ESTIMATING AND TENDERING FOR CONSTRUCTION WORK

Third edition

Martin Brook
BEng(Tech) FCIOB
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>ix</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>xii</td>
</tr>
<tr>
<td>List of figures</td>
<td>xiii</td>
</tr>
<tr>
<td>Abbreviations used in the text</td>
<td>xvi</td>
</tr>
<tr>
<td><strong>1 Organization of the estimating function</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>2 Procurement paths</strong></td>
<td>10</td>
</tr>
<tr>
<td>Introduction</td>
<td>10</td>
</tr>
<tr>
<td>Clients’ needs</td>
<td>11</td>
</tr>
<tr>
<td>Contractor involvement</td>
<td>12</td>
</tr>
<tr>
<td>Partnering</td>
<td>13</td>
</tr>
<tr>
<td>Apportionment of risk</td>
<td>14</td>
</tr>
<tr>
<td>Traditional method</td>
<td>16</td>
</tr>
<tr>
<td>Design and build</td>
<td>17</td>
</tr>
<tr>
<td>Management contracting</td>
<td>19</td>
</tr>
<tr>
<td>Construction management</td>
<td>21</td>
</tr>
<tr>
<td>Private finance initiative</td>
<td>22</td>
</tr>
<tr>
<td><strong>3 Forms of contract</strong></td>
<td>34</td>
</tr>
<tr>
<td>Introduction</td>
<td>34</td>
</tr>
<tr>
<td>Essentials of a valid construction contract</td>
<td>34</td>
</tr>
<tr>
<td>Standard forms of contract</td>
<td>36</td>
</tr>
<tr>
<td>Sub-contract forms</td>
<td>38</td>
</tr>
<tr>
<td>Comparison of forms</td>
<td>43</td>
</tr>
<tr>
<td>Selection of contract forms</td>
<td>44</td>
</tr>
<tr>
<td><strong>4 Tender documentation</strong></td>
<td>46</td>
</tr>
<tr>
<td>Introduction</td>
<td>46</td>
</tr>
<tr>
<td>Coordinated project information</td>
<td>47</td>
</tr>
<tr>
<td>CPI and the estimator</td>
<td>55</td>
</tr>
<tr>
<td>Documents used as the basis of a tender</td>
<td>58</td>
</tr>
<tr>
<td>Formal tender documents</td>
<td>61</td>
</tr>
</tbody>
</table>
### Contents

5  Estimating methods  66  
   Introduction  66  
   Single-rate approximate estimating  70  
   Multiple-rate approximate estimating  71  
   Approximate quantities  73  
   Analytical estimating  78  
   Operational estimating  82  

6  Contractor selection and decision to tender  85  
   Introduction  85  
   Competition and negotiation  86  
   Abuse of tendering procedures  90  
   Decision to tender  92  
   Inspection of tender documents  95  
   Competition legislation  96  

7  Project appreciation  100  
   Introduction  100  
   Estimate timetable  100  
   Pricing strategy  103  
   Schedules  103  
   The estimating team  103  
   Visits to consultants and site  107  

8  Enquiries to suppliers and sub-contractors  109  
   Introduction  109  
   Enquiries for materials  111  
   Enquiries to sub-contractors  113  

9  Tender planning and method statements  117  
   Introduction  117  
   The role of the planning engineer  117  
   Method statements  118  
   Tender programmes  119  

10 Resource costs – labour, materials and plant  125  
    Introduction  125  
    Labour rates  125  
    Material rates  128  
    Plant rates  130  

