funding sources for, 29–33, 83; governance and communication structure, 27–28; incentives available for, 101–2; measuring and evaluating impacts, 123; organizational location in U.S. cities, 25; performance metrics of, 124, 140; phasing, 44–45; positioning, opportunity driven, 24–25; reporting metrics, 139–41; startup, 24
- Green building program services: development of, 75–77, 98; measurement of, 130–31; pilot projects, 109; resource allocation, 76–77; strategic planning process for, 37; technical assistance service levels, 90–91; tiers, 76
- Green Building Sourcebook* (City of Austin), xv
- Green Building Standards Code, 19*b*
- Greenburg, Kansas, 66*b*
- Green-collar jobs, 87, 150–51
- Green design champions, 22–24, 94
- Green Guide for Health Care, 183
- Green Home Scoring Tool, 183
- Greenhouse gas reduction, 117–19
- Green Investment Fund, 102
- Green leaders, 143–44
- Green permit programs, 113–14
- Green roofs, 111
- Greensburg, Kansas, 62, 65, 66*b*
- Greenwashing, response to, 146–47
- Gregoire, Christine, 116

- Hardy, Stephen, 66*b*
Harvard University, 59, 63
Health care, and green building, 144
Heerwagen, Judith, 138–39
High Performance Green Building Policy,
Portland, 117
High Point Community Redevelopment Project,
41
Historic buildings, 149*b*
Homebuilder programs, 184–85
Homebuilder programs, local, 184–85
Homeowner education, 85
Homer-Dixon, Thomas, 154
Horn, Don, 149*b*
Hurley, Peter, xviii
- Incentives to green building, 67, 83, 101–6, 111–
14, 120–21, 131
Industry groups, peer outreach to, 50
Infrastructure, rebuilding, 151–52
Innovation: adoption process, 42*b*, 44, 50;
backlash, 48–49; funding, 154
Insurance incentives, 105
Integrated design, 96
International Sustainable Solutions, 16–17
Ishizaka, Yoshi, 4
- Job skills training, green-collar, 87, 150–51
Jones, Van, 87
- Kats, Greg, 134
King County, Washington, 103, 103, 117
Kirkpatrick, Donald, 131
- Laboratory market sector, 38
Labs21 (Laboratories for the 21st Century), 183–
84
Land use codes, 108
Langdon, Davis, 64, 134
LEED Accredited Professionals, 129
LEED-based density bonus, 112
LEED-based policies, 57
LEED-certified projects, 6, 10, 18*b*, 133
LEED Commercial Interiors standards, 61
LEED credits, in design process, 96
LEED for Existing Buildings, 132, 148
LEED for Homes, 117–18
LEED for Neighborhood Development (LEED
ND), 147, 153
LEED incentives, government-based, 102
LEED Innovation Credits, 81
LEED™ (Leadership in Energy and
Environmental Design): adoption by City of
Seattle as policy benchmark, xix, 5; as
benchmark for High Performance Green
Building Policy, 117; database of projects, 9;
as green building certification tool, 181–82,
184; and green building policy, 57
LEED Pilot 1.0, xix
LEED Platinum buildings, 66*b*
LEED projects, registered vs. certified, 129
LEED scorecard, 132
LEED vs. Green Globes debates, 146
Legal mandates, 58–60, 63–64
Legal reforms, unintended consequences of, 119–
20
Lerner, Jaime, 16
Levitt, Steven D., 119
Life-cycle infrastructure charges, 112
Linden, Russ, 143
Lipkis, Andy, 151
Living Building Challenge, 110, 117, 184
Local resource guides, 83–84
Loudoun County, Virginia, 153
- Mandates: budget impacts of, 64–65; comparison
of, 59; components of, 60–63; implementation
of, 67–68; LEED, 115; legal vs. policy, 58–60,
63–64
Market activity, measuring, 128–30
Market adoption, reinforcement of, 45
Market assessments, 77
Marketing and outreach, 49–53
Marketing partnerships, 50
Market positioning, 37–42
Market sectors, 37, 39, 40
Market transformation, 46, 129
Market transformation theory, 42*b*
Massachusetts, 63
Mayor's Task Force, Boston, 20

