

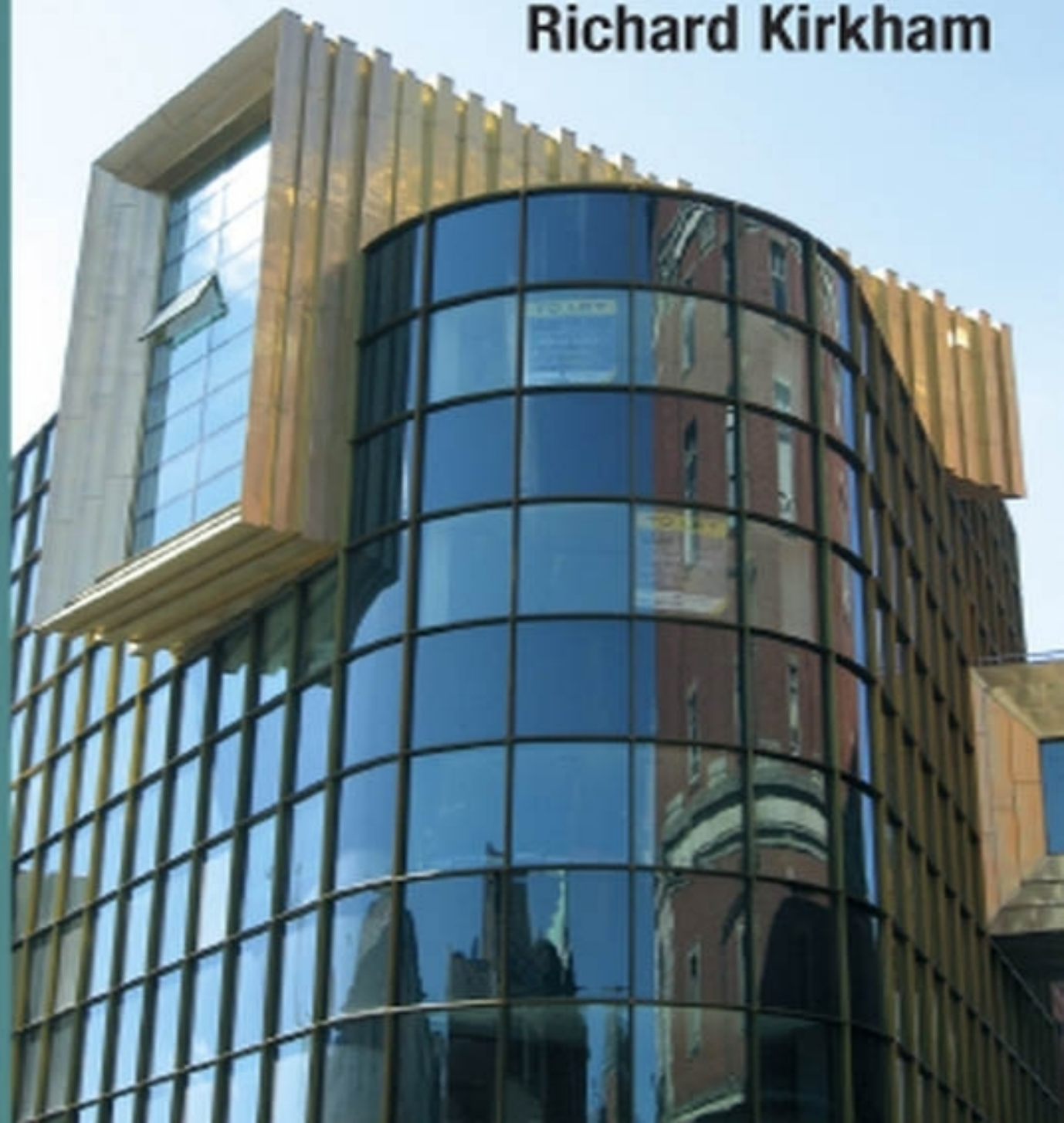
EIGHTH EDITION

Ferry and Brandon's  
**Cost Planning  
of Buildings**

Richard Kirkham



Blackwell  
Publishing



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A portion of the author's annual royalty payment from sales of this textbook will be donated to the Wakefield and District Branch of the Multiple Sclerosis Society. The branch provides support for families affected by this devastating condition.

