# Contents

About the Author xv

Foreword xvii

Svend Poulsen xix

Acknowledgements xx

Introductory Remarks xxii

Shuibo Zhang xxiii

Introductory Remarks xxv

Ilya Nikiforov

## 1 International Construction Projects 1

1.1 The unique nature of the construction industry 1

1.2 Individuality of construction projects 1

1.3 Roles and relationships 2

1.4 Contract administration: The Engineer 4

1.5 Further important aspects of construction projects 10

1.6 Typical contractual relationships 11

1.7 Motivation for international business 11

1.8 Managerial analyses 13

1.9 Hazards and risks 14

1.10 Hazard identification 15

1.11 Risk analysis 15

1.12 Anti-risk measures 16

1.13 Typical hazards in the international construction business 17

1.14 Risk allocation in contracts 18

**Vignette: Wrong forms of contract by James Bremen (UK)** 18

1.15 Form of business organization 19

References 22

Further reading 23

## 2 Civil Law and Common Law 24

2.1 Specifics of the governing law 24

2.2 Common law versus civil law: Differences and interconnections 24

**Vignette: The common law of Australia and the influence of statutory law by Donald Charrett (Australia)** 26

2.3 Delay damages (liquidated damages) versus contractual penalty 28

2.4 Substantial completion versus performance 29

2.5 Binding nature of adjudication awards 31

2.6 Limitation of liability 31
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.7 Lapse of claim due to its late notification (time bars)</td>
<td>32</td>
</tr>
<tr>
<td>2.8 Allocation of unforeseeable and uncontrollable risk to the contractor</td>
<td>32</td>
</tr>
<tr>
<td>2.9 Contract administration (The Engineer’s neutrality and duty to certify)</td>
<td>42</td>
</tr>
<tr>
<td>2.10 Termination in convenience</td>
<td>43</td>
</tr>
<tr>
<td>Vignette: <em>Is a employer in breach of contract prevented from terminating the contract for its convenience?</em> by Cecilia Misu (Germany)</td>
<td>44</td>
</tr>
<tr>
<td>2.11 Time-related issues</td>
<td>45</td>
</tr>
<tr>
<td>2.12 Quantification of claims</td>
<td>46</td>
</tr>
<tr>
<td>2.13 Statutory defects liability</td>
<td>47</td>
</tr>
<tr>
<td>2.14 Performance responsibility: reasonable skill and care versus fitness for purpose</td>
<td>47</td>
</tr>
<tr>
<td>2.15 Common law, civil law and Sharia interconnections</td>
<td>48</td>
</tr>
<tr>
<td>References</td>
<td>49</td>
</tr>
<tr>
<td>Further reading</td>
<td>49</td>
</tr>
<tr>
<td>Website</td>
<td>50</td>
</tr>
<tr>
<td>3 Common Delivery Methods</td>
<td>51</td>
</tr>
<tr>
<td>3.1 Common delivery methods: Main features</td>
<td>51</td>
</tr>
<tr>
<td>3.2 General contracting</td>
<td>53</td>
</tr>
<tr>
<td>3.3 Design-build</td>
<td>54</td>
</tr>
<tr>
<td>3.4 Construction management</td>
<td>58</td>
</tr>
<tr>
<td>3.5 Multiple-prime contracts</td>
<td>60</td>
</tr>
<tr>
<td>3.6 Partnering</td>
<td>60</td>
</tr>
<tr>
<td>3.7 Alliancing</td>
<td>61</td>
</tr>
<tr>
<td>3.8 Extended delivery methods (PPP, BOT, DBO)</td>
<td>62</td>
</tr>
<tr>
<td>3.9 Further aspects of delivery methods</td>
<td>62</td>
</tr>
<tr>
<td>References</td>
<td>65</td>
</tr>
<tr>
<td>Further reading</td>
<td>65</td>
</tr>
<tr>
<td>4 Specifics of EPC and EPCM</td>
<td>66</td>
</tr>
<tr>
<td>4.1 EPC and EPCM</td>
<td>66</td>
</tr>
<tr>
<td>4.2 Engineer procure construct (EPC)</td>
<td>66</td>
</tr>
<tr>
<td>4.3 Bespoke EPC contracts</td>
<td>69</td>
</tr>
<tr>
<td>4.4 Turnkey EPC contracts</td>
<td>70</td>
</tr>
<tr>
<td>Vignette: <em>Water treatment, wind farm and road construction projects in Asian and African countries</em> by Stéphane Giraud (France)</td>
<td>71</td>
</tr>
<tr>
<td>4.5 Front end engineering design</td>
<td>72</td>
</tr>
<tr>
<td>Vignette: <em>Key issues in the procurement of international hydropower construction contracts</em> by Alex Blomfield (UK)</td>
<td>73</td>
</tr>
<tr>
<td>4.6 Engineer procure construction management (EPCM)</td>
<td>77</td>
</tr>
<tr>
<td>Vignette: <em>The use of the EPCM delivery method in the mining industry</em> by Mark Berry (UK) and Matthew Hardwick (UK)</td>
<td>79</td>
</tr>
</tbody>
</table>
Contents

