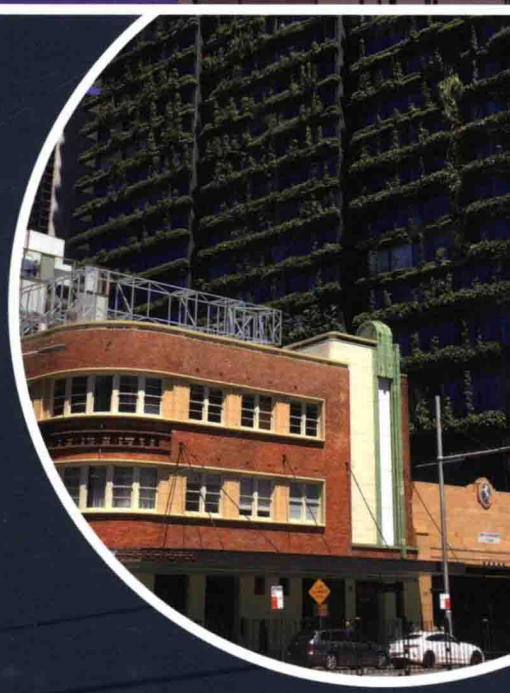
Innovation in the Built Environment

RICS Research



EDITED BY
SARA J. WILKINSON
HILDE REMØY

Building Urban Resilience through Change of Use

WILEY Blackwell

Innovation in the Built Environment

RICS Research

Describes all aspects of sustainable conversion adaptation of existing buildings and provides solutions for making urban settlements resilient to climate change

This comprehensive book explores the potential to change the character of cities with residential conversion of office space in order to withstand the negative effects of climate change. It investigates the nature and extent of sustainable conversion in a number of global cities, as well as the political, economic, social, technological, environmental, and legal drivers and barriers to successful conversion. The book also identifies the key lessons learned through international comparisons with cases in the UK, US, Australia, and the Netherlands.

Building Urban Resilience Through Change of Use covers the benefits and aspects of sustainable conversion adaptation through the whole lifecycle from inception, planning, and design, to procurement, construction, and management and operational issues. It illustrates and quantifies, through empirical research, the changes that have been achieved or delivered in sustainable conversion adaptation. The book gives an overview of all aspects of performance characteristics and the conversion adaptation of existing buildings. In the end, it enables planners to make more informed decisions about whether conversion adaptation is a good choice—and if so, which types of sustainability measures are best suited for projects.

- Provides detailed, empirical knowledge based on real-world research undertaken in five countries over three continents on both a citywide scale and on individual buildings
- Case studies and exemplars demonstrate the application of the knowledge in North and South America, Canada, Australia, New Zealand, and in Europe
- Addresses the key themes of technology, finance and procurement, and the regulatory framework

The first research-based book to examine how to improve resilience to climate change through sustainable reuse of buildings, *Building Urban Resilience Through Change of Use* is a welcome book for researchers and academics involved in building surveying, urban development, and sustainability planning.

The Editors

SARA J. WILKINSON, BSc, MA, MPhil, PhD, FRICS, AAPI, is an Associate Professor at the University of Technology Sydney. Working at the intersections of sustainability, resilience, building adaptation and transformation, her research aims to improve local, national and international outcomes of urban development in respect of: climate change and a growing urbanised population. Sara practiced for several years in the public and private sectors. She engages in trans-disciplinary research with colleagues from science, health, business, technology and built environment, publishing over 150 outputs including books, research reports, journal and conference papers. She contributes to the surveying profession through national and international committees, accreditation and APC assessment.

HILDE REMØY, PhD, MSc, is Associate Professor in Real Estate Management at the Faculty of Architecture and the Built Environment of Delft University of Technology. After an international educational and professional path, including Norway, Italy, and the Netherlands, she is now teaching, researching and writing (over 100 publications) on office vacancy, sustainable building adaptation and conversion. In this work, sustainability, resilience, lifespan and continued re-use of historic buildings are the main points. Hilde is involved in research ranging from large scale European funded projects to contract research for Dutch practice, working with researchers and professionals of various disciplines and backgrounds.

Cover Design: Wiley
Cover Images: (Top and background) © mustafa deliormanli/Gettyimages;
(Inset) Courtesy of Sara Wilkinson

www.wiley.com/go/construction

WILEY Blackwell

Also available as an e-book

ISBN 978-1-119-23142-4

RICS Research

Innovation in the Built Environment

Building Urban Resilience through Change of Use

WILKINSON
REMØY

WILEY
Blackwell

Building Urban Resilience through Change of Use

Edited by

Sara J. Wilkinson
University of Technology, Sydney, Australia

Hilde Remøy
Delft University of Technology, Netherlands

WILEY Blackwell

This edition first published 2018
© 2018 John Wiley & Sons Ltd

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by law. Advice on how to obtain permission to reuse material from this title is available at http://www.wiley.com/go/permissions.