11 Unit rate pricing  132  
    Introduction  132  

---

vi
<table>
<thead>
<tr>
<th>Contents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Components of a rate</td>
<td>132</td>
</tr>
<tr>
<td>Method of measurement</td>
<td>134</td>
</tr>
<tr>
<td>Pricing notes</td>
<td>134</td>
</tr>
<tr>
<td>Model rate and pricing examples</td>
<td>135</td>
</tr>
<tr>
<td>12 Sub-contractors and nominated suppliers</td>
<td>176</td>
</tr>
<tr>
<td>Introduction</td>
<td>176</td>
</tr>
<tr>
<td>Domestic sub-contractors</td>
<td>176</td>
</tr>
<tr>
<td>Nominated sub-contractors</td>
<td>183</td>
</tr>
<tr>
<td>Nominated suppliers</td>
<td>184</td>
</tr>
<tr>
<td>13 Fluctuations</td>
<td>185</td>
</tr>
<tr>
<td>Introduction</td>
<td>185</td>
</tr>
<tr>
<td>Standard fluctuations clauses</td>
<td>186</td>
</tr>
<tr>
<td>Calculation of non-recoverable increases</td>
<td>188</td>
</tr>
<tr>
<td>14 Provisional sums and dayworks</td>
<td>192</td>
</tr>
<tr>
<td>Introduction</td>
<td>192</td>
</tr>
<tr>
<td>Provisional sums for undefined work</td>
<td>192</td>
</tr>
<tr>
<td>Provisional sums for defined work</td>
<td>192</td>
</tr>
<tr>
<td>Dayworks</td>
<td>193</td>
</tr>
<tr>
<td>Overheads and profit</td>
<td>196</td>
</tr>
<tr>
<td>15 Project overheads</td>
<td>199</td>
</tr>
<tr>
<td>Introduction</td>
<td>199</td>
</tr>
<tr>
<td>Pricing project overheads</td>
<td>199</td>
</tr>
<tr>
<td>Pricing the preliminaries bill</td>
<td>202</td>
</tr>
<tr>
<td>Example of project overheads</td>
<td>216</td>
</tr>
<tr>
<td>16 Cashflow forecasts</td>
<td>217</td>
</tr>
<tr>
<td>Introduction</td>
<td>217</td>
</tr>
<tr>
<td>Cashflow calculations</td>
<td>217</td>
</tr>
<tr>
<td>Example of a contractor's cashflow forecast</td>
<td>219</td>
</tr>
<tr>
<td>17 Completing the estimate and final tender review</td>
<td>227</td>
</tr>
<tr>
<td>Completing the estimate</td>
<td>227</td>
</tr>
<tr>
<td>Estimator's report</td>
<td>229</td>
</tr>
<tr>
<td>Comments on Estimate Analysis form</td>
<td>229</td>
</tr>
<tr>
<td>Comments on Tender Summary form</td>
<td>234</td>
</tr>
<tr>
<td>Risks and opportunities</td>
<td>235</td>
</tr>
<tr>
<td>Overheads and profit</td>
<td>237</td>
</tr>
<tr>
<td>18 Tender submission and results</td>
<td>240</td>
</tr>
<tr>
<td>Introduction</td>
<td>240</td>
</tr>
<tr>
<td>Contents</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Completion of priced bills</td>
<td>241</td>
</tr>
<tr>
<td>Tender presentation</td>
<td>243</td>
</tr>
<tr>
<td>Vetting of tenders</td>
<td>245</td>
</tr>
<tr>
<td>Post-tender negotiations and award</td>
<td>246</td>
</tr>
<tr>
<td>Tendering performance and analysis of results</td>
<td>247</td>
</tr>
<tr>
<td>Bidding strategy</td>
<td>251</td>
</tr>
<tr>
<td>19 Action with the successful tender</td>
<td>254</td>
</tr>
<tr>
<td>Introduction</td>
<td>254</td>
</tr>
<tr>
<td>Information transfer</td>
<td>254</td>
</tr>
<tr>
<td>Feedback</td>
<td>256</td>
</tr>
<tr>
<td>20 Computer-aided estimating</td>
<td>260</td>
</tr>
<tr>
<td>Introduction</td>
<td>260</td>
</tr>
<tr>
<td>Aims of computer-aided estimating</td>
<td>261</td>
</tr>
<tr>
<td>Software</td>
<td>262</td>
</tr>
<tr>
<td>Electronic exchange of information</td>
<td>263</td>
</tr>
<tr>
<td>Reverse auctions</td>
<td>265</td>
</tr>
<tr>
<td>Computer-aided estimating packages</td>
<td>267</td>
</tr>
<tr>
<td>General purpose software</td>
<td>271</td>
</tr>
<tr>
<td>Hardware</td>
<td>280</td>
</tr>
<tr>
<td>Networking</td>
<td>283</td>
</tr>
<tr>
<td>Implementation</td>
<td>285</td>
</tr>
<tr>
<td>The future</td>
<td>286</td>
</tr>
<tr>
<td>Further reading</td>
<td>291</td>
</tr>
<tr>
<td>Index</td>
<td>295</td>
</tr>
</tbody>
</table>
Abstracting materials, 109
ACA Project Partnering Contract, 37
Acceptance, 36
   period, 36
   qualified, 36
Access to the site, 113
Activity schedules, 37
Agenda, start-up meeting, 247
Agreement - basis of, 35
Agreement for Minor Building Works, 17
fluctuations, 187
Agreement to tender, 94
All-in rates, 78
Alternative:
bids, 243
contract duration, 117
design, 119
methods, 3, 117
tender, 64, 244, 245
Analytical bills, 81
Analytical estimating, 78, 81, 82
Analytical pricing, 78, 126
estimator's report, 233
Anti-competitive behaviour, 97
Appendix, standard forms of contract, 38
Approved lists of contractors, 87
Approximate:
estimating, 290
quantities, 45, 52, 73, 76
Approximate bill of quantities, 60, 89
Architect, 20, 38, 48
duty to nominate, 42
provisional sums, 53
role, 13, 40, 78
specification, 49
Articles of agreement, 36, 41
Assessment criteria, 245
Attendances, 180, 181
   for sub-contractors, 41
   priced in preliminaries, 199
   special scaffolding, 183
Award of contract, 246, 254
Banwell report, 10, 34, 46, 90
Basic lists of materials, 65
Best value, 245
Bidding performance, 238
Bidding strategy, 251, 252
Bill descriptions, 56, 91
Bill diagrams, 48
Bill format, 50, 81
Bill of allowances, 222, 254, 255, 257, 263
   example, 256
Bill of approximate quantities, 37, 59, 74, 89
Bill of quantities, 58, 59, 81
pricing, 125
Bills of quantities, 6, 37, 43, 45, 46, 48, 50, 51, 52, 54, 55, 59, 67, 74, 83, 91, 100, 103, 109, 229, 241, 290
   as specification, 52
corner, 267
computer packages, 54
computer system, 56
construction management, 22
cost planning, 50, 68
description of the work, 51
descriptions, 57
dimensions, 52
electronic, 264, 270, 271, 287
Index

