INDEX

A
Access control, 76, 77, 80–82
Accessibility, 151
assembly areas, 158–159
beaches and shores, 159–160
boating, 163–164
camping, 162–163
drinking fountains, 154–155
equestrian facilities, 165–166
fishing, 164–165
fixed benches, 154
large city parks, 445
outdoor areas, 151
outdoor play areas, 458
parking, 142–143
picnic sites, 155–157
play areas, 451, 454, 458
ramps, 153
routes, 151–153
signage, 166
stairways, 274
swimming pools, 160–162
trails, 153–154
vista points/overlooks, 157–158
waterfront parks, 450
Aerosol emitters, 253
Aggregates:
  for asphaltic concrete, 270, 482–483
  for concrete, 486, 491–493, 498–499, 503, 504
  grading, 492
  porous, 272
  for porous concrete, 269
Agreosnic soils testing, 376, 377
Air-entraining admixtures (concrete), 493, 494
Air pollutants, 52, 65, 540
Air quality, 52–53, 65
Alleys, 136
Alloys, metal, 518
Alhual stream channels, 244, 245
Aluminium, 515
Amending soils, see Modification of soils.
Americans with Disabilities Act (ADA), 27, 142–143
Americans with Disabilities Act
  Accessibility Guidelines (ADAAG), 166, 273, 274, 278–279, 421
American Society of Landscape Architects (ASLA), 3, 16, 60
Annuals, maintenance of, 389
Arbors, 327
Arborists, 372–373, 375
Arcades, 109
Artificial grass/turf, 454, 532, 533
As-built documents, 28
As-designed documents, 28
Asphalt, 482. See also Asphaltic concrete pavement
  curbs, 280, 281
  for play surfaces, 454
  porous, 272
Asphalt block pavers, 262
Asphalt cement, 270, 482
Asphaltic concrete pavement, 270–271, 482–485
  aggregates, 482–483
  compaction, 484
  design criteria, 270
  design mixes, 483
  durability, 484
  installation, 482, 483
  load distribution, 483
  overlays, 485
  recycling, 485
  strength, 484
  subgrade and base course, 484
  surface treatments, 484–485
  uses of, 484–485
  Assembly areas, accessibility of, 158–159
  Atmospheric impact, in sustainable site design, 65
  Attached squares, 103, 104
  Altitude limits, 172, 173
  Autoclaved Cellular Concrete (ACC) Block, 286–287
  Avenues, 110
  Average daily traffic (ADT), 128
B
Backflow prevention, 249–250
Balance, 260, 354, 355
Ball and burlap stock, 357, 382, 473–474, 538
Bamboo, 530
Bare root plants, 357, 473, 474
Barriers:
  for crime prevention, 76
  fences and screens, 304–322
  and fire protection, 113
  in outdoor play areas, 459
  in parking areas, 137
  permanent features as, 85
  root, 375, 403
  sound, 441–442
  temporary, 85
  vehicular, 80–82
Bases:
  in public planting, 354
  in residential landscapes, 355
  for wood, 526
  Baseball facilities, 535
  Beaches, accessibility of, 159–160
  Bearing capacity (soils), 351
  Behavior mapping, 30–31
  Behavior traces, 30
  Benches, 154, 161, 335
  Berm, 186, 349, 441, 476
  Best practices, 21
  Bicycles:
    campus paths for, 422
    circulation, 131, 144–146
    drainage grates and, 202–203
  Bicycle level of service (BLOS), 145
  Bid bonds, 25
  Bidding, 25–27
  Biofilter strips, 236
  Biological stream restoration, 245, 246
  Bioretention facilities, 220, 237
  Biocoe facilities, 535
  Bollards, 80
  Bonsai, 388
  Boullevards, 110
  Bracing:
    wood decks, 332–333
    woody trees, 385–386
  Braces, 514–515
  Brick, 506–509
  bond patterns, 287, 298, 509
  columns, 507–509
  curbs, 280, 281
  joints, 509
  pavers, 261–263
  piers, 507–508
  sizes of, 508
  textures of, 508, 509
  walls, 287, 296–298
  Broken windows concept, 76
  Bronze, 514–515
  Brownfields, 54, 55, 438–440
  Bubbler irrigation, 249, 378
  Buffers, 104, 105, 204, 219, 435
