Index

A
Accelerated depreciation, 270–271
Acceptance period, for bids, 152
Accidents
cost of, 444–445
records, 462
See also Project safety
Accounting, for project costs. See Project cost management
Accounting codes, 364–366
Accounting methods, 254–256
Accrual accounting method, 255–256
Activity times, 344–347, 348
Addenda, contract documents, 98–99
Advertising, for bids, 90–92
AFL-CIO
labor law and, 407, 408
labor relations and, 423–424, 432, 437
Age Discrimination in Employment Act of 1967, 410
Agreements. See American Institute of Architects (AIA); Contract documents; Contract provisions
All-risk builder’s risk insurance, 223
Alternate materials/methods, 99–100
Arbitration, 328–330
Architect-engineers, 80–103
announcing project to contractors, 90–92
bid documents and, 93
communicating design in contracts, 89–90
contract documents prepared by, 94–102
contractor input into design, 89
contractual duties and authorities of, 172–174
defined, 5
designers’ professional associations and, 82–84
fees for, 85–86
generally, 80, 102–103
instructions to bidders and, 94, 465–467
liability of, to third persons, 87–88
project manual assembled by, 93
responsibility of, to owners, 86–87
selection of, 83–84
services provided by, 84
statutes of limitations, 88–89
types of, 80–82
Arrow notation, 338
As-built drawings, 322
Assigned subcontracts, 142–143
Standard Form of Agreement between Contractor and Subcontractor (Document A401-2007), 592–606
American Arbitration Association (AAA), 329
American Association of Cost Engineers (AACE), 105
American Road and Transportation Builders Association (ARTBA), 45, 364
American Society of Professional Estimators (ASPE), 84, 105
American Subcontractors Association (ASA), 45
Americans with Disabilities Act (ADA), 417–418
Apprenticeship programs, 437–438
Approximate estimates, 105–107
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102-2007), 546–559
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is a Stipulated Sum (A101-2007) (AIA), 538–545
Accounting, for project costs. See Project cost management
Accounting codes, 364–366
Accounting methods, 254–256
Accrual accounting method, 255–256
Activity times, 344–347, 348
Addenda, contract documents, 98–99
Advertising, for bids, 90–92
AFL-CIO
labor law and, 407, 408
labor relations and, 423–424, 432, 437
Age Discrimination in Employment Act of 1967, 410
Agreements. See American Institute of Architects (AIA); Contract documents; Contract provisions
All-risk builder’s risk insurance, 223
Alternate materials/methods, 99–100
Arbitration, 328–330
Architect-engineers, 80–103
announcing project to contractors, 90–92
bid documents and, 93
communicating design in contracts, 89–90
contract documents prepared by, 94–102
contractor input into design, 89
contractual duties and authorities of, 172–174
defined, 5
designers’ professional associations and, 82–84
fees for, 85–86
generally, 80, 102–103
instructions to bidders and, 94, 465–467
liability of, to third persons, 87–88
project manual assembled by, 93
responsibility of, to owners, 86–87
selection of, 83–84
services provided by, 84
statutes of limitations, 88–89
types of, 80–82
Arrow notation, 338
As-built drawings, 322
Assigned subcontracts, 142–143
Standard Form of Agreement between Contractor and Subcontractor (Document A401-2007), 592–606
Standard Form of Agreement between Owner and Architect (B101-2007), 468–490
Standard Form of Agreement between Owner and Contractors Where the Basis of Payment is a Stipulated Sum (A101-2007) (AIA), 538–545
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102-2007), 546–559
American Road and Transportation Builders Association (ARTBA), 45, 364
American Society of Professional Estimators (ASPE), 84, 105
American Subcontractors Association (ASA), 45
Americans with Disabilities Act (ADA), 417–418
Apprenticeship programs, 437–438
Approximate estimates, 105–107
Arbitration, 328–330
Architect-engineers, 80–103
announcing project to contractors, 90–92
bid documents and, 93
communicating design in contracts, 89–90
contract documents prepared by, 94–102
contractor input into design, 89
contractual duties and authorities of, 172–174
defined, 5
designers’ professional associations and, 82–84
fees for, 85–86
generally, 80, 102–103
instructions to bidders and, 94, 465–467
liability of, to third persons, 87–88
project manual assembled by, 93
responsibility of, to owners, 86–87
selection of, 83–84
services provided by, 84
statutes of limitations, 88–89
types of, 80–82
Arrow notation, 338
As-built drawings, 322
Assigned subcontracts, 142–143
Standard Form of Agreement between Contractor and Subcontractor (Document A401-2007), 592–606
Standard Form of Agreement between Owner and Architect (B101-2007), 468–490
Standard Form of Agreement between Owner and Contractors Where the Basis of Payment is a Stipulated Sum (A101-2007) (AIA), 538–545
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102-2007), 546–559
American Road and Transportation Builders Association (ARTBA), 45, 364
American Society of Professional Estimators (ASPE), 84, 105
American Subcontractors Association (ASA), 45
Americans with Disabilities Act (ADA), 417–418
Apprenticeship programs, 437–438
Approximate estimates, 105–107
Arbitration, 328–330
Architect-engineers, 80–103
announcing project to contractors, 90–92
bid documents and, 93
communicating design in contracts, 89–90
contract documents prepared by, 94–102
contractor input into design, 89
contractual duties and authorities of, 172–174
defined, 5
designers’ professional associations and, 82–84
fees for, 85–86
generally, 80, 102–103
instructions to bidders and, 94, 465–467
liability of, to third persons, 87–88
project manual assembled by, 93
responsibility of, to owners, 86–87
selection of, 83–84
services provided by, 84
statutes of limitations, 88–89
types of, 80–82
Arrow notation, 338
As-built drawings, 322
Assigned subcontracts, 142–143
Standard Form of Agreement between Contractor and Subcontractor (Document A401-2007), 592–606
Standard Form of Agreement between Owner and Architect (B101-2007), 468–490
Standard Form of Agreement between Owner and Contractors Where the Basis of Payment is a Stipulated Sum (A101-2007) (AIA), 538–545
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102-2007), 546–559
American Road and Transportation Builders Association (ARTBA), 45, 364
American Society of Professional Estimators (ASPE), 84, 105
American Subcontractors Association (ASA), 45
Americans with Disabilities Act (ADA), 417–418
Apprenticeship programs, 437–438
Approximate estimates, 105–107
Arbitration, 328–330
Architect-engineers, 80–103
announcing project to contractors, 90–92
bid documents and, 93
communicating design in contracts, 89–90
contract documents prepared by, 94–102
contractor input into design, 89
contractual duties and authorities of, 172–174
defined, 5
designers’ professional associations and, 82–84
fees for, 85–86
generally, 80, 102–103
instructions to bidders and, 94, 465–467
liability of, to third persons, 87–88
project manual assembled by, 93
responsibility of, to owners, 86–87
selection of, 83–84
services provided by, 84
statutes of limitations, 88–89
types of, 80–82
Arrow notation, 338
As-built drawings, 322
Assigned subcontracts, 142–143
Index

