1 Energy-Saving Solutions for Five Hospitals in Europe .......................... 1
Marco Sala, Giuseppina Alcamo, and Lucia Ceccherini Nelli

2 Climate Adapted in NZEB Retrofiting for Residential Buildings ................................................................. 19
Marco Sala and Lucia Ceccherini Nelli

3 Sustainable Strategies for Protecting and Managing Cultural Heritages: The Case Study of Gonfienti in the Tuscany Region of Italy ................................................................. 33
Marco Sala, Giuseppina Alcamo, and Lucia Ceccherini Nelli

4 Buildings’ Energy Flexibility: A Bottom-Up, Multiagent, User-Based Approach to System Integration of Energy Infrastructures to Support the Smart Grid ......................... 47
Wim Zeiler, Timilehin Labeodan, Kennedy Aduda, and Gert Boxem

5 Influence Effect of Energy Roof on PV Efficiency: A Case Study ................................................................. 61
Paul Kemme and Wim Zeiler

Wim Zeiler, Anna Vanderveen, Wim Maassen, and Rik Maaijen

7 A Comparative Study Between Photovoltaic Pumping Systems Using a Permanent Magnet DC Motor and an Induction Motor ................................................................. 89
S. Abdourraziq and R. El Bachtiri
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Development of a Design of a Drop-In Hydrogen Fueling Station to Support the Early Market Buildout of Hydrogen Infrastructure: Topic-9</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>Abdulhakim Agll, Tarek Hamad, Sushrut G. Bapat, Yousif Hamad, and John W. Sheffield</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Sustainability of Higher Educational Buildings: Retrofitting Measures to Enhance Energy Performance—The Case of AASTMT Business Management School Building, Egypt</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>Mohsen Aboulnaga, Ayman Wanas, Mohamed Hammad, and Mohamed Hussein</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Effectiveness of Thermal Inertia in South Mediterranean Climate: Residential Houses</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>Giuseppina Alcamo</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Thermal Habitability Monitoring in Housing for Low-Income Families in Extreme Warm, Dry Weather</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Antonella Trombadore</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>An Integrated Building Energy Management System</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>Carlos Henggeler Antunes, Ana Soares, and Álvaro Gomes</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>The Normal: Minimising Energy Use; The Abnormal: Changing Habits</td>
<td>201</td>
</tr>
<tr>
<td></td>
<td>Anwar El Hadi, Ingi A. El-Hadi, and Mohammed A.I. Alameer</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Semi-Empirical Models for the Estimation of Global Solar Irradiance Measurements in Morocco</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>N. Laaroussi, M. Garoum, A. Hajji, M. Tajayouti, and A. Feiz</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Assessing PV Module Degradation and the Potential of Using Greenhouse Roofs for Supplemental PV Power Generation in Malta</td>
<td>223</td>
</tr>
<tr>
<td></td>
<td>Kristy Bartolo and Charles Yousif</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Revitalization and Refurbishment of Minor Historical Centers in the Mediterranean</td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>Alessandra Battisti</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Building Envelope–Systems Integrated Models: Topic 4</td>
<td>245</td>
</tr>
<tr>
<td></td>
<td>Fabio Conato</td>
<td></td>
</tr>
<tr>
<td>Chapter</td>
<td>Title</td>
<td>Author(s)</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>19</td>
<td>Lessons for Future Cities and Architecture: Ecology, Culture, Sustainability</td>
<td>Derya Oktay</td>
</tr>
<tr>
<td>20</td>
<td>Thermal Performance of Vacuum Glazing with Tempered Glass Panes</td>
<td>Yueping Fang, Trevor J. Hyde, Farid Arya, and Neil Hewitt</td>
</tr>
<tr>
<td>21</td>
<td>Energy Refurbishment Towards Nearly Zero-Energy Terrace Houses in the Mediterranean Region</td>
<td>D.K. Serghides, M. Michaelidou, Stella Demetriou, and M.C. Katafygiotou</td>
</tr>
<tr>
<td>22</td>
<td>Geo-Climatic Applicability of Direct Evaporative Cooling in Italy</td>
<td>Giacomo Chiesa, Fabio Acquiletti, and Mario Grosso</td>
</tr>
<tr>
<td>23</td>
<td>Integrating Deep Offshore Wind with Pumped Hydro Storage in a Central Mediterranean Archipelago’s Electricity Generation System</td>
<td>Robert N. Farrugia, Tonio Sant, and Cedric Caruana</td>
</tr>
<tr>
<td>24</td>
<td>Energy Choice to Support Carbon Dioxide Reduction in Indonesia</td>
<td>Herliyani Suharta, Arnold Soetrisnanto, and Unggul Priyanto</td>
</tr>
<tr>
<td>25</td>
<td>A Study of Space Syntax and Sustainable Design in Chinese Vocational Education Parks: Three Case Studies</td>
<td>Qiushi Hao, Benchen Fu, and Teng Fei</td>
</tr>
<tr>
<td>26</td>
<td>Micro-Aeolic in Residential Districts: A Case Study in Sant’Arsenio (South-western Italy)</td>
<td>Dora Francese, Emanuela Adamo, and Shoaib Khanmohammadi</td>
</tr>
<tr>
<td>28</td>
<td>Study of Landform-Reconstruction Method Applied to Architectural Forms in Cold Areas</td>
<td>Chen Shuo and Mei Hongyuan</td>
</tr>
<tr>
<td>29</td>
<td>Building-Integrated Renewable Energy Systems, or Rediscovering Forgotten Principles</td>
<td>Ana-Maria Dabija</td>
</tr>
<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>31</td>
<td>Robustness of Residential Houses in Ecuador in the Face of Global Warming: Prototyping and Simulation Studies in the Amazon, Coastal and Andes Macroclimatic Regions</td>
<td>Massimo Palme and Andrea Lobato</td>
</tr>
<tr>
<td>32</td>
<td>Performance Analysis and Parametric Studies of a Bi-fluid Type Photovoltaic/Thermal (PV/T) Solar Collector in Simultaneous Mode under Tropical Climate Conditions</td>
<td>Hasila Jarimi, Mohd Nazari Abu Bakar, Mahmod Othman, and Mahadzir Din</td>
</tr>
<tr>
<td>33</td>
<td>Bi-fluid Photovoltaic/Thermal PV/T Solar Collector with Three Modes of Operation: Experimental Validation of a Theoretical Model</td>
<td>Hasila Jarimi, Mohd Nazari Abu Bakar, Mahmod Othman, and Mahadzir Din</td>
</tr>
<tr>
<td>34</td>
<td>High Quality of Calibration Accuracy for Smart Building Energy-Efficiency Opportunities</td>
<td>G. Mustafaraj</td>
</tr>
<tr>
<td>38</td>
<td>Exploitation of Wave Energy Potential in Aegean Sea: Greece</td>
<td>F. Xanthaki, Chr. Giannaraki, E.F. Zafeiraki, and J.K. Kaldellis</td>
</tr>
<tr>
<td>39</td>
<td>Energy Performance of a Renovated Multi-Family Building in Sweden</td>
<td>Lina La Fleur, Bahram Moshfegh, and Patrik Rohdin</td>
</tr>
<tr>
<td>40</td>
<td>Building Thermal Exergy Analysis</td>
<td>Lorenzo Leoncini and Marta Giulia Baldi</td>
</tr>
<tr>
<td>41</td>
<td>Light and Shadow: Mediterranean Visual Scenes</td>
<td>Judit Lopez-Besora and Helena Coch</td>
</tr>
</tbody>
</table>
42 Potential of Solar Electricity for Grid-Connected Systems in Algeria .......................... 561
L. Hassaine and A. Mraoui