  Buffer zone, 430
  Buildings:
    on brownfield sites, 55
    conservation of energy in, 64–65
    designing security into, 80–87
    footprint of, 219
    GSA Security Standards for, 89–90
    height of, 108
    in residential planning, 114
    scale of, 354
    in site planning, 106–107
    in transit-oriented development, 121, 124, 125
    types of, 106–107
    Building codes, 504, 533, 528
  Building products, see Materials
  Building yard security zone, 82
  Bulletin, 28
  Bunker pots, 85
  Buried soil, 349
  Business administration practices/procedures, 20–22
  Cast iron, 513
  Cavity walls, freestanding, 286
  Cements, 486
  asphalt, 270, 482
  hydraulic slag, 491
  portland, 486, 487, 490–491, 503
  slag, 491
  soil, 503
  for wood alternatives, 530
  Certifications, professional, 16
  Certified arborists, 375
  Certified lumber, 528
  Certified materials, 64, 551
  Chain-link fences, 309–312
  Change orders, 28
  Channels, 202, 210–212, 244, 245
  Channel stabilization, 430
  Check dams, 228, 229, 430
  Chemicals, applied, 63
  Chemical analysis (soils), 353
  Chemical herbicides, 580
  Circulation:
    bicycle, 144–146
    historic landscapes, 69, 73
    large city parks, 444
    and lighting, 345
  outdoor areas, 151. See also Accessibility parking, 137–143
  pedestrian, 137
  play areas, 451
  public gardens, 459
  recreational trails, 147–150
  shared-use paths, 147–150
  vehicular, 127–136
  Cisterns, 241
  Citizen involvement, 12–13
  Civic plazas, 104
  Clarifications, 28
  Clay brick pavers, 261
  Clay soils, 172–173, 376, 506
  Clean Air Act, 15
  Cleanup (construction site), 171
  Clean Water Act (CWA), 15, 56, 57
  Clearances, for accessibility, 151, 152
  Climate(s):
    regional, 47–49
    wind, 44–46
  Clock-time, sun-time vs., 40–41
  Closets, 103, 104
  Closeout phase, 28–29
  Clothing, work site, 26
  Cluster development, 219
  Coatings, 545–547
  anodic, 521
  for historic metalwork, 513
  for metals, 518, 520–522
  properties of, 547
  safety/health issues with, 546
  selecting, 546
  stability of, 545–546
  types of, 545
  for wood, 530–531
  for wood fasteners, 527
Cobblestone pavers, 263
Coefficient of linear extensibility (COE), 177
Colonnades, 527
Colorado Constructed Treatment Wetlands Inventory, 216–217
Columns, brick, 507–509
Commercial areas, 110, 138
Community education, 12–13
Community involvement, 95
Community sustainability indicator projects, 39
Compost, 350, 471
Comprehensive plans, 12
Concrete connectors (for wood), 526
Concrete masonry units (CMUs), 102
Concrete pavement, 266–269, 487–498
Concrete, 486–505
admixtures, 493–494
aggregates for, 486, 491–493, 503, 504
consolidating, 495–497
curbs, 280, 281
curing, 487–488
density of, 489
durability of, 489–491
environmental/health issues with, 505–506
fibers in, 493
fly ash in, 491
formwork, 266, 496, 504–505
freshly mixed, 486–487
hardened, 487–489
high-performance, 503
hydraulic slag cements, 491
joints in, 267–268, 409, 489, 497–498
paste, 486, 487
placement and finishing, 494–495
porous, 272
portland cements, 486, 487, 490–491, 503
poured-in-place walls, 286
ramps, 279
recycling, 503, 504
reinforced, 266–267, 501–502
sealing, 488
slag cement, 491
strength of, 489
surface finishes for, 498–500
Concrete connectors (for wood), 526
Concrete masonry units (CMUs), 510–511
Concrete masonry walls, 286–287
Concrete pavement, 266–269, 482–485
Concrete unit pavers, 264–265
Connecting pin wall systems, 300
Conservation, 58–59
energy, 64–65
salvaged materials, 64, 520–530