Bills of quantities (contd)
elemental format, 50, 54
external works, 54
firm, 59
formats, 54
item references, civil engineering, 56
list of drawings, 51, 61, 96
material purchasing, 50
materials and workmanship, 52
preliminaries, 51, 52, 95, 199
priced, 61, 88, 241, 244, 254
pricing, 78
principal quantities, 51
provisional sums, 192
purpose, 50
reference to codes, 50
sectionalised trade format, 54
standard descriptions, 55
submission, 242, 256
tender sum, 52
text file, 264
trade format, 54
unit rates, 134
use of computers, 56
valuation, 256
Bonus, 255
systems, 50, 79
British Property Federation, 10
BS EN ISO 9000, 8
Buildability, 12, 17
Builder’s quantities, 67, 76
Builder’s work, 180
Building estimator, 107
Building Project Information Committee (BPIC), 47
Business development, 3
Business directories, 261
Business strategy, 247
Buyer, 2, 3, 104, 111, 180, 283

Cartel, 97
Cashflow, 81
borrowing requirement, 222
calculation, 217, 238
cumulative value, 219
diagram, 219, 222

estimating software, 222
forecast, 78, 118
example, 219
spreadsheet, 273
mobilization period, 222
positive, 217
preliminaries, 222, 241
priced programme, 226
provisional sums, 222
resource analysis, 224
retention monies, 222
schedule of payments, 217
S-curve, 219
self-financing contract, 217
spreadsheet, 217, 222
tender programme, 222
CD-ROM, 6, 272, 283
CD-ROM drives, 283
CDM Regulations, 38
CESMM3, 134
Check:
final review, 229
procedures, 228
resource summaries, 228
unit of measurement, 228
Checking contract documents, 256
Chief estimator, 1, 3, 93, 102
computers, 285
CI/SIB, 49
CIOB Code of Estimating Practice,
6, 78, 103, 115, 125, 131, 199,
228, 256
number two, 243
preliminaries, 200
supplement
tender results, 247
Civil engineering, 3, 59
alternative tenders, 244
government, 13
estimator, 107
pricing with computers, 289
roles, 16
Civil engineering contracts
specifications, 49
Civil engineering standard method of
measurement, 51, 56, 82
Index

Civil engineering work, 117
Client, 2, 3
ability to pay, 86, 93
brief, 19
needs, 11, 17
professional team, 8
requirements, 8, 13, 58, 83
satisfaction, 8
Code of practice for the selection of:
main contractors, 65, 87
sub-contractors, 115
Code of procedure:
for design and build, 89
for selective tendering for design and build, 18
for single stage selective tendering, 61, 63, 87, 244
correction of errors, 245
for the selection of main contractors, 6
for two stage selective tendering, 89
Collusive tendering certificate, 65
Common arrangement of work sections, 54, 55
Company:
objectives, 238
policy, 234
procedures, 109, 131, 262
profile, 245
strategy, 3
Company Directors Disqualification Act, 96
Competition, 18, 89, 242, 253
final cost, 68
open, 86
public contracts, 89
strength, 238
Competition Act, 96
Competition and negotiation, 86
Competitive advantage, 13, 200
Competitive market, 238
Completing the estimate, 227
Completion:
early, 17
on time, 14
Completion dates, 12, 51
Component drawings, 53
Composite items, 74
Computer, 260, 281
applications, 55
databases, 126, 287
digitiser, 282
hardware, 280
implementation, 285
job library, 132
laptop, 281
local area network, 283
network, 284
networking, 283, 286
packages, 55
peripheral devices, 281
printer, 281
reports, 135
skills, 287
specification, 281, 282
strategy, 290
summaries, 227
system, 242
system selection, 285
test reports, 289
training, 286
up-grade, 281
wide area network, 283
Computer-aided billing, 55
Computer-aided design, 279
Computer-aided estimating, 55, 132, 180, 260, 261
aims, 261, 262
characteristics, 269
packages, 254, 267
recalculation times, 289
rogue items, 267
sort code, 264
standard bills of quantities, 267
sub-contract comparison, 177
system test reports, 289
systems, 81, 261
test reports, 268
trade codes, 264
Computing:
adjustments, 261
electronic data transfer, 281
estimating performance, 260
Computing (contd)
implementation, 267, 286, 290
operational estimating, 289
technical libraries, 284
voice recognition, 289
Constants, 84
Constructing the Team, 13, 245
Construction (Design and Management) regulations 1994, 9, 65
Construction Drawing Practice, 48
Construction industry, 10, 14
Construction Industry Board, 65, 87, 115
Construction Industry Trading Electronically (CITE), 264
Construction management, 11, 12, 13, 15, 16, 21, 22
standard contract, 22
Construction manager, 21
Construction process, 12
Construction team, 10
Consumerism, 68
Contingency, 76
contractor's, 58
Contingency sum, 53, 77, 90, 192
Contract:
appendix, 51
bills of quantities, 43
compliance, 87
conditions, 36, 77
construction, 34
cost reimbursement, 38
drawings, 43
duration, 118, 244
executed as a deed, 37
formal documents, 35
in writing, 35
law, 36
legal capacity, 35
lump sum, 37
negotiated, 35
offer and acceptance, 35
remeasurement, 37
selection, 44
sum, 59
under seal, 36
Contract Administrator, 20
Contract documents, 35, 43
checking, 256
specification, 49
Contract sum analysis, 18, 19, 43, 59, 243
Contractor:
bill of quantities, 78, 79, 83
involvement, 12
Contractor selection, 85
financial standing, 86
national register of contractors', 87
negotiation, 89
reputation, 86
Contractor's direct work, 109
Contractor's bill of quantities, 83
Contractor's experience, 12
Contractors' overheads, 19
Contractor's proposals, 18, 43, 243
Contracts:
comparison of forms, 43
standard forms, 43
Contractual risks, 236
Co-operation, 13, 46
Coordinated project information, 47, 91
Cost:
breakdown, 109
certainty, 70
control, 50, 255, 256
limit, 16, 68
monitoring, 82
plan, 68
range, 67
reimbursement, 15
target, 255
yardstick, 71
Cost plan, 71
elemental, 73
Cost planning, 67, 290
computer systems, 73
expert systems, 289
spreadsheet, 73
spreadsheets, 262
Cost planning volume method, 71
Cost plus fixed fee, 60
Cost plus percentage, 60
Cost reimbursement contract, 58, 60
CPI, 109
CPI and the estimator, 55
Cumulative value, 222

