

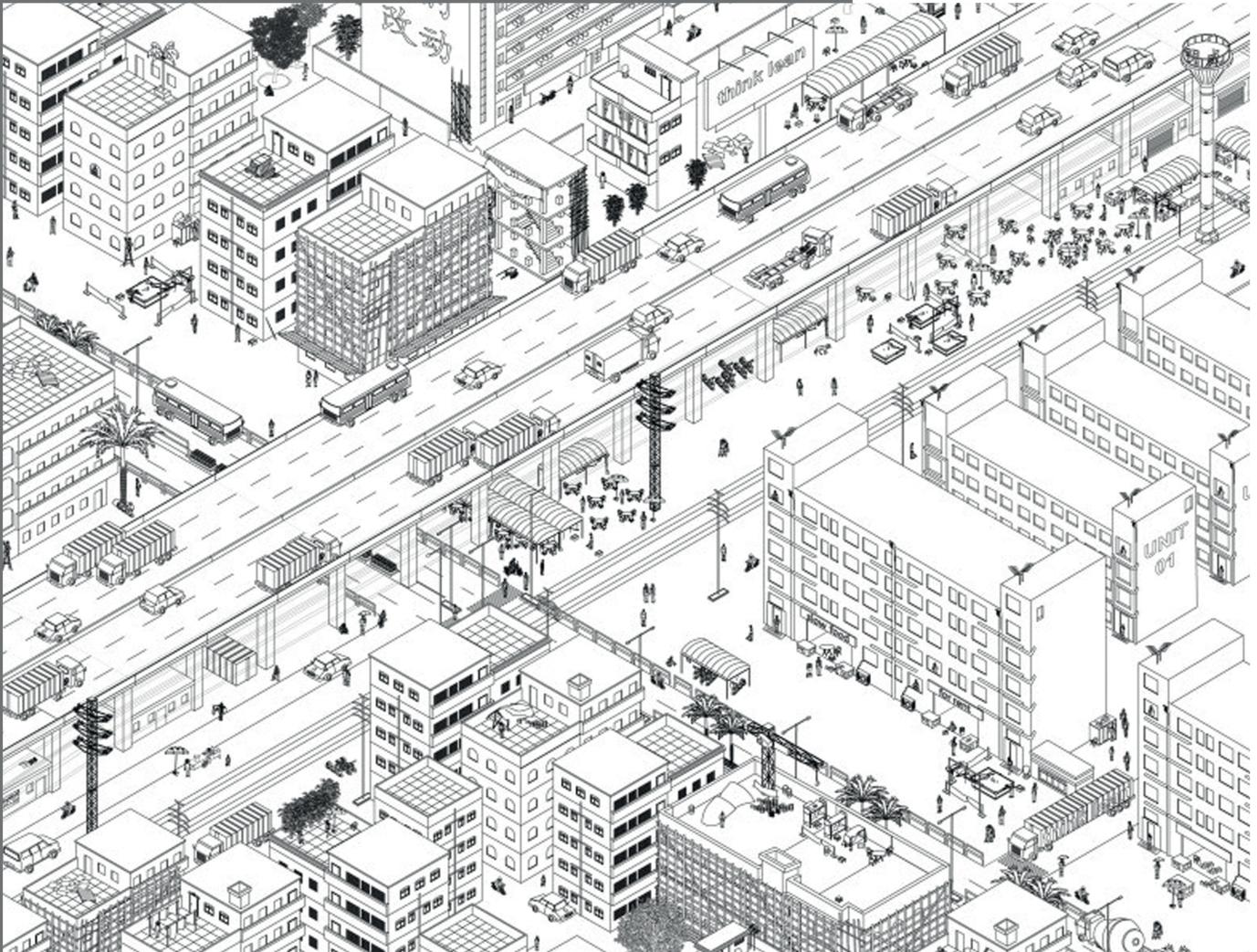


Alanya HEP University

11-13 May 2022

# 5<sup>th</sup> INTERNATIONAL CONFERENCE OF CONTEMPORARY AFFAIRS IN ARCHITECTURE AND URBANISM CONFERENCE PROCEEDINGS

A COMPILATION OF ABSTRACTS



Cover photo: Spatial Agency: Map Office

Editors: Prof. Dr. José Manuel Pagés Madrigal | Mojdeh Nikoofam

INTERNATIONAL CONFERENCE

# CONFERENCE PROCEEDINGS

## BOOK OF ABSTRACTS ICCAUA 2022

5<sup>th</sup> International Conference of  
Contemporary Affairs in Architecture and Urbanism (ICCAUA-2022)  
Alanya HEP University, Alanya, Turkey  
Editors: Dr. José Manuel Pagés Madrigal and Mojdeh Nikoofam  
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# Introduction

The *5th International Conference on Contemporary Affairs in Architecture and Urbanism* is organized by Alanya HEP University with the collaboration of the German University in Cairo and the Journal of Contemporary Urban Affairs. ICCAUA 2022's mission is to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of the contemporary concerns, methods and approaches to architecture and urbanism. It also provides the premier interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, concerns, practical challenges encountered and the solutions adopted in the field of Architecture and Urbanism.

Accordingly, the conference brings together all the theories, manifestos and methodologies on contemporary architecture and urban spaces to raise the understanding for the future of architectural and urban planning. Overall, the conference aimed to establish a bridge between theory and practice in the built environment. Thus, it reports on the latest research findings and innovative approaches, methodologies for creating, assessing, and understanding contemporary built environments.

A broad outline of the conference's scope includes peer-reviewed original research articles, case and technical reports, reviews and analyses, papers, and short communications. This conference proceeding is the combination of scholars, practitioners, professionals, researchers and policymakers with a common interest in the field of architecture and urban design from different disciplines, such as Art, Architecture, Landscape, Urban planning and Urban Design. The scopes of this conference include:

## **Architecture and Technology**

Environmental Sustainability

Smart Buildings

Sustainable Design

Green Architecture and Urban Planning

Climate and building

New Technologies

Climate Change Adaptation

## **Sustainability and Urban Design**

Landscape Architecture and Urbanism

Sustainable Urban Development

Urban ecology

Housing and Urban Environments

Urban Aesthetics

New Urbanism

Urban Transport planning, management, and strategies

Disaster Risk Management

Regeneration and Urban Renewal

Urban Sprawl

Healthy and Productive Economy

Chemicals, Waste and Air Quality

## **Heritage and Cultural Landscapes**

Revitalization

Gentrification

Adaptive reuse

Morphology

## **Habitat Studies / Infra Habitation**

Infra Habitation

Emerging cities

Gated communities

Conflict and divided territories.

Slums

Affordable houses.

Resilience, Disaster and Conflicts

## **Civil Engineering**

Theoretical and Advanced Technology of

Engineering Structures

High-rise Buildings and Large-span Structures

Bridge and Tunnel Engineering

Newer Structures and Special Structures

Engineering Structure Safety and Disaster

Prevention

Structural Reliability, Durability and Health

Monitoring

Project and Construction Processes

Educational Topics in Civil Engineering

Reuse and Recycle Wastewater

Traffic Engineering

Geographic Information Systems (GISs)

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## Keynote Speakers' Self-Biography



**Professor Dr. Jianfa Shen, Department of Geography and Resource Management, The Chinese University of Hong Kong, Hong Kong, China**

Prof. Jianfa SHEN is Professor of the Department of Geography and Resource Management, and Director of Research Centre for Urban and Regional Development of Hong Kong Institute of Asia-Pacific Studies at The Chinese University of Hong Kong. His research interests focus on urbanization, migration, urban and regional development, urban governance and urban competitiveness. He has undertaken substantial research in these areas contributing to theoretical and methodological advancements, as well as empirical analysis and applications including the development of a dual-track urbanisation framework and the causes of changing migration patterns in China. He is one of the top two percent of the world's scientists according to the list released by Stanford University in December 2020. He received RGC Senior Research Fellowship 2020/2021. He serves in the Editorial Boards of The China Review, Population, Space and Place, Applied Spatial Analysis and Policy, Asian Population Studies, Asian Geographer and Geographical Research. He has published 197 papers and 28 books including "Urbanization, Regional Development and Governance in China" (2018, Routledge) and "Development and Planning in Seven Major Coastal Cities in Southern and Eastern China" (2017, Springer).



**Professor Dr. Jean-Francois Lejeune, University of Miami, USA**

Jean-François Lejeune is Professor at the U-SoA, where he teaches architectural design, urban design, and history theory. From June 2009 to December 2014 he was the Director of Graduate Studies. He taught at the Oregon School of Design (1985-87) and was Visiting Professor at the Universidade do Rio Grande do Sul (Brazil), the Università La Sapienza Roma, and the Universidad de Alcalá in Alcalá de Henares in Spain. In 2007 he was an Affiliated Fellow at the American Academy in Rome. Born in Belgium, he graduated from the University of Liège (Belgium) with the Diploma of Engineer-Architect. He is now a Ph.D. candidate and researcher at TU Delft, Netherlands, where he is completing his dissertation on Reciprocal Influences: Rural Utopia, Metropolis and Modernity in Franco's Spain.

Lejeune's research has also focused on Latin America and Miami and he is a founding member and secretary of DoCOMOMO-US/Florida. He curated in Brussels the exhibition Cruelty and Utopia: Cities and Landscapes of Latin America whose catalogue won the Julius Posener CICA Award for Best Architecture Catalogue in 2005. Other exhibitions include Cuban Architects at Home and in Exile: the Modernist Generation (2016-17, with Victor Deupi), The Florida Home: Modern Living in Miami, 1945-65 (Miami-Tallahassee, 2004-5, with Allan Shulman), Interama: Miami and the Pan-American Dream (Miami, 2008, with Allan Shulman). He is currently at work on two monographs: Loos and Schinkel: The Metropolis between the Individual and the Collective (Routledge) and The Modern Village: Rural Utopia and Modernity in Franco's Spain (DOM, Berlin).



**Professor Dr. Ahmed Faggal, department of architecture, Faculty of Engineering , Ain shams University (ASU), Cairo, Egypt.**

Professor Ahmed Faggal is a professor in the Architectural Department, Faculty of Engineering, Ain shams University (ASU), Cairo, Egypt, a visited Professor in The German University in Cairo (GUC) & The British University in Egypt (BUE) and recently he is the Dean of Canadian International College – (CIC). Professor Ahmed Faggal had his PH. D in Architecture Eng. "2002" Ain Shams University, and his M.Sc Degree in Architecture Eng. "1998" Ain Shams University, Bachelor of Engineering "Sept. 87, - June 91" Ain Shams University, Faculty of Engineering. He teaches building technology, environmental control systems, and thermal comfort courses at both the undergraduate and postgraduate levels. He has supervised thesis in M.Sc. Degree & PH. D for more than 19 years. He has published papers in the area of environmental control and thermal comfort in buildings.



**Professor Dr. Yasser Mahgoub Faculty of Architecture, Galala University**

Dr. Yasser Mahgoub is an architect, academic and scholar. Currently, Program Director, Faculty of Architecture, Galala University. Received his Doctorate in Architecture degree from The University of Michigan in 1990. Held several academic positions at Ain Shams University (Egypt), United Arab Emirates University, Kuwait University, Qatar University, Dar Al Hekma University (Saudi Arabia) and Galala University (Egypt). Practised as a professional architect and consultant.. Teaches design studios, research methods, environment and behaviour, creativity and innovation, professional practice, graduation/senior projects and graduate courses. His research interests include social and cultural aspects of architecture, sustainable architecture, architectural education and the impact of globalization on architecture. Published several refereed research papers in internationally refereed journals and book chapters. Attended and presented papers in several international and regional conferences. Served as a scientific referee for many scientific conferences and journals. Was a member of the Agha Khan for Architecture Award reviewers for the 2010 cycle and currently country nominator.



**Dr. Joseph Adeniran ADEDEJI, Federal University of Technology, Akure, Nigeria**

Dr. Joseph Adeniran Adedeji has his core research interest in landscape hermeneutics. He joins the Rachel Carson Center from The Federal University of Technology, Akure (FUTA), Nigeria where he is a senior lecturer in the Department of Architecture. He obtained Bachelor (Hons.) and Master of Technology degrees in Architecture from Ladoko Akintola University of Technology (LAUTECH), Ogbomoso, and Doctor of Philosophy degree in Architecture from FUTA. He lectured briefly at Osun State College of Technology, Esa-Oke (2004-2007), and LAUTECH (2007-2011) before his appointment in FUTA in 2011. A full member of the Nigerian Institute of Architects (NIA) and chartered by the Architects' Registration Council of Nigeria (ARCON), he has over two decades of practical experience. His teaching, research works, and publications are situated at the intersection of spatial considerations for the comfortable use of urban open spaces, environment and behaviour, cultural morphology of cityscapes, and more intensely, landscape hermeneutics of the urban grain in an African context. Specifically, he has a passion for researching the socio-cultural aspects of ecosystem services and biocultural identity of the Yoruba nation of south-west Nigeria. His most recent project titled Bioculturalism of Yorubas: Intersection of mythology and nature for wellbeing at Osun Sacred Grove UNESCO Site, Osogbo, Nigeria is part of a bigger picture of the project Urban realities and urban nature: Facilitating processes of wellbeing and belonging within urban biocultural environments (Earthscan, forthcoming). He is a reviewer with several academic journals, including Emerald's Management of Environmental Quality and Health Environment Research & Design, Urban Design International, Journal of Conservation Planning of the University of Florida (including an editorial board membership from 2014 to 2017), and Elsevier's Social Science and Humanities Open, among others. He is an

external examiner and Ph.D thesis assessor. He has published widely and presented research at learned conferences in Nigeria and abroad. These include IFLA (International Federation of Landscape Architects) World Congress 2012 and 2016, and the 2nd International Workshop on Civil Engineering and Architecture, among many others. He is a research methodologist with emphasis on the mixed-method paradigm, which he teaches at a postgraduate level. His Survey research designs incorporate data dummyming: The what and how of a strategy for studying environment security is a wealth of resources on research methods praxis.



**Professor Dr. Sahar Attia, Department of Architecture, Faculty of Engineering, Cairo University, Egypt**

Dr. Sahar Attia, is an Emeritus Professor of urban design at the Faculty of Engineering, Cairo University. She has been the Head of the Department of Architecture in the same institution from 2013-2017. She has 40 years of experience practising and teaching urban planning, urban design, and architecture. She is currently a member of the Supreme Council of Urban Development in Egypt, a member of the Stakeholders Advisory Group Enterprise (SAGE) UN-Habitat, She is also the co-chair of the University Network Initiative -UN-Habitat (UNI), and a board member in Ecocity Builders, a non-profit public benefit corporation in SF California-USA.

She is the Co-Editor of: “Dynamics And Resilience Of Informal Areas: International Perspectives” (2016), “New Cities and Community Extensions in Egypt and the Middle East” (2018), “Cultural Sustainable Tourism” (2019), and “Ecocities Now” (2020), all four published by Springer. In January 2021, she has been appointed a member of the Egyptian Parliament, and a member of the Science & technology working group in the International Parliamentary Union (IPU).



**Dr. Laura P. Spinadel, BUSarchitektur & BOA GmbH, Competence Center URBAN MENUS for Smart Urban Development, Austria**

Laura P. Spinadel (1958 Buenos Aires, Argentina) is an Argentine-Austrian architect, urban planner, writer, educator and principal of the companies BUSarchitektur and BOA office for advanced randomness in Vienna. She is particularly renown for her works Compact City and Campus WU, both considered pioneers of the holistic architecture ideology. She is Doctor Honoris Causa at the Civic Parliament of the Humanity, Transacademy Universal Institute of Nations. Currently, she is working on URBAN MENUS\*\*, an Interactive Society Future Planning Serious Game to create our cities in 3D using an impact-oriented consensual approach.

\*\* Granting Promotion XL Innovation AWS Austrian economy services of the Creative Industries (2017) & Impact Innovation funding Austrian Research Promotion Agency FFG (2020) & aws technology internationalization 2021-2022 support for URBAN MENUS India market study for a Smart Area Development solution.

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**Professor Dr. Carlo ALBERINI, Mohammed VI Polytechnic University, Morocco.**

fter his master’s in Architecture at the School of Architecture – University of Genoa (in 1998), with a thesis on *Teaching of Urban Planning in the European Schools of Architecture*, he began his research and teaching activities. In 2005, he got his PhD in Urban Planning at the School of Engineering – University of Genoa, with a thesis on *Ports planning, urban governance and waterfronts regeneration projects*.

Since he graduated, he has been Researcher and Adjunct Professor at the School of Architecture in Genoa for several years, taking courses on *Town Planning* and *Town Planning History*. Adjunct Professor at the Schools of Architecture in Florence, where he taught courses on *Urban Planning, Urban Management, Infrastructures and Urban Development*. He also taught at the Master’ on *Waterfront regeneration projects in Mediterranean cities*. Its areas of research investigation covered the topics of *urban analysis* and *urban regeneration projects management*, with specific focus on the quality of public space and the impact on real estate value; internationally he has been involved in research projects funded by the EU, in the fields of *urban mobility, cities-infrastructures design & management, infrastructure & environment*.

Since august 2018 he’s a Professor and Researcher at the School of Architecture Planning and Design - Mohammed VI Polytechnic University (Morocco), where he has held courses in the Master on “*Resilient, Sustainable and Smart Buildings & Cities*” as well as for the bachelor’s degree in Architecture. In the Master RSSBC he’s in charge for teaching the modules related to: *Analysis of urban contexts in African cities; Funding resilient and sustainable buildings & cities; Introduction to real estate finance for sustainable and resilient urban transformation projects*. On the bachelor’s in architecture, he’s in charge for the *Design Studio #1, Design Studio #2, Introduction to Environment Ecology and Sustainability*. At the EMINES – School of Industrial Management (UM6P) he in charge for teaching the module *Finance and Urbanization*. He’s author of three monographies on infrastructure development and urban development process, waterfront regeneration project and port planning, urban planning & real estate finance. He’s also correspondent for the International Architecture Review AREA. Recently he presented the paper “*How to teach Urban Big Data for tomorrow’ town planners*” at the 2022 International Conference of the Association of Collegiate School of Planning. He is Co-Coordinator of the research project: “*Urban structure and COVID19 spread. Defining and monitoring Urban Health & Hygiene Performance Index*” as well as Coordinator of a 3-year research project “*Dakhla Region 2030 Action Plan. Fostering SDGs trough integrated coastal zones management and sustainable urban planning*”. As a professional, during last 20 years, he has gained an extensive experience in hospitals and healthcare infrastructures programming & design, as well as in regeneration’s projects of public and private large real estate assets.

**Preface by the Local Organizing Committee Chair**

On behalf of the organizing committee of the 5th International Conference of Contemporary Affairs in Architecture and Urbanism at Alanya HEP University, I am honoured and delighted to welcome you to this annual conference. As you may know, the main reason that we have decided to hold our conference online was due to the pandemic that has changed completely the lifestyle of people. But according to the statistics, it seems that we are now in the normalization process. So, it is now a time for a big rethink on how to plan a post covid cities. In this regard, the main aim of this conference is to seek how we can design a better world together considering post covid era. In this regard, recent findings on post-pandemic studies will be discussed at this conference. Accordingly, all the articles have been selected and classified in such a way to enrich the possibility of this importance. Therefore, as a manifesto for the recent problem, I believe that the post-pandemic cities will bring lots of ideas to design a better world together.

Overall, referring to the essence of this conference, I would say that this event has been organized to provide and share the latest manifestos, methodologies, and developments, to raise the understanding of the future of architecture and urban planning. Bringing together leading academic scholars to exchange and share their research results is also the main concern of this conference.

We have launched this annual conference about five years ago. During organizing ICCAUA2022 based on our global advertisement, we received 261 papers from 48 countries and after doing all the review and registration process, 170 high-quality manuscripts from 43 different countries have been accepted for publication in the proceedings of the conference. So looking at the statistics we can see that the conference has reached its aims of providing a global platform to discuss contemporary affairs in architecture and urbanism. Gathering 322 highly cited scholars from 42 countries is a dream of each organizer to transfer the objectives of the conference. I hope the participants of this conference will be able to transfer recent findings presented in this conference to their own colleagues and students. Urbanization and sustainable urban development, Planning the Post-Covid Cities, Energy and Climatic Design, Sustainability and Urban Design, Design philosophy and Education, Architecture and Technology, Habitat Studies and Heritage and Cultural Landscapes are the hottest topics which will be discussed at this conference.

Our technical program for this conference is rich and varied with 7 Keynote Speeches and 7 invited talks and 170 Technical papers which have been splinted between 3 parallel sessions to be discourse during these two days.

As the conference chair of the ICCAUA2022, I know that the success of the conference depends ultimately on the many people who have worked with us in planning and organizing the program. In particular, I thank the Rector of Alanya Hamdullah Emin Paşa University, professor Prof. Dr. Ebru Gülbuğ EROL, Professor Dr. Erol R. SAYIN and Asst. Prof. Dr. Muzaffer ÖZGÜLEŞ who respectively are the Dean of the faculty of architecture and Head of the department of architecture at Alanya HEP University. I thank them for all their advice, support and partnership. I have also thank all the organizing committee members specifically Prof. Dr. José Manuel Pagés Madrigal, Dr Seda H. Bostancı, Dr. Mennat-Allah El-husseiny, Dr. Rokhsaneh Rahbarianyaz and Professor Dr. Islam Hamdy Elghonaimy and Prof. Dr. José Manuel Pagés Madrigal who support us as conference co-chairs and all the reviewers of the Journal of Contemporary Urban Affairs for their detailed and timely reviewing of the papers.

