# TABLE OF CONTENTS

## PART 1

### EDITORIAL

Wai Oswald Chong, Jae Chang, Kristen Parrish, Umberto Berardi

NEW STRATEGIES TO IMPROVE GOVERNANCE IN TERRITORIAL MANAGEMENT:
EVOLVING FROM “SMART CITIES” TO “SMART TERRITORIES”

Salvador Garcia-Ayllon, Jose Luis Miralles

INTERNAL CONTAMINANT SOURCE DILUTION AND FILTRATION IN DEDICATED OUTDOOR AIR SYSTEMS

Ehsan S. Mousavi, Kevin R. Grosskopf

A POST OCCUPANCY EVALUATION FRAMEWORK FOR LEED CERTIFIED U.S. HIGHER EDUCATION RESIDENCE HALLS

Nakisa Alborz, Umberto Berardi

LIFE CYCLE APPROACH FOR FACILITY RESILIENCE INFORMATION MODELING (FRIM)

Jing Pan, Xing Su

LOCAL BUILDING MATERIALS: AFFORDABLE STRATEGY FOR HOUSING THE URBAN POOR IN NIGERIA

Iwuagwu Ben Ugochukwu, M. Iwuagwu Ben Chioma

WATER MICROGRIDS: THE FUTURE OF WATER INFRASTRUCTURE RESILIENCE

Gregory J. Falco, Wm. Randolph Webb

BUILDINGS AS POWER STATIONS*: AN ENERGY SIMULATION TOOL FOR HOUSING

Ester Coma, Phil Jones

REGENERATIVE DESIGN OF EXISTING BUILDINGS FOR NET-ZERO ENERGY USE

Ajla Aksamija

PERCEPTION OF INDOOR ENVIRONMENT QUALITY IN DIFFERENTLY VENTILATED WORKPLACES IN TROPICAL MONSOON CLIMATES

Wajishani Gamage, Stephen S. Y. Lau

PERFORMANCE ASSESSMENT OF A GROUND-COUPLED HEAT PUMP FOR AN OFFICE ROOM HEATING USING RADIATOR OR RADIANT FLOOR HEATING SYSTEMS

Calin Sebarchievici, Daniel Dan, Ioan Sarbu

THE INFLUENCE OF HEIGHT/WIDTH RATIO ON URBAN HEAT ISLAND IN HOT-ARID CLIMATES

Mohammed A. Bakarman, Jae D. Chang

SPATIAL DESIGN FOR HEALTHY AND EFFECTIVE ELECTROMAGNETIC WAVE PROPAGATION

Serhan Hakgudener

SUSTAINABLE ENERGY FROM BIOGAS REFORMING IN A MICROWAVE DISCHARGE REACTOR

N. Tippayawong, E. Chaiya, P. Thanompongchart, P. Khongkrapan

BUILDING ENERGY CONSUMPTION IN US, EU, AND BRIC COUNTRIES

Umberto Berardi

THE URBAN HEAT ISLAND EFFECT IN THE CITY OF TORONTO

Yupeng Wang, Umberto Berardi, Hashem Akbari

VERTICAL GARDENS AS SWAMP COOLERS

M. J. M. Davis, F. Ramirez, A. L. Vallejo

APPLICATIONS AND ANALYSIS OF THE COMPOSITE WALL ON CONSTRUCTION IN HEILONGJIANG PROVINCE

Shijun Sun, Dejun Ma, Guangchun Zhou

A LITERATURE SURVEY OF THE FRACKING ECONOMIC AND ENVIRONMENTAL IMPLICATIONS IN THE UNITED STATES

Mohammed S. Hashem M. Mehany, Angela Guggemos

TOWARDS SUSTAINABLE CONSTRUCTION IN OMAN: CHALLENGES & OPPORTUNITIES

Mohamed S. Saleh
STEADY-STATE ANALYSIS ON THERMALLY DRIVEN ADSORPTION AIR-CONDITIONING SYSTEM FOR AGRICULTURAL GREENHOUSES
Muhammad Sultan, Takahiko Miyazaki, Bidyut B. Saha, Shigeru Koyama, Valeriy S. Maisotsenko