Database, 6, 263, 277
applications, 277
design, 277
estimating, 268
marketing information, 278
on-line, 278
work items, 267

Date for completion, 236
Daywork, 54, 192, 193
all-in rate for labour, 196
base date, 194
civil engineering definition, 194
civil engineering plant, 196
definition, 194, 197
of prime cost, 6
head office overheads, 198
incidental Costs, 197
labour percentage, 198
labour rates, 194
labour-only sub-contractors, 197
overheads and profit, 196, 198
payments for skill, 194
percentage on labour, 196
plant operator, 198
plant schedules, 6
prime cost, 53, 194
rates for labour, 197
schedule, 51
schedule of plant charges, 194, 198
subsistence allowance, 198
supplementary charges, 194, 196
trade discounts, 194
transporting materials, 198

Decision to tender, 3, 85, 92, 93, 100
future workload, 93
risks, 93

Delay, 10
avoiding, 12
costs, 124

Design:
development, 21
responsibilities, 22

Design and build, 10, 14, 17, 18, 19, 45, 59, 67, 83, 89, 91
computer systems, 264
contractor, 18
Joint Contracts Tribunal, 19
single point responsibility, 19
submission, 240
systems, 12

Design team, 10
experience, 93

Desktop publishing, 3, 262, 279
Development budget, 68, 69

Digitizers, 54

Dimensioned description, 48
Dimensioned diagrams, 48
Discount fiddle, 41
Discounts:
prompt payment, 234
suppliers and sub-contractors, 233

Documents
claims, 46
electronic, 263
production guidelines, 47

DOM/1, 40
DOM/2, 41

Domestic sub-contract, 40, 176
Domestic sub-contractor, 40, 113
named, 61

Drawings, 46, 91
as-built, 48
code, 47
CPI guidelines, 47
numbers, 96
preliminary, 48
production, 48
record, 48
survey, 48

