Proceedings of the 2011 ARCC Spring Research Conference Architectural Research Centers Consortium Considering Research Reflecting upon current themes in Architectural Research

Editors: Philip Plowright, Bryce Gamper Graphic Design: Tyler Hays Publisher: Lawrence Technological University

ISBN 978-1-257-32189-6

© 2011 Lawrence Technological University. All rights reserved. no part of this book may be reproduced in any manner whatsoever without prior written permissions from the publisher.

Lawrence Technological University College of Architecture + Design www.ltu.edu/architecture+design 248.204.2805



Lawrence Technological University 21000 West Ten Mile Road Southfield, MI 48075

## **CONTENTS**

INTRODUCTION Philip Plowright	Х
ON APPROACHES	
Appropriating space in an assisted living residence. On architecture and elderly frail people's spatial use Jonas E.Anderson	I
Creating regional Detroit's first "net zero energy" community  Constance C. Bodurow, Calvin Creech, Robert Fletcher, Jordan R.M Martin, and Aaron E. Olko, Kurt V. Neiswender	21
Does size matter?—Considering the importance of size and scale in educational environments  Ulrike Altenmüller-Lewis	37
Transformative architecture for the shrinking city Hollee Hitchcock Becker	49
Architecture and Landscape of a Mined Environment: Reading the Traces Peter Butler, Charlie Yuill, and Paul Kinder	57
Nelson Goodman's philosophy: an analytical account of architecture Remei Capdevila-Werning	65
Project Nervi: Aesthetics and Technology  Dale Clifford	73
Architectonics for evolving pastoralists: nomadic architecture and modern global culture Dariel Cobb	85
Experiencing Architecture - Exploring the Soul of the Eye Christina Bodin Danielsson	95
Giedion's Figural Conception of Urban Space-Time & The Analysis of Le Corbusier's Modern Urbanisms Matt Demers	103
Integrating geometry and light: daylight solutions through performance-based algorithms Michael D. Gibson	111
Temporal processes in research, green building and material reuse Bradley Guy and Diana Nicholas	127
Toward an Analytic Framework for Active Living Strategies in Parks and Recreation Systems  Jawaid Haider, Peter Aeschbacher and Mallika Bose	139
Regenerative Suburbanism: LIRR Long Island Radically Reconsidered Tobias Holler	151

Research into drawing and building  Zuzanna Karczewska	159
Bakhtinian dialogism as framework for participant architectural research Thomas-Bernard Kenniff	169
Energy performance of an adaptive façade system Kyounghee Kim, Ph.D, and Chris Jarrett	179
Heritages' management and operative strategies on the Alto Douro Wine region, Portugal  Marta Duarte Oliveira and Jorge Tavares Ribeiro	187
An Urban Crisis of a Financial Model: The Adaptive Reuse of Socialist Industrial Complexes in Moscow Eric Oskey, Ana Leshchinsky	197
Traveling Michel Serres' Passage du NordOuest: what happens, once the ice breaks?  A reflection on architectural research conducted between the humanities and engineering.  Ulrike Passe	209
Humanization and Architecture in Contemporary Hospital Building Giuseppe Pellitteri and Flavia Belvedere	225
Quality in Architecture - A Disputed Concept Magnus Rönn	235
Arrière-garde of de-colonization: Critical regionalist research on an Asia-Pacific architecture Marja Sarvimäki	245
Learning from Lafitte: An Interdisciplinary Place-based Approach to Architectural Research and Education Meredith Sattler	257
Digital Steam Bending: Re-Casting Historical Craft Through Digital Techniques Matthew Schulte, Steven Mankouche, Joshua Bard I and Tsz Yan Ng	269
Research in crisis: new analytical tools for the humanitarian architect Scott Gerald Shall	281
Intelligent Skins: Daylight harvesting through dynamic light-deflection in office spaces  Mohamed El Sheikh and Karen Kensek	293
User-Participation and the Design Charrette: A Systematic Approach to Furthering Design Process Alexandra Staub and Lisa D. Iulo	305
Action Research and Prototype Testbeds: Prioritizing Collaborative Making in Architectural Research Geoffrey Thün and Kathy Velikov	315