Associated Builders and Contractors (ABC), 45, 310, 364, 454
Associated General Contractors of America (AGC)
cost estimating and bidding, 133, 310
project cost management and, 364
project safety and, 454
role of, 44–45
Standard Form of Agreement between Contractor and Subcontractor (Document 655), 572–591
Association of Plumbing and Heating Contractors (APHC), 45
Automobile insurance, 234–235

B
Backcharges, 289
Balance sheets, 260–262
Ballard, Glen, 332
Bid Bond (A310-2010) (AIA), 560–561
Bidding
announcing project for, 90–92
bid changes, 147–148
bid depositories, 159–160
bidder qualification, 112–113
bidding decision, 113
bid rigging, 160
bid spread, 151
complimentary bids, 162
ethics and, 157–159
generally, 104–105
instructions to bidders, 94, 465–467
period for, 113–114
prebid meetings, 114
preliminary considerations for, 110–112
procedures, 149
project manual of bid documents, 93
proposal, defined, 148–149
proposal rejection, 153
proposal submission, 150
responsive bid and technicalities, 150–151
Sample Lump-Sum Proposal Form, with Reference to Addenda, and Alternates, 536–537
scheduling bid dates, 163
scope bidding, 163
state preference statutes, 162–163
unbalanced bids, 160–162
unit-price proposals, 29–32
withdrawal of bid, by prime contractor, 153–154
withdrawal of bid, by subcontractor, 154–155
See also Contract documents; Cost estimating and bidding; Estimates
Bodily injury and property damage liability insurance, 229–230
Builder’s risk insurance
all-risk builder’s risk insurance, 223
generally, 222–223
named-peril builder’s risk insurance, 223–224
policy premiums, 224
risk provision by owner, 224–225
termination of, 225
Building codes, 42–44
Building information modeling (BIM), 165–166
Bureau of Apprenticeship and Training (BAT), 415
Business agents, 426–427
Business methods, 253–301
accelerated depreciation, 270–271
accounting methods, 254–256
assignment of contracts, 294
backcharges, 289
balance sheets, 260–262
cash flow, 290–291
cash forecasts, 291
completed-contract method, 257
cost estimation, 255–258
construction equipment acquisition, 265–267
cost estimating and bidding, 133, 310
contractor’s right to check on project financing, 276–277
direct payment, 289
discounts by vendors and suppliers, 273–274
employee motivation, 78, 297–298
employee training programs, 299–300
equipment depreciation, 268–269
equipment management, 267–268
financial ratios, generally, 262–264
financial ratios, significance, 264–265
financial records, 253–254
financial statements, 257–258
generally, 253, 300–301
income statements, 258–260
income statements, 258–260
job site crime, 299
marketing, 294–297
mechanic’s lien, 291–293
Modified Accelerated Cost Recovery System (MACRS), 270, 271–272
payment requests for cost-plus contracts, 285–286
payment requests for lump-sum contracts, 279–283
payment requests for unit-price contracts, 284–285
payment to general contractor, 277–279
payment to material suppliers, 290
payment to subcontractors, 287–288
percentage-of-completion capitalized cost method, 256
percentage-of-completion method, 256
procurement, 272–273
release of lien, 293–294
substance abuse programs, 298–299
title of purchases, 274–276
See also Project cost management; Project time management
Business ownership, 48–62
alternative forms, 48
business failure and, 46
construction contracting firms, 48–49
corporate directors and officers, 57–58
corporation, 54–55
employee stock ownership plans (ESOP), 58–59
foreign corporation, 55
generally, 48, 61
general partnership, 50
general partnership, dissolving, 52–53
general partnership, establishing, 50–51
general partnership, liability, 51–52
individual proprietorship, 49
joint venture, 60–61
limited liability company (LLC), 59–60
limited partnership, 53–54
S corporation, 58
stockholders, 56–57
subpartnership, 53
See also Business methods; Company organization

