chitecture Sustainabilit ren Allac

Architecture and Sustainability:

Critical Perspectives for Integrated Design

Generating Sustainability concepts from Architectural Perspectives

Ahmed Z. Khan and Karen Allacker

KU LEUVEN

KU Leuven Faculty of Architecture Campus Sint-Lucas Brussels/Ghent

Architecture and Sustainability: Critical Perspectives for Integrated Design

Generating Sustainability concepts from Architectural Perspectives

Ahmed Z. Khan and Karen Allacker

ARCHITECTURE and SUSTAINABILITY:

Critical Perspectives for Integrated Design

Generating Sustainability concepts from Architectural Perspectives

TABLE OF CONTENT	3	
ACKNOWLEDGEMENTS	9	
PREFACE	11	
INTRODUCTION	13	
Architecture and Sustainability: Critical Perspectives for Integrated Design		
Ahmed Z. Khan and Karen Allacker		

PART-1

INTEGRATED DESIGN IN THEORY AND PRACTICE

1.0 Integrated Design in Theory and Practice: An Introduction		
Karen Allacker and Ahmed Z. Khan		
1.1 Enframed Perspectives: the Social Construction of Sustainability and the Canon of Architecture	45	
Steven A. Moore		
1.2 D x E = C	49	
Philippe Samyn		
1.3 Sustainable Architecture: Towards Integrated Strategies from Urban design to Building component	53	
Emmanuel Rey		
1.4 Forward to the Past / Back to the Future - the Vernacular Prospect of Connected Architecture	59	
Andy van den Dobbelsteen		
1.5 Sustainable architecture: In search for a Multitude of Empathic Solutions	63	
Griet Verbeeck		



Table of content

PART-2 INTEGRATED DESIGN PERSPECTIVES		2.8 Cultural Acceptance of Green Building Solutions: The Real Challenge Muhammad Ashraf Shanjer	147
2.0 Understand, Express, Measure, Design and Urbanism: An Introduction to Integrated Design Perspectives Ahmed Z. Khan and Karen Allacker	69	2.9 Environmental Quality in Sustainable Building Design: Selective versus Exclusive Grainne McGill and Greg Keeffe	153
UNDERSTAND		MEASURE	
2.1 Sustainable Architecture as Ecology: Defining shared systemic priorities of public health and social ethics in places	85	2.10 The Limits of LEED Danish Kurani and Nicolas Rivard	161
Anirban Adhya and Philip D. Plowright 2.2 Sustainability in Architecture: An Evolving view of Architecture quadrature	95	2.11 Assessment and Rating Tools: A guarantee for Sustainable Successes? Bart Janssens	169
Sílvia Maria do Carmo Alves 2.3 Rethinking Sustainable Architecture: Beyond the Technological Approach Ahlam Ammar Sharif	103	2.12 Tools for Sustainability not for the Market: A critical analysis of Environmental Assessment Tools Adriano Magliocco and Maria Canepa	177
2.4 Towards a Soft Model of Sustainability in Architecture	111	2.13 Comparative analysis of Building Sustainability Assessment Methods for Neighbourhoods Damien Trigaux, Karen Allacker and Frank De Troyer	183
Michele Bonino, Davide Tommaso Ferrando and Zhang Li 2.5 Sustainability and the Toilet Siphon: Transcending Green Architecture.	121	2.14 Life Cycle Energy Analysis and Building Design: A comprehensive Multi-scale Framework André Stephan	191
Carlo Deregibus EXPRESS		2.15 Making the assessment right, or making the right assessment? Michiel Ritzen, Ronald Rovers, Zeger Vroon and Chris Geurts	199
2.6 Strategies for Integrated and Sustainable Renovation: A stronger voice for Architectural Knowledge	133	DESIGN	
Paula Femenias and Liane Thuvander 2.7 A Projet-based approach to Energy Quality as a path towards Sustainability Geoffrey van Moeseke	141	2.16 Design-Driven Critique of the "Calculative" Sustainability Concept Sylvain De Bleeckere and Pieter Cloeckaert	214