water, 62–63, 370–371, 462
wildlife, 418–419
Consistency of design, 4
Constructed wetlands, 204–207, 214–217
Construction, 169–171, 193, 195
cut and fill calculations, 196–199
damage to trees during, 372–375
protecting existing features during, 60–61
and soil mechanics, 172–183
use of power equipment for, 65
Construction administration, see Construction management
Construction documentation, 4–13
as-built documents, 28
as-designed documents, 28
construction administration vs., 4
dimensioning, 9–10
drawing layout, 6–7
lighting in, 338
organization of, 4
relocation of, 21–22
symbols, 8–10
Construction observation (administration), 4, 13, 26–29
Container plants, 357–358, 479–480, 538, 559
Context-sensitive solutions (CSS), 118–119
Contextual analysis (urban areas), 93
Contingency planning, 24
Contract documents, lighting in, 338
Contractor-proposed changes, 28
Contractual obligations, 20
Controlled irrigation (graywater), 213
Cooling degree-days (CDD), 48
Complete irrigation (graywater), 213
Coordination, 4, 94
Corrosion (metals), 517–520
Cultivated ground, 433
Curtain drain plan, 174
D
Daylighting, 244
Daylight savings time, 40, 41
Deciduous trees, pruning, 384
Decks:
for landscapes over structure, 401
as surrogates for pavements, 272
wood, see Wood decks
Decking, wood, 352–333
Deconstruction, 553
Decorative pools, 257–258
Defensible Space theory, 76, 86
Degree days, regional
Detectors (concrete), 494
Demolition, site, 170
Density:
of materials, see specific materials
perceived, 57
residential, 114, 115
for transit-oriented development, 125
See also specific sports
Courtyard buildings, 106
Covered curtain drain plan, 174
Created/fabricated restorations, 431
Crime prevention through environmental design (CPTED), 76–84, 87
basis of, 76
broken windows concept in, 76
and Defensible Space theory, 76
design concepts in, 77–79
lighting for, 80
methods for, 76–77
for private property, 78
and project design, 82–83
for recreational trails, 149
for residential property, 78
security zones in, 82
streetscape elements in, 79, 82–83
for subdivisions, 78
vehicular access restriction in, 80–82
vehicular barrier design in, 80–82
Critical root zone (CRZ), 572
Croquet facilities, 536
Cultural analysis, 60
Cultural parks, 443
Cultural resources, 58
Culverts, 239
Curbs, 280–282
asphaltic concrete, 485
brick, 280, 281
cement, 280, 281
contours at, 190
function of, 190, 191
gravel, 280, 281
hardening of, 86
stone, 280, 281
in vehicular circulation planning, 132
wood, 281, 282
Curb appeal, residential, 355
Curb lane security zone, 82
Curb ramps, 279–280
Curing concrete, 268–269, 487–488, 497
Curtain drain plan, 174
Curvilinear networks, 101
Cut-around/near existing trees, 374, 476–477
calculations for, 196–199
Cutback asphalt cement, 482
Cut stone pavers, 264
Cylinder test (concrete), 268
Dirt roads, 194
Dirt trails, 194
Drainage:
asphaltic concrete, 485
and retaining walls, 298
soil, 173–176
Drainage inlets (stormwater), 257
Drainage layer (soil), 470
Drainage trenches, 173, 174
Drawings:
coordination guidelines for, 4
field sketches, 28
layout, 6–7
naming/numbering, 6
planting details, 357–360
record, 5
shop, 5
symbols for, 8–10
typical order of, 6
Drainage checklist, 6–7
Drinking fountains, accessible, 154–155
Drip irrigation, 249, 252–253, 378
Driveways, 61, 133, 134

E
Earth pressure, 179–181
Earthwork, see Site grading and earthwork
Easements, infrastructure, 131
Ecological community restoration, 431–437
Ecological design, 60
Ecological engineering, 451
Eco-roofs, 65, 399.