C
Cash accounting method, 254–255
Cash flow, 290–291
Cash forecasts, 291
Categories, of construction, 12–14
Certificate of substantial completion, 187–188
Certificates of insurance, 240
Civil Rights Act of 1964, 408–409
Claims
on construction insurance, 250
discharging/protecting against liens or claims, 210
disclaimers and waivers, 156–157
for payment, 198
project management and administration issues, 325–332
time delay claims, 359–360
See also Labor law; Labor relations; Legal issues
Clauses, of contracts. See Contract documents; Contract provisions
Closed competitive bid contracting, 28–29
Closed specifications, 96–97
Collective bargaining, 427–428
Commercial construction, defined, 13
Commercial general liability insurance exclusions, 233
generally, 228–229
Common-law surety bonds, 196–197
Common situs picketing, 403–404
Company organization, 63–79
communication and, 73–74
dictionary, division of, 69–70
duties, division of, 69–70
duties of individuals, 64, 65–69
employee handbooks, 75–76
generally, 63, 78–79
motivation of personnel, 78, 297–298
organizational structure and organization chart, 70–72
organization basics, 63–65
personnel development, 77–78
plan implementation and adjustment, 75
policy and procedure manuals, 74–75
principles of, 65
responsibility, authority, and delegation, 64, 76–77
staff assignment, 72–73
training of replacements, 78
See also Labor law; Labor relations
Company safety programs, 456–458
Competitive bid contracting, 27–29, 83–84. See also Architect-engineers
Competitive negotiation process, 32
Competitive sealed proposals, 35–38
Completed-contract method, 257
Completed-operations liability insurance, 230–231
Complimentary bids, 162
Computer usage
building information modeling (BIM), 165–166
computer-based estimating, 165–166
job site computers, 308–309
See also Project cost management; Project time management
Concealed defects, 88–89
Construction by force account, 38–39
Construction industry, 1–47
building codes, 42–44
business failure in, 46
cost-plus contracts, elements of agreement, 34–35
economic importance of, 2
generally, 1, 47
job descriptions, 2–12 (See also Personnel)
job order contracting, 38
license bonds, 41–42
licensing, 40–41
management practices in, 45–46
negotiated contracts, forms, 33–34
project delivery methods, 16–23
project financing, 14–16
seasonality in construction, 40
small and disadvantaged business enterprises, 39
time and materials contracts, 38
See also Architect-engineers; Business methods; Business ownership; Company organization; Construction insurance; Contract documents; Contract provisions; Contract surety bonds; Cost estimating and bidding; Labor law; Labor relations; Personnel; Project cost management;
Index

Construction industry (continued)
  Project management and administration; Project safety; Project time management
Construction Industry Cost Effectiveness (CICE), 310
Construction Industry Institute (CII), 332
Construction insurance, 213–252
  all-risk builder’s risk insurance, 223
  analysis of insurable risks, 217
  automobile insurance, 234–235
  bodily injury and property damage liability insurance, 229–230
  builder’s risk, provision by owner, 224–225
  builder’s risk insurance, 222–223
  builder’s risk policy premiums, 224
  certificates of, 240
  checklist for, 217–221
  claims, 250
  commercial general liability insurance, 228–229
  completed-operations liability insurance, 230–231
  contractor’s equipment floater policy, 226
  contractor’s protective public and property damage liability insurance, 230
  contract requirements, 216
  contractual liability insurance, 231–232
  crime insurance, 227
  employee benefit insurance, 239–240
  employers’ liability insurance, 248
  exclusions from commercial general liability policy, 233
  generally, 213, 251–252
  group insurance plans, 238–239
  insurance policy contract, generally, 214–215
  legal requirements, 216–217
  liability insurance, 227–228
  named-peril builder’s risk insurance, 223–224
  nonoccupational disability insurance, 248–249
  owner’s liability insurance, 237–238
  personal injury, 233
  professional liability insurance, 235–236
  project property insurance, 221–222
  property damage liability exclusions, 233–234
  property insurance, 226–227
  risk issues, 214
  risk management, 213–214
  Social Security, 251
  subcontractors’ insurance, 238
  subrogation, 225
  termination of builder’s risk insurance, 225
  third-party beneficiary clauses, 232–233
  umbrella excess liability insurance, 236
  unemployment insurance, 249–250
  workers’ compensation, 240–248
  wrap-up insurance, 236–237