Table of content

2.17 BIM-Based Building Performance Analysis in Architectural Practice: When, Why and How	221	2.26 Leuven, 2012	299
Ajla Aksamija		Rotor and Robert Suermondt	
2.18 Designing for Sustainability: A Framework for Sustainable Architecture built on the Perspective of Universal Design Jasmien Herssens, Marc Dujardin and Hubert Froyen	231	PART-3 EXPLORATIONS THROUGH INTEGRATED DESIGN	
2.19 Critical perspectives on Sustainable Development: Reading the Sustainability Pillars in the Architectural Design Process of Wang Shu Aliki-Myrto Perysinaki and Yann Nussaume	237	3.0 Explorations through Integrated Design: An Introduction Ahmed Z. Khan	309
		3.1 Transition Into Eco-Effectiveness Is A Long-Term Process	315
2.20 Sustainability through Design: Stakeholder-based Sustainability concepts for fringe-related Open Space Development	243	Claudia Carreras, Katarzyna Jegorow, Michel Jeursen, Colm mac Aoidh, Sis Pillen and Marek Zahradnik	
Elke Vanempten and Bruno De Meulder			
		3.2 Learning Ecology: How to use and learn from Ecological Methods?	329
URBANISM		Angela Cichon, Sandro Govaert, Anna Martinez Falguera, Michala Lietavova, Marine Pirenne and Sandra Schippers	
2.21 Integrative Urban Development Concept: Horizontal and vertical approach to integrative and sustainable urban planning	255	3.3 Scale and Journey in Retroactive design	341
Emilia Rönkkö		Jacobo Abril Herrero, Eva Bóková, Sibel Gölemen, Katarzyna Ka mierczak, Fien Rebry and Sam Verschoren	
2.22 Biourbanism as new epistemological perspective between Science, Design and Nature Antonio Caperna and Stefano Serafini	263	3.4 Social dimension of up-cycling: Engaging local community in brown field (re)development Gemma Casellas, Monika Jaskulska, Zuzana Kneznikova, Jérémie Lichtfus, Marieke Senesael and Bram Van den Brande	351
2.23 Sustainable Architecture, Public Space, and the importance of Place-making	269		
Samra Mohsin Khan		3.5 Does an Architecture of Good Intentions really matter?	359
2.24 The Pueblo house and the Mobile Home: J.B. Jackson's Vernacular Landscape and the Sustainable Redevelopment of Suburbia	279	Beste Cakir, Ruben Jannses, Ivana Linderova, Emilie Otté, Silvia Iglesias Santos, Felix Schiettecatte and Mateusz Szymanowski	
Bruno Notteboom		3.6 Imagining The New Collective	367
2.25 Water sensitive urban design: A speculative exercise for the Brussels Capital Region Nadia Casabella and Catalina Codruta Dobre	287	Katherine Seagrief , Uuganjargal Batsuuri, Francisco Gómez, Minna Hulkkonen, Adam Luka ovi and Eva Meirsschaut	

3.7 Responsive Design and Governance	377	ACKNOWLEDGEMENTS
Niels Decoster, Yuka Goto, Gema Hernandez Moral, Jagoda Krawczyk, Aditya Nur Pradhana, Michael Sanchez Alfaro and Joeri van Calster		
3.8 Affordable Techniques By Design Thierry Ghijsen, Georgios Ioannou, Barbora Latalova, Maciej Misiaszek, Ou Ueno, Alexander Verbeke	385	
3.9 Thinking in Shades Simon Matthys, Mohamed Anes Benchaabane, Sato Wakiko, Stephanie Van Lembergen and	393	We would like to express our gratitude to all those people who have helped us in making this book project; to all those who contributed to this book through their work as authors, reviewed the contributions and provided valuable feed-back to the authors, talked over the many intellectual challenges in the conception of this book, provided useful comments for improv- ing the intellectual content of this book, assisted in editing, translating, proofreading, layout and design. A few people among them need to be named in particular for their help and support. Griet Verbeeck, Anirban Adhiya, Abel Tablada, Arnaud Evrard, André Stephan, and Stefan Boeykens. Moreover, we would also like to thank in particular the contributors to the first part of this book: Steven A. Moore, Philippe Samyn, Emmanuel Rey, Andy van den Dobbelsteen, and
Chawapol Watcharasukarn		again Griet Verbeeck. Gudrun De Maeyer deserves a special mention: without her unwavering commitment, support, and encouragement this
3.10 Eco-efficient design by reuse and participation	401	book project would not have been possible. The able assistance provided by Ben Robberechts in the graphic design and layout of the book speaks for itself. In general, we would like to thank all the students and staff of the KU Leuven Faculty of Architecture who participated in this book project.
Johannes Alge, Charlotte Bolle, Nissim Geron, Thibaut Luyten, Charles-Antoine Pavy and Evangelos Stavrakakis		Above all we would like to thank our respective families for their support and love in pursuing our intellectual endeavours: Hanne and Ayla in the case of Ahmed; Joost, Daan, and Illo in the case of Karen. We beg forgiveness of all those who have been with us in shaping our intellectual trajectories and whose names we have
3.11 Sustainability consciousness by design	411	failed to mention.
Alejandra Vázquez Luna, Giulia Cenere, Andreas Karamalikis, Jebbe Houttekier, Maros Somora and Sylvain Auxent		Ahmed Z. Khan Karen Allacker
3.12 Fluid interpretation and flexibility in design	423	
Amadé De Moyer, Marzieh Mazrouei Sebdani, Dimitri Meert, Lea Mittelberger, Hannes Monserez, Elze Schuurman and Indre Zuzeviciute		
3.13 Participatory design: From doing less bad towards doing more good	431	
Stijn Wynants, Ayush Kalra, Thomas Heyndrickx, Lucas Vandeneede, Mauro Calderone, Martijn Verfaillie, Obieromah Tomi and Sam De Dobbeleer		
CALL FOR PAPERS	441	
AUTHORS	443	