- Mazria, Ed, 1–2
McGraw-Hill Construction, 49
McKenzie-Mohr, Doug, 51
McKinstry, 145
Media plans, 52–53
Medical market sector, 38
Merino, Thomas, 20
Modeling, 137
Mortgage buy-down programs, 106
Multifamily market sector, 38
- Net Zero Water, 110
Newark, New Jersey, 87
New Mexico, 61, 106
New York, 105–6
Nickels, Greg, 18–19, 139
North Cascades Environmental Learning Institute, 178–80
Northgate Civic Center, 170–71
Northwest Ecobuilding Guide, 83
Northwest Energy Efficiency Alliance, 81
Northwest Regional Green Buildings Products Matrix, 83
- Obama, Barack, and administration of, 143–45, 149
One Planet Living, 185
On-site wastewater treatment, 108
Operations budget borrowing, as strategy for green CIPs, 67
Oregon, 106. *See also* Portland, Oregon
Organizational culture and change, 45–47, 47–49
Organizational partners, 20–22
Organizational positioning, 24–27
Outputs and outcomes, 126–28, 130
Outreach, 50–51
- Paladino and Company, 133, 136
Partners: acknowledgment and credit to, 28, 53; in funding green building programs, 32; marketing, in Seattle's green building initiative, 50; organizational, 20–22; relationship maintenance, 53; STAR Community Index and, 127*b*
Pasadena, California, 104
- Passive survivability, 148
Penalties, 31–32, 112
Performance contracting, 67
Performance measures, 123, 126, 128
Performance metrics, 124, 139–41
Permit process incentives, 112–14
Peterson, Thor, 32, 38, 78*b*
Pickard Chilton, 114
Pilot projects, 19, 109
Plessis, Chrisna du, 22–23
Plumbing codes, 107–8
Policies for green building: adoption process, 63–64, 72; development of, 57–58; implementation of, 22–23, 67–68; interpretation of, 73; LEED-based, 57; local, and sustainability competitiveness, 11–13
Policy mandates, 57–59, 63–64
Portfolio Manager (Energy Star), 71
Portfolio Program (USGBC), 71–72
Portland, Oregon: building square footage projections, 40; Bureau of Planning and Sustainability, 26; carbon feebate program, 117; Central City Concern, 110; Clear River Rewards program, 105; code barrier removal, 110; commercial and multifamily proposed feebate, 118; green building program, 31, 124; Green Investment Fund, 102; High Performance Green Building Policy, 117; and LEED incentives, 103; policy adoption process, 63; TriMet, 148
Postconstruction phase, 97–98
Postoccupancy evaluations, 28, 135–39
Precautionary Principle, 120
Predesign and master planning, 92
Press preparedness, 52–53
Price signals, 145–46
Priority permitting, 113–14
Process barriers to green building, 107
Professional accreditation, 86
Program context, 13–15
Programs. *See* Green building programs
Programs, preexisting, 28
Project coaching, 89–90
Project registration and tracking, 70–71
Project thresholds, 61