Yoshinori Itaya

44 Mathematical Model for System Planning on Campus: A Case Study in Harbin Institute of Technology in China .... 589
Rong Guo and Tong Wu

45 Urban Sustainable Development in the Mediterranean Area: The Case of Sestri Ponente, Genoa ......................... 599
Katia Perini and Adriano Magliocco

46 Development of Energy Devices Based on Photovoltaic Panels with Extra Consumer Properties ....................... 609
L. Mikhailov, S. Mikhailova, G. Ismailova, G. Yar-Muhamedova, and S. Sokolov

47 Assessment of Airflows in a School Building with Mechanical Ventilation Using Passive Tracer Gas Method .......... 619
Jessika Steen Englund, Jan Akander, Mikael Björling, and Bahram Moshfegh

48 Energetic and Functional Upgrading of School Buildings ........ 633
Paolo Giordani, Alessandro Righi, Tiziano Dalla Mora, Mauro Frate, Fabio Peron, and Piercarlo Romagnoni

49 Evaluation of Thermal Performance, Environmental Impact, and Cost Effectiveness of an XLam Component for Retrofitting in Existing Buildings ........................................ 643
Tiziano Dalla Mora, Alessandro Righi, Fabio Peron, and Piercarlo Romagnoni

50 Self-Awareness Tool for Renewable Energy Production in Mixed-Use Urban Tissues: Incubators European Project for the Mediterranean Region ........................................ 657
Luca Caneparo, Federica Bonavero, and Barbara Melis

51 Renewable Energy in South of Morocco and Prospects ........ 667
Hassan Nfaoui and Ali Sayigh

52 Analysis of Energy Performance of a High-Performance Building in a Local Mediterranean Climatic Context ........ 681
Maria Teresa Lucarelli and Caterina Claudia Musarella