4.7 EPC versus EPCM 85
Reference 86
Further reading 87

5 Unification and Standardization in International Construction 88
5.1 Unification of contracts 88
5.2 Unification per law, principles and sample documents 88
5.3 Lenders and their influence on unification 90
5.4 Standard form of contract in a governing law context 92
5.5 Purpose of sample documents in construction projects 93
5.6 Standard sample forms as a source of law 94
5.7 Lex causae 95
5.8 Interpretation 96
5.9 Trade usage and business custom 97

Vignette: A common law of construction contracts – or vive la différence? by Donald Charrett (Australia) 98

5.10 Lex constructionis principles 100
5.11 The use of lex constructionis 102

Vignette: Future-proofing construction contracts by Shy Jackson (UK) 102

References 105
Further reading 105
Websites 105

6 Price 106
6.1 Contract price 106
6.2 Bid pricing methods 107
6.3 Methods of contract price determination 109
6.4 Re-measurement 109
6.5 The lump sum 112
6.6 Cost plus 112
6.7 Guaranteed maximum price 113
6.8 Target price 113
6.9 Payment 114

Vignette: Taxation in international construction contracts by Alex Blomfield (UK) 115

6.10 Contract price under FIDIC forms 117
6.11 Cost overruns 119
6.12 Abnormally low tender (ALT) 120
6.13 Claims as part of contract price 121
6.14 Public procurement law limitations 122

Vignette: A concept of variation in a construction contract under Polish public procurement by Michal Skorupski (Poland) 123

References 126
Further reading 126
Websites 127
7 Time 128
   7.1 Time in construction 128
   7.2 Delay 128
   7.3 The United Kingdom Society of Construction Law Delay and Disruption Protocol 130
   7.4 Time programme 131
   7.5 Ownership of floats
      Vignette: Time extension and float ownership under the FIDIC Red and Yellow Books (1999 editions) (BAMCO FDTEA final argument) by Frank Thomas (France) 133
   7.6 Time at large and Extension of Time (EOT) 146
   7.7 Concurrent delay
      Vignette: Delay clauses in different jurisdictions by Jacob C. Jørgensen (Denmark) 149
   7.8 Disruption 150
   7.9 Time for completion under FIDIC forms 151
   7.10 Time programme under FIDIC forms
      Vignette: A lack of realism in negotiations by James Bremen (UK) 154
   7.11 Delay and suspension under FIDIC forms 154
   7.12 Contract termination under FIDIC forms 158
   References 160
   Further reading 160

8 Variations 161
   8.1 Variation clauses 161
   8.2 Variations under FIDIC forms 163
   8.3 Claims related to variations 164
   8.4 Acceleration
      Vignette: The US approach to constructive acceleration by Robert A. Rubin and Sarah Biser (the USA) 170
   8.5 Proving the acceleration claim 173
   8.6 Substantial change
      Vignette: Modification of contracts during their execution under EU law by Odysseas P. Michaelides (Cyprus) 176
   References 180
   Further reading 180
   Websites 180

9 Claims 181
   9.1 Claims
      Vignette: Claims caused by deficiencies in tender documents by James Bremen (UK) 184
   9.2 Contractor's claims under FIDIC forms 185
   9.3 Employer's claims under FIDIC forms
      Vignette: Claims in the St Petersburg flood protection barrier construction by Aleksei Kuzmin (Russia) 186
   9.4 Lapse of claim 189
   9.5 Cause of the claim 191
9.6 Limits of the lapse of claim

Vignette: Construction claims in the UK by Garry Kitt (UK)  
Vignette: Condition precedent and time-barred claims under Polish Law by Michał Skorupski (Poland)  
Vignette: Australian position on time bars by Andrew P. Downie (Australia)  

References  
Further reading  

10 Claim Management  

10.1 Claim management  
10.2 Claims for Extension of Time (EOT)  
10.3 Claims for additional payment  
10.4 Claims resulting from delay and/or disruption under the provisions of the contract  

Vignette: Considerations related to site overhead claims by Gary Kitt (UK)  