IDENTIFYING FEG STANDARD THROUGH A PERFORMANCE STUDY OF INDUSTRIAL FANS IN THAILAND
P. Tantakitti, S. Pattana, K. Wirutkasem

VERTICAL CEMETERY
Wahyu P. Hariyono

STRUCTURAL SYSTEM EMBODIED CARBON ANALYSIS FOR SUPER TALL BUILDINGS
Xin Zhao, M. A. Haojia

EMBODIED CARBON BASED INTEGRATED OPTIMAL SEISMIC DESIGN FOR SUPER TALL BUILDINGS WITH VISCOELASTIC COUPLING DAMPERS
Xin Zhao, Lang Qin

KNOWLEDGE-BASED APPROACH FOR SUSTAINABLE DISASTER MANAGEMENT: EMPOWERING EMERGENCY RESPONSE MANAGEMENT TEAM
Faisal Arain

DURABILITY OF MORTARS MADE WITH DREDGED SEDIMENTS
F. Kazi Aoual - Benslafa, D. Kerdal, M. Ameur, B. Mekerta, A. Semcha

EVOLUTION OF ARCHITECTONIC SPATIAL ENVIRONMENT IN LATVIAN RURAL POPULATED AREAS DUE TO NATURAL AND HUMAN INTERACTION
Silvija Ozola

LEVERAGING DATA ACROSS THE BUILDING LIFECYCLE
Randall Deutsch, Aia, A. P. Leed

PERFORMANCE ASSESSMENT OF SUSTAINABLE COMPOSITE ROOFING ASSEMBLIES USING EXPERIMENTATION
Vishakha Sakhare, Sanjay Raut, Rahul Ralegaonkar

MULTI OBJECTIVE OPTIMIZATION OF MIX PROPORTION FOR A SUSTAINABLE CONSTRUCTION MATERIAL
Mangesh Madurwar, Vishakha Sakhare, Rahul Ralegaonkar

BIM-CONTROLLED SIGNAGE SYSTEM FOR BUILDING EVACUATION
K. Yenumula, C. Kolmer, J. Pan, X. Su

IMPROVING CONSTRUCTION EQUIPMENT OPERATION SAFETY FROM A HUMAN-CENTERED PERSPECTIVE
Xing Su, Jing Pan, Mark Grinter

AN ALTERNATE REALITY GAME FOR FACILITY RESILIENCE (ARGFR)
Jing Pan, Xing Su, Zheng Zhou

INFLUENCE ON VERTICAL SHADING DEVICE ORIENTATION AND THICKNESS ON THE NATURAL VENTILATION AND ACOUSTICAL PERFORMANCE OF A DOUB SKIN Façade
Jeehwan Lee, Jae D. Chang

A STUDY OF SHADING DEVICE CONFIGURATION ON THE NATURAL VENTILATION EFFICIENCY AND ENERGY PERFORMANCE OF A DOUBLE SKIN FACADE
Jeehwan Lee, Mohammed Alshayeb, Jae D. Chang

INTEGRATE AN EMBODIED GHG EMISSIONS ASSESSMENT MODEL INTO BUILDING ENVIRONMENTAL ASSESSMENT TOOLS
Y. Chen, S. Thomas Ng

THE 2050 CITY
Gregory Kiss, Hermen Jansen, Veronica Lucia Castaldo, Lydia Orsi

THE POTENTIAL OF GEOSPATIAL TOOLS FOR ENHANCING COMMUNITY ENGAGEMENT IN THE POST-DISASTER RECONSTRUCTION OF CHRISTCHURCH, NEW ZEALAND
Maria Rita Dionisio, Simon Kingham, Karen Banwell, Joshua Neville

CHARACTERISTIC OF THE INFRA BASED URBAN ARCHITECTURAL SPACE AND RETHINKING OF THE GLOBAL SOCIETY’S PUBLIC PLACE
Jung Hye-Jin, Shin Ye-Kyeong