See also Green roofs
Educational nature trails, 154
Eco-friendly buildings, 451
Ecological community restoration, 60
Ecological engineering, 451
Ecological design, 60
Ecological engineering, 451
Educational nature trails, 154
Easements, infrastructure, 131
Ecological community restoration, 431–437
Ecological design, 60
Ecological engineering, 451
Eco-roofs, 65, 399.
See also Green roofs
Educational nature trails, 154
Eco-friendly buildings, 451
Endangered species, 417
Endangered Species Act (ESA), 15
Energy conservation, 64–65
Embodied energy, 64, 553
Embodied energy analysis (materials), 553
Emergency access, 114, 129, 131
Emitters (irrigation), 252–253
Emulsified asphalt cement, 482
Emulsion, 252–253
Ensuring safety, 417
Enclosures (outdoor play areas), 459
Endangered species, 417
Endangered Species Act (ESA), 15
Energy conservation, 64–65
Engineered lumber, 529
Entitlements, 16–17
Entrances:
to outdoor play areas, 459
to parking lots, 140–141
and slope of ramps, 160
Environmental Assessments (EAs), 44–45
Environmental factors, 40–67
air quality, 52–53
brownfields evaluation, 54
effects of trees, 356
microclimates, 50–51
regional climates, 47–49
resource inventory/conservation, 58–59
solar radiation, 40–43
for sustainable design, 60–67
wind, 44–46
Environmental hazards, 55
INDEX
INDEX
Plastic light fixtures, 343
Plastic limit (soil), 172
Plastic lumber, 528–529
Playgrounds, 103. See also Outdoor play areas
Plazas, 104–105, 362
Plaza membrane waterproofing systems, 409–410
Plywood, 529
Pocket wetlands, 205–207
Point of beginning (POB), 170
Point-source emitters, 252
Poisonous plant species, 540–541
Postcap (wood), 526
Posts (wood decks), 330, 331, 335–336
Portland cement plaster, 287
Portland cements, 486, 490–491, 503
Porous aggregate, 272
Porous asphalt, 272
Porous concrete, 272
Porous pavement, 259, 272
asphaltic concrete, 271
Concrete, 269
construction of, 272
in stormwater management, 219–221, 233
types of, 261
unit pavers, 262–263
Porcelain tile, 272
Portland cement plaster, 287
Posts (wood decks), 330, 331, 335–336
Post caps (wood), 526
Postconstruction evaluation, 171
Postconstruction management, 171
Postconsumer recycled content, 555
Post-emergent selective herbicides, 380
Postoccupancy evaluation (POE), 30–32
Postconsumer recycled content, 64, 551
Regulation, 348
asphaltic concrete, 271, 485
Concrete, 503, 504
facilities for, 463
metals, 522–523
receptacles for, 156–157
salvaged materials, 64, 529–530
References (bidding), 25
Reflectivity, 43
Regional climate, 47–49
Regional planning criteria, 95
Regional level analysis, 12
Regional winds, 44
Rehabilitation, 74
Rehabilitation plan, 74
Reinforced concrete, 266–267, 501–502
Reinforced concrete, 266–267, 501–502
Reinforced concrete, 592, 593
Reinforcement (walls), 290–292, 297–298
Relative value, 23
Remediation, 438–440
Removal of soil, 349
Renewable energy sources, 65
Renewable materials, 551
Repetition, 555
Replacement of soil, 349
Request for information (RFI), 28
Residential roads, 110
Residential site planning, 114–117
Residential spaces: densities for transit-oriented development, 125
landscape design principles, 355
lighting, 344–345
roadway systems, 128
streets, 110
vehicle circulation, 135–136
Resources, see Cultural resources;
Natural resources
Restoration, 71
ecological communities, 431–437