10.5 Claims resulting from governing law  
10.6 Global claims  

Vignette: All global claims are not negatively ‘global’! by Frank Thomas (France)  

10.7 Contractor’s claim management under FIDIC forms  
10.8 Employer’s claim management under FIDIC forms  
10.9 Intercultural aspects  

Vignette: Cultural considerations in Southeast Asia by Salvador P. Castro, Jr. (The Philippines)  
Vignette: ‘Claim’ as perceived in the Polish civil law environment by Michał Skorupski (Poland)  

10.10 Claim management implementation  

Vignette: Claims in a tunnel construction in the Republic of Serbia by Radim Wrana (the Czech Republic)  

References  
Further reading  

11 Construction Dispute Boards  

11.1 Construction disputes  

Vignette: Construction dispute in sheet metal galvanizing line project by Patrick Kain (South Africa)  

11.2 Dispute boards  

Vignette: Project dispute avoidance by Christopher J. Mather (the USA)  
Vignette: The use of dispute boards in the Middle East and North Africa by Andy Hewitt (United Arab Emirates)  

11.3 Contractual adjudication: The use of DAB in FIDIC forms  
11.4 Enforcement of dispute board decisions  
11.5 Statutory adjudication  

Vignette: Statutory adjudication by Nigel Grout (UK)
## Contents

**Vignette:** Settling construction disputes in Hungary by Tamás Balázs (Hungary)  
256

**Vignette:** Statutory adjudication in Australia by Donald Charrett and Andrew Downie (Australia)  
258

References  
264
Further reading  
265

### 12 FIDIC

12.1 FIDIC expansion  
266
12.2 FIDIC  
266
12.3 FIDIC’s influence on the construction industry  
267
12.4 FIDIC membership  
267
12.5 Networking activities  
268

**Vignette:** The use of FIDIC forms in Southeast Asia by Salvador P. Castro, Jr. (The Philippines)  
270

**Vignette:** The use of FIDIC forms in Russia by Dmitry Nekrestyanov (Russia)  
271

**Vignette:** The use of FIDIC forms in Brazil by Rafael Marinangelo (Brazil)  
272

12.6 FIDIC forms of contract  
272
12.7 The structure of the contract under FIDIC forms  
274
12.8 Conditions of Contract for Construction (CONS) – 1999 Red Book  
277

**Vignette:** Misapplications of FIDIC contracts in the United Arab Emirates by Kamal Adnan Malas (United Arab Emirates)  
278

12.9 Conditions of Contract for Plant and Design-Build (P&DB) – 1999 Yellow Book  
283
12.10 Conditions of Contract for EPC/ Turnkey Projects (EPC) – 1999 Silver Book  
284
12.11 Short Form of Contract – Green Book  
285
12.12 Construction Subcontract  
285
12.13 Conditions of Contract for Design, Build and Operate (DBO) – Gold Book  
286
12.14 Other FIDIC standard forms  
289

**Vignette:** Use of FIDIC contracts by the mining industry in Africa by Coenraad Snyman (South Africa)  
289

12.15 Risk allocation under FIDIC forms  
291

**Vignette:** China’s Standard form of construction contract in comparison with FIDIC forms by Shuibo Zhang (China)  
294