NEW SPATIAL POSSIBILITIES OF RAILWAY STATION: EVERYDAY HERITAGE, ENJOYABLE LANDSCAPE
Shin Ye-Kyeong, Jung Hye-Jin

BUILDING CENTRAL PLANT SYSTEM PERFORMANCE OPTIMIZATION THROUGH A VIRTUAL AMBIENT WET-BULB TEMPERATURE SENSOR
Keke Zheng, James Watt, Young K. Cho
A CONVENIENT THERMAL PERFORMANCE EVALUATING METHOD FOR UNITARY AC (DX) UNITS ................................. 391
Keke Zheng, Young K. Cho

DELIVERING ZERO CARBON BUILDINGS: THE ROLE OF INNOVATIVE BUSINESS MODELS ........................................... 404
Xiaojing Zhao, Wei Pan

LIVING WITHIN HUMANITY’S LIFE-SUPPORT SYSTEM ................................................................. 412
John L. Motloch, Scott Trues

EVALUATING THE IMPACT OF VERTICAL GREENING SYSTEMS ON THERMAL COMFORT IN LOW INCOME RESIDENCES IN LAGOS, NIGERIA ................................................................. 420
Akinwolemiwa Oluwafeyikemi, Gwilliam Julie

LEVERAGING ON WORK INTEGRATED LEARNING TO ENHANCE SUSTAINABLE DESIGN PRACTICES IN THE CONSTRUCTION INDUSTRY ................................................................. 434
Naveed Mazhar, Faisal Arain

A FRAMEWORK FOR CLOUD-BASED ENERGY EVALUATION AND MANAGEMENT FOR SUSTAINABLE DECISION SUPPORT IN THE BUILT ENVIRONMENTS ................................................................. 442
Yong K. Cho, Haorong Li, Jeewoong Park, Keke Zheng

DEVELOPMENT OF AN ENERGY-AWARE INTELLIGENT FACILITY MANAGEMENT SYSTEM FOR CAMPUS FACILITIES ................................................................. 449
Yang Cao, Xinyi Song, Tao Wang

TOWARDS A SUSTAINABLE AND HEALTHY WORK ENVIRONMENT –LESSONS LEARNED FROM THE UNPREVENTED EXPOSURE OF MINERS TO COAL DUST ................................................................. 457
Linda M. Tello, David Grau

DEVELOPING A THREE-DIMENSIONAL GEOMETRIC FRAMEWORK FOR GREENING BUILDINGS’ FACADE ................................................................. 465
H. Attya, A. Habib, D. Al-Obayhi

EXAMINING CONTEMPORARY ISSUES FOR GREEN BUILDINGS FROM CONTRACTORS’ PERSPECTIVES ................................................................. 470
Mohsen Azouz, Jin-Lee Kim

ASSESSMENT AND STRATEGIES TO REDUCE LIGHT POLLUTION USING GEOGRAPHIC INFORMATION SYSTEMS ................................................................. 479
Mohamed Elsahragty, Jin-Lee Kim

TOWARDS SUSTAINABLE WATER SUPPLY: SCHEMATIC DEVELOPMENT OF BIG DATA COLLECTION USING INTERNET OF THINGS (IOT) ................................................................. 489
Dan Koo, Kalyan Piratla, C. John Matthews

HEATING AND COOLING LOADS IN HIGH PERFORMANCE CONSTRUCTION SYSTEMS- WILL CLIMATE CHANGE ALTER DESIGN DECISIONS? ................................................................. 498
Seyed Masoud Sajjadian, John Lewis, Stephen Sharples

A FRAMEWORK TO UNDERSTAND EFFECT OF BUILDING SYSTEMS DETERIORATION ON LIFE CYCLE ENERGY ................................................................. 507
Albert Thomas, Carol C. Menassa, Vinit R. Kumat

POST OCCUPANCY EVALUATION IN HIGHER EDUCATION ................................................................. 515
Ardavan Tookaloo, Ryan Smith

EVALUATION OF LIGHTING PERFORMANCE RISK USING SURROGATE MODEL AND ENERGYPUS ................................................................. 522
Jia Hu, Eric Shen, Yun Gu