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Eighth Edition

**Richard Kirkham**

School of the Built Environment  
The Liverpool John Moores University

with contributions from

**Brian Greenhalgh and Anthony Waterman**





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# **Preface to the Eighth Edition**

As an undergraduate student at Liverpool University in the early 1990s, I fondly remember hunting down Ferry and Brandon's text in the dark, narrow corridors of the Harold Cohen Library. I would often use this text to get to grips with the business of estimating, tendering and taking off. I now consider it a great privilege to have been asked to revise and update the eighth edition. Books don't last eight editions simply by chance; the ones that do are always very good ones.

The dilemma for any author updating a long-established textbook is 'how much ought I to change?' I considered a radical approach to the new edition, but on reflection I questioned the wisdom of this and ultimately formed the opinion that the core structure of the book ought not to be changed, as clearly it worked. This edition is therefore still strongly based around the three-phase process advocated by Ferry and Brandon. The layout has been changed slightly to reflect the major changes that have occurred since the seventh edition, not only within the discipline of cost planning, but also the construction industry generally. For example, the treatment of procurement is prominent at the start of the text rather than towards the end. I have also recognised the ever-evolving role of the quantity surveyor, and the prominent role that quantity surveyors now assume throughout the project life-cycle. Moreover, I hope this edition also impresses on the reader the importance of collaborative working between the design team members at the earliest possible stages of the project, and the role that cost planners have in the briefing process. The impact that whole life-cycle costing now has on the cost planning process is also reinforced in this edition.

Many of the principles of elemental cost planning and the techniques used in building up the cost plan etc., have stood the test of time and thus remain unchanged. There is still a great deal of original material in this edition; those readers familiar with the text will no doubt take comfort in this, and I hope that I have struck the right balance between new and old.

I wonder what challenges the construction professions, and in particular the cost planners, will face in the future? The mouth-watering prospect of massive capital investment in built assets around the east of London in time for the 2012 Olympics presents a real opportunity to demonstrate the innovative, dynamic and professional way in which the UK construction industry can deliver prestigious schemes. I hope that this book helps the current crop of undergraduates in quantity surveying, construction management or any other discipline to understand the fundamental importance of effective cost planning, and that they will take this knowledge and be part of something that will change many people's lives for the better. That is the real beauty of the construction industry - you can have a tangible stake in improving people's lives for the better!

Richard Kirkham  
Liverpool John Moores University  
February 2007

# **Preface to the First Edition**

This book is intended as an introduction to cost planning for practising quantity surveyors and as a textbook for students taking the Final Examination (Quantities Part II) of the Royal Institution of Chartered Surveyors, or the Third Examination of the Institute of Quantity Surveyors. I have therefore assumed that the reader is already familiar with the ordinary processes of quantity surveying, particularly the preparation of bills of quantities, and this is taken for granted in the text; nevertheless I hope that the book may be read with advantage by members of allied professions.

I have tried to present the subject in a way that will be helpful to the surveyor coming to grips with it for the first time, and have concentrated on explaining the basic principles, basic methods and some of the main pitfalls. I have not tried to reprint the masses of tables, charts and detailed examples which have appeared in the technical press, as once the principles have been understood the reader will find that lack of time rather than lack of material will limit his further studies.

I have received a good deal of assistance in the compilation of this work from the various organisations which are mentioned therein, but I would particularly like to mention the help given by the officers of Hertfordshire County Council Architects Department and the Building Cost Advisory Service of the Royal Institution of Chartered Surveyors.