My acknowledgement also goes to:

Professor Dr. Ahmed Faggal, department of architecture, Faculty of Engineering, Ain shams University (ASU), Cairo, Egypt  
Professor Dr. Jianfa Shen, Department of Geography and Resource Management, The Chinese University of Hong Kong, Hong Kong, China

Professor Dr. Sahar Attia, Department of Architecture, Faculty of Engineering, Cairo University, Egypt

Professor Dr. Yasser Mahgoub Faculty of Architecture, Galala University, Egypt

Dr. Joseph Adeniran ADEDEJI, Federal University of Technology, Akure, Nigeria

Dr. Laura P. Spinadel, BUSarchitektur & BOA GmbH, Competence Center URBAN MENUS for Smart Urban Development, Austria

Professor Dr. Carlo ALBERINI, Mohammed VI Polytechnic University, Morocco.

for the delivery of their insightful keynotes, I am sure these talks will invoke profound intellectual discoveries. So, ladies and gentlemen, I hope you enjoy the excellent academic and cultural atmosphere of the ICCAUA2022 and wish you all a productive conference ahead. Only on my own personal note, I just would like to say it has been a real privilege to be the chairman of this conference and thanks for all of your amazing work and patience that I appreciate.

Dr. Hourakhsh A. Nia  
Alanya HEP University, Turkey  
May 11, 2022

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# BOOK OF ABSTRACTS

## ICCAUA-2022

### SESSION A: Architecture and Technology

**Session Chairs:**

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*Dr. Shahira Sharaf Eldin*  
*Dr. Salar Salah Muhy al-din*

Manuscript ID: ICCAUA2022EN0006

## Analyzing Contemporary Mosque Philosophy and Design

\*Assoc. Prof. **Mennat-Allah El-husseiny***Cairo University, Faculty of Engineering, Architecture Department, Cairo, Egypt**E-mail: mennatallahelhusseiny@gmail.com*

### Abstract

Mosques have been materialized as important architectural magnets. The functions of mosques exceeded being worship spaces. Historically, mosques have symbolized state power and manifestations of glorious art and architecture emerging from the communities where they are located. This paper aims to evaluate the architectural expression of contemporary mosques based on authenticity vs clichés. A brief introduction will primarily discuss how mosques reflected the essence, needs and philosophy of communities, referring to various geographical locations. Following that, selected contemporary mosques will be analyzed qualitatively, according to their philosophy and architectural expression. The cases will be selected based on being architecturally valuable additions, with reference from Aga-Khan and Al-Fozan foundations. The paper concludes with guidelines for contemporary mosques design, which is expected to drift designers' attention to the importance of de-mystifying mosques' architectural expression from repeated clichés in favor of quality, suitability and innovation.

**Keywords:** Mosques Architecture; Authenticity; Architecture of Islamic Communities; Contemporary Architecture; Suitability.

Manuscript ID: ICCAUA2022EN0007

## Reviving Low-tech Modes of Construction as a Method for Sustainability

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### Abstract

Sustainability in architectural design has been widely researched in respect to environmental, social and economic impacts on the built environment. Associated debates have been raised regarding zero CO2 emissions, clean energy consumptions, and simulations for optimized designs, high-tech utilization and the sort. However, little focus has been subjected towards possibility of reviving low-technology construction, which can contribute to the field by adding to the identity of communities, especially in heritage areas. Stemming from this, it is intended to analyze strategies, tools and contemporary projects which have adopted the experience of applying low-tech construction modes to upraise a specific local community. "Al-Nazla" award winning project in Fayoum in Egypt will be the main focus of this qualitative analysis, based on first-hand information from the architect and local residents to conclude with a framework assessing the level of success of such a low-tech project in applying the three levels of sustainable projects.

**Keywords:** Low-technology; Sustainability; Architectural Design; Built Environment; "Al-Nazla".

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## Effects of Developing Information Technologies on 21st-Century Library Architecture

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### Abstract

With the transition from the "Industrial Society" to the "Information Network Society" since the second half of the 20th-century, the production, organization, and dissemination of information began to change rapidly. Technological developments also influenced the design of buildings and caused them to reinterpret with "new design criteria." This article, the developments in "Information and Communication Technologies"; It is aimed to examine what the "new architectural design criteria" are, how they affect the function, architectural form, and identity of 21st-century libraries, and how they differ from traditional libraries. Within the scope of the study, aspects of functional and formal design features of five different new generation library buildings selected as examples that differ from traditional libraries are revealing. As a result, in a study conducted on both theoretical and selected library samples, it was seen that 21st-century libraries expose a new vision with integrated information technologies and architectures built according to new design criteria. This vision; has been seen that reflect a user-oriented design product that supports social, educational learning, and teaching models and makes positive contributions to urban life with its new iconic architectures.

**Keywords:** Information and Communication Technology; Information Society; Library; Architectural Formation; Library Architecture.

Manuscript ID: ICCAUA2022EN0018

## The Eastern Japan Earthquake and Tsunami: its Effects, Aftermath, Lessons learned

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### Abstract

It's clear to the world that the eastern Japan earthquake was the biggest disaster the modern world had ever come to face, that's why it was of great importance that we took crucial lessons of it on every aspect possible so that we can be more ready for future disasters, no matter what is their scale, because as we know disasters are going to come, in all shapes and kinds, and a major disaster like the Great Eastern Japan Earthquake is going to be upon us every few decades, so being ready, as calculations have proved, spending and providing for the preparedness phase, is 7 times better, safer and cheaper, than trying to solve the problems in the recovery phase, after the disaster happens, in this study we'll be doing an analysis of the event, and suggesting numerous solutions to prevent the likelihood of a similar scenario in the future.

**Keywords:** Practices of Recovery; Tohoku Earthquake; Nuclear crisis.

Manuscript ID: ICCAUA2022EN0024

## Mold Development Risk Assessment In The Inner Side Of A Building Envelope Under Varying Climate Conditions

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### Abstract

In buildings, fungal infestations may emerge as a result of favorable growth circumstances for mold fungi. Preventing mold development in buildings demands understanding complex transient building physics processes. A threshold for the commencement of mold development is defined here as a specified value observed in laboratory tests. This research is an attempt to ascertain the influence of physical building variables on the transient humidity and temperature behavior of building components and component surfaces in any climate. The research technique is presented by the evaluation of mold risk using findings from simulations of an exterior wall design using hydro-thermal computer software (WUFI). The findings demonstrate that a broadly applicable approach may be a very effective tool for safety design in practice. The purpose of this research is to forecast mold development on building materials at the design stage and to limit the danger of mold growth over the materials' service life.

**Keywords:** Relative Humidity; Temperature; Time Exposure; Building Materials; Mold Growth.

Manuscript ID: ICCAUA2022EN0026

## The Impact of Passive Design Strategies on Cooling Loads of Building in Hot Climates: Analysis of Performance in Siwa Oasis, Egypt

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### Abstract

In the previous few decades, climate change has been a highly essential problem to consider while dealing with buildings. Thus, passive design adjusts to the local climate to promote thermal comfort conditions for building occupants while reducing energy consumption and lowering building temperatures without the need of energy use. This paper presents the importance of passive design and its effect on thermal comfort on the built environment. It explains several passive design strategies such as planning the building form, determining the optimum orientation and selecting the most appropriate building material. Also, it highlights the need of adapting passive cooling design strategies and control principles that optimize the building's thermal performance and that reduce cooling loads in buildings particularly in hot climates. In this case, simulation analysis approaches are utilized to assess the usefulness of employing different passive cooling solutions that improve thermal performance and reduce energy consumption in buildings in hot arid environments such as Siwa Oasis (Egypt). The findings can assist architects in selecting the appropriate climatic design parameters that can be applied in Egypt during the design stage. According to the findings, using certain passive design features may create comfortable indoor environments regardless of exterior weather conditions.

**Keywords:** Cooling Loads; Energy Use; Hot Climate; Passive Design; Simulation Thermal Comfort.

Manuscript ID: ICCAUA2022EN0029

## Vernacular Architecture Implementation on Shopping Center Buildings Design in The City of Pekanbaru

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### Abstract

The existence of Riau Malay vernacular architecture is one of Indonesia's regional cultural heritage and identity. The rapid flow of globalization can drown out the characteristics and characters of the local culture to obscure the architectural identity of the locality. Therefore, some architects have tried to encourage the preservation of cultural heritage in Pekanbaru City through a physical combination of architectural elements of Malay vernacular to buildings with modern designs. So that visually, it is clear that there is a mixture of both government and private buildings. This paper examines the various applications of Riau Malay vernacular architecture in modern architectural buildings today, especially in the shopping centre buildings designed in the City of Pekanbaru. Literature studies are needed to find practical theories in applying verbal elements to contemporary functions or modern architecture. Then understand the philosophical values contained in these vernacular elements. Meanwhile, field observations are needed to visualize the cases encountered to obtain primary data.

**Keywords:** Vernacular Architecture Malay; Neo Vernacular; Local Identity; Image of Vernacular; Indonesian Architecture.

Manuscript ID: ICCAUA2022EN0013

## The Influence of the Thermal Conduction and Detail Development Process in Architecture

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### Abstract

The issue of the heat flow of the buildings can be considered during the architecture design process. For that instance, the proposed topic of this research is related to the materiality and the thermal conduction of the buildings. Raising the question of the heat flow of the buildings, means raising the question of certain parameters such as: climate conditions, material characteristics, thermal conduction. The reflection of this research reveals the principle compatibility of the materials from the thermal aspects. That means reflection of the thermal conduction in the process of architectural design development. With this process, the authors emphasize the importance of the overall development of the public buildings. In other words, the proposed methodology brings closer sustainable treatment of the buildings and the environmental awareness through architecture. The principle objective of this research merge these technical and environmental qualities within architecture detailing and design development process.

**Keywords:** Thermal Conduction; Architecture; Detail.

Manuscript ID: ICCAUA2022EN0044

## A Study on the Female Architects' Approaches to Design in the 21<sup>st</sup> Century

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### Abstract

Albeit few in numbers, women architects play an active role in the 21<sup>st</sup> century architectural milieu marked with a quest for new forms. The study focused on the design approaches of contemporary women architects and sought answers to questions about the sources, the concepts, and the formal language of their designs. In this framework, ten well-known contemporary women architects were included in the scope of the study. A dual methodological pattern, incorporating textual analysis and visual analysis, was used for the purposes of the present study. Textual analysis was used to conceptually analyze the texts the women architects described their projects, where visual analysis was employed to analyze the formal language. The data were then presented in the form of a matrix schema. The results indicated that women architects rather fed on nature and socio-cultural elements in their designs and considered the foregoing data as important inputs of the design. Whereas, they did not maintain a shared language in the context of the form, despite the similarity of the inputs they incorporated into their designs.

**Keywords:** Women architects; Design Approaches in the 21<sup>st</sup> Century; Design Resources.

Manuscript ID: ICCAUA2022EN0047

## Architecture as a Tool of Financial Power

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### Abstract

This essay aims to define the role of architecture as a bridge between spatialization and financialization processes which had characterized the *neoliberal* expansion of the economy during the last decades. According to the significant impact financialization had since 1980s, architectural forms and spaces of financial power became a tool for celebrating a new social paradigm, so which are the main elements characterizing the use of these instruments? The research method of this essay discusses, on one hand, the role of international economic and political actors and, on the other hand, the function of architecture typologies, collective imaginaries and media spectacularization in design-making. Finally, through the analysis of the connections among architectural, urban and social aspects, the author argues that contemporary architecture has begun a tool for supporting and giving consensus to financial investments into the real estate market worldwide in order to realize great urban transformations.

**Keywords:** Architecture; Urban transformations; Financialization; Real estate; Neoliberalism.

Manuscript ID: ICCAUA2022EN0049

## Comparative Analysis of House Typologies in Different Climate Regions of Anatolian Geography in Terms of Shading Concept

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### Abstract

Anatolia hosts various housing typologies as a result of having different climatic areas. Spatial organization, building elements and building components take an important place in these houses shaped by climatic factors. This study focused on houses varying with different typologies in Anatolia, houses located in five different climatic areas were analyzed in terms of several parameters such as location, orientation, dimension, material usage towards shading. Consequently, the results of this study indicate that climatic differences bring about different design approaches and material usage. In addition, these differences have been indicated on matrix diagrams.

**Keywords:** Different Climatic Area; Shadowing Concept; Housing Typology In Anatolia.

Manuscript ID: ICCAUA2022EN0050

## An Approach to Control the Illuminance Distribution on Vertical Display Surfaces

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### Abstract

Two-dimensional artworks are generally displayed on vertical surfaces in museum exhibition halls. Controlling the illuminance on vertical surfaces is important to preserve the artworks and to perceive them correctly and comfortably. It should be ensured that the illuminance is uniformly distributed along the display surface and the maximum value of the illuminance on this surface does not exceed the recommended value according to the sensitivity class of the object. If the illumination is not homogeneous, the perceived colours of the artefact may differ from the original and the meaning and effect of the work may deviate from the artist's intention. The control of the illuminance distribution depends on the dimensions of the exhibition hall, the size and location of the exhibition area and the type, luminous intensity distribution and position of the luminaire. In this study, carried out to determine the optimal conditions in terms of the illuminance and the uniformity of illuminance, a total of sixteen situations were created, four for the height of the exhibition hall and four for the size of the exhibition area. Both small and large luminaires with symmetrical and asymmetrical luminous intensity distribution were dealt with. The position of each luminaire considered for the mentioned sixteen situations was adjusted to obtain optimum conditions and the acquired results were compared in terms of energy consumption. It has been determined that energy consumption varies according to the features of the luminaire used and the targeted level of illuminance uniformity, and data are presented from which a lighting designer can make use in museum lighting.

**Keywords:** Vertical display; Illuminance uniformity; Energy consumption; Luminaire features.

Manuscript ID: ICCAUA2022EN0056

## The Importance of Light in Steven Holl's Perception of Form

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### Abstract

The essential factor in the perception of form and space is light which enables the perception of the form or space, its colour, texture, material, that is, the whole. Daylight significantly affects the shaping of structures and the enrichment of sensory perception, psychologically and biologically. This article aims to examine the importance given by Steven Holl on the effects of natural light in the perception of the form. Within the scope of the study, through three different museum structures of Holl, functional and symbolic perception of the form and its contribution to the design were examined. Results show that in Steven Holl's design process, the inclusion of light in the building is an important design criterion that affects the form phenomenon and the perception of space. Contextually, it has been seen that it is dependent on the location, the angle of incidence of the sun's rays, and it reveals a sustainable design product because it saves energy.

**Keywords:** Form; Daylight; Perception; Steven Holl; Sustainability.

Manuscript ID: ICCAUA2022EN0058

## An Investigation of the Impact of the Built Environment on Human Beings in the Context of Antonovsky's Sense of Coherence Scale

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### Abstract

Aaron Antonovsky suggested in his research on relationship between stress, health, and happiness that unlike others individuals with a sense of coherence were successful despite the stressors in their lives. Antonovsky asserted that preventive approach should replace the pathological approach for a healthy society, and developed a 29-item scale to measure the sense of coherence. The so-called salutogenic model has found frequent use in the field of health. This study investigated the effect of built environment on people based on the aforementioned theory and Antonovsky's Sense of Coherence Scale (SOC) was revised and developed accordingly, where the resultant model was applied to design students to see whether the sense of coherence was used as a design scale. In conclusion, it was suggested that the 'salutogenic approach for a healthier society' was also important in design, and that the sense of coherence scale could provide an important input and used for the purposes of salutogenic design.

**Keywords:** Sense of Coherence; Architectural Design; Built Environment; Salutogenic Design.

Manuscript ID: ICCAUA2022EN0067

## The Comparison of Energy and Daylighting Performances of Different Window Glazing Types in The Historical Turkish House

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### Abstract

According to archaeological data, the glass in architecture was used to ornament the columns and walls of palaces in the middle of 2000 BC. Except mosaic ornamentation, the glass has gained a different functionality by using as window glass in the Early Roman Empire. Accordingly, the solar radiation has provided energy to indoors such as hammam and garrison in terms of passive heating and daylight. However, the thermophysical properties of window glass on building energy performance have been understood over time. Today, the optimum combinations of thermophysical parameters reduce the energy demand of buildings significantly. Furthermore, the energy sustainability is also achieved by increasing building energy efficiency in early design phase by using building simulation tools. In this study, the improvements of glazing technologies are reviewed rigorously from past to present. Furthermore, the energy and daylight performances of retrofitted historical buildings in Turkey are analyzed by using building simulation tool.

**Keywords:** Window Glass; Glazing Technology; Historical Building; Building Renovation; Energy Performance Simulation; Daylighting; Energy Sustainability.

Manuscript ID: ICCAUA2022EN0068

## Effect of Indoor Operational Environment on Workers' Well-Being in Industrial Buildings: The Case for Pharmaceutical Factory in Nigeria

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### Abstract

In 2021, the worth of the pharmaceuticals market across the globe was estimated and projected to \$1.17 trillion resulting in increasing pharmaceutical factories. Yet, less attention is given to the indoor operational environment of these buildings and the impact on the workers' well-being. To address these emerging concerns, this study investigated the indoor operational environment of pharmaceutical buildings. A field-survey was conducted on purposively selected 14 pharmaceutical factory buildings in southwestern Nigeria. Measurements of indoor environmental parameters were taken from the buildings with the aid of multifunctional air quality, carbon monoxide detector, and digital anemometer. Findings show the presence of gaseous substances in the air within production area and inadequate ventilation to dilute and evacuate such which could negatively impact workers' well-being. The study concludes that a multidisciplinary approach encompassing the stakeholders in the pharmaceutical industry is critical to developing optimal design solutions for a well-designed pharmaceutical factory in Nigeria.

**Keywords:** Indoor Environment; Workers' Well-Being; Industrial Buildings; Pharmaceutical Factory; Nigeria.

Manuscript ID: ICCAUA2022EN0070

## Nanotechnologies Brooding Smart and Economic Green Architecture

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### Abstract

More than six decades ago, surprising nanotechnologies with its so effective dynamic researches became the passage for approaching a dream of existing smart and economic tools with its so accuracy of synergy. Nanotechnologies, currently, cover a multinomial disciplines including construction industry. However, an economic assessment, proved that nanotechnology has a significant impact for resulting smart and economic construction. However, architecture as a core field in construction industry became more sustainable with nanotechnologies and their applications through the use of nanomaterial brooding smart and economic buildings that are so friendly with the hoped healthy environment. This results in green architecture with high durability, performance, energy efficiency, and safety. That green architecture having smart components with their self-senses, self-repairing and self-cleaning resulting in friendly usage and optimum sustainability. This paper highlights on that surprising effectiveness of nanotechnologies as a brooding facility for smart and economic green architecture.

**Keywords:** Nanotechnologies, Smart, Economic Buildings, Green Architecture.

Manuscript ID: ICCAUA2022EN0073

## Investigation of Wind-Induced Pressure Distribution on Various Roof Forms Using Numerical Methods

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### Abstract

Climate change is the most severe global problem humanity has faced throughout history. Buildings, airports, coastal structures, hospitals, infrastructures of urban and rural cities should be improved to adapt to climate change. Extreme weather events force the design limits of existing serving structures. High winds/storms and potential changes in frequency/intensity result in increased physical damage to the external building fabric, coatings, and roof-mounted installations (i.e., solar water heaters, satellite dishes, chimneys). This study examines the relationship between the damage caused by the pressure distribution difference on the roof surface of the building due to the wind and the shape factor of the building. Considering the storm wind conditions of the Alanya region, three roof types in different forms (i.e., flat roof, arched roof, and hipped roof) were studied.

**Keywords:** Climate Change; Form Drag; Extreme Weather Event; Architectural Design; CFD.

Manuscript ID: ICCAUA2022EN0077

## The Impact of Virtual Environment in Architectural Design Studio Contents of Turkey

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### Abstract

Technological developments have brought the concept of the virtual environment to architectural education. The main purpose of this research is to investigate the effects of the compulsory virtual environment, which is used due to the pandemic situation, on the contents of Turkish architectural education. In Turkey, the number of design studio courses varies from 6 to 8 depending on the university. Architectural education is expected to follow the changes and developments in the era. That's why the contents of design studio courses of universities in Turkey will be evaluated by being compared. The research covers 5 terms (from 2019-2020 Fall to 2021-2022 Fall). Thus, hybrid, face-to-face, and online environments in education will be evaluated. By examining the studio subjects in the periods when the virtual environment was necessarily included in architecture, it will be questioned whether virtuality has a decisive role in the studio issues of the universities providing architectural education in Turkey. The research will enable us to make an inference about the relationship between the content of architectural education and the changes in daily life.

**Keywords:** Architectural Education; Design Studio; Virtual Environment; Turkish Architectural Education; Pandemic.

Manuscript ID: ICCAUA2022EN0124

## Assessment of Factory Design Requirements of Pharmaceutical Factory Buildings in Southwest, Nigeria

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### Abstract

In pharmaceutical factory buildings (PFBs), numerous gaseous substances are suspended in the air due to poorly designed production area. In most PFBs, fenestrations for adequate ventilation and worker's access to natural environment are limited. This paper assessed selected PFBs designs to ascertain adequacy of indoor air flow and air flush needed for removal of suspended gases largely harmful to human health. Using a quantitative approach, fourteen PFBs were audited by taking dimensions of the production area alongside data on air, sound and lighting quality. Findings benchmarked against the global standard required for factory designs revealed eight PFBs had unacceptable design features; five had inadequate room sizes and four were poor on finishes. Workers' complaint of illnesses was traceable to these poor design features. The paper recommended a need for re-evaluation in the architecture of PFBs with a view to providing a healthy working environment for PFB workers in Nigeria.

