Contents

Part I  Sustainable Planning and Urban Development

Urban Heat Island and Vulnerable Population. The Case of Madrid .................................................. 3
Carmen Sánchez-Guevara Sánchez, Miguel Núñez Peiró and F. Javier Neila González

Analysis of the Influence of Variables Linked to the Building and Its Urban Context on the Passive Energy Performance of Residential Stocks ............................................. 15
Marta Braulio-Gonzalo, Mª José Ruá Aguilar and Mª Dolores Bovea Edo

Typological Analysis of H-Plan Social Housing Blocks Built in Spain Between 1957 and 1981 .................... 27
Alfonso Guajardo

Model to Integrate Resilience and Sustainability into Urban Planning .............................................. 39
Irina Tumini, Carolina Arriagada Sickinger and Sergio Baeriswyl Rada

Opportunity Detection of Empty Architectonical Lands and Their Recycle for a More Sustainable City ........ 51
Santiago Carroquino Larraz

The Arrabal of Alcázar viejo from Cordoba: Urban, Hereditary and Sustainable Regeneration of the Historic City Centre ....................... 63
Rafael Cabello Montoro

An Approach to Daylight Contrast Assessment in Mediterranean Urban Environments ...................... 77
Judit Lopez-Besora, Helena Coch and Antonio Isalgue
Part II Architecture and Society

Heritage and Community Space as Contemporary Housing

Project Matters. Neighbors Courtyards .......................... 91
María del Carmen Martínez-Quesada

Restoration of Pier-Dock of Clevedon. An Example of Involvement of Society in Defense of the Cultural Heritage ............................ 103
Concepción González-García de Velasco, Andrés Agudo Martínez and Miguel González-Vilchez

The Empathic City. Towards a New Model of Urban Sociability ...... 117
Isabel Jiménez-López, Angela Barrios-Padura and Marta Molina-Huelva

Part III Sustainable Renovation of Buildings and Neighbourhoods

(Re)Programa. Architectural Rehabilitation Incorporating Sustainability Criteria in an Andalusia Neighborhood .......................... 131
Begoña Blandón-González, Pedro Gómez de Terreros-Guardiola, Angela Barrios-Padura and Marta Molina-Huelva

Steps Towards the Integration of Regeneration Processes
Obsolete Buildings Envelope Spanish in the Paradigm of Sustainable Development .................................................. 143
Manuel Ramos Martín and Pilar Mercader-Moyano

From Recovery Constructively Towards the Social Reactivation. The Integrated Knowledge of Traditional Architecture as a Sustainable Strategy ................................................. 153
Victoria Domínguez Ruiz

Energy Retrofitting and Social Housing Instrumentation
Attending Passive Criteria. Case Study in Winter .......................... 165
S.G. Melgar, J.M. Andújar and M.A. Bohórquez

Assessment Method of Urban Intervention in Social Housing Developments: The Rehabilitation of Caño Roto (Madrid)
Case Study .............................................................. 179
Noelia Cervero Sánchez

Environmental Assessment and Energy Certification for the Sustainable Restoration of a Traditional Residential Building ............................................. 191
Carmen Rodríguez-Liñán, Mª Jesús Morales-Conde, Filomena Pérez-Gálvez, Paloma Rubio-de Hita and Silvia López-Alonso
Social Rent Housing Refurbishment Demonstrator of LIFE Project “New4Old” (LIFE10 ENV/ES/439) 203 Emilia Román, Gloria Gómez and Margarita de Luxán

Using Mappable Indicators for Prioritizing the Refurbishment of Social Housing. A Case Study of Zaragoza (Spain) 215 Marta Monzón and Belinda López-Mesa

Part IV Minimizing the Consumption of Material Resources

Assessment of the Relationship Between Diameter and Tensile Strength of Piassaba (Aphandra natalia) Fibers 227 Cristian Balcázar-Arciniega and Francisco Hernández-Olivares

Selection of Criteria for the Systematization of Technologies for a Sustainable Urban Water Cycle Management 239 Ana Prieto-Thomas

Study of Fine Mortar Powder from Different Waste Sources for Recycled Concrete Production 253 Eduardo Aguirre-Maldonado and Francisco Hernández-Olivares

Concrete Sustainable Light and of High Performance 263 Isabel Miñano, Francisco J. Benito, Carlos J. Parra and Pilar Hidalgo

Part V Sustainable Engineering

Project AURA: Sustainable Social Housing 277 Rafael Herrera, Paloma Pineda, Jorge Roa, Sebastián Cordero and Álvaro López-Escamilla

Structural Refurbishment Projects. The Sustainability of Reinforcements Using Composite Materials 289 Victoriano González, Angela Barrios-Padura and Marta Molina-Huelva

Rethinking Ephemeral Architecture. Advanced Geometry for Citizen-Managed Spaces 301 Andrés Martín-Pastor, Amanda Martín-Mariscal and Alicia López-Martínez

NESS®, an Alternative System to Double Strand of Hot Water that Saves Water and Energy 311 M. Carmen Ladrón de Guevara Muñoz, Eduardo J. Dueñas Ladrón de Guevara, Marcos Ortega Rodríguez and Luis Martín Martínez
Vegetation as a Design Element to Recover Green Areas in Settlements Developed on Contaminated Soils .......................... 325
Christhopher Contreras Lopez

Part VI Energy Efficiency

Update of the Urban Heat Island of Madrid and Its Influence on the Building’s Energy Simulation ........................................ 339
Miguel Núñez Peiró, Carmen Sánchez-Guevara Sánchez and F. Javier Neila González

Thermal Energy Refurbishment of Envelope in Mass Neighbourhood Housing, Located in Semi-arid Climate of Argentina .................................................. 351
Irene Blasco Lucas

Method for the Implementation of Active Solar Systems in Hospitals, in the Hospitalization Unit of the Hospital Clínico del Sur, Concepción, Chile ........................................ 363
Alberto Nope Bernal, Rodrigo García Alvarado and Ariel Bobadilla Moreno

Validation of a Dynamic Simulation of a Classroom HVAC System by Comparison with a Real Model .................................. 381
Miguel Ángel Campano, Armando Pinto, Ignacio Acosta and Juan J. Sendra

Study on Envelope in Office Buildings Under the Influence of Climate Change in Santiago, Chile ........................................ 393
Carlos Rubio-Bellido, Alexis Pérez-Fargallo and Jesús A. Pulido-Arcas

Methodology for the Optimisation of Thermal Performance and Daylight Access to the Retrofit of Hospital Rooms in Mediterranean Climate ........................................ 403
Juan Diego Pérez Téllez, Rafael Suárez Medina and Ángel Luis León Rodríguez

Urban Heat Island of Madrid and Its Influence over Urban Thermal Comfort ................................................................. 415
Emilia Román, Gloria Gómez and Margarita de Luxán

Threshold Values for Energy Loss in Building Façades Using Infrared Thermography .................................................. 427
Juan José Moyano Campos, Daniel Antón García, Fernando Rico Delgado and David Marín García
Assessment of the Energy Efficiency of a “Cool Roof” for Passive Cooling. Comparative Study of a Case of Tropical Climate and a Case of Southern Spanish Climate .......................... 439
Carlos A. Domínguez Torres and Antonio Domínguez Delgado

Author Index. .............................................................. 451
Subject Index. ............................................................. 453
Sustainable Development and Renovation in Architecture, Urbanism and Engineering
Mercader-Moyano, P. (Ed.)
2017, XXVI, 455 p. 196 illus., 162 illus. in color., Hardcover
ISBN: 978-3-319-51441-3