Drawings and specification, 40, 49, 58, 60, 76

E-commerce, 285

Egan report, 116

Electronic Data Interchange, 38
Electronic mail, 283, 284
Elemental bill, 55
Elemental cost plan, 59, 66, 67, 71, 72, 74, 75
headings, 229
E-mail, 261, 284
Employer role, 40
Employer's requirements, 18, 43, 59, 89, 214, 243
Engineering and Construction contract, 10, 34
Engineering and Construction sub-contract, 41
Enquiries:
abstracting, 109
approximate quantities, 111
bills of quantities, 115
computer-aided estimating, 109
contract period, 113, 115
databases, 111
delivery periods, 113
discount, 113
domestic sub-contractors, 114
drawings and specifications, 111
firm price, 113
materials, 111
programme, 113
sample letter, 114
specification, 111
sub-contractors, 56, 109, 113
suppliers, 54, 56, 90, 100, 109
Enquiry:
documents, 36
letter, 113
letter to sub-contractors, 40
schedules, 100
Enterprise Act, 96
Errors:
arithmetical, 176
correction, 245
genuine, 88
in tenders, 88
inking-in, 246
mathematical, 246
patent, 176, 246
Establishment charges, 81
Estimate, 35
Estimate analysis form, 229, 231
Estimate timetable, 100, 102
Estimating:
analytical, 66
assistant, 2
department, 2
department structure, 2
flowchart, 4
function, 1
information sources, 6
methods, 66
procedures, 8
programme, 5
skills, 6
software, 271
team, 2
workload, 3, 61
Estimating packages:
features, 269
Estimating team, 103, 117
coordination, 106
Estimator:
computing needs, 286
experience, 6
needs, 290
role, 261, 262, 287, 290
skills, 68
trainee, 135
Estimator's notes, 255
Estimator's report, 229, 262
provisional sums, 233
Evaluation criteria, 266
Examination and adjustment of priced bills, 88
Extension of time:
sub-contractor, 42
sub-contractor's right, 41
FCEC Form of Sub-contract, 41
Feasibility studies, 18
Feedback, 118, 125, 238, 254-256, 259
information, 50
waste, 130
Final review meeting, 2, 6, 34, 78, 81, 106, 107, 134, 135, 180, 184, 227, 233, 234, 239, 241, 247, 255, 256
adjustments, 222, 229, 233, 239, 254
checking procedures, 228
Final review stage, 83, 103, 126
Final tender review
build-ups, 227
Finance:
project, 238
Financial advice, 13
Firm price, 58, 186
contract, 187
tenders, 78, 121
Fixed and time-related items, 51
Fixed charges, 202
early, 214
Fixed price contract, 58
Floor area method, 71
Fluctuating price, 186
Fluctuations, 38, 51, 185, 186, 234
all-in rate, 188
analytical estimating, 188
basic list materials, 186
calculations, 188
clause, 58
contract clauses, 186
demolition materials, 187
formula method, 191
historical data, 188
ICE conditions, 187
labour cost increases, 188
labour-only sub-contractors, 188
local authorities contract, 187
material costs, 191
minor works, 44
NEDO formulae, 187
non-adjustable element, 187
non-recoverable costs, 187
non-recoverable element, 188
overheads and profit, 187
plant costs, 191
price adjustment formulae, 187
staff costs, 188, 191, 234
sub-contract quotations, 191
tax, 186
tender programme, 188, 191
unfixed materials, 187
wage increases, 191
work categories, 187
Forms of contract, 34
Formula Method, 186
Functional units, 70
GC/Works/1, 17, 37, 183, 184
cashflow, 219
fluctuations, 187
stage payments, 219
sub-contract discounts, 234
General attendance, 184
nominated sub-contractor, 183
General labour, 118, 132
General plant, 132
Goodwill, 3
Ground conditions, 52
Grouped items, 55
Guaranteed maximum cost, 116
Guaranteed maximum price, 19
spreadsheets, 264
Guarantees, 21
GW/S Standard form of sub-contract for
use with GC/Works/1, 41
Handover information, 254, 256
Hardware requirements, 269
Head office:
charges, 237
overheads and profit, 193
Health and safety plan, 65, 119
Historical data, 66, 68, 73, 77
Holiday periods, 121
Hourly rate, labour, 125
Housing Grants, Construction and
Regeneration Act, 38, 41
ICE Conditions of contract, 17, 37
fluctuations, 187
Inception stage, 70
Inclement weather, 121
Inflation, 71, 185
price trends, 186
Inking-in errors, 246
Institution of Civil Engineers, 34
Instructions to tenderers, 243, 244
Insurance, 38, 43
adviser, 235
contract conditions, 235
employer's liability, 235
Integrated supply chains, 116
Intermediate Form of Building Contract fluctuations, 187
Internet, 261, 284, 289
Investment, 11
Invitation to negotiate, 24
Invitation to tender, 92, 95
letter, 61
Invitation to treat, 36
Item coverage, 77, 82

JCT Agreement for Minor Building Works, 37
JCT Intermediate Form of Building Contract, 17, 37
JCT Major Project Form, 37
JCT Management Contract, 13, 20
JCT practice Note No.6, 245
JCT Standard Form of Building Contract, 17, 186
daywork, 193
Employer/Nominated Sub-contractor, 42
Management Contract, 37
Nominated Sub-contract, 42
Nomination, 42
JCT Standard Form with Contractor's Design, 37
JCT Work Contract/2, 52
Job satisfaction, 8
Joint Contracts Tribunal, 34, 37
fluctuations, 187
website, 45

Labour resources, 233
Labour costs, subsistence, 126
Labour only sub-contracts, 78
Labour outputs, 135
Labour rate:
build up, 126
insurances, 235
used in tables, 128
Labour rates, 125, 135
all-in rate, 126
calculation, 126
attraction money, 126
bad weather, 126
bonus attraction, 126
bonus payments, 126
employer's liability insurance, 128
holidays, 125
normal working hours, 126
overtime, 125
project overheads, 126
skilled labour, 126
spreadsheets, 126, 128
subsistence allowance, 126
trade supervision, 126
travelling costs, 126
union agreements, 126
wage awards, 126
Working Rule Agreement, 128
Labour-only sub-contractor, 113, 115, 177
rates, 134
Landfill Tax, 38
Large tender lists, 90
Letter of intent, 35
Liquidated damages, 21, 38, 51, 77, 236, 244
List of tender prices, 88
Local authorities, 87, 90
forms, 37, 45
Low maintenance, 12
Lump sum, 58
contract, 15, 37
tenders, 45