**Keywords:** Pharmaceutical Factory Buildings; Ventilation; Design Requirements; Indoor Air Flow; Worker's productivity.

Manuscript ID: ICCAUA2022EN0125

## Modelling Indoor Environmental Performance of Pharmaceutical Factory Buildings in Nigeria

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### Abstract

The pharmaceutical factory buildings (PFBs) are expected to provide indoor environmental performance suitable to enhance worker's wellbeing and productivity. This study examined the indoor environmental performance of PFBs in Nigeria. Fourteen PFBs were purposively selected as investigation sites with field-survey conducted in Southwest Nigeria. A number of equipment were used to obtain IAQ data (i.e. dry bulb temperature, relative humidity, air flow velocity, carbon dioxide (CO<sub>2</sub>) concentration, etc.) along with subjective evaluation of the perception of the factory workers to obtain information on their working environment within the factories. Findings shows that average air temperature (29.42°C); air velocity (0.98 m/s) and formaldehyde (0.87ppm) were beyond the acceptable and recommended threshold by ASHRAE and WHO. However, the values obtained for CO<sub>2</sub>, PM<sub>1.0</sub>, PM<sub>2.5</sub> and PM<sub>10</sub> were satisfactory. The study concludes by suggesting ways to improve indoor environmental performance of PFBs and proposed a model to enhance the worker's wellbeing and productivity.

**Keywords:** Indoor Environmental Performance; Well-Being; Pharmaceutical Factory Buildings; Productivity; Nigeria.

Manuscript ID: ICCAUA2022EN0126

## The Use of Eye-Tracking Studies in Architecture: A Review on Symmetry

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### Abstract

Eye-tracking studies are a preferred method for measuring user behavior and experience in disciplines such as advertising, product development, medicine, and psychology. This method, which is used to detect and record unconscious eye movements, has also been used for experimental architectural studies in recent years. It is tried to be understood by different methods how individuals perceive the design principles, which are called the basic teachings of architectural education. In this context, the applicability of the aspect of eye-tracking studies that embody the perceptual responses of the human brain to the design principles is considered significant by the authors of the article. In addition, the literature review reveals the inadequacy of eye-tracking studies in the field of architecture in Turkey. The study focuses on the concept of symmetry, which is one of the design principles and the basic inputs of how humans perceive and interpret the world during thousands of years of evolution. The study aims to present a review of eye-tracking studies that can be used for further research in the perceptual analysis of design principles in architecture.

**Keywords:** Eye-Tracking Studies; Concept of Symmetry; Design Principles.

Manuscript ID: ICCAUA2022EN0131

## Energy Self-Sufficiency of a Tall Building with BIPV

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### Abstract

This study is to test the reality of the big dream of zero energy skyscrapers. The current state of energy demands of high-rise buildings was investigated. The amount of solar energy that can be harnessed from PV panels installed on the roof and the south façade of a Seagram-size test-bed building in New York was estimated. Comparing the quantities of solar energy produced from and the energy demand of the test-bed building, the energy self-sufficiency of the building was analyzed. It was found that, with the current solar PV technology, building integrated PV systems can meet of about 4.2% of the building's energy demand and 7.7% of its electricity demand. From this study, it was concluded that significant reduction in energy demand is a prerequisite for attaining zero energy large-scale buildings.

**Keywords:** Zero Energy Building; Tall Building; Solar Energy Production; Photovoltaics; Energy Self-Sufficiency.

Manuscript ID: ICCAUA2022EN0136

## Integrating Sustainability and User's Demand in the Retrofit of University Campus in China

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### Abstract

Chinese universities have a large number of old campuses, making green retrofit important for the construction of sustainable Higher Education Institutions in China. Limited by time and cost, the campus retrofit plan needs to consider the context of both sustainability principles and use demand to set feasible priority goals. Taking Weijin Campus of Tianjin University as an example, this paper introduces a programming assistant framework for campus green retrofit. The Chinese official sustainability assessment tool for campus was combined with the campus environment components, then selected by a 15 members group to establish an implementable framework for reasonable retrofit objectives. According to the framework, users' feedback on the campus environment was surveyed and analyzed as a guide for the decision making of the retrofit. The results show the characteristics between the users' expectation and sustainability indicators, which should be emphasized in the retrofit decision making.

**Keywords:** University Campus; Green Retrofit; Integration of Demand and Sustainability; Retrofit Programming.

Manuscript ID: ICCAUA2022EN0138

## Study on the Climate Adaptability of Urban and Architectural Design in Tunis-Tunisia

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### Abstract

This paper presents a synthesis of three complementary research that pursues the same objective: propose solutions to reduce the energy consumption of buildings in Tunis. The first research diagnoses on the adaptability of buildings to climate change on the urban and architectural scale. It is based on a cross-referencing of several environmental assessment methods. The second focuses on the effect of urban morphology on outdoor thermal comfort at street level. The method is essentially based on numerical simulations of the microclimate and the calculation of the thermal comfort indices. The third deals with thermal comfort inside buildings and their energy consumption by performing numerical simulations. This research allows identifying any gaps and urban or architectural errors in Tunis from an energy point of view. The results demonstrate the importance of the indicators (physical or morphological) attached to the site and the built environment in the process of sustainable urban design.

**Keywords:** Energy consumption; Thermal comfort; Built Environment; Urban Design; Simulations.

Manuscript ID: ICCAUA2022EN0145

## Adaptation Of Dutch Colonial Architecture to Palembang's Humid Tropical Climate

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### Abstract

The Dutch Colonial Architecture in the Talang Semut Palembang area notes that there is a lot of diversity in the style and function of the building as well as the historical journey that includes the adaptation process. This adaptation process is observed in the design world today and in the future. Proof of the adaptation process is carried out by calculating physical analysis to find out the extent to which this tropical consideration is carried out. The process of adapting Dutch Colonial architecture to a humid tropical climate is expected to be able to provoke the creativity of architects in designing buildings properly without using artificial air conditioning equipment. The arrangement of interior layout, outer space and mass management as well as the environmental pattern of this Dutch residential area with the completion of the detailed construction planned to anticipate tropical problems have really been carried out properly.

**Keywords:** Adaption Architecture; Humid Tropical Climate.

Manuscript ID: ICCAUA2022EN0160

## Designing a Hostel in the Touristic Complex of Qurigol Lake near Tabriz, Iran

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### Abstract

Qurigol Lake is located in East Azerbaijan province, southeast of Tabriz City, next to the main highway of Tabriz-Tehran. This beautiful region, due to its special and outstanding features, can serve for the development of the tourism sector and ecotourism of the province. The hostel is a cheap and comfortable accommodation, which provides simple and inexpensive food, accommodation, and facilities for passengers who have travelled during the holidays. There are four types of hostels: student hostels, single hostels, workers hostels, and youth hostels. This hostel is designed near Qurigol Lake, where all the rooms have beds, closets, toilets, bathrooms, and balconies with a beautiful view of the lake. This article aims to study the different kinds and standards of hostels and also the potential of Qurigol Lake as an appropriate location for designing a hostel. The methodology of this survey is qualitative and quantitative, using reliable first-hand resources and references.

**Keywords:** Hostel; Qurigol Lake; Tabriz; Hotel; Inn.

Manuscript ID: ICCAUA2022EN0168

## The Role of Attraction Factors in Recreational Shopping Gratification: A Case of Colombo, Sri Lanka

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### Abstract

This paper set out to question: What attraction factors influence recreational shopping gratification. An online questionnaire survey was administered to 220 young adults consumers from two shopping malls in the city of Colombo. A narrative inquiry was employed by conducting 30 interviews from the same sample to light up the research question as to the second step. Exploratory Factor Analysis followed by correlation and regression analysis and content analysis were used as methods of analysis. The result of the research highlighted the importance of socialization, ambience and safety and security towards increasing recreational shopping gratification, while socialization plays the most important role in gratification. Meanwhile, as revealed from content analysis, fun and entertainment is an attractive factor in the Sri Lankan context. The outcomes of the study, using a mixed-methods approach, would enrich both the theory and practice of developing a consumer-friendly environment to increase gratification in recreational shopping.

**Keywords:** Recreational shopping; attraction factors; shopping malls; shopping gratification.

Manuscript ID: ICCAUA2022EN0081

## The Readiness of Smart Office Interior Implementation in Malaysia

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### Abstract

Covid-19 is the most trending indication that digitalization and generation Z's arrival into the labour supply -drive companies to reconsider traditional office space. Smart office interior is the future of today, which involves using technology to facilitate productive and effective working. As a consequence of this occurrence, researchers and industry professionals are focusing on the research and development of smart office interiors. This study aimed to emphasize the readiness of smart office interiors and potential consequences of implementing smart office interiors in Malaysia. Descriptive statistics were obtained using the questionnaire survey responses from various industrial sectors. This study indicated the corpus of knowledge on Malaysia's current readiness for smart office interiors adoption. To summarise, the current situations in Malaysia shows that more strategies is needed to be introduces in Malaysia in order to reap the benefits of the smart office revolution, which will save energy, time, and money.

**Keywords:** Smart Office; Smart Interior; Readiness; Office Interior; Malaysia.

Manuscript ID: ICCAUA2022EN0206

## The White Boxes” Versus “Architecture for People

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### Abstract

Designing for people must be the main goal of architecture, or, in other words, not designing following fashion or fame, which can bring serious consequences in what really matters, as energy, environment or yet functional problems, in the literal sense of the word. With the proliferation of what I call the “white boxes”, clean, minimal, we observe a mischaracterized monotonous architecture, missing often the good sense, what brings the need to rethink the main purpose of architecture: people, environment, cultural, social and historical context, local resources, climate, all factors in prol of a sustainable and consistent attitude towards architecture. This paper aims to review what the concept “designing for people” means, beginning a research trough a critical reflection of what happens when we follow fashion tendencies “versus” an attitude where architecture should be a human right.

**Keywords:** “White Boxes”; Sustainable Architecture for People.

Manuscript ID: ICCAUA2022EN0177

## The Development of a Reflexion Centered on the Attendance of Tomorrow's National Museums, El Moudjahid Museum of Bejaia

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### Abstract

The museums will continue to be among the urban equipments with the highest rates of visitation; yet, the pandemic's two years have prompted us to reflect on the public's use of these urban equipments. We are also interested in the environmental aspect of the visit and its impact; while light is the most sought-after ambient aspect in today's museums, sound has become one of the elements indispensable to the creation of a pleasant exhibition environment for visitors, thanks to the evolution of museology. During and after the Covid 19 pandemic, we ask ourselves questions regarding the spatial arrangement and how it relates to flow management. The goal of this research is to develop a diagnosis for a contemporary museum in Algeria (El Moudjahid Museum of Bejaia), which will take into account the museum's spatial configuration and ambiance. We propose answers to the problems of future museum attendance at the conclusion of this examination.

**Keywords:** Museum; Management of Flows; Museum Itinerary; Ambiance; Spatial Configuration.

Manuscript ID: ICCAUA2022EN0180

## Design Strategies for Façade Integrated Photovoltaic Technology (FiPV)

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### Abstract

The rapid pace of urbanisation has caused a surge in the energy demand, thus emphasizing the need for Net Zero Energy buildings. A plethora of financial and non-financial incentives for promoting energy efficient and renewable energy buildings are being offered by several local governments in India. Policies have favoured the inclusion of photovoltaic technology within the buildings. Despite the efforts, adoption of the technology within the envelope is quite restrictive. The photovoltaic technology is either added onto the rooftops or provided as double façade. The concept of replacing the building skin with this technology has not been explored enough. This paper attempts to propose a framework, for designing a photovoltaic façade, replacing the conventional building skin. It has tried to address some of the barriers, and inhibitors in uptake of the technology. It explores provision of an assessment framework for envelope performance of photovoltaic facade.

**Keywords:** Photovoltaic Façade; Design Strategies; Building Skin.

Manuscript ID: ICCAUA2022EN0183

## Evaluation of Strategies for Employee Participation by Nigerian Construction Organisations

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### Abstract:

In this study, employee participation by Nigerian construction organizations is investigated as labor scarcity is one of the most persistent issues that the construction industry is facing today. This is intended to identify the construction organization's circumstances to increase employee participation in decision-making. The effect of such participation on the performance of the industry was also assessed. This study was carried out through a questionnaire survey of construction professionals in Zamfara State. Data collected were analyzed using the Chi-square and descriptive statistical analysis obtained. In agreement with the results of preceding studies, the employee's participation among construction organizations from the studies in decision making is at a lower stage which buttresses the Chi-Square analysis result that the employees do not participate actively among construction organizations study area. This study concluded that there is a need for employers in the industry to categorize decisions that employees should make and to adjust their organizational backgrounds to raise employees' participation spirits as desired.

**Keywords:** Employee Participation; Organisation Performance; Organisational Background; Decision Making.

Manuscript ID: ICCAUA2022EN0186

## Disclosing Devices of Formal Organization: An Inquiry into the Potentials of Creative Analysis in Architectural Education

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### Abstract

History establishes the culture of a discipline and encompasses the change and continuity of that body of knowledge. When it comes to architecture, the contribution of the past to design practice becomes a critical issue to be discussed in the context of architectural education. Our way of learning from the past is related to the way we perceive and study it. Among the various ways of studying past works within the axis of "understanding" and "interpretation," this study focuses on the relevance of comprehending architectural precedents for contemporary formal explorations. It introduces a method of creative analysis that emphasizes the ability of analysis to relate to current design tasks, and focuses on revealing design devices and strategies as practiced in architectural precedents. The possibilities and capabilities of creative analysis are discussed through student work studied in a course at Middle East Technical University, Department of Architecture.

**Keywords:** Architectural Design; Design Education; Analysis; Design Devices.

Manuscript ID: ICCAUA2022EN0193

## A Study on Construction Waste Optimization with A Holistic Approach

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### Abstract

Construction sites are afflicted with challenges like improper planning and management, high waste generation and low awareness on waste reduction. It is evident from the findings that losses incurred due to construction waste are enormous and proactive measures are needed to cut the cost of construction. Construction waste is the key factor that has a considerable impact on the environment due to massive landfills and pollution created by its disposal. Sustainable work practices are emphasizing the development of effective waste minimisation measures for major construction projects. Literature on construction waste provides best practices that help minimize construction waste. However, it lacks the holistic minimisation approach. Therefore, studies approaching this problem comprehensively are needed. The research method used is Literature review by rigorous exploration of Research papers from the past 10 years through various journals to elicit the status related to Construction Waste Practices, analyze the gaps there in and recommend best ways by addressing it holistically.

**Keywords:** Architecture; Environmental Sustainability; Construction Waste.

Manuscript ID: ICCAUA2022EN0194

## Literature Review: The Correlation of Storefront Visibility and Store Attractedness

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### Abstract

Technology and digitalization has changed the way people shop. The shift comes in terms of shopping activity, which oscillates from in-store shopping to shopping in e-commerce. E-commerce has become a threat to physical stores in general. However, built-up environments, entertainment activities, and shopping experiences cannot be replaced by digitization. Therefore, the visibility of built-up environments becomes crucial to the sustainability of physical stores. Recent studies about visibility have proved that store visibility is positively correlated to rental price. However, existing body of research has defined visibility as the combination of store area and traffic frequency. In reality, storefront visibility affects store attractedness and subsequently store attractedness affects rental price. We developed a comprehensive literature review that discusses the correlation between storefront visibility and store attractedness.

**Keywords:** Digitalization; Store Attractedness; Storefront; Visibility.

Manuscript ID: ICCAUA2022EN0197

## On Atmosphere as a Phenomenon in Architectural Aesthetics

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### Abstract

The general opinion of the relationship between architecture and aesthetic perception is that this relationship has a problematic structure, especially because of the relativity of the latter. Variability of aesthetic taste is an important confusing factor in aesthetic evaluation of the architectural object. However, another confusion comprises the identity of this architectural object subject of aesthetic evaluation. There have been several attempts to describe the very object of architecture, especially by referring to the concept of spatial atmosphere. Based on these attempts, and going further, this paper proposes another attempt to describe the phenomenon of atmosphere as the aesthetic object in architecture with its multiple-layers and components as well as the influences leading to changes in the mood of the space and the user. In this framework, composition principles used in the design spatial atmosphere will be focused and exemplified comparatively to comprehend the genesis of the aesthetic object.

**Keywords:** Aesthetics; Spatial Atmosphere; Architectural Design; Composition Principles; Sensory Experience.

Manuscript ID: ICCAUA2022EN0172

## Architectural Design Studio as A Knowledge Intensive System: Sociology of Design Knowledge

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### Abstract

Architectural design studios are still an inseparable part of the architectural design education. Different pedagogical approaches, architectural design norms, evaluation methods and assumptions prevail on how to carry out architectural design studios. It is widely acknowledged that is a futile attempt to search for a unitarist approach on how to carry out architectural design studios. A new conceptualization of architectural design studio can open up new venues to appreciate the plurality of various ways of organizing and running architectural design studios. It is a challenging task to identify how exactly students acquire new design knowledge from the design-oriented, knowledge-intensive, and fragmented architectural design studio environment. Architectural design studio can be conceptualized knowledge-intensive social system in which participants, individually and collectively, acquire *design knowledge*, assimilate *design knowledge*, transform *design knowledge* and finally exploit *design knowledge* to construct an output. This knowledge intensive social system, is in fact, points out the subtle operation of social learning process. Design knowledge is always embedded in design studio environment. It is subjected to the prior assumptions, design routines, practices, and power relations among social actors of the design studio. The basic idea is to conceptualize the design studio environment as a knowledge ecology composed of socially enacted knowledge process provides an alternative view to articulate a systematic framework to explore the social nature of design knowledge and its taxonomy. Understanding how this social learning environment operates can provide important insights on the taxonomy of design knowledge. The research presented herein studies the design knowledge and its typology by developing a new conceptual framework. The proposed framework builds on a succinct review of different, competing and conflicting conceptualizations of “knowledge” and “design knowledge”.

**Keywords:** Design knowledge; Knowledge typology; Design studio; Design climate.

Manuscript ID: ICCAUA2022EN0215

## Fire Safety of Tall Buildings: Approach in Design and Prevention

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### Abstract

Design of tall buildings is a multidisciplinary process and requires a wide range of measures to take to withstand in various emergencies. Fire is one of them and can cause of chaotic situations considering hundreds of users in multistoreys. The measures are divided into two categories, active and passive fire protection. Architectural design and detailing are part of the passive systems. Along with the fundamental solutions in fire protection, tall buildings require more specific and often design-specific solutions. Detection and extinguishing systems are part of the active fire protection systems. The failure of the World Trade Center pointed the vulnerability of steel structures; the fire at the Grenfell Tower pointed the significance of the enveloping materials for facades, and the fire at the One Meridian Tower pointed the significance of the active systems for every floor. The paper focuses on the fire case studies of tall buildings, and follows with an assessment of the approaches in architectural design and detailing applicable from the structural design to the finishing interior detailings.

**Keywords:** Tall Buildings; Fire Safety; Fire Protection; Steel Structures; Fire-proof Design.

Manuscript ID: ICCAUA2022EN0210

## Artificial Neural Network Analysis for Cost Estimation of Building Projects in India

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### Abstract

In Construction Management, it is difficult to predict the cost estimate during the preliminary stage of the project is a difficult task because of the limited information and unknown factors. Artificial Neural Networks can help in the prediction of estimate because of their simplicity and adaptability to non-linear problems. The size of the data set, number of hidden neurons and the neural network architecture determines the success of the results. Selecting the right data set becomes imperative in this case. For the purpose of cost estimation, the cost drivers were taken as inputs and their estimated costs were taken as the target value. A problem was formulated based on these drivers and the data set was trained with a neural network using MATLAB software. This trained data was used to predict the cost for a new project. The output of the testing was 87% accurate despite the small data-set used.

**Keywords:** Artificial Neural Network; Cost Estimation; Construction Projects; Building Projects.

Manuscript ID: ICCAUA2022EN0217

## Factors that Influence Workspace Planning and Design in Government Offices Buildings of Lagos

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### Abstract

Workspace planning and design of an office is critical to employee's performance. Designing the office space around the needs of employees creates a workspace that is efficient and functional. Hence, studies show that employees who are satisfied with their workplace gave better results and outcomes. However, current office planning has proven to be insufficient for workspaces because planning goes beyond spatial configuration of the space. The aim of this paper is to access factors that influence workspace planning and design of office buildings in Lagos state, Nigeria. To establish these factors, this paper categorized workspace by its physical and functional make up and thus suggest a framework for workspace planning process that contains four phases; workspace requirement identification, utilization rate, workspace problem identification and workspace problem resolution. The result shows the importance and effectiveness of the proposed framework on improving the workspace planning process of an office

**Keywords:** Office building ; Planning; Performance; Utilisation; Workspace.

Manuscript ID: ICCAUA2022EN0173

## The Effects of Using Shear Walls on Architectural Design and Project Cost

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### Abstract

In the design process of a construction project, architects focus on the aesthetic and functional side of the building, while civil engineers focus on durability. In this sense, architects make the space arrangements and show the civil engineers the positions of the columns in a way that they do not hinder the functionality of the building. However, mostly the column sections determined by the civil engineers are different from the ones determined by the architects. Therefore, both the increase in column sections and the use of square or rectangular columns increase the amount of dead space within the building. In this study, the trade-off between the dead space amount and the cost of the building is examined in the case of using shear walls instead of square or rectangular columns. In this context, a building designed with square or rectangular cross-section columns was redesigned by placing shear walls, and the amount of dead spaces, the cost of reinforcement formwork and masonry were compared.