Construction management agency (CMA)
  defined, 7
  project design process, 82 (See also Architect-engineers)
Construction Management Association of America (CMAA), 7, 82
Construction management at risk (CMAR), 7, 82
Construction managers, defined, 6–7
Construction services-only project delivery, 16–17
Construction sites
  “differing site conditions,” 183–184
  job site computers, 308–309
  job site crime, 299
  site visits for bidding process, 115–116
  See also Project safety
Construction Specifications Institute (CSI), 84, 91
Construction workers, perception of, 420–421
Consultants, defined, 5–6
Contingency allowance
  for price estimate, 156
  for time estimate, 343
Contract Disputes Act of 1978, 325
Contract documents
  accounting for long-term contracts, 256
  addenda, 98–99
  agreement, 101
  alternate materials/methods, 99–100
  assignment of contracts, 294
  changes to, and contract surety bonds, 198–199
  conditions of contract, 94–95
  contractor-designated alternatives, 100–101
  contract system, 16
  cost-plus contracts, elements of agreement, 34–35
  drawings, 95
  forms of awards, 27–32
  General Conditions of the Contract for Construction (A201-2007), 491–529
  instructions to bidders, 94, 465–467
  job order contracting, 38
  labor contracts (See Labor relations)
  modifications to, 101–102
  negotiated contracts, 33–34
  Performance Bond (A312-2010) (AIA), 562–566
  preparation of, 93, 94–102
  specifications, 95–98
  Standard Form of Agreement between Contractor and Subcontractor (Document 655), 572–591
  Standard Form of Agreement between Contractor and Subcontractor (Document A401-2007), 592–606
  Standard Form of Agreement between Owner and Architect (B101-2007), 468–490
  Standard Form of Agreement between Owner and Contractors Where the Basis of Payment is a Stipulated Sum (A101-2007) (AIA), 538–545
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102-2007), 546–559
time and materials contracts, 38
types of, 23–27
types of, and contract surety bonds, 206–208
See also Contract provisions; Contract surety bonds
Contractor organizations, 44–45
Contractors
bid withdrawal by, 153–154
bonding capacity of, 204
contractual rights and responsibilities of, 175–176
default by, 205–206
equipment floater insurance policy, 226 (See also Construction insurance)
indemnification, 201
payment to, 277–279
prime (general) contractors, defined, 7–10
See also Architect-engineers; Labor law; Labor relations; Personnel; Subcontractors
Contractor’s Equipment Cost Guide (Associated General Contractors of America; Dataquest, Inc.), 133
Contract provisions, 168–191
acceptance and final payment, 187–188
agreement, 186
clauses, 168–171
differing site conditions, 183–184
duties and authorities of architect-engineers, 172–174
generally, 168, 190–191
indemnification, 174–175
letter of intent, 186–187
notice to proceed, 187
owner-caused delay, 184–186
rights and responsibilities of contractors, 175–176
rights and responsibilities of owners, 171–172
safety requirements, 451–452
termination of contract, 188–189
time extensions, 181–182
use of, and contract surety bonds, 206–208
See also Contract provisions; Contract surety bonds
Contract surety bonds, 192–212
bid bonds, 151, 194
bonding capacity of contractors, 204
bond premiums, 199–200
cost of the work plus a fee with a guaranteed maximum price, 546–559
time and materials contracts, 38
types of, 23–27
types of, and contract surety bonds, 206–208
See also Contract provisions; Contract surety bonds
Contractor organizations, 44–45
Contractors
bid withdrawal by, 153–154
bonding capacity of, 204
contractual rights and responsibilities of, 175–176
default by, 205–206
equipment floater insurance policy, 226 (See also Construction insurance)
indemnification, 201
payment to, 277–279
prime (general) contractors, defined, 7–10
See also Architect-engineers; Labor law; Labor relations; Personnel; Subcontractors
Contractor’s Equipment Cost Guide (Associated General Contractors of America; Dataquest, Inc.), 133
Contract provisions, 168–191
acceptance and final payment, 187–188
agreement, 186
clauses, 168–171
differing site conditions, 183–184
duties and authorities of architect-engineers, 172–174
generally, 168, 190–191
indemnification, 174–175
letter of intent, 186–187
notice to proceed, 187
owner-caused delay, 184–186
rights and responsibilities of contractors, 175–176
rights and responsibilities of owners, 171–172
safety requirements, 451–452
subcontract agreements, 176–179
termination of contract, 188–189
time extensions, 181–182
use of, and contract surety bonds, 206–208
See also Contract provisions; Contract surety bonds
Contract surety bonds, 192–212
bid bonds, 151, 194
bonding capacity of contractors, 204
bond premiums, 199–200
claims for payment, 198
contract bond alternatives, 208–209
contract bonds and type of contract, 206–208
default by contractors, 205–206
discharging/protesting against liens or claims, 210
fidelity bonds, 209–210
forms of, 193
generally, 192–193, 211–212
indemnity of surety, 201
investigation by surety, 201–203
judicial/court bonds, 210
license bonds, 210
maintenance bonds, 209
Miller Act, 197–198
Payment Bond (A312-2010) (AIA), 567–571
payment bonds, 195–196
performance bonds, 195
poster owners of rented equipment and leased property, 210
rationale for requiring construction bonds, 203–204
to release retainage, 210
self-insurers’ workers’ compensation bonds, 211
statutory and common-law bonds, 196–197
subcontract bonds, 208
subdivision bonds, 211
surety agents, 204–205
surety companies, 200–201
termite bonds, 211
union wage bonds, 211
Contract Work Hours and Safety Standards Act, 413–414
Copeland Act, 412
Corporate directors and officers, 57–58
Corporation, as ownership form, 54–55
Cost estimating and bidding, 104–167
acceptance period, 152
bid changes, 147–148
bid deposits, 159–160
bidder qualification, 112–113
bidding decision, 113
bidding period, 113–114
bidding procedures, 149
bid ethics, 157–159
bid rigging, 160
bid spread, 151
bid withdrawal, by prime contractor, 153–154
bid withdrawal, by subcontractor, 154–155
complimentary bids, 162
cost estimating and bidding, 104–167
disclaimers and waivers, 156–157
discounting equipment cost, 128–137
discounting indirect costs, 137–139
discounting labor cost, 124–128
finalizing the estimate, 148
generally, 104–105, 166–167
Cost estimating and bidding (continued)
introducing probabilistic determinations into estimate, 164
lump-sum recap sheet, 144
markup, 143–144
"out of the money," 152
prebid meetings, 114
preliminary considerations, 110–112
preparing estimate, 117–124
project time schedule, 116–117
proposal, defined, 148–149
proposal rejection, 153
proposal submission, 150
range estimating, 164
responsive bid and technicalities, 150–151
scheduling bid dates, 163
scope bidding, 163
site visit, 115–116
state preference statutes, 162–163
subcontractor allowance and contingency allowance, 156
subcontractor lists, 155–156
subcontractor proposals, 139–143
types of estimates, 105–109
unbalanced bids, 160–162
unit-price recap sheet, 144–147
work to be self-performed and work to be subcontracted, 115
See also Bidding; Estimates; Project cost management
Cost-plus contracts
elements of, 34–35
generally, 33–34
payment requests, 285–286
Court bonds, 210
Crime
crime insurance, 227
job site crime, 299
Critical path method (CPM), 335–336, 349, 350, 351–352