THERMAL-ENERGY AND ENVIRONMENTAL IMPACT OF COOL CLAY TILES FOR RESIDENTIAL BUILDINGS IN ITALY ................................................................. 530
Anna Laura Pisello, Franco Cotana

ANALYSIS OF BUILDING-INTEGRATED PHOTOVOLTAIC SYSTEMS: A CASE STUDY OF COMMERCIAL BUILDINGS UNDER MEDITERRANEAN CLIMATE ................................................................. 538
Talal Salem, Elias Kinab

OCCUPANTS’ PERCEPTION ON GREEN-RATED OFFICE BUILDING IN SURABAYA, INDONESIA ................................................................. 546
Christina Mediastika, Karen Lie

BIM-ENABLED POWER CONSUMPTION DATA MANAGEMENT PLATFORM FOR RENDERING AND ANALYSIS OF ENERGY USAGE PATTERNS ................................................................. 554
Cheng-Ting Chiang, Chun-Ping Chu, Chien-Cheng Chou

MULTI-SCALE ANALYSIS AND OPTIMIZATION OF BUILDING ENERGY PERFORMANCE – LESSONS LEARNED FROM CASE STUDIES ................................................................. 563
Lamberto Tronchin, Massimiliano Manfren
A VIRTUAL REALITY SUPPORTED APPROACH TO OCCUPANCY ENGAGEMENT IN BUILDING ENERGY DESIGN FOR CLOSING THE ENERGY PERFORMANCE GAP................................. 573
S. Niu, W. Pan, Y. Zhao

A RESEARCH FRAMEWORK FOR INVESTIGATING THE RELATIONSHIP BETWEEN SAFETY CLIMATE AND SAFETY PERFORMANCE IN THE CONSTRUCTION OF MULTI-STOREY BUILDINGS IN PAKISTAN.............................................................. 581
Haftz Zakoor, Albert P. C. Chan, Wahyudi P. Utama, Ran Guo

COMPARATIVE ANALYSIS OF CLIMATE AND MORPHOLOGY BETWEEN TRADITIONAL PATTERNS AND MODERN APPROACHES: THE CASE OF BUSHEIR’S TRADITIONAL CONTEXT ................................................................. 590
M. Asghari, R. Vafaei

A BIM-INTEGRATED FUZZY MULTI-CRITERIA DECISION MAKING MODEL FOR SELECTING LOW-CARBON BUILDING MEASURES............................................................................................................................. 606
L. Chen, W. Pan

CHALLENGES FOR MODELING CARBON EMISSIONS OF HIGH-RISE PUBLIC RESIDENTIAL BUILDINGS IN HONG KONG ............................................................................................................................. 614
Y. Zhao, W. Pan, Y. Ning

MULTI-LINEAR REGRESSION MODELS TO PREDICT THE ANNUAL ENERGY CONSUMPTION OF AN OFFICE BUILDING WITH DIFFERENT SHAPES
Mohammad Mottahedi, Atefeh Mohammadpour, Shideh Shams Amir, David Riley, Somayeh Asadi

GLOBAL MEAT CONSUMPTION TRENDS AND LOCAL DEFORESTATION IN MADRE DE DIOS: ASSESSING LAND USE CHANGES AND OTHER ENVIRONMENTAL IMPACTS................................................................. 630
F. Recanati, F. Allevi, G. Scaccabarozzi, T. Espinosa, G. Dotelli, M. Saini

INFRARED IMAGING AS A MEANS OF ANALYZING AND IMPROVING ENERGY EFFICIENCY OF BUILDING ENVELOPES: THE CASE OF A LEED GOLD BUILDING
Ali Taileb, Hamoud Dekkiche

PART 2

THE MODERN DAY “VICTORY GARDEN”................................................................................................................................. 647
M. M. Herrmann

INVESTIGATIONS ON REPLACEMENT OF FINS WITH FLAT HEAT PIPES FOR HIGH POWER LEDS................................................................................................................................. 654
B. Jayachandran, P. P. Sajith, C. B. Sobhan

INTEGRATING LIFE CYCLE ASSESSMENT WITH GREEN BUILDING AND PRODUCT RATING SYSTEMS: NORTH AMERICAN PERSPECTIVE ................................................................. 662