**Keywords:** Architectural Design; Structural Design; Dead Space; Construction Cost.

Manuscript ID: ICCAUA2022EN0104

## Reinventing the Relationship Between Architecture, Biology and Human Experience

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### Abstract

The oblivious implementation of 'biology' or 'study of life' into architectural design has been shaping human experiences for centuries. The human body consciously or subconsciously accepts the constructed surroundings to design emotions, senses, behavior, and logical order of its own. Likewise, the identity of a group of individuals occupied by a built structure to a certain extent reflects the spatial experience outlined by the structure. The current gap of biological understanding in design often assists in resulting imbalance between the human body and the surrounding environment. With this in mind, the first phase involves an exploration of existing biological theories regarding user spatial experience. The second phase studies a complex range of human movements, sensory stimuli, emotional and behavioral responses recommending probable approaches for assuring structural soundness, aesthetic pleasure, and functional accuracy of an architectural setting. This research finally opens an opportunity to re-evaluate design solutions based on the potential applications of bio-scientific research for future design development.

**Keywords:** Built Environment; Biology; Sensory Perception; Spatial Experience; Bio-adaptive design.

Manuscript ID: ICCAUA2022EN0120

## Evaluation of Energy Performance of Main Administrative Office Buildings of Universities in North-Central Nigeria

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### Abstract

The adverse effect of increasing energy demand on global climate has made buildings objects of research globally. Generally, in Nigeria, lack of building energy data and specifically energy consumption information related to building facilities in universities has been given less attention where bulk metering has been the common practice. Consequently, energy demand of individual building remains unknown. Hence, Energy Use Index (EUI) was adopted as energy performance indicator for main administrative office buildings of federal universities in North-Central Nigeria. This study been exploratory in nature adopted a case study technique. Simple energy audit was conducted in the absence of individual monthly energy bills. The end-use disaggregation shown that cooling load accounted for not less than 43% of annual energy consumption. Also, the derived EUI of 195.74 KWh/m<sup>2</sup>/yr was above benchmark for similar buildings. This outcome implies that the buildings are energy inefficient and need for sub-metering and regular audit.

**Keywords:** Energy Performance; Energy Wastage; Occupants Attitude; Office Buildings; Performance Indicator.

Manuscript ID: ICCAUA2022EN0226

## Importance of HVAC System Selection in Reducing Energy Consumption of Building Retrofits – Case Study: Office Building in London

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### Abstract:

The analysis of the holistic life cycle and carbon emissions in buildings has become more important due to the escalating energy demand. In this context, office buildings have been transformed into high energy demanding buildings as the provision of thermal comfort has become a necessity. It is unlikely to new buildings, improving the building performance with passive measures is hard to achieve and costly in existing buildings. In such cases, it is necessary to reduce the energy consumption of the HVAC systems used to provide the required comfort. In the study a 10-year-old London office building analyzed. A parametric tool developed to test HVAC energy interventions using the hourly demand from the building that is generated based on the data metering. Study focused on to minimize operational energy consumption, carbon emissions and operational cost. Study shows the impact of different system selections as well as the parameters such as temperature and controls on energy consumption.

**Keywords:** HVAC Systems; Operational Energy; Parametric Modelling; Building Retrofit.

Manuscript ID: ICCAUA2022EN0225

## Energy efficiency benchmarking: Review of Key policies, agencies, program developments in North Africa, case of Algeria

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### Abstract:

The energy efficiency benchmarking is an approved solution to achieve sustainability. Although the universal common challenges, North African countries still generate policies and frameworks governing energy efficiency in the building sector. This paper examines the key players in the energy efficiency benchmarking by diagnosing the existing energy agencies and institutions which contribute to that. The samples are from Algeria. The key programs in energy development are discussed with gaps in the timeline of the programs compared to the Malaysian key players in energy development.

This work indicates the lack of continuity in such fields in R&D agencies, explains the gap in the regularities and the existence of protocols, and the absence of testing authorities for evaluation tasks, which guarantees compliance. This type of research will unveil another portal in building's energy efficiency benchmarking field in Algeria and transpose it to all North African countries.

**Keywords:** Energy development; Energy efficiency; Energy policy; Energy agency; Building sector; Benchmarking.

Manuscript ID: ICCAUA2022EN0228

## The Green Mosque: Transition to Sustainable, Eco-Friendly Features

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### Abstract:

This paper presents a case study of a suggested renovation project for a mosque in Sudan. The energy strategy selected uses a combination of passive energy efficiency features as well as a strategy to generate renewable energy integrated into the mosque envelope. The aim is to present numerical predictions of energy consumption before and after renovation.. Comprehensive field measurements were carried out to be used as input data in the building energy simulation tool. The mosque suggested renovation project has resulted in a 23% reduction in energy demand and 38% of the total energy consumption covered by solar energy generation. The results also show that the choice of renovation measures, such as level of insulation, U value used for openings, and efficiency of the cooling system need careful consideration. Choice of lighting system also has a major effect.

**Keywords:** Renovation; Mosque; Simulation; Energy saving; Solar energy.

# A Parametric Analysis of Interior Space Organization for Improving Thermal Comfort Conditions in Office Buildings

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## Abstract

The interior planning organization in office buildings varies depending on the depth of the space and the plan layout. The thermal comfort of the space and the comfort conditions of the individuals are affected by different depth of the space. The aims of this parametric study are to examine the effects of the interior organization, window sizes, and the selection of building envelope elements on the design efficiency and the percentage of comfortable space in the buildings designed climate-conscious. In this study, the analysis is carried out for the offices located on the 3rd floor of the five-storey reference virtual building sensitive to climate. Calculations are made for a reference province in a hot-dry climate using Rhinoceros/Grasshopper simulation. Energy load results for heating and cooling periods in medium-depth office spaces and open-plan work areas will be given and evaluated comparatively. Handling the interior planning organization and analysis process together at the design stage of the building will contribute to the development of thermally comfortable spaces.

**Keywords:** Parametric Design; Interior Organization; Office Planning; Thermal Comfort.

## Ofis Yapılarında Isıl Konfor Koşullarının İyileştirilmesi İçin İç Mekân Organizasyonunun Parametrik Analizi

### Özet

Ofis yapılarında iç mekân organizasyonu, mekânın derinliğine ve plan düzenine bağlı olarak değişiklik gösterir. Farklı mekân derinlikleri, mekânın ısı konforunu ve bireylerin konfor koşullarını etkilemektedir. Parametrik çalışmanın amacı iklime duyarlı tasarlanan binalarda iç mekan organizasyonu, pencere boyutları ve yapı kabuğu elemanları seçiminin tasarım verimliliği ve konforlu alan yüzdesi üzerindeki etkilerini incelemektir. Bu çalışmada iklime duyarlı beş katlı referans sanal binanın 3. Katında yer alan ofisler için analiz gerçekleştirilmiştir. Hesaplamalar sıcak-kuru bir iklimde yer alan referans bir il için Rhinoceros/Grasshopper simülasyonu kullanılarak gerçekleştirilmiştir. Orta derinlikte ofis mekânları ve açık planlı çalışma alanlarında ısıtma ve soğutma dönemleri için enerji yükleri hesaplanarak sonuçlar karşılaştırmalı olarak verilecek ve değerlendirilecektir. Yapının tasarım aşamasında iç mekân organizasyonu ve analiz sürecinin birlikte ele alınması ısı anlamında konforlu mekânların geliştirilmesine katkı sağlayacaktır.

**Anahtar Kelimeler:** Parametrik Tasarım; İç Mekân Organizasyonu; Ofis Planlaması; Isıl Konfor.

Manuscript ID: ICCAUA2022Ar0504

# The Photovoltaic Facade and its Impact on the Energy Economy of Buildings Located in Semi-arid Areas

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## Abstract

This article presents the application of a complete methodology to predict the photovoltaic potential using solar panels on the facades of residential buildings in Biskra (Algeria). A theoretical study conducted on a representative urban residential area in Biskra is discussed as an example of the applicability of the methodology. It is based on the determination of the PV installations for the typical facade of the buildings, taking into account the architectural and technical aspects, the solar radiation on each facade is calculated by simulating the path of the sun throughout the year. The proposed solutions are then evaluated using a dynamic energy simulation to determine the most efficient ones, resulting in the potential to exploit PV and solar energy generation. One interesting finding is the gap between the architectural availability and the overall solar suitability of the facade surfaces, and this difference is based on the following main factors: on the one hand, the high density of the built environment composed of high-rise street canyons. Aspect ratio, on the other hand, the changing direction of buildings, and finally classified buildings, with complex geometry. The aim of this work is to discuss the potential of facades and other vertical elements for the photovoltaic potential of solar panels on buildings located in semi-arid regions.

**Keywords:** Energy Production; Solar Radiation On Facades; Photovoltaic Façade; Semi-Arid Areas.

## الواجهة الكهروضوئية وتأثيرها على اقتصاد الطاقة للمباني الواقعة في المناطق شبه الجافة

المخلص

يقدم هذا المقال تطبيق منهجية كاملة للتنبؤ بالإمكانات الكهروضوئية باستعمال لالواح الشمسية في أسطح واجهات المباني السكنية في بسكرة (الجزائر). تمت مناقشة دراسة نظرية أجريت على منطقة سكنية حضرية تمثيلية في بسكرة كمثال على قابلية تطبيق المنهجية. يعتمد ذلك على تحديد التركيبات الكهروضوئية للواجهة النموذجية للمباني، مع مراعاة الجوانب المعمارية والتقنية، يتم حساب الإشعاع الشمسي على كل واجهة عن طريق محاكاة مسار الشمس على مدار العام. يتم بعد ذلك تقييم الحلول المقترحة باستخدام محاكاة ديناميكية للطاقة لتحديد أكثرها كفاءة، مما أدى إلى إمكانية استغلال الطاقة الكهروضوئية وتوليد الطاقة الشمسية. تتمثل إحدى النتائج المثيرة للاهتمام في الفجوة بين التوافر المعماري والملاءمة الشمسية الإجمالية لأسطح الواجهات، ويستند هذا الاختلاف إلى العوامل الرئيسية التالية: من ناحية، الكثافة العالية للبيئة المبنية المكونة من أحاديدي شوارع ذات ارتفاع عالٍ. نسبة الارتفاع إلى العرض، من ناحية أخرى، الاتجاه المتغير للمباني، وأخيراً المباني المصنفة، مع الهندسة المعقدة. الهدف من هذا العمل هو مناقشة إمكانات الواجهات والعناصر الرأسية الأخرى للإمكانات الكهروضوئية للالواح الشمسية على المباني الواقعة في المناطق شبه الجافة.

**الكلمات الدالة:** إنتاج الطاقة؛ الإشعاع الشمسي على الواجهات؛ الواجهات الكهروضوئية؛ المناطق شبه القاحلة

Manuscript ID: ICCAUA2022Ar0507

## Elements of Biophilic Interior Design in Healthcare Environments Case Study: The Libyan European Hospital (LEH), Benghazi

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### Abstract

Natural environments afford healing and restorative benefits in the form of positive shifts in cognitive, physical, and social functioning. These healing effects can be achieved through biophilic and sensory encounters within the facility. Using concepts of biophilic design to guide decisions for the built environment, spaces are designed to support healing through biophilic responses and connection to natural elements and systems. This thesis is meant to be viewed as a contribution towards developing evidence-based biophilic interior design solutions for healthcare environments. The interdisciplinary research and proposed guidelines are hypotheses for how to further design with nature for human well-being. They offer, support and design considerations for psychological responses to nature within the interior healthcare environment. The study will proceed in applying the biophilic patterns on LEH hospital in Benghazi as a restoration project. The paper therefore concludes the possibility of incorporating biophilic design to integrate nature in hospitals environments.

**Keywords:** Biophilia; Biophilic design; Wellbeing; Nature, Hospital.

## عناصر التصميم الداخلي البايوفيلي وتطبيقاتها في بيئات الرعاية الصحية (المستشفى الليبي الأوروبي - بنغازي أنموذجا)

### الملخص

إن البيئات الطبيعية لها دور فعال في زيادة فرص التعافي لما تحققه من تحسن ايجابي في الأداء الإدراكي و البدني و الاجتماعي للبشر. كما أنها تخفف من مستويات التوتر النفسي لما لها من قدرة علي توفير الإحساس بالتحكم و الخصوصية, و توفير فرص التفاعل الاجتماعي و النشاطات البدنية و تعزيز الاستجابات الإيجابية في الصحة العامة من خلال الارتباط بالنظم الطبيعية. يمكن تلبية هذه الحاجات للمرضي و العاملين من خلال الاتصال الحسي مع الطبيعة داخل أبنية المستشفيات. باستخدام العناصر البايوفيلية في عملية تصميم البيئة المبنية للتكيف مع البيئة المحيطة. هدف الدراسة تطوير حلول التصميم الداخلي البايوفيلي القائمة على الأدلة في بيئات الرعاية الصحية. منهج الدراسة مقارنة متعددة ودراسة حالة عالمية للوصول الي اعتبارات التصميم البايوفيلي الذي يحقق الرفاهية للإنسان. سيتبع الإطار النظري للدراسة تطبيق هذه الأنماط التصميمية علي المستشفى الليبي الأوروبي في بنغازي كمشروع ترميم مبني قائم. تخلص الدراسة إلي أهمية التصميم البايوفيلي وإمكانية دمج عناصره في بيئات المستشفيات.

**الكلمات الدالة:** البايوفيليا؛ التصميم البايوفيلي؛ الرفاهية؛ الطبيعة، المستشفى.

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# BOOK OF ABSTRACTS

## ICCAUA-2022

### SESSION B: Sustainability and Urban Design

**Session Chairs:**

*Dr. Dalia Hussain El Dardiry*  
*Dr. Leila Akbarishahabi*  
*Dr. Mohamed M. Youssef*

*Dr. Ayşe Sirel*  
*Dr. Djamel Alkama*  
*Dr. Ahmad Khalilia*

*Dr. Mennat-Allah El-husseiny*  
*Dr. Riham Nady Faragallah*  
*Dr. Carlos Mourão Pereira*

Manuscript ID: ICCAUA2022EN0005

## The Impact of Urban Management on Crowd Movement and User Experience through the Pilgrimage of Hajj (Frequent Temporary Mega-Events)

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### Abstract

The research looks at the impact of urban management on crowd movement and user experience during the Islamic pilgrimage of Hajj. This study investigates and develops an urban management framework for crowd movement and user experience at frequent temporary mega-events. The thesis uses a mixed-methods approach to address a complex urban context during the annual pilgrimage in Makkah, Saudi Arabia. Hajj is a unique event that hosts millions of pilgrims; nevertheless, it has many constraints and rituals. The current management system of Hajj suffers from a significant overlap of stakeholders' roles and responsibilities and the absence of user-centricity during the planning and operation of the crowd movement. Thus, Hajj needs a new governance system to establish a framework that addresses the users' needs and expectations. This investigation aims to identify the main touchpoints of the crowd movement toward Al-Masjid Al-Haram from the Jamarat Bridge in Mina to address the following aspects: event management, crowd movement, and user experience.

**Keywords:** Urban Management; Crowd Accessibility; User Experience; Governance; Hajj; Pilgrimage.

Manuscript ID: ICCAUA2022EN0023

## Achieving Sustainable City through Formal Urban Development: A Critical Evaluation of Measures Adopted for Enugu City, Nigeria

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### Abstract

Most cities of developing countries like Enugu continue to grow organically and through incremental planning and development. The effect of this is far reaching in relation to achieving sustainable city. The study utilizes secondary data to identify the various formal approaches towards the development of Enugu city in the past twenty years especially by Enugu State Housing Corporation and the Ministry of Lands and Urban Development. In addition, it critically evaluates the role of these government organisations in making formal city development programmes and policies. The study argues on the need for more holistic approach that accommodates the vulnerable group in Enugu city development. Adopting the 'upgrade-social-inclusive' framework for urban planning and management in Enugu city, this study reveals the practical measures for policy makers and managers of Enugu city development in the face of growing urbanization and unbalanced sustainable growth and development.

**Keywords:** Sustainable Cities; Urban Management; Urban growth; Planning; Enugu.

Manuscript ID: ICCAUA2022EN0143

## Developing Urban Design Research with VINEX

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### Abstract

During the mid-1990s and the first two decades of the 2000s, the Netherlands underwent a super zoning programme called VINEX to redevelop peripheral areas. The initial objective is to change to an urban landscape design project for high-density housing, favouring places that tend to be elitist. This research looks first at the evolution of VINEX on urban landscape design and then at how the recent NR development programme has sought to correct housing speculation. Finally, by comparing the objectives of VINEX and the NR programme, this research aims to highlight how land reclamation can also be achieved through new policies of green landscape and social inclusion and not only through land consumption, a peculiar characteristic of Dutch planning.

**Keywords:** Urban Design; Urban Resilience; Architectural Landscape; Architectural Design; Gentrification.

Manuscript ID: ICCAUA2022EN0025

## Landscape Architecture Role In Enhancing Different Abilities' People In Using Parks

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### Abstract

The design of parks has a low level of facilitating people's different abilities in practising light sport, simple fitness, playing joyful games, and participating in entertainment activities, which improve their level of physical fitness and maintain an appropriate level of confidence and joy. There is a lack of equipment that suits each of the different abilities' people, which should appear more comprehensive in the current state of these parks. After the ratification of the Convention on the Rights of Different Abilities people that the UN Assembly declared, there is a need to propose design criteria to follow while developing the existing parks or creating new ones. Through analytical studies, there is emerged of distinguishing between the regular users of the public parks and different abilities' people. The research will provide new design criteria for equipping their requirements in parks in Bahrain.

**Keywords:** Different Abilities' People; Landscape Architecture Design; Parks; Built Environment; Urban Design.

Manuscript ID: ICCAUA2022EN0029

## Gender Quota and Women's Needs in Urban Planning Practices by Local Councils: The Case of Ramallah Governorate in Palestine

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### Abstract

The aim of this study is to investigate the influence of gender quota on elected women's effective participation in urban planning practiced by local councils in Palestine, where Ramallah governorate will be taken as a representative case study. Most of the existing studies concerning this topic focus on the obstacles that control the effectiveness of gender quota without clarifying well enough how this influence the fulfillment of women's needs in urban environment, which is important for enhancing women's urban life and sustainability of the urban environment. Interviews and observations are used as two main methods for data collections. The result of this study showed that although gender quota supports women's access to decision-making process in planning practices, it is not enough to guarantee the fulfillment of their needs. Social, cultural, and political obstacles in addition to women's awareness of their needs, should be considered for the effectiveness of gender quota.

**Keywords:** Gender Quota; Women's Needs; Sustainability; Urban Planning Practices; Local Councils; Ramallah; Palestine.

Manuscript ID: ICCAUA2022EN0051

## Psychological Relaxation of Campus Park and Arboretum

\*Dr. Prita Indah Pratiwi<sup>1</sup>, Dr. Bambang Sulistyantara<sup>2</sup>, M.Agr. Saraswati Sisriany<sup>3</sup> and B.Sc.(Agr.) Samuel Nanda Lazuardi<sup>4</sup>*IPB University, Faculty of Agriculture, Department of Landscape Architecture, Bogor, Indonesia<sup>1,2,4</sup>**Yayasan Abirama Lestari Indonesia, Bogor, Indonesia<sup>3</sup>**E-mail<sup>1</sup>: pritaindahpratiwi@apps.ipb.ac.id, E-mail<sup>2</sup>: bambang\_sulistyantara@apps.ipb.ac.id, E-mail<sup>3</sup>: saraswatisisriany@gmail.com, E-mail<sup>4</sup>: samlazuardi@apps.ipb.ac.id*

### Abstract

Besides aesthetic landscape, Campus green space provides nature for recreation, outdoor laboratory, and relaxation space. This study aims to clarify the psychological benefits of walking in the campus landscape and analyze the correlation between psychological benefits and images. Experiments were conducted in a campus park, arboretum, and a road where participants walked for 15 minutes. Participants captured attractive views during the walk using the Visitor-Employed Photography method and evaluated psychological responses using the Profile of Mood States (POMS) and the State-Trait Anxiety Inventory (STAI) pre and post walking. The results showed that park therapy produced lower negative moods and decreased anxiety states in the park and arboretum. Plant community, plant, flower, and sky negatively correlate with anxiety and negative moods. In conclusion, walking in the campus park during pandemic resulted in psychological relaxation and prominent components of park therapy to create a healthy campus green space.

**Keywords:** Greenspace Therapy; Profile of Mood States, State-Trait Anxiety Inventory, Visitor-Employed Photography.

Manuscript ID: ICCAUA2022EN0065

## Implications of Residential Housing Exposure to Urban Environmental Noise on Resident's Wellbeing in Minna, Nigeria

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### Abstract

Environmental noise constitutes a major contributor to environmental pollution. Its unintended consequences pose a challenge to public health problem in the built environment. The study assessed the perception and the implications of urban environmental noise by urban residents on their wellbeing. Study locations were purposively selected and data collected through survey using a self-developed questionnaire. The questionnaire was piloted, validated and subjected to reliability test having a value of 0.705. A hundred and fifty-one (151) responses obtained through random sampling were analysed. Findings from the study shows that noises from places of worship and traffic noise were rated high with about 75 percent of the respondents indicating that environmental noise negatively impacts their wellbeing. The study suggested the need for improved environmental quality in the built environment. It advocated for synergistic interventions from architects, other built environment professionals and environmental protection agency on tackling urban environmental pollution in residential environments.