Douglas J. Ferry  
Belfast  
June 1964



# Nomenclature and Acronyms

|           |  |
|-----------|--|
| $\Sigma$  | the sum of (sigma notation)  |
| P         | the principal (in investment terms)                                      |
| $i$       | the rate of interest   |
| $n$       | time (ordinarily number of years)  |
| $r$       | discount rate or real discount rate (in STPR calculations)               |
| $\rho$    | catastrophe risk and pure time preference (in STPR calculations)         |
| $\mu$     | elasticity of the marginal utility of consumption (in STPR calculations) |
| $g$       | output growth  |
| $t$       | time   |
| $\approx$ | approximately equal to   |
| $\pi$     | pi (3.142 to 3 d.p.)   |
| $\sigma$  | standard deviation   |
| ACostE    | Association of Cost Engineers  |
| AFS       | ascertained final sum  |
| AI        | artificial intelligence  |
| AIRR      | adjusted internal rate of return   |
| ANN       | Artificial Neural Network  |
| BCIS      | Building Cost Information Service  |
| BMI       | Building Maintenance Information Service                                 |
| BP        | back propagation   |
| BQ        | bill of quantities   |
| BSI       | British Standards Institute  |
| CAAD      | Computer Aided Architectural Design                                      |
| CABE      | Commission for Architecture and the Built Environment                    |
| CATO      | Computer Aided Taking Off System   |
| CBC       | Co-ordinated Building Classification                                     |
| CBS       | cost breakdown structure   |
| CDM       | Construction Design and Management Regulations 1994                      |
| CIBSE     | Chartered Institution of Building Services Engineers                     |
| CIOB      | Chartered Institute of Building  |
| CIRIA     | Construction Industry Research and Information                           |

|               |  |
|---------------|--|
| CIS           | Construction Information Service                                 |
| CITE          | Construction Industry Trading Electronically                     |
| CM            | construction manager or construction management (in procurement) |
| CPI           | Consumer Price Index   |
| CQS           | contractor's quantity surveyor                                   |
| D&B           | design and build   |
| DCF           | discounted cash flow   |
| DPM           | damp-proof membrane  |
| DCMF          | Design, Construct, Manage and Finance                            |
| EAC           | equivalent annual cost   |
| ECC           | Engineering and Construction Contract                            |
| E-procurement | electronic procurement   |
| EST           | Energy Saving Trust  |
| FV            | future value   |
| GDP           | Gross Domestic Product   |
| GFA           | gross floor area   |
| GMP           | guaranteed maximum price   |
| HGCRA         | Housing Grants, Construction and Regeneration Act 1996           |
| HMRC          | Her Majesty's Revenue and Customs                                |
| ICE           | Institution of Civil Engineers                                   |
| IPD           | Institute for Professional Development                           |
| IRR           | internal rate of return  |
| ISO           | International Standards Organisation                             |
| IT            | information technology   |
| ITOCC         | Occupiers International Total Occupancy Cost Code                |
| JCT           | Joint Contracts Tribunal   |
| KM            | knowledge management   |
| LA            | local authority  |
| LCC           | life-cycle costing   |
| MARR          | minimum acceptable rate of return                                |
| MC            | management contracting   |
| MCDM          | multi-criteria decision-making                                   |
| MLR           | minimum lending rate   |
| M&E           | mechanical and electrical  |

|       |   |
|-------|---|
| MTC   | measured term contract                            |
| NAO   | National Audit Office                             |
| NEC   | New Engineering Contract                          |
| NPS   | National Procurement Strategy                     |
| NPV   | net present value                                 |
| NR    | Network Rail                                      |
| No    | number (of)                                       |
| NS    | net savings                                       |
| OGC   | Office of Government Commerce                     |
| PC    | practical completion                              |
| PFI   | Private Finance Initiative                        |
| POCA  | Property Occupancy Cost Analysis                  |
| PPP   | Public Private Partnership                        |
| PQS   | private practice quantity surveyor                |
| PSA   | Property Services Agency                          |
| PSC   | Public Sector Comparator                          |
| PV    | present value                                     |
| QS    | quantity surveyor                                 |
| RC    | reinforced concrete                               |
| RIBA  | Royal Institute of British Architects             |
| RICS  | Royal Institution of Chartered Surveyors          |
| SBC   | Standard Building Contract                        |
| SCQS  | Society of Construction Quantity Surveyors        |
| SFCA  | Standard Form of Cost Analysis                    |
| SIR   | savings to investment ratio                       |
| SMM7  | Standard Method of Measurement of Building Works, |
| SPV   | Special Purpose Vehicle                           |
| STPR  | social time preference                            |
| TPI   | Tender Price Index                                |
| TPISH | Tender Price Index of Social Housing              |
| VAT   | value added tax (17.5% at time of writing)        |
| WLCC  | whole life-cycle costing                          |