habitats and natural resources, 61
streams, 244–248
waterscapes, 209–212
Restorative gardens, 411–413
Retaining walls, 295–303
contemporary, 296–297
drainage and waterproofing, 298–299
and earth pressure, 190–191
for erosion/sediment control, 430
failure of, 180, 297
foundations, 297
in grading plan, 191
gravity, 295–296
joints and reinforcement, 297–298
mechanics of, 300
modular gravity wall systems, 300
soil pressure on, 297
static investigation of, 300–303
termination of, 194
timber, 299
for tree protection, 374
Reused materials, 64, 551
Rice hull ash, 504
Right-of-way (vehicular circulation), 132
Riparian areas, 56, 209–212
Risks
associated with crime, 77
security strategy and level of, 89–90
Risk assessment (RA), 82, 85, 555
Risk management, 22
Rivers and Harbors Act, 15
Roads, 110
asphalt concrete, 270, 271
cross-slopes, 190
grade for, 132
reducing negative impacts of, 61
subgrade classifications for, 271
traffic classifications for, 271
Roadway systems: classification and hierarchy of, 127–128
grade for, 132
vehicular circulation, 127–136
Rock filter dams, 430
Roofs, 65, 325
Roof gardens, 509. See also Green roofs
Roofing, 325, 402–403
Roof SOP systems, 407
Root barriers, 373
Root systems: exposed, protecting, 476–477
improving nutrient availability to, 377
and soil/air/water relationships, 376
trees, 372
Rotary sprinklers, 250, 251
Rough grading, 170
Routes of travel, 151–153
Rubber track surfaces, 533
Runoff:
calculation of, 202
control systems for, 204–207
slow flow, 63
in stormwater management, 219–220
for tree protection, 376
structures, 376
for erosion, 356
water quality control, 235–238
Rural roads, 110
Rural village design, 97–98
Safety and security, 76–91
for accessible fishing, 161
for athletes, 532
CPTED, 76–84
design for, 66
layering, 87–88
porous pavements for, 272
quality control, 235–238
quantity control, 231–234
rainwater harvesting, 239–243
runoff control systems, 204–207
site design for, 218–224
for stream restoration, 244–248
Stormwater ponds, 236
Stormwater wetlands, 204–207, 236
Strain (soil), 178
Streambank stabilization, 430
Stream diversion channel, 430
Stream restoration, 244–248
Streets, 110
classifications/hierarchy of, 127–128
commercial, 110
grade for, 132
lighting for, 347
reducing negative impacts of, 61
residential, 110
shared, 136
in transit-oriented development, 121
in urban neighborhoods, 99–100
vehicular circulation, 127–136
Streetscape elements, in crime prevention,
79, 82–85
Stress (soil), 179
Strict liability, 20–21
Structural soils, 62, 350–352
Structural stream restoration, 245, 246
Structures in landscape:
curbs, 280–282
fences and screens, 304–322
freestanding walls, 285–295
freestanding wood structures, 323–326
gardens, 323–326
historic landscapes, 69, 74
headwater structures, 327–328
ramps, 277–280, 283–284
retaining walls, 295–303
as security barriers, 85
stairs, 273–277
wood, 527–528
wood decks, 329–337
Stucco walls, freestanding, 287, 289
Subdivisions, crime prevention in, 78
Subsoil, 470
Substantial completion, 28–29
Subsurface drainage systems, 173–175, 200
Subsurface flow wetlands (SWF),
215–216
Subsurface soil sculpting, 349, 350
Suburban areas, 92, 128
Sulfates, concrete and, 490
Sun. See also Solar radiation
Sun-time, clock-time vs., 40, 41
Sun path diagrams, 40–42
Sun-time, clock-time vs., 40, 41
Superior mimicry, 431
