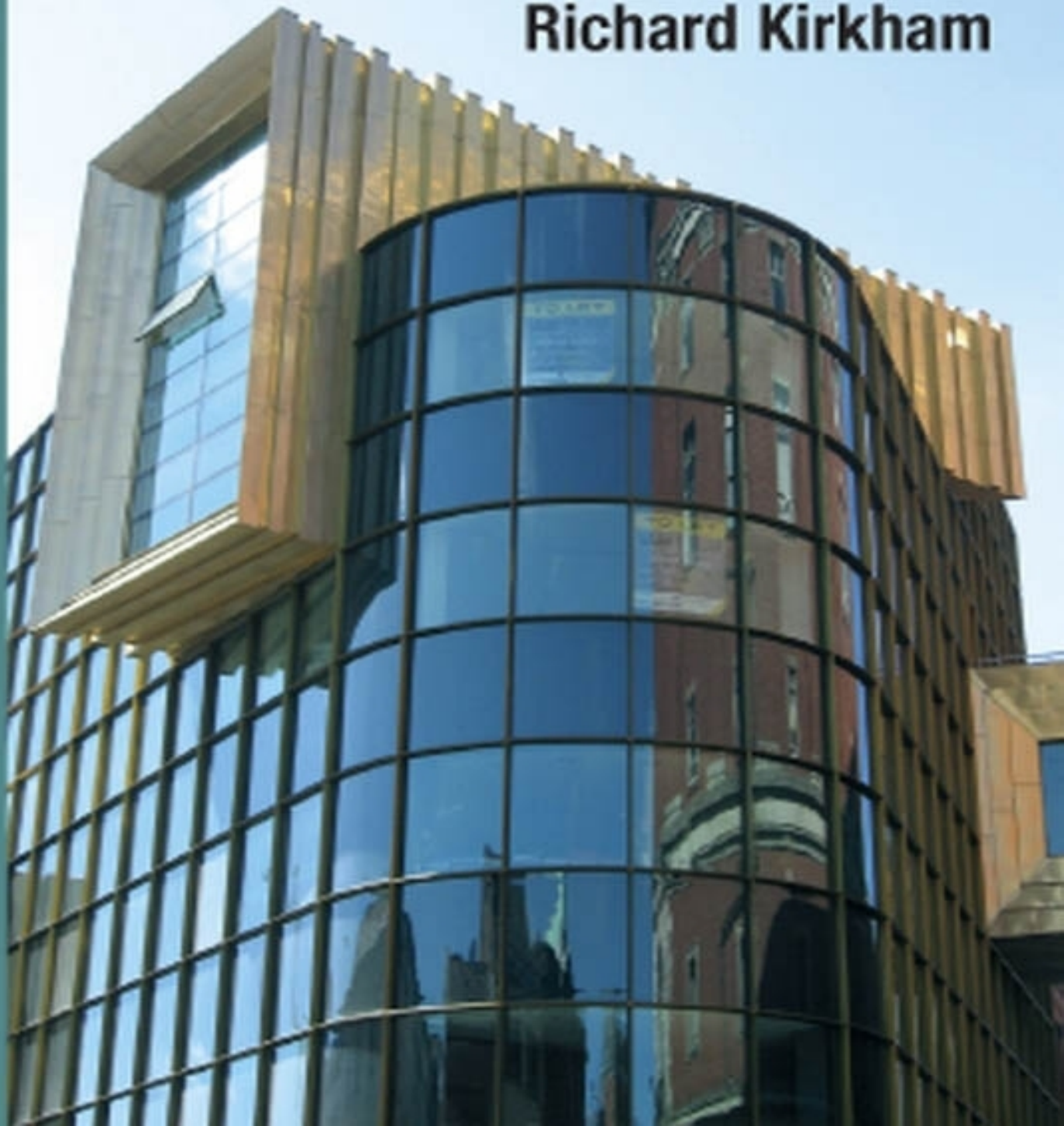
EIGHTH EDITION

Ferry and Brandon's

Cost Planning of Buildings

Richard Kirkham



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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

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with contributions from

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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

∑	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)
ρ	catastrophe risk and pure time preference (in STPR calculations)
μ	elasticity of the marginal utility of consumption (in STPR calculations)
g	output growth
t	time
≈	approximately equal to
Л	pi (3.142 to 3 d.p.)
σ	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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I would like to express sincere gratitude to Dr Halim Boussabaine (University of Liverpool) for his patience and friendship; updating this text has diverted my time from other activities and had it not been for him, many initiatives we organised would simply not have happened. Similarly, thanks to Mr John Lewis of the same institution, for some useful additions to this text.

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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 Cnstruction Innovation and the BEQUEST international network.

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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

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About the Contributors

Mr Brian Greenhalgh BSc, MBA, FRICS, FCIOB 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