Spatial Layout and the Promotion of Innovation in Organizations  Jean Wineman, Felichism Kabo, Jason Owen-Smith, Gerald Davis	327
ON MEASUREMENT	
The effect of spatial knowledge on sense of belonging in university/academic environments  Ahmed Alawadhi, Tilanka Chandrasekera, and Chen Yang	337
Energy performance assessment of a naturally ventilated combined shaft-corridor DSF in an office building in Chicago Mona Azarbayjani	345
Sustainability vs. Performance Impact of reducing thickness of brick in veneer walls Susan Benjamin, Vera Straka, and Hitesh Doshi	359
Empirical aesthetics: the body and emotion in extraordinary architectural experiences Julio Bermudez	369
Sliding scale:A case study in metric selection  Martha Bohm	381
Urban heritage in action in the historic city of Fez: guest houses rehabilitation models Amina El Bouaaichi	393
What Else Do Design Professionals Need to Know About Sustainable Buildings Investment? A New Assessment Approach  Alireza Bozorgi and James R. Jones	407
Cultural Cartographic Archive: empowering communities through archi-digital technology Tim B. Castillo and Geraldine Forbes Isais	419
Education and architecture. Young people's perspectives and dialogues for a better understanding of built environment.  Ana Rute Costa, Sofia Marques da Silva and Francisco Barata	427
Measuring sustainable homes - a Mixed Methods approach Gitte Gylling, Mary-Ann Knudstrup, Per K. Heiselberg, and Ellen K. Hansen	435
Urbanized Ecosystems: Conceptualization to Application Michael Iversen	449
Louvered door research and development for user needs and energy efficiency in Thailand's context Daranee Lehtonen, Chujit Teerattanapan, and Jayada Boonyakiat	463
Urban grain and the vibrancy of older neighborhoods: metrics and measures Kathryn Rogers Merlino	477

SELCO Credit Union: a case study in quantifying the environmental impacts of design for deconstruction  Erin E. Moore and E. Eva Peterson	489
Urban Rooftops as Productive Resources Rooftop Farming versus Conventional Green Roofs Gundula Proksch	497
From a Consumer Product to a Complex Building: A Quantitative Approach to Sustainability Using Life Cycle Assessment (LCA) Ashraf Ragheb	511
Reaching Zero Energy in Florida's Hot Humid Climate Stanley Russell	521
Intangible patterns in real space: using social science methods to enhance urban research in Egypt Marika Snider	531
Resolving Form Generations through Analogue and Digital Human Simulations U. Sean Vance, Parke MacDowell and Diana Tomova	541
Four Theorems of African Archetype and Landscape  La Barbara James Wigfall	547
Impact of different weather data sets on photovoltaic system performance evaluation Chanikarn Yimprayoon and Mojtaba Navvab	559
Historic preservation and adaptive use: a significant opportunity for sustainability Robert A. Young	569
ON RELEVANCE	
Building technology research in architectural practice: emerging trends Ajla Aksamija	585
THE LATER ACT   semiotics < computational craft Mollie Claypool	595
Infrastructure, the shipping container, and the globalization of American space  Matthew Heins	603
Design Research in Search of Direction in Architecture Pedagogy & Practice Mitra Kanaani , David Kopec and Linda Thomas-Mobley	611
A paradigm in architectural education: Kolb's Model and learning styles in studio pedagogy	621

SEAty_ living beyond the waterfront dynamics outcomes and risk of a new trend  Giuseppe Pelliteri and Sebastiano Provenzano	635
Syncretistic Vernacular Architecture Santa Fe, New Mexico Benjamin King Shacklette,AIA	645
Information Urbanism Parametric urbanism in junction with GIS data processing & fabrication Ming Tang and Jonathon Anderson	66 I
Utilizing Virtual Reality for Simulating the Auditory Perception In Architectural Designed Spaces Sentagi S. Utami and Mojtaba Navvab	669
Concretion, abstraction: the place of materials in architectural design processes. Case study: Peter Zumthor  Benoît Vandenbulcke	679