**Vignette:** Explanation of FIDIC EPC risk allocation by FIDIC  
299

12.16 Design responsibility under FIDIC forms  
301
References  
303
Further reading  
303

### 13 Other Standard Forms of Construction Contracts: NEC, ICC, ENNA, IChemE, Orgalime, AIA, VOB  
305

13.1 Common standard forms of construction contracts  
305
13.2 The NEC (New Engineering Contract)  
305
### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.3</td>
<td>FIDIC forms versus NEC3</td>
<td>310</td>
</tr>
<tr>
<td>13.4</td>
<td>ICC forms of contract</td>
<td>313</td>
</tr>
<tr>
<td>13.5</td>
<td>ENAA forms of contract</td>
<td>314</td>
</tr>
<tr>
<td>13.6</td>
<td>IChemE forms of contract</td>
<td>314</td>
</tr>
<tr>
<td>13.7</td>
<td>Orgalime forms of contract</td>
<td>315</td>
</tr>
<tr>
<td>13.8</td>
<td>AIA forms of contract: US standard</td>
<td>316</td>
</tr>
<tr>
<td>13.9</td>
<td>VOB: German standard</td>
<td>318</td>
</tr>
<tr>
<td>13.10</td>
<td>Invalid clauses in German case law</td>
<td>324</td>
</tr>
<tr>
<td></td>
<td><strong>Vignette:</strong> The standard forms of construction contract in Australia by John Sharkey (Australia)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>328</td>
</tr>
<tr>
<td></td>
<td>Further reading</td>
<td>328</td>
</tr>
<tr>
<td></td>
<td>Websites</td>
<td>329</td>
</tr>
<tr>
<td>14</td>
<td><strong>Risk and Insurance</strong></td>
<td>330</td>
</tr>
<tr>
<td>14.1</td>
<td>Insurance in construction</td>
<td>330</td>
</tr>
<tr>
<td>14.2</td>
<td>Commercial risk, risk of damage and exceptional risk</td>
<td>331</td>
</tr>
<tr>
<td></td>
<td><strong>Vignette:</strong> Weather risk in offshore wind construction contracts by Alex Blomfield (UK)</td>
<td>334</td>
</tr>
<tr>
<td>14.3</td>
<td>Risk management in the standard forms of contract</td>
<td>337</td>
</tr>
<tr>
<td>14.4</td>
<td>Hazards and risks in construction projects</td>
<td>339</td>
</tr>
<tr>
<td>14.5</td>
<td>Insurance requirements in standard forms of contract</td>
<td>342</td>
</tr>
<tr>
<td></td>
<td><strong>Vignette:</strong> Insurance in hydroenergy projects by Alex Blomfield (UK)</td>
<td>345</td>
</tr>
<tr>
<td>14.6</td>
<td>Practical aspects of insurance in construction projects</td>
<td>346</td>
</tr>
<tr>
<td></td>
<td><strong>Vignette:</strong> Incompatibility of the construction contract with the insurance contract by Karel Fabich (the Czech Republic)</td>
<td>348</td>
</tr>
<tr>
<td>14.7</td>
<td>International insurance law and insurance standards in the construction industry</td>
<td>349</td>
</tr>
<tr>
<td></td>
<td>References</td>
<td>352</td>
</tr>
<tr>
<td></td>
<td>Further reading</td>
<td>352</td>
</tr>
<tr>
<td></td>
<td>Website</td>
<td>353</td>
</tr>
<tr>
<td>15</td>
<td><strong>Risk in Underground Construction</strong></td>
<td>354</td>
</tr>
<tr>
<td>15.1</td>
<td>Underground construction hazards and risks</td>
<td>354</td>
</tr>
<tr>
<td>15.2</td>
<td>Code of practice for risk management of tunnel works</td>
<td>355</td>
</tr>
<tr>
<td>15.3</td>
<td>Alternatives of unforeseeable physical conditions risk allocation</td>
<td>356</td>
</tr>
<tr>
<td>15.4</td>
<td>Unforeseeability</td>
<td>357</td>
</tr>
<tr>
<td>15.5</td>
<td>'Unforeseeability' according to FIDIC forms</td>
<td>358</td>
</tr>
<tr>
<td>15.6</td>
<td>Site data</td>
<td>359</td>
</tr>
<tr>
<td></td>
<td><strong>Vignette:</strong> Water-related construction projects by Robert Werth (Germany)</td>
<td>361</td>
</tr>
<tr>
<td>15.7</td>
<td>Sufficiency of the accepted contract amount</td>
<td>364</td>
</tr>
<tr>
<td>15.8</td>
<td>Unforeseeable physical conditions</td>
<td>364</td>
</tr>
<tr>
<td>15.9</td>
<td>Unforeseeable operation of the forces of nature</td>
<td>366</td>
</tr>
<tr>
<td></td>
<td><strong>Vignette:</strong> Clairvoyance: A contractor’s duty? by Gustavo Paredes and Katherine Waidhofer (Peru)</td>
<td>366</td>
</tr>
</tbody>
</table>
15.10 Force majeure 369
15.11 Release from performance under law 370
References 370
Further reading 370
Website 371

16 Securities 372

16.1 Securities in construction 372
16.2 Bank guarantees 373
16.3 Functions and parameters of bank guarantees 373
16.4 Specifics of Retention Guarantee
Vignette: Performance security and termination payment security in hydroenergy projects by Alex Blomfield (UK) 377
16.5 Governing law
Vignette: Common law specifics related to securities by Rupert Choat and Aidan Steensma (UK) 379
16.6 ICC rules related to securities 381
16.7 Suretyship 381
16.8 Stand-by letter of credit 382
16.9 Securities under FIDIC forms 383
Further reading 384