**Keywords:** Built Environment; Urban Environmental Noise; Residential Housing; Public Health; Resident's Wellbeing.

Manuscript ID: ICCAUA2022EN0074

## Behavioral Analysis of Single-Use Plastic Consumption in Cairo

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### Abstract

Plastic pollution is a huge environmental and urban problem in Cairo. The overconsumption of single-use plastic bags (SUPB) and their inadequate disposal are significant contributors to it. The aim of this research is to unveil the behaviors and factors that encourage and discourage the use of SUPB among Cairenes. The research analyzed the environmental awareness and the willingness to adopt pro-environmental behaviors. The methodology used is based on the Theory of Planned Behavior and S.H.I.F.T Framework. The results demonstrate that people are environmentally conscious and willing to change their behavior, yet they consume a considerable amount of SUPB. Furthermore, there is a gap between what people say and how they act. This could be changed through different factors such as Social Influence, Tangibility, Positive Emotion, and Policies. These factors can potentially influence the reduction of SUPB and encourage the adoption of pro-environmental behaviors and policies.

**Keywords:** Single-Use Plastic Bags; Behavior; Behavioral Change, Factors of Influence; Pro-Environmental Behavior; Environmental Awareness; Cairo; Egypt.

Manuscript ID: ICCAUA2022EN00109

## Theater, Space and Place Making in North-East Bangladesh

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### Abstract

Although Theater activities inject a significant effect on outdoor public affairs, local urban planners do not sufficiently consider such impact while designing a new civic theater in Habiganj, a growing sub urban district of Bangladesh. Incoherent theater buildings in such urban areas fail to engage people with theater at large, in consequence, the act of theater remains incomplete. The research was conducted through a semi structured interview, social demographic data analysis, case studies, technical aspects and literature survey providing the anthropomorphic image of a theater as an embodied space, elementary spaces of theater and affordable & inclusive theatrical form as major findings. A regional model is driven from the research for local theater (different types of performing spaces) practice that can guide future municipal theater planning for theater to sustain among society & people.

**Keywords:** Public Spaces; Theater; Elementary Spaces; Anthropomorphic Image; Architectural Intervention; Regional Model.

Manuscript ID: ICCAUA2022EN0038

## The Role of Social Media on the Perceptions of Environmental Sustainability: A Case Study Example

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### Abstract

Contemporarily, the architecture industry is one of the sectors that have the highest damage to environmental sustainability. Adapting this sector with environmental sustainability can be possible by improving the perceptions and awareness of professionals working in this field and those who will work in the future. It is possible that this development can be supported by the role of social media. The study aims to inquire about the perception of environmental sustainability and the role of social media on this perception. Including demographic information form and social media usage level, Environmental Sustainability Perception Survey consisting 6-points-Likert was applied. The data obtained from the survey were evaluated with the factor analysis method. It is thought that social media affect the perception of environmental sustainability among architecture students.

**Keywords:** Sustainability; Environmental Sustainability; Architecture; Social Media.

Manuscript ID: ICCAUA2022EN0066

## Territorial Planning Between Governance and Local Development for a Better Quality of Life

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### Abstract

Public action in terms of urban planning and development. striving to geographically distribute the population and economic activities, to homogenize the territory, fragile and coveted which is experiencing significant changes, particularly in one of the Algerian cities Biskra as a case study. Evoking qualitative questions in relation to urban forms and developments requires setting frameworks for reflection, in particular in relation to the vocations to be given for future developments. This is how it goes without saying to promote touristic, agricultural agro-tourism vocations and, on the other hand, to propose urban and rural developments. It is also a question of fixing the methods of intervention on the urban space to achieve the beginnings of a quality of living environment. By using the method of analysis (historic-geographical) two levels of intervention are approached at the global level of the territory of the city and at the local level of the developments. The objectives to be achieved are: To highlight the means of local development, whether human or material, to have a better quality of life inside cities. Clarify the impact of developments on the morphology of the urban space for possible use in urban planning operations.

**Keywords:** Local Development; Historic-Geographical Approach; Urban Planning; City Territory; Quality Of Life

Manuscript ID: ICCAUA2022EN0107

## A Study on Civic Amenity Center In Different Neighborhoods of Chittagong

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### Abstract

Overcrowding leads to urban growth, which leads to land scarcity and a reduction in the quality of life for those who live and work in these places. Chittagong is one of Bangladesh's mega cities, with land scarcity and a lack of suitable civic spaces in its surrounding areas. The neighborhood's walkability is hampered by the fact that required amenities are not provided at a consistent distance from one another. There are three essential phases to complete the research: Morphological Study, User Behavior Study, and Mind Mapping. The context, required functions, functional linkage, volume, and visual appropriateness have been evaluated. The finding of this research opens up a new window for local urban planners to assess the essential elements of a responsive environment for civic amenity centers in on-going government projects of future urban development.

**Keywords:** Civic Spaces; Neighborhood; Walkability; Morphology; Mind Mapping; Civic Amenity Center; Responsive Environment.

Manuscript ID: ICCAUA2022EN0085

## What Motivates Bathers to Use Sun Shelters at Urban Beaches?

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### Abstract

Climate change phenomena, in particular current excessive ultraviolet radiation and increasing heat waves, require safe shade for bathers during the hours of higher sun exposure in risk periods. Urban beaches are often crowded spaces during midday hours. For suburban families, without private transportation, it is difficult to limit the stay just to an early morning, or a late afternoon, considering time and travel expenses. Therefore this study explores motivations to use a sun shelter, i.e. a shaded outdoor space integrated in beaches, aiming at health prevention. Based on the qualitative research method of face-to-face interviews conducted on two beaches of the Lisbon region, we identified motivations for bathers to use sun shelters accommodating cultural, recreational, sports and eating areas. In this way insights were gained to improve the resilience of urban beaches, contributing to protecting the population against skin cancer and heart attacks and thus lowering expenses in health care.

**Keywords:** Climate Change; Health Promotion; Shade; Spatial Justice; Urban Beach.

Manuscript ID: ICCAUA2022EN0105

## Reconciling Children and Their Urban Environment Around School Through a Multicriteria Analysis: Case of “CHRAIT AMMAR” School, Guelma City- Algeria

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### Abstract

UNICEF affirms that if we can shape a child-friendly city, we will have a successful city for all. The journey to school is considered one of the first experiences in which children begin to explore and interact with their urban environment. This paper aims to assess the quality of the area around school in the eyes of its users "children" through a multicriteria analysis based on scientifically validated criteria that integrates the principles of sustainability and resilience. Our problematic was applied to the urban school of "CHRAIT AMMAR" which is located in Guelma city center. To carry out this scientific research, a school survey by questionnaire was carried out with 150 pupils and their parents to facilitate the weighting of criteria. The results obtained reveal the pertinence and the validity of the indicators selected to evaluate quality of school surroundings. Multi-criteria analysis is therefore a decision support tool.

**Keywords:** Multi-Criteria Analysis; Child; School Surroundings; Urban Environment; CHRAIT AMMAR School; Guelma City.

Manuscript ID: ICCAUA2022EN0202

## Assessing the Role of Natural Soundscapes in Urban Areas And Role of Landscape in Bringing Back the Lost Voices of Nature

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### Abstract

Nature made every living being on earth to communicate and get lost in it's voices. Imagining a nature without it's voices is impossible as everything in this world communicates and is interconnected. Landscape acts as a connecting link for the sounds of nature and organisms. "Cities" the hubs for the noises in this world are muting the nature's hum. By muting unwanted noises one can re-hear the nature's sounds. The inter-dependency of everything in this nature, either a living or a non-living thing is making these sounds possible. The ecological settings for any ecosystem are organised which enable to communicate to the other. When the system is disturbed, it faces an immense affect and create communication gap between the living and the non-living things. The study focus on the sources of nature's sounds, noise causes that deplete natures' voices and the proposals of possibilities to overcome the loss of Natural-Soundscapes.

**Keywords:** Nature's Muted Voices, Landscape and Soundscape, Noise Pollution, Nature's Voices, Sounds From The Woods.

Manuscript ID: ICCAUA2022EN0102

## Measuring the Sustainability Level of Tall Buildings within the Urban Context: The Case of Northern Nicosia-Cyprus

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### Abstract

Tall buildings are a phenomenon of globalization and urban growth for almost all sized cities worldwide. The role of tall buildings on the urbanism is one of the most discussed issues regarding sustainable development. In recent years Nicosia city, being the last divided capital city of Europe, also experienced taller buildings planned and built within the existing urban context. The objective of this paper is to analyse the role, need and impact of the tall buildings of the Northern Nicosia City, considering the relationship with their surroundings at the macro and micro scales. Within the scope of the study selected tall buildings will be evaluated for the social, economic, environmental and cultural aspects of sustainability throughout the built environment. The main aim of this research is to measure the compatibility level of these integrated tall buildings, relationship with their neighbourhood and hope to provide required sustainability criterias for future projects.

**Keywords:** Tall Buildings; Built Environment; Urban Context; Sustainable Development; Nicosia.

Manuscript ID: ICCAUA2022EN0214

## Literature Review: Determinant Model of Land Value in the Surrounding Area of HSR Karawang Station

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### Abstract:

Urban agglomeration causes regional economic growth, which has a broad impact on the spatial configuration of the city and has the potential to change urban land prices. In addition, the construction of "Kereta Cepat Jakarta Bandung" (KCJB) connects Jakarta-Bandung in a short time. One of the stations located between the Bekasi and Karawang regencies will also impact the development of the surrounding area. This study aims to determine the spatial direction of land price variations by mapping the area's potential and comparing urban spatial configurations. The analysis was carried out by comparing two points as location attributes and the determinant attributes by looking at the urban spatial configuration, The difference from previous research is that this research uses a method to predict land values that are not listed on the map.

**Keywords:** Spatial Configuration; Land Value; Urban Clusters.

Manuscript ID: ICCAUA2022EN0115

## Cooling the City with Street Afforestation: The Case Study of Antalya

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### Abstract

In this study, the effect of increasing street afforestation on the local climate in Muratpaşa, one of the densely populated districts of Antalya, was investigated by artificial neural network (ANN) simulations. In the method based on NDVI (normalized difference vegetation index) values obtained from satellite images, new synthetic images were created by afforesting road networks and then new surface temperatures of the region were calculated from the simulations that used these synthetic images. By analyzing the thermal changes between the obtained simulated surface temperatures and the original surface temperatures, the effects of street afforestation on the region were examined. The results revealed that street afforestation is also effective in cooling the road networks and their peripheries.

**Keywords:** Street Afforestation, Cool Island, Urban Climate Change, Artificial Neural Network (ANN), Remote Sensing, Thermal Change Detection.

Manuscript ID: ICCAUA2022EN0117

## Vegetation and Its Impact According to User's Perception: Case Of North Land Use Plan Of Guelma City

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### Abstract

The vegetation takes a primordial place in the reflection on our urbanity for the balance of the ecosystem. Guelma, attractive Mediterranean city, by the picturesque character of its site, incites to discover it from the inside to better understand its urban landscape. In this same regard our study focuses on the north land use plan of the city. Today, the city is characterized by accelerated urbanization, which leads to the consumption of natural resources. One of the consequences of these phenomena is the deterioration of green substrates, by fragmentation of natural environments and agricultural areas. The objective is to show the role of vegetation in the satisfaction of the users of north land use plan of Guelma city, This can only be done through a survey of the various users of this city. Finally, recommendations dedicated to the proposal of the implementation of ecological planning to the management.

**Keywords:** Vegetation; Users; Perception; Guelma City; North Land Use Plan.

Manuscript ID: ICCAUA2022EN0175

## Synesthesia, the Sensory Experience in a Multicultural City: The Case of Thessaloniki

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### Abstract

Consciously or subliminally, humans are in a relationship with their built environment – that is the city's buildings and its voids. The sensory experience determines humans' identification to the city, i.e., their sense of belonging, which is the main key to feel secure to be productive and to have a functional city. In many cases, a city provides for one of the human senses more than the other. Therefore, in such cases, one sense could experience for the other: this is when emerges the phenomenon of synesthesia. This paper investigates the case of synesthesia in Thessaloniki, a multicultural city with a continuous evolution of its visible urban changes and invisible sensory experience. With the narratives of 30 Thessalonians of three different generations, added to interpretative interviews with experts and past literature, this paper will unveil the dominant human senses triggered in Thessaloniki and shaping the identity of the city through the inhabitants' urban and social experiences.

**Keywords:** Synesthesia; Sensory Urban Design; Somatic Space; Sensescape; Multicultural City.

Manuscript ID: ICCAUA2022EN0139

## The role of Urban Planning and Architecture in Sustainable Peacebuilding Lessons Learned From Belfast to Syria

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### Abstract

The peacebuilding process shows a critical role for urban planning in paving the way for sustainable peace or upcoming conflicts, where it's not innocent and not impartial. The paper aims to draw out lessons learned from Belfast to Syria, focusing on the urban intervention role in sustaining peace-process. The paper went through a literature review of Belfast, using the timeline to scan the recovery process and extract a few lessons learnt. Followed by reviewing the current interventions for the recovery of Syria based on chosen articles in the Venice charter on reconstruction that define specific indicators of the role of architects and urban planners. Authors debate the way and the aspects of urban intervention in dealing with conflicts. The paper showed the critical role of urban interventions in sustaining peace process implementation and concluded with essential areas to ensure the integration of urban intervention as part of the peace-process.

**Keywords:** Post-War; Reconstruction; Peacebuilding; Recovery Plan; Urban Planning.

Manuscript ID: ICCAUA2022EN0069

## Effect of A High-Density Street-Level On Air Temperature In Outdoor Space Of Neighborhoods Of Hot, Dry Cities

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### Abstract

The outdoor spaces of residential neighborhoods are an important part of residents' lives the outdoor spaces in the neighborhood are fundamental for the social life due to their capacity to serve as meeting spaces and interactions among the public, here comes this search, which is based on study of the role of high-density street-level on air temperature in outdoor space of neighborhoods. The methodology was based on three parts, initially, determine the sample which is a three residential neighbourhoods downtown according to scientific criteria and conducting a field survey of climatic factors (air temperature - relative humidity - wind speed) secondly, make a model to simulate the built environment by using the envi-met 4.4.6 program, according to the data of the survey, thirdly, a linre regression for a regression model of H/W with DSR, and MRT, AT variables, the Results indicated that significant variations of value of DSR, MRT, AT variables among residential neighborhoods which points the effect of high-density street-level on air temperature in outdoor space .

**Keywords:** Direct Sw Radiation (DSR); Mean Radiant Temp (MRT); Air Temperature (AT); Outdoor Spaces; Regression Model.

Manuscript ID: ICCAUA2022EN0078

## Urban Vertical Farming as a Path to Healthy and Sustainable Urban Built Environment

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### Abstract

The issue of global warming and food insecurity are among the most problematic challenges of 21st century. Meeting the current and future demands for food production and the willingness to survive is one of the recent problems the world is facing today. The fundamental concern of this article is to explore the significant role of urban vertical farms (UVF) on how they can pave the way for a healthy and sustainable built environment. Within this 21st century, issues such as climate change, bio-and environmental degradation, and other related man-made activities that lead to loss of agricultural lands, vertical farms can be regarded as a sustainable alternative to conventional agriculture. Consequently, urban farming provides impeccable opportunities for the sustainable development of places such as urban cities and provides a form of moral support economically, socially and ecologically, and also address the recent changes brought to the general built environment by COVID-19 pandemic. The primary objective of this paper is to explore and introduce possible and various functions which support ecosystem and how they affect assessable benefits for urban masses at different scales of solutions within the scope of urban vertical farming. In conclusion, this research has demonstrated that, UVF can enhance the general wellbeing of the urban masses as well as ensure healthy and sustainable urban built environment at different scales and capacity.

**Keywords:** Urban Vertical Farming; Green Facades; Sustainable Development; Green roofs; Urban Cities.

Manuscript ID: ICCAUA2022EN0199

## Towards Bikeability with Place Attachment Approach in Yogyakarta

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### Abstract

Cycling is energy-efficient transportation, free of carbon emissions, and is an active transportation embodiment of a healthy lifestyle. This study aims to understand the process of place attachment in cycling spaces. The objective of this research is to guide the design of attractive new bicycle point destinations and paths, increase the interest in cycling among city residents, and contribute to reducing carbon emissions in urban spaces. The research was conducted using a qualitative method with a place attachment theory approach and descriptive narrative analysis. Primary data collection was carried out by observing cyclists, cyclists' destinations, interviews with cyclists & other actors. In addition, we do active participation as cyclists to get hands-on experience. This study reveals aspects of interaction, activity, memory, and experience as elements that play a role in place attachment at destination points and cycling routes in Yogyakarta.

**Keywords:** Active Transportation; Bikeability; Place Attachment; Cycling Space; Built Environment

Manuscript ID: ICCAUA2022EN0075

## URBAN MENUS: Parametric Consensus-Based 3D Future Planning

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### Abstract

The URBAN MENUS are a novel platform for spatial development processes combining configurability, integral impact analysis as well as feedback options in an easy-to-use, high-end interactive real-time app. URBAN MENUS quickly displays future images, allows a walk through and evaluates effects in terms of resources and ecology, society and urbanity, as well as profitability. The carbon footprint being only one indicator to be considered consciously. Multi-perspective considerations enrich the process and offer future security for investments in spatial development by significantly increasing the “accuracy” – regarding the best vision for the future -compared to linear processes. It can be decentralized and used simultaneously by several target groups – all involved and/or affected by the planning process – supporting all interested stakeholders in decision-making by prototypical design criteria that can be tested and adjusted live on the screen. The Challenge Making Cities fit for the Green Deal means for our holistic parametric approach to work with both the personalized perception of decision-makers, the “database of the region in question” and expert assessments. This integral basis for the development of the algorithms is fundamental to understand the starting point of the developments and to activate the possible windows of opportunity. URBAN MENUS processes aim, through impact analysis, to meet the expectations of diverse personas, young parents as well as those of entrepreneurs and politicians. As always when one tests and then applies an invention in contemporary markets, it is possible to affirm that any reality surpasses the fantasies of research and development of the methods and algorithms developed somewhat theoretically. Suddenly, URBAN MENUS helped to initiate a process of change in the tourism-based summer production system in the Black Sea Village of Koblevo in Ukraine to an annual economy integrating health and wellness for a much wider public. The project allowed for consensus building at national, regional and local level between public and private spheres, achieving a short-, medium- and long-term Strategic Plan. Contrary to the expected tedious path, building the future became a pleasurable community task with URBAN MENUS, as each of the actors felt part of a process of change and took a proactive role. The revision of market processes and democratic structures by working with open systems and without limits in terms of the visions to be awakened is a total change of paradigms that may begin to give answers to the Youth who struggle every Friday for their Future.....URBAN MENUS can be a key tool - as demonstrated by four pilot projects in India that are really redesigning the system of project gestation and development in a top-down and bottom-up strategy in a cutting-edge Smart Development System. Will we also need to overhaul the economic and political structures to achieve smart living on this planet earth? These and many other questions we will share with our midway presentation. The development of URBAN MENUS is supported by the promotional bank of the Austrian federal government (aws) and the Austrian Research Promotion Agency (FFG) both from the Federal Ministry Digital and Economic Affairs (BMDW) and the Federal Ministry for Transport, Innovation and Technology (BMVIT) of the Federal Republic of Austria.

**Keywords:** Community Interaction; Future Planning; Holistic Decision Making.

Manuscript ID: ICCAUA2022EN0116

## Investigating Regenerative Ideation within Sustainable Development Goals

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### Abstract

The rapid deterioration of ecosystems and the growing impacts of climate change reveals that sustainability is no longer an adequate solution to ongoing challenges. As a result, a paradigm shift toward a more evolutionary approach has recently become a demand, where regenerative concepts have rapidly replaced current sustainable practices. Rather than minimizing human impacts on the environment, regenerative ideation aims to generate more than consume. The study explores the notion and principles of regenerative design, aligned with the UN's Sustainable Development Goals (SDGs), with a focus on sustainable city targets. The purpose of the study is to bridge the gap between sustainability and regenerative applications in today's sustainable cities. The study employed a qualitative case study approach. The findings give clear criteria for designers to use in spreading regenerative design in a more responsible built environment. The conclusion offers recommendations for developing a measuring scale for future cities based on an analysis of the case studies.

**Keywords:** Regenerative Development; Regenerative Design; Sustainable Development Goals; Sustainable cities.

Manuscript ID: ICCAUA2022EN0184

## Subjective Assessment of Thermal Outdoor Comfort in Downtown Guelma During Summer Heatwave

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### Abstract

The assessment of the outdoor thermal comfort should consider the interrelationships between the thermal conditions outdoors, the psychological responses of users and physiological phenomena. The aim of our study is to subjectively assess thermal outdoor comfort in downtown Guelma during summer heatwave. The scientific methodology is based on the acquisition of quantitative and qualitative data, to do so we have conducted a survey questionnaire in parallel with a field microclimatic measurements during the heat wave period. As a result, we assessed the thermal sensation of the three parameters, air temperature, relative humidity and air speed for six sessions from 09:00 to 21:00. As well as, the thermal acceptability, the thermal comfort levels and the thermal preferences for each session. The findings indicate that the subjective assessment of the outdoor thermal comfort makes it possible to conclude on the effect caused by the urban thermal environment in space and time.

**Keywords:** Outdoor Thermal Comfort; Subjective Assessment; Summer Heatwave; Survey Questionnaire; Downtown Guelma.

Manuscript ID: ICCAUA2022EN0195

## Transgressive Architecture: Investigating the Limits

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### Abstract

This paper identifies mechanisms of transgression in urban spaces, exploring how acts of transgression define architectural boundaries in such context. Understanding the idea of transgression demonstrates an understanding of architecture that appreciates instability and negotiation of limits that exist in space and society. However, there is currently limited exploration that explores the variety of transgressions and their role in urban spaces. This paper investigates twenty case studies of architectural transgression in derelict and overlooked contexts found in current urban literature. The study categorizes the elements of transgression and the social and spatial limitation it negotiates with, investigating the mechanisms that allow manipulation of such elements. Finally, the study will display some patterns which would define the relations and the degree of transgression. From the findings, this paper reflects how such knowledge of transgression may create a vital contribution towards architectural design methods.