The right of Sara J. Wilkinson and Hilde Remøy to be identified as the authors of the editorial material in this work has been asserted in accordance with law.

Registered Offices
John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, USA
John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

Editorial Office
9600 Garsington Road, Oxford, OX4 2DQ, UK

For details of our global editorial offices, customer services, and more information about Wiley products visit us at www.wiley.com.

Wiley also publishes its books in a variety of electronic formats and by print-on-demand. Some content that appears in standard print versions of this book may not be available in other formats.

Limit of Liability/Disclaimer of Warranty
While the publisher and authors have used their best efforts in preparing this work, they make no representations or warranties with respect to the accuracy or completeness of the contents of this work and specifically disclaim all warranties, including without limitation any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives, written sales materials or promotional statements for this work. The fact that an organization, website, or product is referred to in this work as a citation and/or potential source of further information does not mean that the publisher and authors endorse the information or services the organization, website, or product may provide or recommendations it may make. This work is sold with the understanding that the publisher is not engaged in rendering professional services. The advice and strategies contained herein may not be suitable for your situation. You should consult with a specialist where appropriate. Further, readers should be aware that websites listed in this work may have changed or disappeared between when this work was written and when it is read. Neither the publisher nor authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

Library of Congress Cataloging-in-Publication data applied for

ISBN: 9781119231424

Cover Design: Wiley
Cover Images: (Top and background) © mustafa deliormanli/Gettyimages;
(Inset) Courtesy of Sara Wilkinson

Set in 10/12pt Sabon by SPi Global, Pondicherry, India
Printed and bound in Singapore by Markono Print Media Pte Ltd

10 9 8 7 6 5 4 3 2 1

此为试读，需要完整PDF请访问：www.ertongbook.com

Building Urban Resilience through Change of Use

Innovation in the Built Environment

Series advisors

Clare Eriksson, Royal Institution of Chartered Surveyors
Carolyn Hayles, University of Bath
Richard Kirkham, University of Manchester
Andrew Knight, Nottingham Trent University
Stephen Pryke, University College London
Steve Rowlinson, University of Hong Kong
Derek Thomson, Loughborough University
Sara Wilkinson, University of Technology, Sydney

Innovation in the Built Environment (IBE) is a book series for the construction industry published jointly by the Royal Institution of Chartered Surveyors and Wiley-Blackwell. Books in the series address issues of current research and practitioner relevance and take an international perspective, drawing from research applications and case studies worldwide.
Innovation in the Built Environment:

- presents the latest thinking on the processes that influence the design, construction and management of the built environment based on strong theoretical concepts and draws on both established techniques for analysing the processes that shape the built environment – and on those from other disciplines
- embraces a comparative approach, allowing best practice to be put forward
- demonstrates the contribution that effective management of built environment processes can make

Books in the IBE series

Akintoye & Beck: *Policy, Finance & Management for Public-Private Partnerships*
Booth, *et al.*: *Solutions for Climate Change Challenges in the Built Environment*
Boussabaine: *Risk Pricing Strategies for Public-Private Partnerships*
Kirkham: *Whole Life-Cycle Costing*
London, *et al.*: *Construction Internationalisation*
Lu & Sexton: *Innovation in Small Professional Practices in the Built Environment*
Pryke: *Construction Supply Chain Management: Concepts and Case Studies*
Orstavik, *et al.*: *Construction Innovation*
Roper & Borello: *International Facility Management*
Senaratne & Sexton: *Managing Change in Construction Projects: a Knowledge-Based Approach*
Wilkinson, *et al.*: *Sustainable Building Adaptation*

We welcome proposals for new, high quality, research-based books which ARE Academically rigorous and informed by the latest thinking; please contact:

Viktoria Hartl-Vida
Senior Editorial Assistant
John Wiley & Sons Ltd
vhartlvida@wiley.com.