- Project types, in green building mandates, 60–61
Public benefits charges, 31
Public events, 17, 52
Publicly funded projects, 67
Public projects–green building portfolio. *See*
 Green building portfolio, Seattle
- Rainwater collection systems, 108
Real estate market, 38–41, 143–44
Redevelopment projects, xviii, 41
Redland, California, 67
Reed, Bill, 96
Referenced standard, 62
Referral programs, 86, 104
Regionally appropriate design, 11, 81–82
REGREEN program, 78*b*, 79
Regulatory requirements, 146
Relationship maintenance, 53
Renewable energy, 115–16, 153–54
Reporting, green building mandate, 63
Reporting performance metrics, 139–41
Required performance level, xx
Research advancement, 153–56
Resistance to change, 24, 47–48, 63–64, 68
Resource guides, local, 83–84
Revolving funds, 65–66
Richardson, Bill, 61
Ridge, Tom, 20
Rogers, Everett M., 42–43*b*
Romer, Paul, 143
Rooftop solar panels, 111
- Saltzman, Dan, 102
San Francisco, California, 31, 124
Santa Clara, California, 31
Santa Cruz, California, 115
Santa Monica, California, 83
SBTool 07, 185
Schell, Paul, xx, 18
Schwarzenegger, Arnold, 18–19*b*
Seattle: adoption of LEED-based green building
 policy, xvii–xxi; Cal Anderson Park, 69;
 Central Library, 174–76; City Green Building
 program, xv, 5–6, 33, 41, 128, 141 (*See also*
 Green building programs); City Hall, 51–52,
 135, 138–39, 159–61; Client Assistance
 Memos (CAMs), 82; as early leader in green
 building, xvi–xvii; Environmental
 Management Program (EMP), xx, 12–13; Fire
 (1889), xvii; Fire Station 10, 176–78; green
 building investment, 70; Green Factor, 111;
 Green Home Remodel program, 38; Justice
 Center, 172–73; Office of Sustainability and
 Environment, 28; power over building sector
 and built environment, 5; redevelopment effort
 (1998), xviii; Street Edge Alternatives Project
 (SeaStreets), 111. *See also* Green building
 portfolio, Seattle
- Seattle City Light, 26, 28
Seattle Public Utilities, 41, 69, 104, 109–10
Seed funds, 29
Seiter, Doug, xv, 3*b*
ShoreBank Enterprise Cascadia, 105
Sick building syndrome, 120
Skeptics, dealing with, 43–44, 53
SmartCode Central, 116
Smart growth strategies, 147
Social and food issues, 152–53
Social sustainability, 152–53
Solar panels, rooftop, 111
Sowell, Arnold, 18*b*
Specifications, in design and construction process,
 97
Stakeholder groups: composition and functions of,
 20, 63, 107, 110; developing support of, 19–
 22; relationship maintenance, 53
Standard 189, as green code tool, 115
STAR Community Index, 126, 127*b*, 147, 185
Stephenson, Janet, 88, 141
Strategic planning process for program services,
 37
Street Edge Alternative project, 109–10
Surcharges, 112
Sustainability: competitiveness in, 9–13; the lens
 of, 1; triple bottom line of, 69, 152–53; urban,
 11, 147–48
Sustainability movement, 3–5, 149. *See also*
 Green building movement
Sustainable Building Advisor program, 86–87
SustainLane, 10

- System benefit charges, 31
- Targeted climate action plan, Chicago, 118–19
- Taxes, as funding source, 31–32
- Tax incentives, 105–6
- Teams, size and formation of, 23–24
- Technical assistance, 88–91, 131
- Technical committee/public comment approach, 78*b*
- Tenant improvements, 149
- Timcoe, Scott, 114
- Toyota Motor Corporation, 4–5
- Training programs, 131. *See also* Education programs
- Trends in green building, 145–55
- Triple bottom line of sustainability, 69, 152–53

- ULI. *See* Urban Land Institute (ULI)
- Up-front costs of green building, 64, 101
- Urban agriculture, 153
- Urban Land Institute (ULI), 143, 147
- Urban sustainability, 147–48
- U.S. Conference of Mayors Climate Protection Agreement, 1–2
- U.S. Department of Agriculture extension program, 43*b*
- U.S. Green Building Council (USGBC), xiii; founding of, 3*b*; green building research funding initiative, 153–54; and LEED initiatives, 57; LEED project database, 129; LEED tool creation, xix; Portfolio Program, 71; social equity in guiding principles of, 152; Web site, xvi, 17

- USGBC. *See* U.S. Green Building Council (USGBC)
- Utility-based incentives, 104
- Utility conservation funds, 30–31
- Utility departments, 25–26

- Value analysis tools, 68
- Vendors and consultants, 83
- Vision statements, 16
- Vocational training programs, 87
- Voluntary measures, 45

- Water incentives, 104–5
- Water reuse systems, 108
- Water-saving strategies, 152
- Webber, Doug, 106–7
- Whole systems theory, 45–47
- Wilson, Alex, 106–7, 148

- Yesler Community Center, Seattle, 162–64

- Zoning codes, 111–12