D
Daily job log, 323–324
Dataquest, Inc., 133
Davis-Bacon Act, 410–412
Days Away from Work (DART) incidence rate calculation, 453
Decision making, company organization and, 77
Default, by contractors, 205–206
Deliveries, 318–319
Denver Building and Construction Trades Council case, 403
Depreciation methods, 134–135, 268–271
Design-bid-build project delivery, 17–18
Design-build project delivery, 19–20, 81–82
Designers. See Architect-engineers
Design-manage project delivery, 20, 82
Detailed estimates, 107
Developers, project financing by, 15–16
"Differing site conditions," 183–184
Direct payment, 289
Disability insurance, nonoccupational, 248–249
Disbursement controls, 322–323
Disclaimers, cost estimating and bidding, 156–157
Dispute review boards, 331
Disputes. See Claims; Labor law; Labor relations; Legal issues
Dodge Reports, 110
Drawings
bidding process and, 110–111
contract documents, 95
record drawings, 322
shop drawings, 312–314
Drug-Free Workplace Act, 416
Dual-shop operation, 440–441

E
Employee benefit insurance, 239–240
Employee handbooks, 75–76
Employees. See Company organization; Labor law; Labor relations; Personnel
Employee stock ownership plans (ESOP), 58–59
Employers’ liability insurance, 248
Employment Retirement Income Security Act (ERISA), 418
Engineering consultants, defined, 5–6
Equal Employment Opportunity Commission (EEOC), 408–409
Equipment
construction equipment acquisition, 265–267
contractor’s equipment floater insurance policy, 226
contract surety bonds for rented equipment, 210
depreciation, 134–135, 268–271
estimating cost of, 128–137
management of, 267–268
project cost management, 369–370, 382–387
resource scheduling, 356–357
Estimates
computer-based estimating, 165–166
doing equipment cost, 128–137
finalizing, 148
generally, 104–105
of indirect costs, 137–139
introducing probabilistic determinations into, 164
of labor cost, 124–128
lump-sum recap sheet, 144
markup, 143–144
preliminary considerations for, 110–112
preparing, 117–124
project time schedule and, 116–117
range estimating, 164
site visit for, 115–116
types of, 105–109
unit-price recap sheet, 144–147
See also Cost estimating and bidding
Index

Ethics
   bid ethics, 157–159
   construction management (CM) and, 7
   ethics codes of professional associations, 45, 82–83
Executive Order 11246, 409–410
Expediting, project management and, 317–318
Experience modifier ratings (EMRs), 454

F
Fair Labor Standards Act, 413
Family and Medical Leave Act, 416–417
Fast-track project delivery, 21–22, 358–359
Federal Election Commission, 408
Federal Mediation and Conciliation Service, 432–433
Fees. See Payment
Fidelity bonds, 209–210
Field productivity, 310
Field supervisors, 308
Financial ratios, 262–265
Financial records, 253–254
Financial statements, 257–258
Free float, 350
“Free on board” (FOB) designation, 120
Friedman Model, 164

G
Gates Model, 164
General conditions construction, defined, 22–23
General Conditions of the Contract for Construction (A201-2007) (AIA), 491–529
General contractors, defined, 7–10
General Electric case, 404
General overhead costs, estimating, 138–139
General partnership, 50–53
Group insurance plans, 238–239

H
Hazard Communication Standard (HAZCOM) (OSHA), 449–450
Heavy/civil/highway construction, defined, 13–14
Hobbs Act, 414
“Hold-harmless” clauses, 174–175
“How-cargo” labor agreements, 394
Howell, Greg, 332

I
Immigration and Naturalization Service (INS), 415
Immigration Reform and Control Act, 414–415
Incorporation, as ownership form, 54–55

Indemnification
   as contract provision, 174–175
   contract surety bonds, 201, 210
Independent contractors, defined, 172
Indirect costs, estimating, 137–139
Indirect labor costs, estimating, 127–128
Indirect costs, estimating, 137–139
Inspection, of materials, 320–321
Instructions to bidders, 94, 465–467
Investigation, by surety, 201–203
Investigation, by surety, 201–203
Investigation, by surety, 201–203
Investigation, by surety, 201–203
Investigation, by surety, 201–203
Investigation, by surety, 201–203
Investigation, by surety, 201–203
Investigation, by surety, 201–203

J
Job cost accounts, 366–367
Job description, 69–70
Job logic, 337
Job order contracting, 38
Job records, 323
Joint venture, 60–61
Judicial bonds, 210