53 Skylight Optimization Design Based on the Interior Ventilation in the Office Building in Cold Region .................. 691
Tiantian Du and Jianfei Chen
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>An Environmental Technological Approach to Architectural Programming for School Facilities</td>
<td>Giacomo Chiesa and Mario Grosso</td>
</tr>
<tr>
<td>55</td>
<td>Green, Smart, Sustainable Building Aspects and Innovations</td>
<td>Abdul Salam Darwish</td>
</tr>
<tr>
<td>56</td>
<td>Soilless Urban Temporary Agriculture as a Strategy for Brownfield Site Renewal</td>
<td>Leonardo Boganini and Chiara Casazza</td>
</tr>
<tr>
<td>57</td>
<td>Solar Building Systems for the Mediterranean Region: Research Outputs Between Italy and France</td>
<td>Christian Cristofari, Andrea Giachetta, and Chiara Piccardo</td>
</tr>
<tr>
<td>58</td>
<td>Spectral Variation of Energy-Efficient Room Lighting</td>
<td>Helmut F.O. Müller</td>
</tr>
<tr>
<td>59</td>
<td>The Housing Retrofit Market in Italy: Constraints and Barriers to Development</td>
<td>Riccardo Pollo</td>
</tr>
<tr>
<td>60</td>
<td>Passive Cooling in Mediterranean Area for a Bioclimatic and Zero Energy Architecture</td>
<td>Fabrizio Tucci</td>
</tr>
<tr>
<td>61</td>
<td>First-Year Performance of a PV Plant in Jordan Compared to PV Plants in the Region</td>
<td>Ali Hamzeh, Sadiq Hamid, Abbas Sandouk, Zakaria Al-Omari, and Ghada Aldahim</td>
</tr>
<tr>
<td>62</td>
<td>Gauging the Effectiveness of a Resource Management Awareness Campaign on a Central Mediterranean Island</td>
<td>Paul Refalo, Robert N. Farrugia, Luciano Mulè Stagno, Charles Yousif, Tonio Sant, Nora Jakkel, Anthony Zammit, and Joseph Portelli</td>
</tr>
<tr>
<td>63</td>
<td>The ‘Reduce and Save’ Project: An Island-Wide Resource Management Awareness Initiative</td>
<td>Paul Refalo, Luciano Mulè Stagno, Robert N. Farrugia, Charles Yousif, Tonio Sant, Nora Jakkel, Anthony Zammit, and Joseph Portelli</td>
</tr>
<tr>
<td>64</td>
<td>Heat and Light Intensity Influence on (I–V) Characterization of Cu$_2$S Film/p-Si Heterojunction</td>
<td>M. Saadeldin, M.M. El-Nahass, and K. Sawaby</td>
</tr>
</tbody>
</table>
66 New Environmentally Friendly Chlorine-Free Solar-Grade Silicon Production Technologies ........................................ 845
Sergey Karabanov, Victor Yasevich, Dmitriy Suvorov, Evgeniy Slivkin, and Andrey Karabanov

67 Some Physical Properties of Pure and Fluorine-Doped Tin Oxide Films Used as Transparent Conducting Oxide ........ 857
Kamil M. Yousif and Sayran A. Abdulgafar

68 Socioeconomic, Environmental, and Social Impacts of a Concentrated Solar Power Energy Project in Northern Chile ........................................ 865
Irene Rodríguez, Natalia Caldés, Alberto Garrido, Cristina De La Rúa, and Yolanda Lechón

69 Learning Sustainability from Arab Gulf Vernacular Architecture ......................................................... 885
Khaled A. Al-Sallal

70 Transparent Conducting Oxides for Solar Cell Applications ....... 899
Shadia J. Ikhmayies

71 Solar-Driven Cold Storage Units to Reduce Food Waste ........ 909
Sraisth

72 An Adaptive Thermal Comfort Model for the Romanian Climate .............................................................. 921
Ioana Udrea, Cristiana Croitoru, Ilinca Nastase, Ruxandra Crutescu and Viorel Badescu

73 A Whole-Building, Integrated Approach for Designing a High-Performance, Net-Zero-Energy and Net-Zero-Water Building .................................................... 931
Richard V. Piacentini

74 Dynamic Simulation for Increasing the Efficiency of Solar Cooling Systems in Northern Latitudes .................... 941
Peteris Shipkovs, Janis Shipkovs, Andrejs Snegirjovs, Galina Kashkarova, Kristina Lebedeva, and Lana Migla

75 Investigation of Urban Microclimate Parameters of City Square in Harbin ............................................. 949
Hong Jin, Peng Cui, and Meng Huang
Mediterranean Green Buildings & Renewable Energy
Selected Papers from the World Renewable Energy
Network's Med Green Forum
Sayigh, A. (Ed.)
2017, XXVI, 963 p. 545 illus., 468 illus. in color.,
Hardcover
ISBN: 978-3-319-30745-9