**Keywords:** Transgression; Boundary; Tracing; Derelict; Overlooked, Urban.

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## Identifying Urban Public Spaces Through Substance and Surface Approaches

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### Abstract

Providing well-designed sidewalks in urban environments with mixed-use functions can increase pedestrian activity. This study aims to see the role of substance and surface in shaping the city's public space, which meets the rules in urban design. The objective of this research is to make a city design guide for urban public spaces that are livable and interactive. Qualitative methods conducted the research, an approach from Gibson (1979), on substance and surface and walking experience from Rapoport (1977); Jacobs (1993) used in this study. Data collection has done by walking, direct observation, interviews, visual documentation with photos, videos, sketches, and analysis in a descriptive narrative. This study reveals how space use, such as the pattern of space by street vendors, shop traders, buyers, shops that expand their merchandise, and motorcycle and car parking areas in City public spaces.

**Keywords:** Public Area; Substance; Surface; Walking Experience; Urban Design.

Manuscript ID: ICCAUA2022EN0082

## SIMURG: Performance-based Model for the Assessment of Sustainability: Synthesis of the Paradigmatic & Frame Models

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### Abstract

Today decision-making processes of public authorities, who have the responsibility of developing sustainable policies for their built environment entities, do not support transparency, accountability, and consistency of their decisions. What societies require is a human-centric vision, a consistent philosophical/paradigmatic model that supports this vision, and the tools that increase the legitimacy of the whole decision-making process. The problem is the lack of these visions and tools that allow the citizens to meet their priorities in their lives with the identities of built environment entities and public authorities to accept/propose suitable projects by using "layers" such as historical/smart/ green/slow/safe, etc. Most of the studies in the literature deal with the sustainability assessment problem at only one environmental dimension of sustainability without considering interactions among the dimensions of 3D Cartesian system and their levels. A paradigmatic model and frame model, which will be used as a guide for developing further conceptual and practical models must be developed from scratch. The conceptual and practical models can only be developed in an iterative process by considering the interactions among these components. In this study, a bottom-up approach in an iterative process was adopted and practiced in the development process of the relationships among the components to propose the above-stated parts of the model of the research.

**Keywords:** Simurg; Sustainability Assessment; Framework Model; Philosophical Model; Conceptual Model, Performance-Based Assessment; Certification-Based Assessment; 3D Cartesian System of Sustainability.

Manuscript ID: ICCAUA2022EN0108

## Effect of Architecture on the Cultural Perception of the Palestinian Society, the Example of Nablus

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### Abstract

The researcher began to explore PALESTINE architecture by choosing the concept of OWNERSHIP, which expresses the effort to change the material reality of societies, and through which the authorities try to prove its OWNERSHIP by imposing their control and power and impose a new material reality, which refers to changing identities and imposing different identities. Thus, the researcher combined a material concept with an intellectual concept in order to recognize the extent of its effects on architecture intertwined with the cultural, social, intellectual and political awareness of PALESTINE society. This study demonstrated the ability of architecture to influence the cultural awareness of the NABLUS society of Palestine, to create an identity that separates society and architecture from its environment, and to take political and economic measures that cause the disappearance of other elements that confirm the close relationship between architecture and society by the ruling authorities. In addition, the change and development of properties in the Nablus society of PALESTINE in the periods following the TANZIMAT period affected political and cultural relations as well as social classes in the society. Thus, it revealed cultural ties and identities that express the main culture and political thought by reflecting on the architectural and civilization areas of the city. Thus, the strong link between OWNERSHIP, architecture, and their interaction revolving around a vicious circle is manifested. As was the evolution of IDENTITY in its sense also played a major role in shaping an understanding of the city, its architecture, identity and culture, reflected in society through new architectural formations.

**Keywords:** Palestine, Nablus, Architecture, Property, Ottoman Tanzimat, Occupation Period, Cultural Awareness, Identity.

Manuscript ID: ICCAUA2022EN0166

## Rethinking the Role of the Street: A Framework for Developing Livable Streets in Urban Fabric of Turkey

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### Abstract

The streets have been converted into huge traffic thoroughfares in contemporary cities although the prevailing belief that the street is just a channel for movement is not true. Streets provide possibilities contributing to social structure as a part of public life and they are "more than physical transit roads" because of their wider role and impact on socio-spatial life and dynamics. However, this study aims to rethink and explore the criteria for defining alive-liveable streets. First a literature review through looking at several theories of liveable streets. Secondly, a street in Gaziantep has been chosen as a case study in order to make a survey/analysis to define weak and strong points with observations, mappings and questionnaires. Moreover, the described criteria have been examined on the street to make concrete suggestions with the help of mappings and illustrations in the light of the questionnaire to reach a societal experience of urban change.

**Keywords:** Livability, Street, Livable Street, public space, social interaction.

Manuscript ID: ICCAUA2022EN0176

## Fire and Explosion deterrence Machine Learning hybrid model in defense of Waterspace for SaR intervention

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### Abstract

A correlative Hazard case study of Los Angeles Port has been performed in occasion of a tremendous dock fire occurred on 22th September 2014 at the Wilmington Dock; an updated Machine Learning approach concerning remote sensing techniques, a time related air quality survey and port safety codes, is assessed on the basis of a modern port governance emergency intervention. The methodology of this research embraces a possible case of high fire severity urban zoning of the Los Angeles Harbor, in occasion of the severe application of Health and Safety Code Section 18930 by the State Fire Marshal to respond opportunely to the recent extensive ignition across California. Set rules dispatched by LA Port System are detected following a Landsat 8/OLI remote sensing-based geospatial comparison with ground-based air samples. In order to target opportunely risk barriers in favor of Oil Tankers and critical garrisons, an extensive preprocessing calibration of spaceborne datasets has been performed for enhancing minor changes on the platforms. Besides, intrinsic limits of Oli definition don't permit appropriate accuracy of small-scale evaluations; a decision tree model was therefore engaged by embracing high variance and low bias of these compensated datasets. In this manner four Regions of Interests were marked to strengthen sub-samples of the features. The flexibility of RF computation delivers positively automation for the missing values, categorical and continuous values; on the other side time consuming and interpretability drawbacks, disadvantage the implementation of computational training, validation and testing. In defense of this intervention approach, an air-model geostatistical distribution carried out pixel values on the basis of the pre-burn weighted trained model and finally ensembled to buffer protection zones, according to the Safety Code Section 18930 as endorsement of sustainable financial liabilities that are vital in the post Covid-sars19 crisis and demonstrate growth limits of Ports as periodically issued to theirs Internal Consistency Analysis. The advisory assessment researches moreover a hardware performance to support on time prediction models, by listing variable dependent regressive accuracy samples.

**Keywords:** International Safety Management Code, Digital forensics, Defense Architecture Framework, Fire Risk, Port Authority Competition.

Manuscript ID: ICCAUA2022EN0137

## Urban Heat Island Effect of Urban Spaces: The Case of the Pearling Path in Bahrain

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### Abstract

Bahrain has many touristic projects that care about historical areas, which contribute positively to the country. "Pearling Path" is one of these projects is located in the old part of Al-Muharraq city in Bahrain. This project faces an environmental challenge, the Urban Heat Island (UHI). Planners and developers in Bahrain recommended controlling the reasons of the UHI in such an area to improve this touristic project. This study investigates the effects of UHI in Pearling Path, which goes across different locations with different urban fabrics. This investigation will study the air temperature to explore the impact of UHI on Pearling Path. The study methodology used the theoretical approach by the literature review on urban heat islands and assumptions regarding the causes and remedies to this problem, followed by the analytical stage by doing the mapping urban heat islands using remote sensing data which are conducted at the "Pearling Path" locations in Muharraq Island, in Bahrain. Moreover, the study is concluded using remote sensing data which is used to identify the spots showing significant symptoms of UHI. At the end of the study, the final analyses of results reveal that there are several spots of UHI, which have varying in intensity impacts.

**Keywords:** Urban Heat Island, Built Environment, Pearling Path, Bahrain.

Manuscript ID: ICCAUA2022EN0223

## Transit Oriented Development and Sustainable Land Use Theories Impacts on New Mega Transportation Projects in New Capital City in Egypt

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### Abstract

Transit-Oriented Development (TOD) land use theories have been applied in multiple countries both developed and developing areas of the globe. It has proven its strength in maintaining a more sustainable approach in both urban development and lifestyle. The greater Cairo Region is witnessing huge transportation projects such as Electric Elevated Train that connect old Cairo with the new Capital City in the Eastern desert of Egypt. The New Train line is foreseen as a major clean transportation for number of important areas in greater Cairo, nevertheless it lacks more broader urban planning vision to use the transit main spots as a potential of applying a land use planning approach to maximize the urban potentials of these sites. This paper is providing a landuse planning approach to maximize the land uses around these transits stops by providing the theory of transit-oriented development and propose the suitable solution that TOD offer in order to create more comprehensive sustainable urban oasis. The paper theorizes TOD land use planning, and what suitable development could be provided for such spots. Analysis of the locations of main train stops are provided, recommendation for one stop TOD development as a replica for other main stops in order to create more sustainable urban oases in the eastern desert of Cairo New Capital.

**Keywords:** Competition; Transit Oriented Development; Land Use Planning; Sustainable Urban Oasis; Urban development.

Manuscript ID: ICCAUA2022EN0008

## What is Posthuman Architecture: Cities as a Potential And Emerging Term of Post-Pandemic World

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### Abstract

The term posthuman reminds agencies like robots or transhumans that will possibly steal the central role of human beings by defeating the humanities. As technology is linked to posthumanism, smart cities are usually interpreted as posthuman architecture and urban structures. However, what posthuman does mean in terms of the architectural and urban realm is not clear yet since it is a pretty new term for architecture. By starting from the novel Mary Shelley' Frankenstein, this paper aims to define and discuss the meaning of posthuman in terms of architecture and cities while developing new alternative meanings.

**Keywords:** Posthuman Architecture; Posthuman City; Architectural And Urban Theory; Post-Pandemic Era.

Manuscript ID: ICCAUA2022EN0064

# Sustainable Architecture and Zero Energy Buildings in Urban Transformation

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## Abstract

One of the biggest problems of our day and future is undoubtedly climate change. When it comes to climate change, the first thing that comes to mind is energy consumption. As humanity, we use about 30 percent of the energy used in the world to heat our homes, offices and living spaces. As a result of this consumption, 24% of the total carbon dioxide released into the world's atmosphere is due to the energy consumption in the buildings, which is a very large rate. In this context, sustainable architecture and buildings with zero energy consumption can protect our future. Urban transformations have increased considerably in our country, but in general, the main reason for these urban transformations is to obtain financial income. We can turn this situation to our advantage, new materials for insulation, If conditions such as the use of high insulation materials are introduced, no doubt the executives will give up some of their earnings and implement it. For this reason, increasing energy efficiency in buildings, which have an important share in energy consumption, is among the goals of many countries. Our country in Turkey imports approximately 15 billion dollars of energy every year just for use in buildings. Net zero energy building; These are the buildings that produce energy using renewable energy sources, at least as much as they consume throughout the year. Solar, soil and wind energy are used as renewable energy sources.

**Keywords:** Renewable Energy, Zero Energy Buildings, Sustainable Architecture, Sustainable Cities.

# Comparison of Fatal and Injury Traffic Accidents in Şişli District of Istanbul Province with the Help of Geographical Information Systems by Dividing into Regions and Data Mining Methods

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## Abstract

Traffic accidents, have become an important and alarming problem in Turkey and in the world due to the loss of life and property they cause. When the studies on the reduction of traffic accidents in the literature are examined, it is understood that there is no detailed study on the analysis and interpretation of big data has been found for the district of Şişli. In this study, many methods such as data mining methods, machine learning and visualization were used in addition to traditional methods and techniques in the examination of a total of 3833 fatal and injury traffic accidents that occurred in Şişli district between 2010-2017. In the interpretation of big data by visualizing, the streets where traffic accidents are concentrated in these regions were primarily tried to be determined by using the Kernel Density method, which is included in the studies on spatial analysis within geographic information systems. Then, it was examined whether the accidents on these streets showed anomalies in terms of the day of the week effect and the differences were interpreted according to the accidents that occurred in the regions. Finally, decision trees, artificial neural networks, logistic regression and Naive Bayes were established as modeling techniques and the performances of the methods were compared according to various criteria for these avenues. As a result of the analysis, it was seen that some days were different from other days in terms of traffic accidents according to the accident intensities determined in different places and the performances of the modeling techniques used differed according to the regions.

**Keywords:** Traffic accidents; Geographic Information Systems; Kernel Density Method; Decision Trees; Artificial Neural Networks; Logistic Regression; Naive Bayes.

## Coğrafi Bilgi Sistemleri Yardımıyla İstanbul İli Şişli İlçesindeki Ölümlü ve Yaralanmalı Trafik Kazalarının Bölgelere Ayrılarak Veri Madenciliği Yöntemleriyle Karşılaştırılması

### Özet

Trafik kazaları, sebep oldukları can ve mal kayıpları nedeniyle Türkiye’de ve dünyada endişe verici önemli bir problem haline gelmiştir. Literatürdeki trafik kazalarının azaltılmasına yönelik yapılan çalışmalar incelendiğinde büyük verilerin analiz edilerek yorumlanması ile ilgili detaylı bir çalışmaya Şişli ilçesi için rastlanmamıştır. Bu çalışmada, Şişli ilçesinde 2010-2017 yılları arasında meydana gelmiş toplam 3833 ölümlü ve yaralanmalı trafik kazasının incelenmesinde geleneksel yöntem ve tekniklerin yanında veri madenciliği yöntemleri, makine öğrenmesi ve görselleştirme gibi birçok yöntem kullanılmıştır. Büyük verilerin görselleştirilerek yorumlanması kısmında coğrafi bilgi sistemleri içinde mekansal analize yönelik çalışmalarda yer alan Çekirdek Yoğunluğu (Kernel Density) yöntemi kullanılarak bu bölgelerdeki trafik kazalarının yoğunlaştığı caddeler öncelikle belirlenmeye çalışılmıştır. Daha sonra bu caddelerdeki kazaların haftanın günü etkisi açısından anomali gösterip göstermediği incelenmiş ve bölgelerde meydana gelen kazalara göre farklılıklar yorumlanmıştır. Son olarak modelleme teknikleri olarak karar ağaçları, yapay sinir ağları, lojistik regresyon ve Naive Bayes kurularak yöntemlerin performansları bu caddeler için çeşitli ölçütlere göre karşılaştırılmıştır. Analiz sonucunda farklı yerlerde belirlenen kaza yoğunluklarına göre bazı günlerin trafik kazaları açısından diğer günlerden farklı olduğu ve kullanılan modelleme tekniklerinin performanslarının bölgelere göre farklılıklar gösterdiği görülmüştür.

**Anahtar Kelimeler:** Trafik Kazaları; Coğrafi Bilgi Sistemleri; Çekirdek Yoğunluğu Yöntemi; Karar Ağaçları; Yapay Sinir Ağları; Lojistik Regresyon; Naive Bayes.

# Investigation of Urban Flood Management Principles within the Scope of Buffalo Bayou Watershed Rehabilitation Project

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## Abstract

In this study, the 20-year watershed rehabilitation master plan, which was prepared after the severe Allison storm in 2001 in the Buffalo Bayou watershed in the city of Houston, is examined in detail. For this purpose, a literature review is conducted on the concepts of watershed and watershed management. Then, the existing situation of the study area is presented, and the flood control strategies and rehabilitation practices proposed within the scope of the master plan are investigated. The environmental and social outcomes of the rehabilitation project are evaluated in the conclusion. In Turkey, floods and overflows are one of the most important disasters that cause material and moral damages. Central and local governments need to develop sustainable approaches for the protection of watersheds and the preparation of management plans. In this context, the Buffalo Bayou watershed rehabilitation project can be considered as a resource in taking supportive steps for sustainable watershed management in Turkey. This project and similar good practices will contribute to solve the social, economic and environmental problems in watersheds of Turkey.

**Keywords:** Watershed rehabilitation; Flood management; Local.

## Buffalo Bayou Havzası Islah Projesi Kapsamında Kentsel Alanlarda Taşkın Yönetimi İlkelerinin İncelenmesi

### Özet

Bu çalışmada, Texas Eyaleti sınırları içerisindeki Houston Şehri'nde yer Buffalo Bayou Havzası'nda 2001 yılında meydana gelen şiddetli Allison Fırtınası'nın ardından hazırlanan 20 yıllık sel taşkın yönetim master planı incelenmiştir. Bu amaç doğrultusunda öncelikle havza kavramı ve kentsel alanlarda havza ıslahına yönelik bir literatür çalışması yapılmıştır. Ardından, çalışma alanının mevcut durumu ortaya konmuş, master plan kapsamında önerilen stratejiler ve ıslah uygulamaları araştırılmıştır. Sonuç bölümünde ise, master planının yayınlanması sonrasında, havza ve çevresinde gerçekleştirilen yenileme çalışmalarının günümüzdeki çevresel ve sosyal sonuçları değerlendirilmiştir. Ülkemizde, meydana gelen sel ve taşkınlar, maddi ve manevi zararlara neden olan en önemli afetlerden biridir. Merkezi ve yerel yönetimlerin havzaların korunması ve yönetim planlarının hazırlanmasına ilişkin sürdürülebilir yaklaşımlar geliştirmesi gerekmektedir. Bu bağlamda, Buffalo Bayou Havzası rehabilitasyon projesinin, Türkiye'de sürdürülebilir havza yönetimi için destekleyici adımları atmada bir kaynak olacağı düşünülmektedir. Bu çalışma ve benzer iyi uygulamalar, havzalarımızdaki sosyal, ekonomik ve çevresel sorunların çözümüne yönelik katkı sağlayacaktır.

**Anahtar kelimeler:** Su havzası ıslahı; Taşkın yönetimi; Yerel yönetim; Buffalo Bayou.

# Increasing Flood Disasters with Climate Change and Urban Adaptation Strategies; Suggestions for Bursa City

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## Abstract

Cities have begun to experience the effects of climate change, which is a global problem, more and more. Many cities around the world are developing mitigation and adaptation strategies for urban resilience and have 2030-2050 targets. Cities in Turkey also suffer from flood disasters. In recent years, flood disasters have occurred in Istanbul, Izmir, Ankara, Samsun and Giresun, due to extreme precipitation. This study, in the first stage, investigates adaptation plans for a resilient city that includes increasing green areas and permeable surfaces, using green roofs, rehabilitation of stream beds, and using cisterns against the risk of flooding. This study focuses on Bursa, which is one of the cities that have many stream beds and prone to extreme precipitation. Accordingly, suggestions for the flood risk adaptation will be given based on the literature particularly for the Yıldırım district, which is vulnerable due to the built environment and low-profile socioeconomic status it has.

**Keywords:** Climate Change; Flood Risk; Floods in Turkey; Urban Resilience; Urban Adaptation

## İklim Değişikliği Etkisiyle Artan Sel Felaketleri ve Kentsel Uyum Stratejileri; Bursa Kenti İçin Öneriler

### Özet

Kentler küresel bir sorun olan iklim değişikliğinin etkilerini son yıllarda daha fazla yaşamaya başlamıştır. Dünyada birçok şehir dirençli kent olmak için azaltma ve uyum stratejileri geliştirmektedir ve kentlerin bu stratejilere yönelik 2030-2050 hedefleri bulunmaktadır. İklim değişikliğinin etkisi ile dünyada olduğu gibi Türkiye'deki şehirlerde de sel felaketleri yaşanmaktadır. Son yıllarda aşırı yağışlar nedeniyle İstanbul, İzmir, Ankara, Samsun ve Giresun'da sel felaketleri meydana gelmiştir. Bu çalışma, ilk aşamada yeşil alanların ve geçirgen yüzeylerin artırılması, yeşil çatıların kullanılması, dere yataklarının rehabilitasyonu ve su baskını riskine karşı sarnıçların kullanılması gibi dirençli bir kent için literatürde yer alan uyum planlamalarını araştırmaktadır. Çalışma, çok sayıda dere yatağına sahip olan ve aşırı yağışların yaşandığı illerden biri olan Bursa kentine odaklanmaktadır. Bu çerçevede, özellikle planlanmamış yapı çevre ve düşük sosyoekonomik düzey nedeniyle sel riskine karşı kırılgan olan Yıldırım ilçesi için, literatüre dayalı olarak, sel riski adaptasyonuna yönelik önerilerde bulunulacaktır.

**Anahtar Kelimeler:** İklim değişikliği; Sel Riski; Türkiye'de Seller; Kentsel Dirençlilik; Kentsel Uyum.

## Towards Complex Adaptive Urban Systems: A Literature Review

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### Abstract

In the last three decades, urban systems have been reconsidered with popular scientific approaches in order to keep up with the expectations and changes of societies. Complex adaptive systems (CAS) theory, which is used to understand the self-organizing dynamics of natural and social systems, is one of these approaches. This new paradigm, adding an "adaptation" perspective to complexity theory, aims to understand the dynamics of uncertainty in urban areas with mathematical models. In this study, the literature on complex adaptive urban systems will be examined and lessons that can be learned for urban planning will be analyzed. According to the advanced search on the Web of Science and SCOPUS databases, 79 articles that deal with urban planning within CAS approach will be reviewed and categorized. By determining the themes in which the CAS stands out, commonly used modelling methods and solutions to emergent urban problems will be discussed. Ultimately, it is aimed to reveal that the CAS theory may be a way out for complex and unpredictable urban planning issues and that it can provide an opportunity to make more effective policy decisions for actors such as planners, local and central governments.