L
Labor. See Personnel; Project time management
Labor cost, estimating, 124–128
Labor law, 391–419
Age Discrimination in Employment Act of 1967, 410
Age Discrimination in Employment Act of 1967, 410
American with Disabilities Act (ADA), 417–418
American with Disabilities Act (ADA), 417–418
Age Discrimination in Employment Act of 1967, 410
Americans with Disabilities Act (ADA), 417–418
Civil Rights Act of 1964, 408–409
Civil Rights Act of 1964, 408–409
common situs picketing, 403–404
Contract Work Hours and Safety Standards Act, 413–414
Copeland Act, 412
Davis-Bacon Act, 410–412
Drug-Free Workplace Act, 416
Drug-Free Workplace Act, 416
employer unfair labor practices, 396–397
Employment Retirement Income Security Act (ERISA), 418
Executive Order 11246, 409–410
Fair Labor Standards Act, 413
Family and Medical Leave Act, 416–417
Family and Medical Leave Act, 416–417
generally, 391, 418–419
history of law of labor relations, 391–392
Hobbs Act, 414
Immigration Reform and Control Act, 414–415
Immigration Reform and Control Act, 414–415
jurisdictional disputes, 405–406
Labor Management Relations Act, 393
Labor-Management Relations Act, 393
Labor-Management Reporting and Disclosure Act, 394
Labor law (continued)
National Apprenticeship Act, 415–416
National Labor Relations Act (NLRA), 392–393, 394–395
National Labor Relations Board (NLRB) and, 395–396, 406–407
Norris-LaGuardia Act, 392
payment to employee representatives, 407–408
political contributions, 408
prefabrication clauses, 405
prehire agreements, 400–401
remedies, 399
representation elections, 396
secondary boycotts, 402
Sherman Antitrust Act, 83, 160, 391–392
subcontractor agreements, 404–405
Taft-Hartley Act, 393, 394, 396, 397, 398, 400, 404, 406, 407, 408
union hiring halls, 401–402
union-shop agreements, 400
unfair labor practices, 397–399
voluntary jurisdictional settlement plans, 407
Wagner Act, 392, 393, 402

Labor-Management Relations Act, 393
Labor-Management Reporting and Disclosure Act, 394
Labor relations, 420–443
apprenticeship programs, 437–438
bargaining patterns, 428–429
bargaining process, 429–430
business agents, 426–427
collective bargaining, 427–428
construction unions, 424
damage suits, 435–436
dual-shop operation, 440–441
employee benefits, 421
employer lockouts, 433–434
employment in construction industry and, 421
Federal Mediation and Conciliation Service, 432–433
generally, 442–443
history of law of labor relations, 391–392
labor agreements, 430–431
labor agreements, geographical coverage, 431
labor contract administration, 435
“local” union, 424–426
merit-shop contractors, 436–437
national agreements, 432
nonapprenticeship training programs, 439
open-shop labor, sources, 437
perception of construction workers and, 420–421
prejob conferences, 436
present construction industry status, 439–440
project agreements, 431–432
supervisory training, 439
union contractors and, 421–422
union history and, 423–424
union reaction to open shop, 442
unions’ role and, 422–423
union work rules, 426
wages and hours, 434
Wagner Act, 423
withdrawal from bargaining unit, 429
See also Labor law
Lean construction, 310, 332–333
Lean Construction Institute, 310, 332
Leased property, contract surety bonds for, 210
Least-cost project shortening, 350–352
Ledger accounts (example), 668–671
Legal issues
building codes, 42–44
claims/disputes and project management, 325–332
construction insurance legal requirements, 216–217 (See also Construction insurance)
federal health and safety acts, 446 (See also Project safety)
license bonds, 41–42
licensing, 40–41
liens, 210, 291–294
promissory estoppel, 155
safety legislation, 445
statutes of limitations for damages, 88–89
See also Contract surety bonds; Labor law; Labor relations; Project safety
Less-than-carload (LCL) shipments, 320
Letter of intent, 186
Liability
of architect-engineer, to third persons, 87–88
of general partners, 51–52
insurance (See Construction insurance)
See also Business ownership
License bonds, 41–42
Licensing, 40–41
Liens
contract surety bonds, 210
mechanic’s lien, 291–293
release of, 293–294
Limited liability company (LLC), 59–60
Limited partnership, 53–54
Liquidated damages, as contract provision, 180–181
Lockouts, 433–434
Lump-sum competitive bid contracting, 29, 279–283
Lump-sum contracts, 33
Lump-sum estimates, 107–108
Lump-sum recap sheet, 144
M
Maintenance bonds, 209
Management practices
business practices, 45–46
role of management and project safety, 455–456
stockholders, 56–57
See also Business methods; Business ownership;
Ethics; Labor law; Owners; Project safety
Marketing, 294–297
Markup, 143–144
Mason Contractors Association of America (MCAA), 45
MasterFormat® groups and subgroups, 490
Materials
alternate materials, 99–100
cost reports, 367, 368
delivery of, 318–319
estimating costs of, 117–124
inspection of, 320–321
materials management, 316–317
receiving, 319–320
resource scheduling, 356–357
suppliers (See Vendors)
Mechanical Contractors Association of America (MCA), 45
Mechanic’s lien, 291–293
Mediation, 330–331
Merit-shop contractors, 436–437
Miller Act, 197–198
Mini-trials, 331
Modified Accelerated Cost Recovery System (MACRS), 270, 271–272
Moore Dry Dock standards, 403
Motivation, of company personnel, 78, 297–298