THE IMPACT OF URBAN STRUCTURE CHANGES ON THE AIRFLOW SPEED CIRCULATION IN HISTORIC KARBALA, IRAQ
Dhirgham Alobaydi, Haider Mohamed, Hussein Attya

DEVELOPING A THERMAL COMFORT REPORT CARD FOR BUILDING ................................................................................................. 675
Moatassem Abdallah, Caroline Clevenger, Mani Golparvar-Fard

POSITIVE INFLUENCE OF GREEN SUPPLY CHAIN OPERATIONS ON THAI ELECTRONIC FIRMS’ FINANCIAL PERFORMANCE ................................................................................................. 683
K. Y. Tippayawong, T. Tiwaratreewit, A. Sopadang

COOLING THE HEAT ISLAND IN COMPACT URBAN ENVIRONMENTS: THE EFFECTIVENESS OF CHICAGO’S GREEN ALLEY PROGRAM ................................................................................................. 691
Paul Coseo, Larissa Larsen

INVESTIGATION OF THE RELATIONSHIP BETWEEN THE CLIMATIC ROLE OF Iwan AND RATE OF ENERGY CONSUMPTION IN TRADITIONAL HOUSES OF TABRIZ ................................................................................................. 711
Nasim Najafgholi Pour Kalantari, Maryam Singeri, Sobhan Roshanfekr Jourshari

DECENTRALIZED WATER SYSTEMS FOR SUSTAINABLE AND RELIABLE SUPPLY ................................................................................................. 720
Kalyan R. Piratla, Suraj Goverdhanaan

EMPIRICAL ANALYSIS OF WATER-MAIN FAILURE CONSEQUENCES ................................................................................................. 727
Kalyan R. Piratla, Sreeramaksh R. Yerri, Sepideh Yazdekhasti, Junsung Cho, Dan Koo, John C. Matthews

THE BRESCIA SMART CAMPUS DEMONSTRATOR. RENOVATION TOWARD A ZERO ENERGY CLASSROOM BUILDING ................................................................................................. 735
E. De Angelis, A. L. C. Ciribini, L. C. Tagliafure, M. Paneroni
PERFORMANCE EVALUATION OF AUTOMATICALLY GENERATED BIM FROM LASER SCANNER DATA FOR SUSTAINABILITY ANALYSES
Chao Wang, Yong K. Cho

DESIGN FOR SUSTAINABLE AGING: IMPROVING DESIGN COMMUNICATION THROUGH BUILDING INFORMATION MODELING AND GAME ENGINE INTEGRATION
Wei Wu, Ishar Kaushik

FUNDAMENTALS IN FACADE RETROFIT PRACTICE
Andrea Martinez, Mic Patterson, Andrew Carlson, Douglas Noble

RESILIENCE OF HUMAN MOBILITY UNDER THE INFLUENCE OF TYPHOONS
Qi Wang, John E. Taylor

INDUSTRIAL SYMBIOSIS FOR A SUSTAINABLE CITY: TECHNICAL, ECONOMICAL AND ORGANIZATIONAL ISSUES
Vito Albino, Luca Fraccascia, Tommaso Savino

CO-BENEFITS OF ENERGY AND BUILDINGS DATA: THE CASE FOR SUPPORTING DATA ACCESS TO ACHIEVE A SUSTAINABLE BUILT ENVIRONMENT
Ian Hamilton, Tadj Oreszczyn, Alex Summerfield, Phil Steadman, Simon Elam, Andrew Smith

AWARENESS, DRIVERS, ACTIONS, AND BARRIERS OF SUSTAINABLE CONSTRUCTION IN KUWAIT
Shaikha Alsanad

LIFE CYCLE ASSESSMENT OF REUSING FLY ASH FROM MUNICIPAL SOLID WASTE INCINERATION
T. Y. Huang, P. T. Chuieh

URBAN METABOLISM OF RECYCLING AND REUSING FOOD WASTE: A CASE STUDY IN TAIPEI CITY
Wei-Lun Tseng, Pei-Te Chiueh

FEASIBILITY OF CSH IN ASSISTING THE NEW HOUSING SECTOR IN DELIVERING ZERO CARBON HOMES BY 2016
Abdulkadir Ganah, Cara Henderson, Godfuard John