Maintenance:
contracts, 40, 68
work, 52
Management contract, 52
  fluctuations, 187
  prime cost, 20
Management contracting, 11, 15, 19, 20, 21
  contractor’s discount, 21
Joint Contracts Tribunal, 20
  margins, 21
  professional team, 20
  prompt payments, 21
  standard form of contract, 20
Management contractor, 20, 61, 119
Management fee, 15, 20, 60
  fee, 15, 20, 60
Management of risk, 236
Management structure, 1
Margin, 14
Marketing, 3, 92, 253
Material rates, 128
  alternative products, 128
  conversion factors, 130
  distributing materials, 130
  haulage, 128
  mechanical off-loading, 130
  net quantities, 130
  off-loading, 130
  part loads, 128
  small load charges, 128
  specification, 128
  testing of materials, 130
  theft and vandalism, 130
  unloading materials, 130
  waste, 130
Material schedules, 271
Mathematical checks, 228
Mathematical errors, 246
Measured contracts, 60
Measurement contract, 58
Measurement rules, 55
Meeting, post tender, 246
Method of measurement, 76, 134
  preamble, 76
Method statement, 2, 20, 83, 117-119,
  135, 240, 241, 244
  construction management, 22
  demolition, 119
  example, 120
Method-related charges, 52
Methods of estimating, approximate, 66
Minor Works agreement, 43
Mobilization period, 254
Model rate, example, 135
Multiple rate approximate estimating, 71
NAM/SC Conditions for named
  sub-contractors, 41
Named sub-contractor, 40, 176, 244
National Building Specification, 49
text files, 272
National Joint Consultative Committee
  for Building, 18, 87, 89
National Working Rule Agreement, 6, 131
NEC Engineering and Construction
  contract, 37, 86
Negotiated contract, 6, 89
Negotiation, 18
  post tender, 245, 246
Net allowances, 180
Net cost estimate, 233
Net unit rates, 78
New Engineering Contract, 13, 34
Nominated sub-contractor, 38, 40, 42,
  103, 176, 183
  approximate quantities, 53
  attendances, 103
  delay, 42
  design, 42
  discount, 234
  nomination, 119
  programme, 53
  special attendance, 53
Nominated supplier, 176, 184
  coverage rules, 184
  discount, 184, 234
  fixing materials, 184
Nomination, 42
  documents, 42
  procedure, 183
Non-mechanical plant, 215
Non-standard forms of sub-contract, 41
Notification of results, 246
Novated design team, 59
Novation, 18, 176
  specialist contractors, 176
Offer:
  counter offer, 36
  termination, 36
  withdrawal, 36
Office of Fair Trading, 96
'On demand' bonds, 41
On-line bidding, 265
Open competition, 90
Open tendering, 87
Operational estimating, 82, 83, 107
civil engineering, 82
programme, 83, 117
resources, 84
Optical character recognition, 269, 281
Organization, 1
Outline programme, 244
example, 124
Output specification, 24
Outputs, 78, 82
planning, 118
Overheads, 53
Overheads and profit, 60, 81, 237, 239
daywork, 192
Package contractors, 15, 61
  construction management, 22
Package deal, 17
Parent company guarantee, 41, 235
Partnering, 13, 14
  agreement, 14
  alternative bid, 245
  contract, 14
cost savings, 14
Partnership, 13, 14, 82
  agreement, 86
Patent errors, 246
'Pay when paid', 41
Payments forecast, 217
PC and provisional sums, 100
  summary, 103
PC sum, 40, 53
  nominated sub-contractors, 43
Performance bond, 21, 43, 77, 86, 90, 215, 244
defects liability period, 235
pricing, 235
Performance guarantees, 42
PFI:
  affordability, 30
  benefits, 26
  best and final offer, 23
  business case, 28
  commercial aspects, 26
  consortium, 19, 23
electronic documents, 29
  estimating process, 28
  final invitation to tender, 29
  financial model, 30
  invitation to negotiate, 28
  pricing strategy, 30, 32
  process, 25
  procurement strategy, 31
  public sector scheme, 28
  risks, 27
  schedule of accommodation, 30
  special purpose vehicle, 23
  special purpose company, 28
  submission document, 29, 32
target area, 30
target cost plan, 31
tender procedures, 27
terminology, 23
  Treasury report, 23
  value for money, 23, 26
Plan and specification, 83
Planning engineer, 2, 107, 117, 200
  role, 117
Planning software, 278
Planning Supervisor, 65
Plant:
dismantling, 131
  handling equipment, 131
  hire rates, 125
Plant Quotations Register, 131
Plant rates, 130
  all-in hourly rate for plant, 131
  depreciation, 131
  fuel and lubricants, 131
  mechanical plant, 131
  plant operator, 131
  programme, 131
  quotations, 131
sources of plant, 131
transport to site, 131
Post tender:
  adjustments, 254
  meeting, 246
  negotiations, 256
Practical completion, 43
Practice Note CD/1B, 19
Preamble, 51, 52, 77
  bills of quantities, 134
  civil engineering, 51
Pre-award meeting, 247
Pre-award meeting, 247
Pre-contract meeting, 256
Preliminaries, 51, 59, 73, 77, 81
  bonds and insurances, 234
  checklist, 200, 201
  fixed and time-related, 242
  fixed charge, 51, 202, 214
  lump-sum, 242
  mechanical plant, 215
  pricing, 103, 117, 118, 200
  pricing spreadsheet, 212
  professional fees, 215
  resourced programme, 200
  site accommodation, 215
  staff costs, 214
  submission, 242
  supervision, 200, 215
  temporary works, 200, 215
  time-related charge, 51, 202
Preliminaries bill, 134, 199, 214
  cashflow, 214
  pricing, 202
Preliminary:
  enquiry, 88, 93, 94
  form, 96
  invitation to tender, 95, 238
Pre-qualification, 87
Pre-selection, on-line bidding, 266
Pre-tender health and safety:
  file, 8
  plan, 65
Price:
  fixing, 97
  library, 267
  lists, 113
Priced bills of quantities, 229
Pricing:
  build-up, 133
  checks, 243
  coverage rules, 134
  data, 271
  decimal constants, 135
  examples, 135, 136
  methods, 103
  preliminaries, 108
  repair work, 83
  strategy, 102, 103
  unit rates, 134, 135
  working space, 134
Pricing preliminaries, 53, 199
  attendant labour, 208
  contract conditions, 209
  employer's requirements, 202
  facilities and services, 204
  management and staff, 203
  mechanical plant, 205
  non-mechanical plant, 210
  site accommodation, 207
  temporary works, 206
Prime contracts, 116
Prime cost, 39, 60
  nomination, 183
Prime cost and provisional sums, 51
Prime cost of building labour, 195
Prime cost sum, 53, 54, 103, 183
  nominated sub-contractor, 53
  nominated supplier, 53, 184
  nomination, 184
Principal quantities, 96, 100
Private Finance Initiative, 19, 22
Private sector, 11
Problem solving, 14
Process engineering, 13
Procurement
  alternative methods, 12, 16
  BPF method, 10
  methods, 12, 14
  price certainty, 11
Index