About the Editors

Sara J. Wilkinson

Sara J. Wilkinson is an Associate Professor and at the University of Technology Sydney. She works at the intersections of sustainability, resilience, building adaptation and transformation. Her research aims to improve local, national and international outcomes of urban development in built environments in respect of the most pressing challenges of our time: climate change, energy and water use, and a growing, increasingly urbanised global population. Sara engages in trans-disciplinary research with colleagues from science, health, business and technology as well as built environment disciplines. She is well published, with over 290 outputs. including books, research reports, and journal and conference papers. She contributes to the surveying profession through various national and international committees, accreditation and APC assessment.

Hilde Remøy

Hilde Remøy is Associate Professor in Real Estate Management at the Faculty of Architecture and the Built Environment in the Department of Management in the Built Environment of Delft University of Technology. She followed an international educational and professional path in Norway, Italy, and the Netherlands, and obtained her PhD in Real Estate Management at Delft University of Technology. After her PhD on the theme of office vacancy and residential conversion as a means of coping, she is now teaching, researching and publishing on office market developments, and obsolescence, adaptation and conversion of offices and historic buildings in the Dutch and international contexts. Hilde is involved in research ranging from large-scale European-funded projects to contract research for Dutch practice, working with researchers and professionals of various disciplines and backgrounds.

Contributor Biographies

Hannah Baker
Hannah Baker is a PhD student at the University of Cambridge, UK, and part of the Future Infrastructure and Built Environment Centre for Doctoral Training, which is based in the Engineering department. Previously, she obtained degrees in architecture at the University of Cambridge and in Town Planning at the University of the West of England. She then worked for a research consultancy in Cambridge exploring risks associated with the built environment. Hannah's PhD is funded by the Engineering and Physical Sciences Research Council (EPSRC) and she is using her multi-disciplinary background to investigate the decision to demolish or adapt existing buildings on masterplan regeneration sites.

Rob Geraedts
Rob Geraedts is Associate Professor in Design and Construction Management in the Faculty of Architecture and the Built Environment, Department of Management in the Built Environment, at Delft University of Technology. His present research focuses on the flexibility and adaptability of buildings, the flexibility of the design and construction process, the reuse and adaptation of vacant buildings into new functions, and 'open building' to meet the continuously and rapidly changing market and individual user demands. Since 1996 he has been an active member and scientific reviewer of CIB W104, Open Building Implementation.

Fred Hobma
Fred Hobma is associate professor of planning and development law at Delft University of Technology, the Netherlands. He studied law (private and public) at Groningen State University and obtained his PhD from Delft University of Technology. Currently he is a staff member of the Department of Management in the Built Environment in the Faculty of Architecture and the Built Environment. Dr Hobma teaches planning law and real estate law in undergraduate, graduate and postgraduate programs. He has written extensively on these topics. He has performed research for governments, advisory bodies, businesses and parliament.

Erwin Heurkens
Erwin Heurkens is Assistant Professor in Urban Development Management in the Faculty of Architecture and the Built Environment, Department of Management in the Built Environment, Delft University of Technology. His

此为试读,需要完整PDF请访问: www.ertongbook.com

focus is on the management of public–private partnerships, state–market relations, and sustainability in urban (re)development projects. Since his PhD on 'Private sector-led urban development projects' (2012) a comparative international perspective has been key in his research. Erwin has co-edited the books *International Approaches to Real Estate Development* (2015) and *Routledge Companion to Real Estate Development* (2018). He has published numerous scientific and professional journal articles focused on conceptualising and drawing lessons from urban development practices.

Gordon Holden
Gordon Holden is an architectural and urban design education leader, having initiated, structured and directed several programs across four universities in three countries. He is the initiator of Australia's first Master's program in urban design. He is the foundation head of architecture at Griffith University, Queensland and he is the 2010 recipient of the Australian Institute of Architects Award the 'Neville Quarry Architectural Education Prize' for outstanding leadership in architectural education. He researches, publishes and teaches in architectural and urban design history, theory and practice and he has a long-standing interest in urban resilience.

Craig Langston
Craig Langston is rofessor of Construction and Facilities Management at Bond University. He has a combination of industry and academic experience spanning over 40 years. His research interests include measurement of sustainable development, adaptive reuse, life-cycle costing and productivity. Professor Langston has held four Australian Research Council Linkage Project grants, amounting to nearly AUD$1 million in external competitive funding. He was also the recipient of the Vice Chancellor's Quality Award (Research Excellence) at Bond University in 2010. He is an international author and has won a number of awards for his research including from Queensland, Australia and Asia-Pacific Research Award in the project management discipline in 2016.

