

Table of Contents

Preface

Chapter 1: Urban Planning for Sustainability and Equity

The Impact of Spatial Distribution of Public Leisure and Cultural Facilities on Perceived Accessibility: A Focus on Small and Medium-Sized Cities in South Korea I.J. Kim, S.H. Heo and J.S. Lee	3
Toward Net-Zero Cities: Evaluating Architectural Spatial Logic through Pedestrian Trajectories and Therapeutic Walking Environments Y.K. Hsieh and Z.P. Xu	11
Analysis of the LOD(Level of Detail) in Real and Virtual Urban Spaces D. Bae, K. Kim and J.S. Lee	17
Inflation and Housing Affordability in Australia: The Role of Policy Uncertainty and Urbanization M. Malik, P. Saini, J. Alam and A. Chugh	25

Chapter 2: Building Environment, Microclimate, and Healthy Human Settlements

Integrating Vernacular Wisdom and Contemporary Performance in Mediterranean Residential Architecture: Santarém, Portugal Case Study N.D. Cortiços	33
Influence of Air Temperature, Illuminance and Correlated Color Temperature on Thermal Perception I. Uehara, Y. Kurazumi, K. Fukagawa and T. Sakoi	55
Assessing Outdoor Microclimate through On-Site Data and Simulation: The Case Study of Sistelo, Portugal F. Renato, P. Mendonça, M. Calzolari and P. Davoli	63
Extraction of Influencing Factors for Healing Environments in Maternal and Child-Friendly Primary Hospitals Based on Environmental Psychological Analysis Y. Liu and D.Z. Kong	69

Chapter 3: Sustainable Building Materials and Green Construction Technologies

Potential of Waste Fibers from Abaca & Pineapple Leaf to Reduce Carbon Footprint in Concrete Formulation – a Case in the Philippines M.X.M. Lofranco, G.M. Felisco, H.F.S. Rafols, J.B. Jamora, J.S.G. Elizalde and A.W. Go	77
Continuous Clay: Optimized Toolpaths for 3D-Printed Ceramic Structures Inspired by Weaving Patterns F. Wagiri, S.G. Shih, J. Jauk and M. Stavric	85
Experimental Investigation of a C-Shaped Rammed Earth Sub-Assembly under Monotonic Lateral Loading I. Kraus, T. Aoki and P.O. Miloš	93
Sustainable Reduction of Soil Permeability through Microbial Bio-Clogging V. Kamchoom, S. Chaisarn, T. Khattiwong and L. Laokhongthavorn	99
Eco-House: Towards a Sustainable Future C. Kabre	107

Chapter 4: Building Safety and Disaster Management

Advancing Active Shooter Evacuation Systems in the Built Environment: A Systematic Review and Future Directions	
J.H. Yoon, S.R. Arshid and I. Aurangzeb	117
Flood Vulnerability Assessment of Binahaan River Basin Using Morphometric Analysis Based on Quantum Geographic Information System and Remote Sensing	
L.M. Bello	127
Hydraulic Analysis of Control Structures for Non-Newtonian Flow Vulnerability in Tinajas Creek	
R.E. Mogrovejo Gutiérrez, R.L. Jeanneau Cervantes, E. Huamanrimachi Huaman and E.I. Quiroz Sandoval	139

Chapter 5: Energy, Thermal and Water Management in Buildings

Demonstration of the Snow-Melting and Economic Effects of a Snow-Melting System Using Building Waste Heat	
Y. Suzuki, H. Terasaki, Z. Jia, H. Nakayama, Y. Nishihara and Y. Onishi	147
Hybrid Solar Thermal Self-Regulating Power Generation System	
D.K. Jair, M.C. Hsieh and C.P. Lin	157
Design and Evaluation of a Scaled Autonomous Mobile Rainwater Harvesting System with Automatic Orientation for Rural Communities	
L.S.C. Peña, D.A. Colca Chipana, S.N. Casavilca Vergaray and A.M. Fonseca Daviran	163

Chapter 6: Digital Construction and Intelligent Technologies

Advanced Digital Twins in Bridge Management: An Approach for Structural Monitoring	
F. Porcellini, E.P. Zitiello, E. Basile and A. Salzano	173
Optimization of Digital Construction Supervision Systems through Field Practitioner Usability Evaluation and Gap Analysis	
D.H. Kim, W.S. Yoo, J.W. Son, W.Y. Jung, J.S. Lee and S.M. Kang	183