Procurement (contd)
primary objectives, 11
traditional method, 10, 16, 17
Product literature, 2
Professional team, 12, 16, 19, 20
Profit, 81
calculation, 238
contractor’s, 183
in bill of quantities, 184
provisional sums and daywork, 192
Profit margin:
changes, 238
Programme, 83, 121
cashflow, 217
costed, 222
nominated sub-contractor, 42
submission, 241
tender, 78
to produce tender, 100
Project:
appreciation, 100
management, 11, 16
Project manager, 10, 16, 21
Project overheads, 78, 124, 184, 193, 199, 200
feedback, 259
schedule, 254, 273
Project overheads (see also preliminaries), 212
Project Specification Code, 50
Protection clauses, 50
Provisional sum, 52–54, 59, 103, 193
attendances, 183
daywork, 192
defined, 52, 57, 192
estimator’s report, 234
extension of time, 192
planning, 192
preliminaries bill, 233
statutory authorities, 53
temporary works, 193
undefined, 52, 192
Public Private Partnership, 25
Public sector, 11
Public sector comparator PSC, 24
Qualification document, 87
Qualified bids, 177
Quality:
assurance, 8
management, 8, 118
plan, 120
Quantity surveyor, 2, 10, 40, 48, 54–57, 66, 78, 106, 183, 186, 222, 242, 246, 287
role, 13, 16
variations, 193
Quotation, offer, 35
Quotations:
materials, 128
monitoring receipt, 109
Rates:
consistent, 177
spread monies, 81
Receipt of tender documents, 95
Reconciliation, resources, 228
Reference data, 8
Refurbishment work, 59
contract, 45
Reinforcement schedules, 263, 273
Remeasurement, 59, 243
Reputation, 252
Resource:
costs, 78, 125, 132
histograms, 118
levelling, 82
library, 132
prices, 125
schedules, 228
summaries, 81, 134, 135
Resourced programme, 50, 117
Resources, 83, 121, 268
adjustments, 228
Retention, 43, 51
bond, 38
construction management, 22
management contract, 20
Reverse auctions, 265, 266
Invitation to tender, 267
Right of objection, 39
Right of set-off, 21
Risk, 14, 90, 235
  apportionment, 14, 15
  commercial, 236
  construction management, 22
  financial, 45, 86, 91
  insurance, 235
  management, 236
  management contracting, 21
  mitigation, 236
  reduction, 12
  register, 106
  shared, 245
  sub-contracting, 113
  technical, 236
  transfer, 237
Rogue items, 55
Role of management, 1
Safety, 120, 241
  method statements, 119
Scanner, 264
Schedule of rates, 15, 43, 60
  ad-hoc, 60
  standard, 60
Scope of work, 53, 91
Securing work, 13
Security information on site, 255
Selection criteria, 86, 241
Selective tender list, 93
Selective tendering, 18, 87
  list of tenderers, 15
Sequence of work, 107, 120
Serial tender, 89
  master bill, 89
Set-off clauses, 42
Shareware, 280
  estimating software, 280
Short tender periods, 90
Single point responsibility, 17
Single rate approximate estimating, 70
Sir Michael Latham, 10, 13, 14, 34, 47, 86, 87, 245
Site accommodation, 121
Site allowances, 256
Site investigation, 91, 108
Site layout, 83
  drawing, 118
  preliminaries, 200
Site location, 120, 252
Site manager, 3, 84
  cost information, 254
Site security, 108, 130
Site staff, 3
Site visit, 61, 100, 107, 111
  alterations, 107, 108
  demolitions, 107, 108
  location, 108
  photographs, 107
  report, 255
  report form, 107
  site boundary, 108
  site plan, 107
  spot items, 108
  use of plant, 108
  utility services, 108
Small plant, 132
SMM7 Measurement Code, 53, 54, 183
Software, 262, 268
  applications programs, 271
  bill production, 272
  compatibility, 272
  database, 290
  design, 279
  digitizer, 283
  document readers, 279
  expert systems, 289
  general purpose, 271, 286
  operating systems, 271
  presentation, 272
  project planning, 278
  systems programs, 271
  utility programs, 271
Special attendance, 103, 184
Specialist contractors, 16, 41
Specification, 49, 56, 57, 58, 59
  clauses, 52, 91
  code for specification writing, 49
  contract document, 49
  page numbers, 57
  preambles, 49
  priced specification, 49