17 Civil Engineering Works: Infrastructure Construction Projects 386

17.1 Investments in developing countries 386
17.2 The approach to the risk allocation in the United States 387
17.3 The approach to the risk allocation in the United Kingdom
Vignette: Construction of airports by Patrick Kain (South Africa) 390
17.4 The approach to the risk allocation in Central and Eastern Europe
Vignette: The Romanian experience by Claudia Teodorescu (Romania) 395
17.5 The Polish experience
Vignette: FIDIC forms and contractual relationships in Poland by Aleksandra Marzec (Poland) 399
Vignette: Market environment prior to and after 2008 by Michal Skorupski (Poland) 402
Vignette: Claims considerations by Aleksandra Marzec (Poland) 408
Vignette: Contractor defence measures by Michal Skorupski (Poland) 412
17.6 The Czech experience
Vignette: Local limits for development: An interview with Shy Jackson (UK) by Lukas Klee (the Czech Republic) 416
References 421
Further reading 421
Websites 422
18 Building Construction: Health Care Facilities

18.1 Health care facility construction project

18.2 Pre-design planning phase

18.3 Design phase

18.4 Basic structure of a hospital

18.5 Efficiency and cost effectiveness

18.6 Flexibility and expandability

18.7 Therapeutic environment

18.8 Cleaning and maintenance

18.9 Controlled circulation and accessibility

18.10 Aesthetics

18.11 Health and safety

18.12 Use of information technology

18.13 Relevant regulations and standards

18.14 Health care facility construction project: Suitable delivery method

Further reading

Appendix A: Interactive Exercises

A.1 Interactive exercise 1: Delivery method selection

A.2 Interactive exercise 2: Claim for delayed site handover

A.3 Interactive exercise 3: Claim due to suspension of work

A.4 Interactive exercise 4: Subcontractor claim for contractor delay (lack of cooperation, inadequate on-site coordination and improper, unclear and delayed instructions)

Appendix B: Sample Letters

B.1 Contractor’s sample letters: Notice of probable future event

B.2 Contractor’s sample letters: Notice of contractor’s claims

B.3 Contractor’s sample letters: Contractor’s claim No.________ submission (quantification)

B.4 Contractor’s sample letters: Request for evidences of financial arrangements

B.5 Contractor’s sample letters: Written confirmation of oral instruction

B.6 Contractor’s sample letters: Notice of dissatisfaction with a determination of the engineer

B.7 Contractor’s sample letters: Notice of contractor’s entitlement to suspend work

B.8 Contractor’s sample letters: Notice of contractor’s claim under the Sub-Clause 16.1

B.9 Contractor’s sample letters: Application for taking-over certificate

B.10 Employer’s sample letters: Notice of employer’s claim

B.11 Employer’s sample letters: Answer to request for evidence of financial arrangements
B.12 Engineer’s sample letters: Engineer’s determination 454
B.13 Engineer’s sample letters: Engineer’s instruction 456
B.14 Engineer’s sample letters: Engineer’s notice to correct 457
B.15 Engineer’s sample letters: Engineer’s instruction to remove a person employed on the site 458
B.16 Engineer’s sample letters: Engineer’s instruction – lack of mobilisation 459

Appendix C: Dictionary of Construction Terms: Chinese, Czech, English, French, German, Hungarian, Polish, Portuguese, Russian, Spanish 461
C.1 Dictionary – General part 462
C.2 Dictionary – Contractor’s claims 470
C.3 Dictionary – Employer’s claims 474

Appendix D: Claim Management System under FIDIC Forms 478
D.1 Claim Management Team Responsibilities 478
D.2 Claim Management Processes 481
D.3 Table of Contractor’s claims under FIDIC CONS 482
D.4 Table of Employer’s claims under FIDIC CONS 482

Appendix E: FIDIC Forms Risk Allocation Charts 484
E.1 Chart No.1: Basic risk allocation alternatives in connection with unforeseeable physical conditions 484

Appendix F: Engineer’s Determination Within the Ambit of the 1999 Edition of the FIDIC Contract Forms: A Case Study of Contractor’s Claims in Respect of Sand and Gravel Borrow Areas 487

by Khalil T. Hasan
F.1 Preface 490
F.2 Introduction 490
F.3 Contractual provisions for a claim 491
F.4 Compliance with the contractual provisions 492
F.5 Consultations with the employer and the contractor 493
F.6 Contractor’s original intent 507
F.7 Stage 2 – Contractor’s tender submission 512
F.8 Conclusion in respect of contractor’s original intent 512
F.9 Post contract award period 513
F.10 Contractor’s reasons for refusal to exploit the river bed borrow areas 516
F.11 Equipment required for exploitation of river bed borrow areas 518
F.12 Engineer’s analysis of the foregoing circumstances and facts 520
F.13 Additional costs and delays 523
F.14 Unjust enrichment of the contractor all at the expense of the employer 525
F.15 Engineer’s determination of S&G borrow area claim notices 526

Index 529