N
Named-peril builder’s risk insurance, 223–224
National agreements, 432
National Apprenticeship Act, 415–416
National Association of Home Builders (NAHB), 45, 364
National/Basic Building Code (NBC), 43
National Construction Dispute Resolution Committee (NCDRC), 327–328
National Electrical Contractors Association (NECA), 45, 310
National Labor Relations Act (NLRA), 392–393, 394–395
National Labor Relations Board (NLRB)
labor law and, 395–396, 406–407
labor relations and, 425, 427, 433, 434, 440–441
project safety and, 448, 452
National Roofing Contractors Association (NRCA), 45
National Society of Professional Engineers (NSPE), 82, 83
National Utility Contractors Association (NUCA), 45
Negotiated contracts, 32, 33–34
Neutral evaluation, 331
Nonoccupational disability insurance, 248–249
Norris-LaGuardia Act, 392
Notice to proceed, 187

O
Occupational Safety and Health Act (OSHA), 446–453
contract safety requirements, 451–452
generally, 446–448
Hazard Communication Standard (HAZCOM), 449–450
multiemployer work sites, 450–451
penalties, 449
safety improvements and, 453
site inspections, 448–449
work injury and illness rates, 452–453
work injury and illness recording, 452
Office of Federal Contract Compliance Programs, 409
Open competitive bid contracting, 28–29
Open specifications, 95–96
Operating charts, 71, 73
Organization charts, 70–72
“Out of the money,” 152
Overhead, for project, 369
Owners
alternates in contracts by, 100–101
architect-engineer’s responsibility to, 86–87
contractual rights and responsibilities of, 171–172
defined, 3–5
in-house design capability of, 81
liability insurance of, 237–238
project safety requirements of, 460–461

P
Partnering, 332
Payment
business methods for, 277–283, 284–288, 289, 290
contract provision for acceptance and final payment, 187–188
disbursement controls, 322–323
fees of architect-engineer, 85–86
labor law and, 407–408
Payment Bond (A312-2010) (AIA), 567–571
payment bonds, generally, 195–196
schedule of owner payments, 311–312
Standard Form of Agreement between Contractor and Subcontractor (Document A401-2007) (AIA), 592–606
Standard Form of Agreement between Contractor and Subcontractor (Document 655) (AGC), 572–591
Standard Form of Agreement between Owner and Architect (B101-2007) (AIA), 468–489
Standard Form of Agreement between Owner and Contractors Where the Basis of Payment is a Stipulated Sum (A101–2007) (AIA), 538–545
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102–2007) (AIA), 546–559
### Index

**Payment (continued)**
- surety bond claims, 198
- union wages and hours, 323

**Pension plans**
- Employment Retirement Income Security Act (ERISA), 418
types of, 421
union reaction to open shops, 442

**Percentage-of-completion capitalized cost method,** 256

**Percentage-of-completion method,** 256

**Performance Bond (A312–2010) (AIA),** 562–566

**Performance bonds,** 195

**Personal injury insurance,** 233

**Personnel**
estimating labor cost for bids, 124–128
field supervisors, 308
labor budget, 371–373
labor cost reports, weekly, 379–383
labor costs, 369–370
labor reports, forms, 379
labor time cards, 373–378
merit-shop contractors, 436–437
owner project representatives, 308
project managers, 303–306
project superintendents, 307–308
quantity surveyors, 119–120
resource scheduling, 356–357
substance abuse programs for, 298–299
surety agents, 204–205

*See also* Company organization; Construction insurance; Labor law

**Plan for the Settlement of Jurisdictional Disputes in the Construction Industry,** 407

**Policy and procedure manuals,** 74–75

**Political contributions,** 408

**Prebid meetings,** 114

**Precedence notation/diagram,** 338–339

**Preengineered building,** 20–21

**Prefabrication clauses,** 405

**Preference statutes, of individual states,** 162–163

**Prehire agreements,** 400–401

**Prime contractors, defined,** 7–10

**Private owners, defined,** 3–5

**Probabilistic determinations, estimate and,** 164

**Procurement,** 272–273

**Production rates, for equipment costs,** 135–137

**Professional liability insurance,** 235–236

**Progress analysis/monitoring,** 357–358

**Project agreements (labor contracts),** 431–432

**Project cost management,** 361–390
accounting codes, 364–366
computer application, 389
cost accounting, 370–371
cost accounting reports, 373
cost control, 387–388
cost information and field supervisors, 387
data for estimating, 363–364
equipment charges (other than weekly costs), 386–387
equipment cost, 382–385
equipment cost reports, 386
equipment time cards, 385–386
generally, 361–362, 389–390
information for estimating, 389
job cost accounts, 366–367
labor and equipment budget, 371–373
labor and equipment costs, 369–370
labor cost reports, weekly, 379–383
labor reports, forms, 379
labor time cards, 373–378
measurement of work quantities, 377–378
monthly cost reports, 367–368
project cost control, 363
project overhead, 369

**Project delivery methods,** 16–23

**Project design preparation. See** Architect-engineers

**Project financing**
- contractor’s right to check on project financing, 276–277
generally, 14–16

**Project management and administration,** 302–334
alternative dispute resolution (ADR), 327
arbitration, 328–330
aspects of project management, 309
claims and disputes, 325–326
claims in construction industry, 326–327
daily job log, 323–324
deliveries, 318–319
disbursement controls, 322–323
dispute review boards, 331
expediting, 317–318
field productivity, 310
field supervisors, 308
generally, 302, 333–334
inspection of materials, 320–321
job records, 323
job site computers, 308–309
lean construction, 332–333
materials management, 316–317
mediation, 330–331
mini-trials, 331