Index
Index

Specification (contd)
problems, 50
reference numbers, 57
schedule of works, 49
valuations, 49
writing, 46
Speculation, 85
Spreadsheet, 76, 78, 80, 177, 261, 262, 263, 272, 273
activity schedules, 272
checking, 276
design, 276
ers, 273, 276
feedback information, 259
look-up charts, 273
pricing notes, 276
Procure 21, 264
template, 274, 277
Staff structure, 118
Stage payment chart, 43
Standard:
contracts, 34
form of building contract, 37
forms of contract, 6, 12, 34, 36, 38, 88
forms of sub-contract, 40
method of measurement, 6
specifications, 6
Standard Form of Nominated Sub-contract, 42
Standard Form of tendering questionnaire, 87
Standard Form with Contractor's Design, 45
Standard method of measurement, 49, 51, 52, 56
building contract, 52
coverage rules, 56
nomination, 183
preliminaries, 199
provisional sums, 192
Start-up meeting, 103, 247
Statutory authorities, 53
Sub-contract:
fluctuations, 191
adjusted rates, 180
allowances, 258
comparison, 178
comparison system, 177, 269
conditions, 177
enquiry abstract, 104
enquiry documents, 177
firm-price quotations, 191
forms, 38
mathematical checks, 177
negotiation, 177
plan and specification, 177
quotations, 57, 176, 234
resource summary, 180, 182
schedule of rates, 177
Sub-contractor, 40, 176
approved, 176
attendances, 180
enquiries, 56, 57
offer, 36
overheads and profit, 180
payments, 41
prices, 78
quotation analysis, 273
quotations, 100, 177, 238, 255
unit rates, 134
Sub-letting, 40, 113
Submission:
date, 100
document, 14, 284
programme, 123
Success rate, 3
Success ratio, 6
Successful tender, 3, 254
Superficial floor area method, 71
Supervision, 120
costs, 51
Suppliers
database, 261
preferred, 238
reverse auctions, 265
Supply chain, reverse auctions, 265
Taking-off quantities, 61
Target:
cost, 70, 89
price, 58
success, 6
Index

Technical risks, 235
Telephone enquiries, 93
Temporary works, 37, 83, 91, 107, 119, 121
Tender:
Tender: acceptance period, 188
adjudication, 245
adjustments, 242
allowances, 239, 254
alternative, 13, 14, 64, 65, 107
alternative bid, 91, 92
amendments, 244
confirmation, 245
analysis form, 241
budget, 255
civil engineering, 14
cost to tender, 93
costs: design and build, 91
cover letter, 243
design and build, 243
discounts, 238
documents, 91, 96, 100
follow-up, 241
form, 63, 65, 240, 243
formal invitation, 61
handover, 119
handover meeting, 35
information form, 96
invitation letter, 62
letter, 245
lists, 87
mark-ups, 237
negotiated reduction, 88
negotiation, 89
notification of results, 245
opportunities, 85
performance, 92, 247
period, 90, 91, 93, 95, 100
planning, 117
preparation stages, 3
presentation, 240
publish results, 92
qualifications, 243, 244
qualified, 88, 91, 119
ratio analysis, 250
register, 6, 7, 263
results, 92, 240, 246, 250, 251, 252
return envelope, 65
submission, 8, 61, 240, 243
sum, 58, 241
summary, 228, 229, 232, 234
unsuccessful, 245
withdrawal, 88, 95, 176
Tender documents, 36, 46, 58, 61, 87, 88, 90, 93, 95, 107, 245, 263
bills of quantities, 61
drawings, 53, 57, 61
electronic, 264
inspection, 95
late receipt, 92
maintenance, 47
minor works, 47
poor, 12
problems, 47
Tender performance, 245
project overheads, 250
Tender presentation, 243
software, 262
Tender programme, 119, 121, 124, 200, 228
cashflow, 219
fluctuations, 188
preliminaries, 200
Tender register, database, 278
Tender stage programme, 254
Tender summary, 234, 239, 241
Tendering:
abuse of procedures, 90
analysis of results, 247
cost of tendering, 87, 90
costs, 3, 91
EU directives, 266
good practice, 90
period, 88
tender period, 90
Time-related charges, 202
Time-related costs, 118
Track record, 14
Trade abstract, 103
Trade discounts
management contracts, 21
Index

Trade pricing, 264
Traditional bill of quantities, 10
Trust, 13, 86
Turnkey, 17
Turnover, 238
Two stage selective tendering, 89
Undermeasurement, 180, 241, 242, 243
Unit of accommodation method, 70, 71
Unit rate, 78, 132, 134
calculation, 130
direct work, 78
pricing, 81, 132
Unitary payment, 25, 26
Valuations, 82
Value of tenders and awards, 249
Value-for-money, 68
Variant bid, 25
Variations, 52, 59, 177
dayworks, 193
value, 78, 81

Visits to consultants, 107
Voice mail, 284
Wall to floor ratio, 73
Warranties, 22
Warranty agreement
nominated sub-contractor, 42
Waste:
feedback, 259
materials, 84, 130
prime cost sum, 53
Water charges, 235
Weather, 121
Windows interface, 270
Win-win solutions, 13
Withdraw tender, 246
Word processor, 113, 263, 272
Work packages, 21
Workforce levels, 121
Workload, 238
Works contractors, 19, 21
fluctuations, 187
World Wide Web, 284