Surfaces. See also specific types of surfaces,
e.g.: Pavement
T
Tables, 155–156, 458
Tackifiers, 351
Target hardening, 76
Temperature indices, 48
temporary barriers, in site security
planning, 85
Tennis facilities, 533–535
Tensar geogrid system, 300
Terracing, 182, 186, 248
Terrain conductivity survey, 54
Territoriality, 76
Territorial reinforcement, 77, 78
Territory, 35
Textural classes (soil), 172
Therapeutic gardens, 411–415
Threatened species, 417
Ties, wood, 526
Timber frame system, 323
Timber retaining walls, 299
Titanium, 515
‘Title’ statutes, 16
Topiary plants, 388
Topographical survey, 92
Topographical maps, 186
Topography:
in ecological community restoration,
432–433
of historic landscapes, 69, 74
site contours, 186–187
Topsoil, 349, 352, 467, 470
Total petroleum hydrocarbons (TPHs), 55
Town planning process, 95–96
Toxicity, 555
Trees, 380–386
Track and field, 533
tracks, 455–457
Trellis, 452–453
T park management, 201–203
grates, 202–203
paving materials, 201
screening, 201–202
and soil mechanics, 173
Surface runoff, 226–227
Surface treatments:
concrete, 269, 498–500
light fixtures, 343–344
metals, 522
wood, 525
Surface water, 55
Survivability, 77, 78
Sustainability assessment (SA), 553–555
Sustainable design, 60–67
air and atmospheric quality impacts, 65
material considerations, 60
energy use, 64–65
features and habitat, 61
goals for, 60
human health, 65–66
large city parks, 445
for management and maintenance, 66
for metals, 522–524
for overhead structures, 327
principles and strategies, 60
resource use and reuse, 63–64
site disturbance, 60–61
small urban parks, 448
soil health and fertility, 61–62
support for, 66–67
vegetation, 62
water resources, 62–63
wildlife habitats, 37
Swales, 191
biolifter, 236–238
function of, 190
in grading plan, 192–193
rainwater harvesting, 239
recreational trails, 150
stormwater conveyance, 228–229
stormwater management, 220, 222
surface drainage, 173
Sweps (public plantings), 354
Swelling (soil), 176–178, 199
Swimming pool accessibility, 160–162
Symbols:
for drawings, 8–10
for energy conservation, 64
as road design issue, 118
as barrier, 82
bracing, 385–386
cabling, 385–386
caliper development, 384
corrosion damage to, 372–375
for energy conservation, 64
environmental effects of, 356
filling/excavating around, 476–477
grading, 382
injury, 375
lighting protection for, 386
major parts of, 361
mulching, 381–382
native species, 366, 368–369
ornamental, 365
outdoor play areas, 459
with paver surfaces, 475
physical characteristics of, 356
porous pavements around, 272
overhead structures, 327–328  
properties of, 524  
ramps, 279  
sizing, 525  
specification standards, 531  
stairs, 276, 277  
surfacing, 525  
Wood curbing, 281, 282  
Wood decks, 320–337  
beams, 330–332  
connections to building walls, 337  
decking and bracing, 332–333  
footing sizes, 336  
foundation, 329–330  
joists, 332, 333  
piers, 330  
posts, 330  
qualities of wood for, 337  
railings, 333, 335, 337  
seating, 333, 334  
spans, 333, 335–336  
stairs, 333, 334  
traditional structural systems, 329  
Woody shrubs, maintenance for, 386–389  
Woody trees, 380–386  
Wrought iron, 513. See also Solid-steel ornamental metal fences  
X  
Xeriscape design, 370–371  

xPs, 403–404  
X-ray fluorescence, 54  

Y  
Yield plan, 97  

Z  
Zinc, 515  
Zoning regulations, 16–17, 95