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Dr John Schofield, my friend and colleague, chair of the Independent Monitoring Board at HM Prison Altcourse, moved earth and high heaven to accommodate my workload around the duties of the board. His support has been invaluable, and I thank him most sincerely.

Finally to Joanne, Liverpool's finest district nurse, who has had to put up with the kitchen resembling the University Library for quite some time!

# About the Authors

**Douglas J. Ferry PhD, FRICS** formerly Dean of Architecture and Building, New South Wales Institute of Technology and Research Manager with CIRIA. Douglas authored the very first edition of this text in 1964 whilst based at the College of Technology, Belfast where he lectured in quantities and building construction. In that same year he also published *Rationalisation of Measurement* with the Royal Institution of Chartered Surveyors.

**Peter S. Brandon DSc, DEng, MSc, FRICS** is Director of Salford University 'Think Lab' and Director of Strategic Programmes, School of the Built Environment, University of Salford. Formerly Pro-Vice Chancellor (Research and Graduate College) at the University, he was the inaugurator of several high profile initiatives including Construct IT, the national network for Information Technology in Construction which received the Queen's Anniversary Prize in 2000; SURF, the Centre for Sustainable Urban and Regional Futures; CCI, The Centre for Construction Innovation and the BEQUEST international network.

**Jonathan D. Ferry BSc(Hons)** is a Manager of Procurement in Projects working for Tube Lines Limited under the London Underground PPP, and was previously a Director of Dearle and Henderson.

**Richard J. Kirkham BA(Hons), PhD (Liverpool), MACostE, ICIOB** is a Senior Lecturer in Construction Management at the School of the Built Environment, Liverpool John Moores University. His research interests are in whole life-cycle costing, quantitative risk analysis, stochastic modelling techniques and performance measurement for public sector facilities. Prior to this, he worked as a Research Officer at Cranfield University. He has

published widely in the field of whole life-cycle cost modelling and is co-author of *Whole Life-Cycle Costing: Risk and Risk Responses*. He is a series editor of the RICS Research/Blackwell Construction Series and is Scientific Secretary of CIB-TG62 Complexity and the Built Environment. Richard is a Fellow of the Royal Statistical Society, an Incorporated Member of the Chartered Institution of Building (Vice Chair Liverpool Centre 2006/7 and Chair 2007/8) and was elected a Member of the Association of Cost Engineers in 2004.



# About the Contributors

**Mr Brian Greenhalgh BSc, MBA, FRICS, FCIQB** is currently Head of External Affairs in the School of the Built Environment at Liverpool John Moores University where he specialises in the procurement and management of construction projects. After qualifying as a Chartered Quantity Surveyor, he worked both nationally and internationally before joining the Liverpool Polytechnic. He has served on RICS committees both locally and nationally and has lectured widely on aspects of construction management and contract administration.

**Mr Anthony Waterman BA (Hons), MSc (University College London)** is Head of Research at Sense Cost Consultancy, a division of Mace. Prior to joining Sense, Anthony worked as a Principal Consultant at the Building Research Establishment after completing his Master's degree in Construction Economics. At BRE he worked on various aspects of whole life-cycle costing and performance modelling, including the development of PSC models for Prime Contracting and PFI schemes and has published several reports and papers.

# Introduction