CITY RESILIENCE THROUGH DATA ANALYTICS: A HUMAN-CENTRIC APPROACH
Gregory J. Falco

FEASIBILITY STUDY OF THE POTENTIAL USE OF DRILL CUTTINGS IN CONCRETE
Ehsan Mostavi, Somayeh Asadi, Elumeze Ugochukwu

ENERGY CONSUMPTION AND ENVIRONMENTAL IMPACT ASSESSMENT OF THE ENERGY EFFICIENT HOUSES IN TORONTO, CANADA
Samira Zare Mohazabieh, Mahsa Ghajarkhosravi, Alan S. Fung

IMPACT OF INSULATED CONCRETE CURB ON CONCRETE BALCONY SLAB
Chafik Murad, Hitesh Doshi, Ramani Ramakrishnan

STUDENT HOUSING ENERGY CONSUMPTION: A COMPARISON OF CHILLED WATER, HEATING, AND ELECTRICITY USE
Mount El Asmar, Claire Tilson

Gafsi Mostefa, Boutassouma Kheira, Djehiche Abdelkader, Djaid Naima

AWARENESS AND INITIATIVES OF BUILDING INTEGRATED PHOTOVOLTAIC (BIPV) IMPLEMENTATION IN MALAYSIAN HOUSING INDUSTRY

ADAPTIVE 3D IMAGING AND TOLERANCE ANALYSIS OF PREFABRICATED COMPONENTS FOR ACCELERATED CONSTRUCTION
Vamsi Sai Kalasapudi, Pingbo Tang, Chengyi Zhang, Jose Diosoado, Ram Ganapathy

STRATEGIC RETROFIT INVESTMENT FROM THE PORTFOLIO TO THE BUILDING SCALE: A FRAMEWORK FOR IDENTIFICATION AND EVALUATION OF POTENTIAL RETROFITS
J. J. McArthur, C. G. H. Jofeh

IDENTIFYING UNCERTAINTIES TOWARD SUSTAINABLE PROJECTS
Georgios Kapogiannis, Mark Gaterell, Eleni Oulasoglou

SIMULATION AS A TOOL FOR ASSESSING THE ECONOMICAL ASPECTS OF CONSTRUCTION PROCESSES
Abdulsalam A. Alsudairi

SMART ADAPTATION TO FLOODING IN URBAN AREAS
Sampet Yamashita, Ryoichi Watanabe, Yukihiro Shimatani
A BUILDING INFORMATION MANAGEMENT (BIM) FRAMEWORK AND SUPPORTING CASE STUDY FOR EXISTING BUILDING OPERATIONS, MAINTENANCE AND SUSTAINABILITY...................................................................................................................... 1104
J. J. McArthur

INVESTIGATING SOCIAL FACTORS OF SUSTAINABILITY IN A SMART CITY ................................................................. 1112
Taonaz Montaredzadeh, Robert Krüeger

OIL CONTAMINATED SAND: AN EMERGING AND SUSTAINABLE CONSTRUCTION MATERIAL................................................................. 1119
Rajab M. Abousnina, Allan Manalo, Weena Lokuge, Jim Shiau

EVALUATION FOR VOLTAGE STABILITY INDICES IN POWER SYSTEM USING ARTIFICIAL NEURAL NETWORK .................................................................................................................. 1127
H. H. Goh, Q. S. Chu, S. W. Lee, B. C. Kok, K. C. Goh, K. T. K. Teo

ELECTRIC BUSES: LESSONS TO BE LEARNT FROM THE MILTON KEYNES DEMONSTRATION PROJECT ...................................................................................................................... 1137
Andriana Kontou, John Miles

REVIEW OF THE LEED CATEGORY IN MATERIALS AND RESOURCES FOR DEVELOPING COUNTRIES ............................................................................................................................... 1145
Asli Pelin Gurgun, Ruveyda Komurlu, David Arditi