National Construction Dispute Resolution Committee (NCDRC), 327–328
neutral evaluation, 331
owner project representatives, 308
partnering, 332
project administration, defined, 310–311
project managers, 303–306
project meetings, 311
project organization, 302–303
project superintendents, 307–308
quality control, 314–316
receiving, 319–320
record drawings, 322
Index 683

Property insurance
   generally, 226–227
   project property insurance, 221–222
   property damage liability exclusions, 233–234
   property damage liability insurance, 229–230, 230

Proposals. See Bidding

Public owners, defined, 3–5
   “Punch list,” 187–188

Q

Qualification, of bidders, 112
   Quality control, 314–316
   Quantity surveys, 119–120
   Quantity takeoff, for materials, 117–119

R

Range estimating, 164
   Receiving, 319–320
   Record drawings, 322
   Release, of lien, 293–294
   Reporting services, for bidding information, 110
   Requests for information (RFIs), 113–114
   Residential construction, defined, 12–13
   Resource scheduling, 356–357
   Responsive bid, 150–151
   Risk management, insurance and, 213–214

S

Safety issues. See Project safety
   Sample Lump-Sum Proposal Form, with Reference to
      Addenda, and Alternates, 536–537

Scheduling. See Project management and
   administration; Project time management

Scope bidding, 163
   S corporation, 58
   Seasonality, in construction, 40
   Secondary boycotts, 402
   Separate-contracts system project delivery, 25–27
   Set-asides, 111–112
   Settlement conferences, 332
   Sheet Metal and Air Conditioning Contractors
      National Association (SMACNA), 45
   Sherman Antitrust Act, 83, 160, 391–392
   Shop drawings, 312–314
   Single-contract system project delivery, 24
   Site visits, for bidding process, 115–116
   Small and disadvantaged business enterprises, 39
   Social Security, 251
   Specifications, contract documents, 95–98
   Standard Building Code (SBC), 43
   Standard Form of Agreement between Contractor
      and Subcontractor (Document A401–2007)
      (AIA), 592–606
   Standard Form of Agreement between Contractor
      and Subcontractor (Document 655) (AGC),
      572–591
   Standard Form of Agreement between Owner and
      Architect (B101–2007) (AIA), 468–489
Index

Standard Form of Agreement between Owner and Contractors Where the Basis of Payment is a Stipulated Sum (A101–2007) (AIA), 538–545
Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is the Cost of the Work Plus a Fee with a Guaranteed Maximum Price (A102–2007) (AIA), 546–559
Statutes of limitations, for damages, 88–89
Statutory bonds, 196–197
Stockholders, 56–57
Straight-line depreciation, 269, 270
Subcontractors
bid withdrawal by, 154–155
construction insurance, 238
defined, 10–11
estimating work to be subcontracted, 115, 156
labor law and subcontractor agreements, 404–405
payment to, 287–288
project organization and, 304, 306
proposals, 139–143
resource scheduling, 356–357
scheduling of, 321–322
subcontract agreements, generally, 176–177
subcontract provisions, 177–179
subcontract surety bonds, 208
sub-subcontractors and, 11–12
Subdivision surety bonds, 211
Subpartnership, 53
Subrogation, 225
Substance abuse programs, 298–299
Supervisory Training Program (STP), 310
Supplementary conditions, 530–535
Surety bonds. See Contract surety bonds
Systems building, 20–21

T
Taft-Hartley Act
labor law and, 393, 394, 396, 397, 398, 400, 404, 406, 407, 408
labor relations and, 432, 435
Team approach project delivery, 19
Termination, of builder’s risk insurance, 225
Termination, of contracts, 188–189
Termite bonds, 211
Third-party beneficiary clauses, construction insurance, 232–233
Time and materials contracts
acceleration as provision of construction contract, 182–183
duration of project as provision of construction contract, 179–180
extension time of project as provision of construction contract, 181–182
generally, 38
owner-caused delay as contract provision, 184–186
Time cards
for equipment, 385–386
for labor, 373–378
Time management. See Project time management
Time-scaled networks, 352–354
Title of purchases, 274–276
Total float, 348–349
Total quality management (TQM), 316
Training
of company employees, 77–78, 299–300
of labor, 437–439

U
Umbrella excess liability insurance, 236
Unbalanced bids, 160–162
Unemployment insurance, 249–250
Uniform Building Code (UBC), 43
Unions
construction unions, 424
hiring halls, 401–402
history of, 423–424
“local” union, 424–426
role of, 422–423
unfair labor practices, 397–399
union-shop agreements, 400
union wage bonds, 211
See also Labor law; Labor relations
United Partnership Act, 50–51
Unit-price competitive bid contracting, 29–32, 284–285
Unit-price contracts, 33
Unit-price estimates, 108–109
Unit-price recap sheet, 144–147
U.S. Department of Labor, 2, 409, 410, 411, 412, 415, 418, 439, 449, 453, 457
U.S. Small Business Administration (SBA), 111–112

V
Value engineering, 23
Vendors
defined, 12
discounts by, 273–274
payment to, 290
project financing by, 15
See also Equipment; Materials
Voluntary jurisdictional settlement plans, 407

W
Wagner Act, 392, 393, 402, 423
Waivers, cost estimating and bidding, 156–157
Walsh-Healey Public Contracts Act, 414
Warranty period, 189–190
Workers’ compensation
bonds, 211
generally, 240–248
Wrap-up insurance, 236–237