**Keywords:** Complex Adaptive Systems Urban Dynamics; Urban Planning; Urban Dynamics.

## Karmařık Uyarlanabilir Kentsel Sistemlere Dođru: Bir Literatür Analizi

### Özet

Son 30 yılda kentsel sistemler toplumların beklenti ve deđişimlere ayak uydurabilmek için popüler bilimsel yaklaşımlarla yeniden ele alınmaktadır. Dođal ve sosyal sistemlerin kendi kendini örgütleyen dinamiklerini anlayabilmek için kullanılan karmařık uyarlamalı sistem kuramı da bu araçlardan biridir. Karmařıklık kuramına "adaptasyon" perspektifi katan bu yeni paradigma, kentsel alanlardaki belirsizliđin dinamiklerini matematiksel modellerle anlamaya alıřmaktadır. Bu alıřmada karmařık uyarlamalı kentsel sistemlerle ilgili literatür incelenerek, kent planlama için öđrenilebilecek dersler arařtırılacaktır. Web of Science ve SCOPUS veri tabanlarında yapılan geliřmiř aramaya göre kent planlamayı karmařık uyarlamalı sistem yaklařımıyla ele alan 79 makale gözden geçirilerek kategorilere ayrılacaktır. Karmařık uyarlamalı yaklařımın öne ıktıđı temalar saptanarak, aniden beliren řehircilik problemlere getirilen özüm önerileri ve yaygın olarak tercih edilen modeller tartıřılacaktır. Sonuçta, kuramın kent planlamayı ilgilendiren karmařık ve öngörülemeyen sorunlar için bir ıkıř yolu olabileceđini ve plancılar, yerel ve merkezi yönetimler gibi aktörlerin daha etkin politika kararları almalarına fırsat sağlayabileceđini ortaya koymak amaçlanmaktadır.

**Anahtar kelimeler:** Karmařık Uyarlamalı Sistemler; Kent Planlama; Kentsel Dinamikler.

# Examination of the Urban Evolution Process of Dorylaion and Sultan Öyüğü (Sultanönü) Settlements in Eskişehir

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## Abstract

Eskişehir, where settlements have been made since the first periods of history, is one of the important cities of Anatolia. Started from the early bronze age, the development evolution of the ancient Dorylaion settlement, which is the predecessor of the Eskişehir, has many breaking points in the historical process. The most important of these break points is the rebuilding of the city in a different settlement by the Muslim-Turkish states after the capture of the city by the Seljuks. The city, which was founded as Sultan Öyüğü (Sultan's Hill), has entered a new development process since the 12th century and the present city of Eskişehir has developed around this settlement. In this study, it has been tried to reveal what kind of urban development process the city of Eskişehir has experienced since the oldest known settlement area. In this process, the effects of the ruling states on the development of the settlement were examined in a chronological process and the reasons for the preference of the first settlements of the cities, the states and their policies affecting the development of the cities, geographical guides, economic factors and the elements that reveal the urban development were evaluated comparatively. The aim of this study is to examine the development of the city of Eskişehir through two different settlements and to examine the evolution of the city with a comparative method.

**Keywords:** Eskişehir; Dorylaion (Dorylaeum); Sultan Öyüğü (Sultanönü); Urban Development; Urban Evolution.

## Eskişehir Dorylaion Ve Sultan Öyüğü (Sultanönü) Yerleşimlerinin Kentsel Evrim Sürecinin İncelenmesi

### Özet

Eskişehir, tarihin ilk dönemlerinden itibaren yerleşimin olduğu, Anadolu'nun önemli kentlerinden biridir. Erken tunç çağından itibaren yerleşimin başladığı kentin öncülü olan antik Dorylaion yerleşiminin gelişim evrimi, tarihi süreçte birçok kırılma noktasına sahiptir. Bu kırılmalardan en önemlisi kentin Selçuklular tarafından ele geçirilmesi sonrası Müslüman Türk devletleri tarafından farklı bir yerleşim yerinde tekrar kurulmasıdır. Sultan Öyüğü olarak kurulan kent, 12. yüzyıldan itibaren yeni bir gelişim sürecine girmiş ve günümüz Eskişehir kenti bu yerleşim etrafında gelişmiştir. Çalışmada Eskişehir kentinin bilinen en eski yerleşim alanından itibaren nasıl bir kentsel gelişim süreci yaşadığı ortaya konulmaya çalışılmıştır. Bu süreçte hüküm süren devletlerin yerleşimin gelişimine olan etkilerinin neler olduğu kronolojik bir süreç içinde incelenmiş ve kentlerin ilk yerleşim yerlerinin tercih nedenleri, kentlerin gelişimini etkileyen devletler ve politikaları, coğrafi yönlendiriciler, ekonomik etkenler ve kent gelişimini ortaya koyan öğeler karşılaştırmalı olarak değerlendirilmiştir. Çalışmanın amacı Eskişehir kentinin gelişim sürecinin farklı iki yerleşim üzerinden incelenerek, kent evriminin karşılaştırmalı bir yöntemle irdelenmesidir.

**Anahtar Kelimeler:** Eskişehir; Dorylaion (Dorylaeum); Sultan Öyüğü (Sultanönü); Kent Gelişimi; Kent Evrimi.

## The Soundscape and Urban Relations

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### Abstract

The relations of sense and human have been developed from the past to the present with many disciplines. Sound sense plays a vital role in perceiving and experiencing cities. This study it is aimed to present a perspective for the future by examining the perception of sound and the academic studies published so far in the city. Within the scope of this paper, the auditory perception-specific ones of the scientific studies focused on the city and sound were examined. As a method, articles, congress papers, and reviews produced via Scopus, Wiley ScienceDirect were investigated. Keywords defining the auditory landscape and auditory perception were chosen, and a detailed search was conducted. Within the scope of the study, the transformations experienced in the last period were evaluated with a comparative method, focusing on the previous twenty years. The soundscape studies developed in recent years have increased methodologically in simulation and behavioral aspects. This issue demonstrates that this field should develop and transform with different disciplines.

**Keywords:** Soundscape, Sound Perception, Urban Perception.

## İşitsel Peyzaj ve Kent ilişkisi

### Özet

Geçmişten bugüne kentin duyularla ve insanla kurduğu ilişkiler birçok disiplinden beslenerek gelişmiştir. Ses duyusunun kenti algılama ve deneyimlemede önemli bir rolü vardır. Bu kavram işitsel peyzaj kavramıyla tanımlanarak literatürdeki yerini almıştır. Bu çalışmayla ses algısı ve kent özelinde bugüne kadar yayınlanmış akademik çalışmalar incelenerek geleceğe yönelik bir perspektif sunulması amaçlanmaktadır. İşitsel peyzaj çalışmalarının çoğu insan algısı ve çevresel akustik konfor üzerinedir. Bu bildiri kapsamında kent ve ses odaklı geliştirilmiş bilimsel çalışmaların işitsel algı özelinde olanları incelenmiştir. Yöntem olarak Scopus, Wiley, Sciencedirect üzerinden üretilmiş bilimsel makale, bildiri ve değerlendirmeler taranmıştır. İşitsel peyzaj ve işitsel algıyı niteleyen anahtar kelimeler seçilerek arama motorlarında detaylı aranması gerçekleştirilmiştir. Çalışma kapsamında son yirmi yıla odaklanılarak geçen süreç içerisinde yaşanan dönüşümleri karşılaştırmalı bir yöntemle değerlendirilmiştir. Son yıllarda geliştirilmiş işitsel peyzaj tabanlı çalışmaların metodolojik açıdan simülasyon ve davranışsal yönde arttığı sonucuna ulaşılmıştır. Bu durum beraberinde bu alanın farklı disiplinlerle bir arada gelişmesi ve dönüşmesi gerektiğini ortaya koymuştur.

**Anahtar Kelimeler:** İşitsel Peyzaj; İşitsel Peyzaj Algısı; Kent Algısı.

# Comparative Analysis of Housing Production Processes in the Context of Actor Network Theory (ANT) in Urban Renewal Areas

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## Abstract

Policies and strategies devoid of participatory planning principles applied in the urban transformation process; accelerated the formation of unplanned, unhealthy and identity less urban environments; It has caused the physical, socio-cultural and psychological needs of people not to be adequately met. Since transformation applications are a complex process involving various actor groups; It is thought that it can be solved with the inclusion of actors in the stages of the transformation process holistically and with innovative approaches based on cooperation. The main purpose of the study is to create a strategic framework by taking the housing production systems developed on a local and global scale, including all the actors that should be in the urban transformation areas, with the perspective of the Actor Network Theory, by making comparative analyzes of the case studies in which the causal relationships are analyzed. ANT, which is one of the approaches to solving the social relations system, has been evaluated as a research methodology that can reveal the whole network of relations between the actors, objects and things involved in the housing production process, and the examination of ANT-based housing production models is planned within the scope of the study. It is aimed to question the applicability in our country by researching housing production models in urban transformation areas and to raise them to the global level based on the theoretical framework.

**Keywords:** Actor Network Theory (ANT), Actors, Stakeholders, Housing Production, Urban Transformation.

## Kentsel Dönüşüm Alanlarında Aktör Ağ Teorisi (ANT) Bağlamında Konut Üretim Süreçlerinin Karşılaştırmalı Analizi

### Özet

Kentsel dönüşüm sürecinde uygulanan katılımcı planlama ilkelerinden yoksun politika ve stratejiler; plansız, sağlıksız ve kimliksiz kentsel çevrelerin oluşmasını hızlandırmış; insanların fiziksel, sosyo-kültürel ve psikolojik gereksinimlerinin yeterince karşılanamamasına neden olmuştur. Dönüşüm uygulamaları, çeşitli aktör gruplarını içeren karmaşık bir süreç olduğundan; aktörlerin dönüşüm sürecinin aşamalarına bütüncül olarak dâhil edilmesi ve işbirliğine dayalı yenilikçi yaklaşımlar ile çözülebileceği düşünülmektedir. Çalışmanın temel amacı, kentsel dönüşüm alanlarında olması gereken tüm aktörlerin dâhil olduğu yerel ve küresel ölçekte geliştirilen konut üretim sistemlerinin Aktör Ağ Teorisi perspektifi ile alınarak, nedensel ilişkilerin analiz edildiği vaka çalışmalarının karşılaştırmalı analizlerinin yapılarak stratejik bir çerçeve oluşturmaktadır. Toplumsal ilişkiler sistemini çözmeye yönelik yaklaşımlardan biri olan ANT, konut üretim sürecine dâhil olan aktörler, nesnelere ve şeyler arasındaki tüm ilişkiler ağını açığa çıkarabilecek araştırma metodolojisi olarak değerlendirilmiş ve ANT temelli konut üretim modellerinin incelenmesi çalışma kapsamında planlanmıştır. Kentsel dönüşüm alanlarında konut üretim modelleri araştırılarak ülkemizde uygulanabilirliğinin sorgulanması ve kuramsal çerçeveye dayandırılarak küresel seviyeye çıkartılması hedeflenmiştir.

**Anahtar Kelimeler:** Aktör Ağ Teorisi (ANT), Aktörler, Paydaşlar, Konut Üretimi, Kentsel Dönüşüm.

# The Importance of Environmental Characteristics in Choosing a Walking Route in Cities

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## Abstract

The characteristics of the streets, which are defined as open urban public spaces, affect the desire and preferences of individuals to walk on the street. In this study, it was aimed to determine the characteristics of the routes preferred by individuals for walking. In the study, sample studies evaluating the importance of environmental characteristics in choosing a walking route were examined, and a survey was designed in line with the results obtained. The survey was conducted with a total of 400 adult participants residing in the Gölbaşı district of Ankara. Environmental characteristics were defined as the independent variable and the tendency to walk as the dependent variable. As a result of the cause-effect analysis, it has been determined that variables such as safety (human, animal, and vehicle), landscape density, pavements, cleanliness and care, calmness and silence, flat terrain and comfort, visual diversity, and lighting have positive and significant relationships with individuals' willingness to walk, respectively. As a result, the environmental characteristics of the routes, especially the perceived safety, the aesthetic pleasure such as landscape density, cleanliness and visual diversity, as well as the qualities such as flat terrain and pedestrian pavements that provide walking comfort, encourage individuals to walk.

**Keywords:** Walkability, Environmental characteristics, Safety, Route preference, Gölbaşı

## Kentlerde Yürüyüş Amaçlı Rota Seçiminde Çevresel Özelliklerin Önemi

### Özet

Açık kentsel-kamusal mekân olarak tanımlanan sokakların özellikleri, bireylerin sokakta yürüme istekleri ve tercihlerini etkilemektedir. Bu çalışmada, bireylerin yürüyüş amaçlı tercih ettikleri rotaların özelliklerini belirlemek amaçlanmıştır. Çalışmada, yürüyüş amaçlı rota seçiminde çevresel niteliklerin önemini değerlendiren örnek araştırmalar incelenmiş, elde edilen sonuçlar doğrultusunda anket formu tasarlanmıştır. Anket çalışması, Ankara ili Gölbaşı ilçesinde ikamet eden toplam 400 yetişkin katılımcı ile gerçekleştirilmiştir. Çevresel özellikler bağımsız değişken ve yürüyüş yapma eğilimi ise bağımlı değişken olarak tanımlanmıştır. Neden-sonuç analizi neticesinde, sırasıyla güvenlik (insan, hayvan ve araç), peyzaj yoğunluğu, yaya kaldırımları, temizlik ve bakım, sakinlik ve sessizlik, düz arazi ve konfor, görsel çeşitlilik ve aydınlatma gibi değişkenlerin bireylerin yürüyüş yapma istekleri ile pozitif ve anlamlı ilişkileri olduğu tespit edilmiştir. Sonuç olarak, rotaların çevresel nitelikleri, özellikle algılanan güvenlik, peyzaj yoğunluğu, temizlik ve görsel çeşitlilik gibi estetik hoşluk ve aynı zamanda, yürüyüş konforunu sağlayan düz arazi ve yaya kaldırımları gibi nitelikler bireyleri yürüyüş yapmaya teşvik etmektedir.

**Anahtar Kelimeler:** Yürünebilirlik; Çevresel Özellikler; Güvenlik; Rota seçimi; Gölbaşı.

# BOOK OF ABSTRACTS

## ICCAUA-2022

### SESSION C: Heritage and Cultural Landscapes

**Session Chairs:**

*Dr. Husam R. Husain*  
*Dr. Zahraa Zawawi*

*Dr. Vaidehi Lavand*  
*Dr. Ugo Rossi*

*Dr. Shantharam Patil*  
*Dr. Nihan Kocaman Pavlovic*

Manuscript ID: ICCAUA2022EN0003

## The Role of Structure and Structural Analysis in Adaptive reuse of Zahir-Ol-Islam Historic House in Tehran, Iran

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### Abstract

Adaptive reuse of historic buildings is a way of conservation provided for the rehabilitation of historic cities. It helps to constitute the historical value and the integrity of heritages. By Adaptive reuse of historic buildings, their physical characteristics will be renewed to adopt new functionality. therefore, the necessity of analysis and evaluation of buildings' physical statement shows the essential practices which need to be done to confirm new uses with the structure of the building. This paper aims to study the structure of the building and its role in the adaptive reuse of the Zahir-of-Islam historic house through an analytical study of structure and fabric with the intention of structural recognizing of the house. In the conclusion of accomplished studies, to obtain general acknowledgment of the house, structural drawings, graphical drawings, and cognitive tables related to the contemporary condition of the house have been described.

**Keywords:** Zahir-ol-islam Historic House; Adaptive reuse; Structure of heritage buildings; Structural analysis.

Manuscript ID: ICCAUA2022EN0010

## Industrial Archaeology in the Era Of Nasti's Family From Napoli: Manufacturing Gelato Under Its Mondial Gelo Division

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### Abstract

Summarizing such a historic chapter of the Campania food industry is a challenging task in 2021. Among the innovations of the Nasti family, there is a faded memory of the ice cream division operating under the industrial supervision of two founders Mr. Ciro Nasti and Mr. Cav. Raffaele Simioli. This article aims to safeguard the historical memory of the whole advanced picture of Ciro Nasti's initiatives, disseminating practices of the industrial processing in the wake of the vital momentum of the second post-war period in Italy, rather than being thrown into oblivion, by describing unexplored images. Today few people are still able to remember the efforts relegated to the specific role of worker or accountant, but unaware of the whole vanguard that was able to ensure the well-being of hundreds of workers promoted by the intuition of a few key roles. In addition to the industrial archaeology, the article also underlines the geopolitical context between the sixties and seventies, the icons of well-being, and the future exploitation of the workers' movements following the polarization of international groups and the takeover by the Unilever Global Company towards medium-sized enterprises throughout the Italian territory.

**Keywords:** Pedagogy; Brand Design; Food science; Artisanal knowledge; Marshall plan.

Manuscript ID: ICCAUA2022EN0011

## Discourse on Lost Pages of History: Architectural Works of Vasudev Kanitkar in Western India

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### Abstract

Ample western historiographical resources are available to understand Colonial Architecture in India. Architectural language evolved during Colonial period in India was a collaborative effort of British Royal and Local engineers from several parts. Eclectic architectural language of British India is a product of amalgamation of western models and eastern knowledge simultaneously. They worked in collaboration with Indian philanthropists, engineers, contractors and artisans. Much is available to read about royal engineers as a pride for British sovereign but contributions of local engineers who equally built colonial India lost in the pages of history. This Paper tried to document and discuss works of local contractor Vasudev Kanitkar born in Baroda and worked at several places in Western India. With the help of archival resources and primary secondary surveys conducted this research paper compiles architectural contributions of Vasudev Kanitkar less known for his many landmark edifices he designed and built in western India.

**Keywords:** Eclectic Architecture; Colonial India; Local Contractors; Royal Engineers; Public Architecture.

Manuscript ID: ICCAUA2022EN0014

## Vietnam Veterans Memorial – An Arts and Architecture Based Critique

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### Abstract

A study of the Vietnam Veterans Memorial in Washington, DC, designed by Maya Lin in the 1980s. The monument operates on multiple levels simultaneously and this is what gives it its communicative power. The monument will be examined from both an arts and architecture context. Several interlinked aspects will be explored which include Place, The Diagram, Cultural Memory, Minimalism, Phenomenology and Bodily Perception, Land Art, Black, and Absence and Presence. Reference artists include Carl Andre, Donald Judd, Richard Long, Kazimir Malevich, Agnes Martin, Richard Morris, Richard Serra, and Robert Smithson. The critique employs Deleuze's theory of the diagram. Lyotard's concept of the Figural will be employed, as well as Walter Benjamin's approach of the dialectical image, and Nancy's theory of the Unpresentable. The paper will demonstrate that the monument operates on a level of the Unpresentable and Boundless as a work of art and architecture. The writer is both an artist and an architect.

**Keywords:** Monument; Architecture; Urban Design; Place; Diagram; Minimalism; Unpresentable; Boundless; Phenomenology; Cultural Memory.

Manuscript ID: ICCAUA2022EN0020

## Behind the Skyscrapers: An Assessment of Dubai's Cultural and Creative Scene

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### Abstract

Dubai has witnessed an upsurge of creative and cultural initiatives within the years of 2020 and 2021 with strong plans and strategies of becoming the hub of creative economy in the coming years. This dissertation traces the arts, culture, and creativity within the city to produce a comprehensive timeline and an assessment of the repository of its physical manifestations in the city. Focusing on three main districts: Dubai Historical District, Al Serkal Avenue, and Dubai Design District, the narrative of arts and gentrification are explored in relationship to governance, urban development, and social life. The findings reflect on the path of culture and creativity in Dubai's urban fabric and explores the resilience of its network in relation to factors such as community engagement, financial risks, tourist activity, and global changes to assess best practices and envisage a plan of action for the new strategies put forth.

**Keywords:** Cultural Districts; Creative Districts; Grassroot Community; Gentrification; Observational Mapping.

Manuscript ID: ICCAUA2022EN0031

## Adaptive reuse as a tool for sustainability: Tate Modern and Bilgi University Cases

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### Abstract

Examples of "adaptive reuse" have started to be applied for giving new functions to the structures in historical environment are commonly used in the world and in Turkey. According to the current planning practise, the future applications should be done with consideration of different dimensions of sustainability. Aim of this study is to examine Tate Modern and Bilgi University Campus that used to have similar functions and were inhabited before restoration interventions in sustainability framework. Both cases were refunctioned with adaptive reuse concept. The structures transformed from energy buildings to serve as art museum and educational/cultural functions. Cases were compared in terms of sustainability principles. Social, economic and ecologic benefits of physical interventions were asked on structures which couldn't continue their original functions and refunctioned by adaptive reuse. Results support the positive impacts of adaptive reuse not only for the structures themselves but also for the environments they were located.

**Keywords:** Adaptive Resue; Sustainability; Reuse in Historical Environment; Refunctioning; Sustainable Conservation.

Manuscript ID: ICCAUA2022EN0033

## Cultural Entanglements in the Urban Fabric: A case of festivals in Old Dhaka and Its Impacts

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### Abstract

The historic city centre of Dhaka, Bangladesh (known as 'Puran Dhaka'), holds a lot of history and heritage of the region. This historic site has constantly been neglected and urban development has been done without integrating this part of the city into the plans. As a result, the festivals that take place here traditionally and annually create a greater impact on the urban fabric of the whole city. This paper will attempt to look at the importance of these traditions, the way these festivals are influencing the urban life of the community and identity, and whether or not it has any significant effect on the economy. Through the use of both primary (interviews with the residents) and secondary sources and SWOT analysis, this paper will attempt to identify the issues faced during these festivals. This paper will also try to suggest some basic remedies based on general comparisons between case studies of similar festivals celebrated globally.