POTENTIAL CONTRIBUTION OF URBAN DEVELOPMENTS TO OUTDOOR THERMAL COMFORT CONDITIONS: THE INFLUENCE OF URBAN GEOMETRY AND FORM IN WORCESTER, MASSACHUSETTS, USA .................................................................................................................. 1153
Milad Zabeti Targhi, Steven Van Dessel

FORECASTING SHORT-TERM ELECTRICITY DEMAND IN RESIDENTIAL SECTOR BASED ON SUPPORT VECTOR REGRESSION AND FUZZY-ROUGH FEATURE SELECTION WITH PARTICLE SWARM OPTIMIZATION ...................................................................................................................... 1162
Hyojoo Son, Changwan Kim

EVALUATION OF LEED REQUIREMENTS FOR SITE PROPERTIES IN DEVELOPING COUNTRY-SPECIFIC CERTIFICATION ............................................................................................................................... 1169
Ruveyda Komurlu, Asli Pelin Gurgun, David Arditi

COMPARATIVE LIFE CYCLE ANALYSIS OF MATERIALS IN WASTEWATER PIPING SYSTEMS ............................................................................................................................... 1177
Ehsan Vahidi, Enze Jin, Maithilee Das, Mansukh Singh, Fu Zhao

SEMI-SUPERVISED ENERGY MODELING (SSEM) FOR BUILDING CLUSTERS USING MACHINE LEARNING TECHNIQUES ............................................................................................................................... 1189
Harsharan Naganathan, Wai K. Chong, Xue-Wen Chen

BIO-INSPIRED PANEL DESIGN FOR THERMAL MANAGEMENT ............................................................................................................................... 1195
J. M. Porrilla-Aguilar, L. M. Sánchez-Hernández, M Mayorga, L. Romero-Salazar, J. C. Arteaga-Arco

ADVANCES IN THE USE OF THE STEEL INDUSTRY BY-PRODUCTS WHEN MANUFACTURING TRADITIONAL CERAMICS FOR SUSTAINABLE PURPOSES ............................................................................................................................... 1202
J. L. Mendez-Cuenca, M. Mayorga, L. Romero-Salazar, H. T. Yee-Madeira, J. Jiménez-Gallegos, J. C. Arteaga-Arco

MOVING AWAY FROM FLAT SOLAR PANELS TO PV TREES: EXPLORING IDEAS AND PEOPLE’S PERCEPTIONS ............................................................................................................................... 1208
Elissavet Dimitrokalii, Jamie Mackrill, Graham Jones, Yorck Ramachers, Rebecca Cain

ELECTRICITY MARKET EQUILIBRIUM MODEL WITH SEASONAL VOLATILITIES ............................................................................................................................... 1217
Viviana Fanelli, Silvana Musti, Lucia Maddalena

A BIOPHYSICAL FRAMEWORK OF HEAT REGULATION STRATEGIES FOR THE DESIGN OF BIOMIMETIC BUILDING ENVELOPES ............................................................................................................................... 1225
Lidia Badarnah

STATISTICAL ANALYSIS OF CHEMICAL ADMIXTURES USAGE FOR CONCRETE: A SURVEY OF ESKISEHIR CITY, TURKEY ............................................................................................................................... 1236
Gülçag Albayrak, Mehmet Canbaz, Uğur Albayrak

A RAPID SEISMIC RISK ASSESSMENT METHOD FOR EXISTING BUILDING STOCK IN URBAN AREAS ............................................................................................................................... 1242
Uğur Albayrak, Mehmet Canbaz, Gülçag Albayrak

SIMPLIFIED MODEL FOR DYNAMIC SIMULATION OF SOLAR SYSTEMS WITH EVACUATED TUBE COLLECTOR ............................................................................................................................... 1250
Demba Ndiaye

DETERMINING THE FEASIBILITY OF STATISTICAL TECHNIQUES TO IDENTIFY THE MOST IMPORTANT INPUT PARAMETERS OF BUILDING ENERGY MODELS ............................................................................................................................... 1258
R. Arababadi, H. Naganathan, K. Parrish, W. K. Chong