Alice Moncaster
Alice Moncaster is a senior lecturer at the Open University, UK, where she focuses on reducing the environmental impact of construction, working closely with industry to create real change. A first degree in engineering from the University of Cambridge and three years of earthquake engineering research at the University of Bristol were followed by ten years in industry as a civil and building structures engineer. She returned to academia in 2008 for an interdisciplinary PhD at the University of East Anglia, then built up a research group at the University of Cambridge where she became a lecturer in 2014.

Chris Riedy
Chris Riedy is Professor of Sustainability Governance at the Institute for Sustainable Futures, University of Technology, Sydney. He is a transdisciplinary academic with a career focus on governance for sustainable futures. Chris draws on sociological and political theory, futures thinking and trans-

formative science to design, facilitate and evaluate practical experiments in transformative change towards sustainable futures. Chris is a Senior Research Fellow of the Earth System Governance project, and on the editorial boards of *Futures* and the *Journal of Futures Studies*. He has published two books, 38 peer-reviewed articles or chapters, 56 research reports and hundreds of web articles.

Theo J.M. van der Voordt

Theo J.M. van der Voordt is Emeritus Associate Professor in Corporate and Public Real Estate Management at the Department of Management in the Built Environment, Faculty of Architecture and the Built Environment, Delft University of Technology. His research includes new ways of working, performance measurement, transformation and adaptive reuse as a means to cope with structurally vacant office buildings, and adding value by corporate real estate, facilities and services. His research aims to develop and test theories on successful real estate strategies and tools to support decision-making processes in practice.

Laura Wynne

Laura Wynne is a Senior Research Consultant with the Institute for Sustainable Futures at the University of Technology, Sydney. She conducts research projects in housing, urban sustainability, resilience and social change. Laura is an urban planner, and is interested in research that contributes to improving the health, resilience and sustainability of urban environments. She has conducted research modelling peri-urban food futures, understanding the impacts of urban renewal on low-income communities, sustainable and regenerative models for development and on community engagement around sustainability.

Acknowledgements

Sara would like to thank Lindsay, Ted and Ruskin for their patience and support. She would like to thank her students and colleagues, who engage in dialogue, debate and action around the issues covered in this book, and of course, Chris, Laura, Hannah, Alice, Craig and Gordon for their contributions to this book.

Hilde would like to thank colleagues and students for input, especially all thesis students on topics related to adaptive reuse, and Erwin, Fred, Rob and Theo, who collaborated on this book. Thanks also to Jelle, for thoughtful advice and so much more.

Foreword: Resilience as a 'Lens' for Driving the Adaptive Capacity of Cities

Even though we are familiar with these mega trends, many of the chapters in this book startle with the magnitude and pace of urbanisation at the global scale. Progressing to the examination of the particular opportunities and pressures experienced by individual cities; some in decline, some subject to restructuring in a static or slow economy, some with rapid population and economic growth, it is made clear that there cannot be a simplistic template to address these challenges. How frustrating for universalists!

Perhaps more that anything, this variation reveals yet again how flawed the very notion of a singular 'world's best practice' is, once the inherent contradiction of best practice being dependent on particular and unique responses to local conditions is recognised. How then are we to share experience and develop knowledge globally in the face of this paradox?

In contrast to the normalising pressures of globalisation, the emerging framework of 'resilience' provides a way of approaching the challenges faced by cities in a way that places human values front and centre, while still allowing commonalities and differences to be perceived and mapped. In this way it can be seen at least as an alternative, if not a counter and resistance to globalising forces that work to deny and erase these differences.

Despite the disparate origins of the idea of resilience – in engineering, material science, infrastructure, psychology and ecology – there is an emerging coherent conception that draws on all of these to identify a number of common characteristics of resilient systems. Rather than attempting to create a single definition, the formulation, definition and application of ideas of resilience can itself be seen as a complex emergent system: open ended, resulting from discussions with multifarious starting points, but grounded in disaster and emergency.

Haven't we been here before? Critics of sustainability often dismissed it on the basis of being a 'contested' notion where there was not a universally agreed definition or a simple 'sustainability for dummies' manual to implement it, in every place, in every situation. The absence of a single definition, let alone a universal methodology, provided a basis for 'sustainability' to be dismissed by those in whose interest it has been to continue (unsustainable) business as usual.

As the effects of the continuation of unsustainable practice become more apparent and less contested, so the idea of 'resilience' has found a firm footing in the shared and acute appreciation the public has of both natural and human disasters. The clear and present danger of the effects of climate change are not as easily dismissed as the unfair characterisation of 'sustainability' being a nebulous, and therefore dispensable concept. The 'inconvenient truths' of

此为试读,需要完整PDF请访问: www.ertongbook.com