**Keywords:** Urban Fabric; Festivals; Cultural Celebration; Historic City Centre; Urban Design.

Manuscript ID: ICCAUA2022EN0052

## The Grid That Remained: Redating the Coastal Urban Morphology of Ayvalık

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### Abstract

In contrast to its peripheral hilly neighborhoods with rather irregular layouts, Ayvalık has a grid planned historical city center along the coastal plain that a current UNESCO listing and conservation master plan handles. Certain urban and architectural studies particularly focused on Ayvalık's 19<sup>th</sup>-20<sup>th</sup> centuries but the origin of its regular morphology was merely speculated after scant evidences and was superficially supposed as a redevelopment on reclaimed lands through debris around the mid-19<sup>th</sup> century, following the destruction during the Greek Revolution (1821). Correspondingly, this paper presents new research after primary sources, including an unstudied cadastral plan as a remarkably earlier Ottoman practice, which is compared with the present morphology. Findings display that the grid in question existed before 1821 and presumably appeared in the 18<sup>th</sup> century. It raises the question of earlier grid plans in Ottoman Anatolia, such as in Kuşadası, and also the importance of interdisciplinary methodologies in urban studies.

**Keywords:** Ayvalık; Grid Plan; Urban History; Urban Morphology; Urban Planning.

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## Impact of Morphology and Vegetation on Housing Estates Sustainability

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### Abstract

Temperatures in Mediterranean cities are rising due to the effects of climate change, with a consequence increase in heat waves frequency. A previous study of French holiday housing designed during the glorious thirty allowed to characterize the environmental performance of four additive morphologies. Starting from in situ measurements during a typical summer day and numerical simulations, the objective of this study is to analyze quantitatively the impact of morphology and vegetation on outdoor thermal comfort. The results are interpreted through the mean radiant temperature and the air speed that was determined for the day studied, hour by hour, at six different places in a public lane. This work makes it possible the use of simulation tools for the developments of middle density housing estates to improve the thermal comfort in summertime in outdoor spaces.

**Keywords:** Sustainability, Housing Estates; Morphology, Vegetation, Outdoor Thermal Comfort; Mediterranean Climate.

Manuscript ID: ICCAUA2022EN0219

## Evaluating Heritage Site from the Perspective of Visitor's Satisfaction: Insight from Puthia, Bangladesh

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### Abstract

Puthia, one of the richest heritage sites of Bangladesh is unable to offer its true potential of historical majesty to people due to a lack of a proper conservation plan and visitor management plan. This study explores the heritage resources of the Puthia and finds out the Visitor's level of satisfaction in the Puthia Heritage site. Heritages are identified by field observation survey and PRA techniques, and the historical background identified structures are collected by Key informant surveys (KI), local people's opinions, and literature reviews. A structured questionnaire survey has been conducted with 230 randomly selected visitors to know the Visitor's satisfaction. GIS mapping, and Regression analysis are done to analyze data. The Important Performance analysis (IPA) and Customer satisfaction index (CSI) method have been applied to measure the Visitor's satisfaction level. Based on the findings, proposals have been made for the site to enhance the site's overall Visitor's satisfaction.

**Keywords:** Puthia; Heritage Tourism; Important Performance Analysis; Customer Satisfaction Index; Visitor Satisfaction.

Manuscript ID: ICCAUA2022EN0079

## Evaluation Role of Wind Catcher in Integrated Passive System used for Natural Ventilation and Cooling in Traditional Cairene Court Yard Houses

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### Abstract

Several Islamic architectural elements have been used repeatedly in Cairene Court Yard houses as one of the primary environmental standards. Wind catcher represents the keystone of passive green features among other used features. The response of chosen case studies to the thermal environment had proven to vary concerning the type of green features involved and its role in the whole integrated system. The evaluation matrix act as a model in assessing the performance of eco-architecture features regarding the type of integrated system. Wind catcher ended up being effective in expanding the efficiency of passive integration system for ventilation and cooling; especially when the opportunity is taken to involve other green features in the early design phase. It is recommended to take into consideration, the involvement of passive integrated systems in architectural projects. Accordingly, we can conserve energy, mitigate climatic changes and achieve thermal comfort; besides preserving the local identity of the built environment.

**Keywords:** Integrated system, Cairene Court Yard Houses, eco-architectural Features, Thermal Comfort.

Manuscript ID: ICCAUA2022EN0086

## The Evaluation Of "Şerefiye Cistern" in the Context Of Reuse

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### Abstract

The cisterns, which were built under the ground to meet the water needs of the city, are among historical cultural heritage structures that have lost their original functions today. The historical Şerefiye Cistern, which is an important Byzantine water structure, was restored and refunctioned and reopened to use as a cultural building in 2017. The aim of this study is to examine the Şerefiye Cistern in the Historical Peninsula of Istanbul in the context of reuse. The architecture of Şerefiye Cistern, which could not maintain its original function, was compared before and after the restoration. After the restoration, a partial contemporary addition was applied to the building. In this study, socioeconomic and cultural benefits of physical intervention of the cistern were questioned. After all; It has been concluded that the reuse concept applied to the buildings both ensures its own sustainability and has positive effects on the historical environment in which it is located.

**Keywords:** Cistern; Byzantine Cisterns; Adaptive Reuse; Refunctioning; Historic Peninsula.

Manuscript ID: ICCAUA2022EN0087

# Comparative Analysis of Qajar Historic Houses in Tabriz, Isfahan, Yazd, and Kashan, Regarding their Architectural Forms and Elements

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## Abstract

There are a lot of precious beautiful Qajar houses in many cities of Iran indicating the high quality of talents and wisdom of their architects. Using a row of columns in the main façade, emphasizing on symmetry axis in the entrance, and replacing the new ornamental patterns with the ancient elements are some of the architectural qualities of this era. This article attempts to answer the question that what are the similar characteristics of Qajar houses in different cities of Iran. For achieving this aim, the history of Iranian houses especially in the Qajar period is studied in Tabriz, Isfahan, Yazd, and Kashan cities. The methodology of this historic survey is comparative and qualitative using the reliable books of libraries and first-hand resources. This article concludes that the architects in that era harmonized the culture of other countries to improve their own values according to their own culture and climate.

**Keywords:** Qajar Historic House; Tabriz; Isfahan; Yazd; Kashan; Iranian Architecture.

Manuscript ID: ICCAUA2022EN0089

# The Role of Cultural Heritage Tourism in Regenerating Old Muharraq in Bahrain

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## Abstract

The historic city of Muharraq in Bahrain encompasses a unique cultural heritage. Since the discovery of oil in 1932, Old Muharraq started to be abandoned by its original inhabitants who moved to the periphery. Due to neglect, the old houses were decaying and collapsing. In order to prevent further losses, the government launched several rehabilitation projects in Muharraq. The pearling path is one of these significant regeneration projects that will be explored here. This paper focuses on the role of cultural heritage tourism and its implications for urban regeneration in old Muharraq. The methodology used is based on the case study approach. A comprehensive onsite study was carried out to identify the challenges of urban regeneration. In addition, a number of informal interviews were conducted with the local and global tourists. The paper concludes with a number of recommendations to revive old Muharraq via a sustainable cultural heritage tourism strategy.

**Keywords:** Urban Regeneration, Cultural Heritage Tourism, Identity, Sustainability.

Manuscript ID: ICCAUA2022EN0099

# Integration and Adaptive Reuse of Industrial Heritage Sites in Modern Urban Centers: The Case of Izmir *Alsancak Sümerbank* Complex

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## Abstract

The process that began with the Industrial Revolution and the change of people's lifestyles, socioeconomic lives, and production patterns has influenced the entire world from the beginning of the 19th century. Depending on global changes, industrial zones in city centers have influenced economic, social, and technological development, also goods manufacturing. Policies of deindustrialization of city centers and globalization influence the spatial shift of industrial functions in cities. In the early 1980s, old industrial zones that had been affected by globalization and remained unused, abandoned and relocated to the peripheral areas from their original locations. These remaining sites in the city center are often vacant and old industrial facilities that do not contribute to the environment and are emptied for various reasons, such as the Old Izmir Sümerbank Complex, which is behind the Izmir harbor areas. Consequently, the aim of this study is to reveal the challenges of regeneration and reintegration of industrial heritage sites in Izmir city center under the concept of Trancik's Lost Area, and also to discuss its internal physical qualities, dynamic characters and structural features. The example of the Izmir Alsancak Sümerbank complex will also be addressed as a problem of reintegration and re-functioning with a new spatial agenda.

**Keywords:** Re-use of Industrial Heritage Site; Conservation of Industrial Heritage; Lost Space; Regeneration and Revitalization; Lost Space.

Manuscript ID: ICCAUA2022EN0100

## Form and Function in The Pearl-Qatar Artificial Island Development

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### Abstract

The Pearl is a artificial island development in Doha, Qatar. Artificial island means land reclamation or landfill, which creates new land from lakebeds, riverbeds, oceans, and seas. Doha grew rapidly over the last half-century due to urbanization and globalization. Most research focuses on (sub)urban expansion to the north, west, and south from its coastal origins on Doha Bay. However, key urban growth also occurred eastward through land reclamation projects from the Arabian Gulf for Al Corniche, the West Bay business district, Hamad International Airport, large parts of Lusail City, and The Pearl-Qatar. We present a morphological study of urban form and function in The Pearl-Qatar. It includes well-established representations such as figure-ground analysis, pedestrian sheds, ground-level land uses, and mapping of active/inactive frontages. We argue there is a clear formal and spatial logic in the planning, intimately tied to The Pearl-Qatar's socio-economic status as a exclusive residential area of Doha.

**Keywords:** Development; Land Use; Morphology; Reclamation; Urban.

Manuscript ID: ICCAUA2022EN0101

## Assessment of Historic Cities within the Context of Sustainable Development and Revitalization; The case of the Walled City Nicosia

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### Abstract

The City of Nicosia contains cultural heritage from different periods depending on its history. Over time, due to user damage, illegal constructions and abandonment, Nicosia has faced the danger of deterioration in its historical urban texture and loss of its original identity. With the recent strategic planning, the city of Nicosia has started to be revived. Within the scope of revitalization works, original or re-functional use projects are carried out on existing structures. Besides environmental protection, economic and social development, which are accepted as important elements of sustainable development, the protection of cultural heritage is also important. For this reason sustainable development and revitalization projects in historical cities should be handled in the cultural context as well by taking into account all stakeholders that concern the city. In this study, the city of Nicosia was taken as an example. Within the scope of the study, it was aimed to determine the positive and negative aspects and inadequacies of the revitalization strategies implemented in the city.

**Keywords:** Walled City of Nicosia; Sustainable Development ; Historic City; Strategic Planning; Cultural Heritage.

Manuscript ID: ICCAUA2022EN0110

## The Typomorphological Façade of the Catholic Churches of S. Miguel, Azores

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### Abstract

This research shows the analysis of the main facades of the catholic parish churches in the island of S. Miguel, Azores, built during the 18th and 19th centuries, and evidences the existence of a facade typology, through its similarities. This study develops an analysis of the matrix composition and ornamental elements present in the facades of 83 churches, mapping and characterizing the elements that compose them, grouping them into categories, allowing to establish and to synthesize a typology, called the micaelense model façade, according to the principles of composition present in the analyzed facades. The analysis method, the reading of the forms of the facades of the churches, and the metric survey of these, were based on old and current photographic records, were supported by a comparative analysis elaborated and organized from tables and synthetic schemes systematized in vector drawings (graphic representations made in CAD).

**Keywords:** Azores; 18th and 19th centuries; Typology; Façade; Synthesis Drawings.

Manuscript ID: ICCAUA2022EN0130

## Application Of Genetic Algorithm Classification Approach To Study Urban Streets Morphology At Neighborhood Scale

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### Abstract

Today's cities worldwide are facing several new challenges with the spread of advanced digitalization and information technologies. As science and innovation are going digital, urban planning is highly concerned and should follow up with this global numerical transition. Urban planners should make use of the potential of new technologies to develop better and smarter urban forms responding to the new challenges and issues. The study uses artificial intelligence techniques based on genetic algorithms and supported by statistical data upon 20 indicators applied on 450 street segments in different urban fabrics in Moroccan colonial cities aiming to classify and simulate urban streets morphology. Machine learning can have the power of solving complex issues that humans alone cannot. The results using the potential of ML techniques can be a framework for decision makers to help them thinking about an intelligent development of streets matching today challenges and taking advantages of new technologies.

**Keywords:** Machine Learning; Genetic Algorithm; Urban Street Morphology.

Manuscript ID: ICCAUA2022EN0132

## Can our old city survive?

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### Abstract

The developmental growth of home improving devices and equipment has ceaselessly progressed from the Industrial Revolution until the present day. From heating systems to lighting equipment and air conditioning we have now reached the Smart house age. However, in the order to be efficient, this kind of home asks for a new city: the Smart City, whose devices, networks, and infrastructures are the fundamental requisites for its functioning. That is why the ancient cities are an inconvenience to the development of this kind of new city, which will probably find its place in a desert, in a "tabula rasa" devoid of relics, ruins, and debris of the historical city. The intention of this contribution is to investigate the challenges who architects must respond to in trying to overcome such a condition of exclusion from the process of building the human landscape.

**Keywords:** Smart City; Smart Building; Historical City; Sustainability; Urban Efficiency; Open Architecture.

Manuscript ID: ICCAUA2022EN0151

## Architectural Projects Prepared Through National Or International Design Project Competitions On Archaeological Sites as Contemporary Additions

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### Abstract

Cultural heritage is the most important factor in the formation of urban identities. The construction of new buildings in archaeological heritage areas as well as in the historical environment maintains its currency as a subject that continues to be discussed within the context of conservation. Regarding the protection and presentation of archaeological heritage sites, the need for articulation of service structures such as visitor centers, museums, sales units, WC volumes, experience/activity areas and excavation houses within the protected areas arises over time and defined by the regulations and declarations accordingly regarding the construction of new buildings in the historical environment and archaeological heritage areas. The aim of the study is to examine the building principles, design criteria and conservation approaches of the contemporary constructions/annexes designed through national or international design competitions in archaeological sites regarding the national and international conservation policy.

**Keywords:** Preservation of Archeological Sites, Contemporary additions to historical environment, Design Competitions in historical environment.

Manuscript ID: ICCAUA2022EN0158

## Smart Heritage for the Urban Sustainability: a Review of Current Definitions and Future Developments

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### Abstract

The paper aims to provide a conceptual framework and review of the concept of Smart Heritage and its future developments within the architecture domain. It also seeks to develop a framework that responds to serving sustainable development. As sustainability and smart city concepts are increasingly noticed, we interrogate how the smartness of architectural heritage affects the development of smart cities, and sustainability is worth considering. Through a systematic literature review, the paper uses a qualitative methodology to investigate 'Smart Heritage' and 'sustainability'. Hence, two databases will be used: Scopus and Science Direct. This paper presents existing definitions of Smart Heritage and how to define it. This review will focus on how heritage can be defined as 'Smart' and how smart heritage could be achieved.

**Keywords:** Smart heritage; Architectural heritage; Sustainability; Smart city.

Manuscript ID: ICCAUA2022EN0161

## Theories of Conservation and Scientific Restoration from Gustavo Giovannoni's point of view

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### Abstract

Gustavo Giovannoni (1873-1947), the Italian architect, urban designer, and restorer who was born in Rome and studied Civil Engineering at the University of Rome, became the Professor of Architecture department in 1905 and latterly the dean of the same university from 1913 to 1935. He edited a set of regulations that were adopted in the Athens Charter later in 1913. His four main principles are restoration by consolidation, installation, liberation, completion or renovation. Although he established a scientific centre for studying history of architecture and published several articles in architectural journals, there is little literature about his biography and theories on conservation and scientific restoration. This paper tries to enlighten how his theories affected the history of conservation and for this aim, his biography and theories are mentioned in detail. The methodology of this paper is a qualitative survey using the reliable books of libraries and first-hand resources and references.

**Keywords:** Gustavo Giovannoni; Conservation; Scientific Restoration; The Athens Charter; International Charters; Camillo Boito.

Manuscript ID: ICCAUA2022EN0162

## The Tomb of Sultan Bokht Agha and Two Minarets of the Dardasht Neighbourhood in Isfahan, Iran

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### Abstract

This tomb is located in the "Dardasht" neighbourhood in Isfahan, consisting of a gate with two minarets and a tomb room, belonging to "Sultan Bokht Agha", the daughter of "Amir Ghiasuddin Kaykhosrow Inju". The entrance is on the south side and there are two minarets on top of it and there is also a square room with a dome above it on the west. The walls of the main façade on both sides of the entrance are covered with a decorative covering, and substructures of bricks of different sizes can be seen under this covering. Although this IL-Khanate building remains almost intact, there is little information about it on reliable resources. This article aims to introduce this historic building with the illustrations of its plans and pictures after a short biography of "Sultan Bokht Agha". The methodology of this historic survey is analytical and qualitative based on first-hand reliable references.

**Keywords:** Sultan Bokht Agha; Tomb; Two Minarets of Dardasht; Isfahan; IL-Khanate Architecture; Al-Muzaffar; Dome.

Manuscript ID: ICCAUA2022EN0179

## The Impact of Placemaking to Revitalize the Identity of Coastal City

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### Abstract

Coastal public space is one of the characteristics that distinguish those cities and towns. Recently, most of the coastal spaces have been similar and lost their identity during the rapid growth. The paper explores the absence meaning of the identity of the coastal public space and the role of the Place-Making tool in revitalizing their identity. The paper studies the formation of coastal public space and how the role of place-making enhanced their local identity. The paper aims to achieve Design Guidelines for coastal public spaces based on case study analysis. Descriptive, analytical, and case study methodologies are used to achieve the research aims. The paper starts with a literature review. Then, it analyses eight international and local experiences in developing coastal public spaces, exploring the role of place-making in revitalizing the identity of coastal public spaces. Finally, the paper ends up with Design Guidelines for developing coastal public spaces.

**Keywords:** Identity; Coastal Public Space; Coastal City; Place-Making.

Manuscript ID: ICCAUA2022EN0185

## Evolution of Buddhist Architecture in Andhradesa: South Eastern Coastal Region of India

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### Abstract

Andhradesa (Andhra Pradesh) is a historical state in India's south-eastern coastal region dating back to the 5<sup>th</sup> century B.C.E. During the Satavahana Dynasty, Buddhist architecture flourished between the Krishna and Godavari valleys. This research attempts to understand the ideas and practices that have been transmitted, leading to the evolution of Buddhist architecture through the built heritage in the eastern coastal region between 400 BCE-700 AD which contributed to the development of the trade route. The objective is to document and analyze the various forms of Buddhist monuments built and how they transformed by defining the features of built aspect, typology, and building material representing the specific Buddhist culture and time in the region over the period. Marking these Buddhist sites as essential landmarks of Buddhist architecture for the uniqueness and antiquity the structures portray, their development, and restoration would improve the scope and avenue of proper utilization and boost tourism.

**Keywords:** Buddhism; Architecture; Andhradesa; Heritage; Evolution.

Manuscript ID: ICCAUA2022EN0198

## Transformation of Urban Morphology of the Palestinian urban character: The Case of Qaffin, North of the West Bank

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### Abstract

The paper addresses the transformation of Urban Morphology in the Northern towns of the West Bank borderline with Israel-Qaffin as a case study. It traces the socio-economic changes that have effected the urban form of Qaffin between 1948-2020 as a result of the fierce political struggle. These changes have been the determining factor for the new urban landscape of Qaffin. Two research methods were used; qualitative and quantitative to address the transformation: analytical and historical. Analysis has shown that the town has evolved from its indigenous rural landscape origins into new morphed fragmented town, moreover how the Israeli occupation and physical dissection of the Borderline towns have forced change in occupational life of the town, driving people into the construction labor market in the neighboring Arab towns in Israel, which played role in changing the character of the urban morphology of the town.

**Keywords:** Urban Morphology; Urban Form; Urban Transformation; Qaffin Town; Borderline Towns.

Manuscript ID: ICCAUA2022EN0204

## Mapping the Evolving Peripheries of Lahore Through the Study of the Trajectory and Scale of the City

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### Abstract

The expansion and growth of Lahore city have been influenced by various factors but the research presented aims to discuss that it is majorly the economic and political motives that have sealed the fate of the city in terms of its periphery, scale, and trajectory. The paper investigates and establishes its case with the help of a temporal cross-section of the city, maps, and pictures. The research also aims to look at roads as peripheries i.e., not as a mere mode of transportation but as major factors influencing the development, morphology, and expansion of cities in the global south. The research will establish a comparative understanding of Lahore as edges created over time and is important as Lahore has never been studied from this perspective before. Thus, the research will serve as the foundation for future planning, further research, and visual analysis of the boundaries of Lahore city.

**Keywords:** Urban Morphology; Scale; Periphery; Trajectory; Roads; Evolution; Lahore; Global South.

Manuscript ID: ICCAUA2022EN0208

## Marine Conservation and Promotion of Tourism: An Approach on Marine and Coastal Planning at Cat Island, Muscat, Oman

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### Abstract

Oman is home to over 530 sqm of reefs and became a popular site for water activities. Cat Island, known to be one of the diving spots in Muscat, is also faced with vulnerability to coral declination. Furthermore, anthropogenic stressor is obvious resulting in decreased natural reefs. This research focused on analyzing the present condition of reefs at Cat Island. Moreover, the researcher established a survey, interviews, and questionnaire to assess the site's character and understand the marine habitat from the primary users. Previous studies in the reefs of Oman and information were collected. As an outcome, it presented an imperative position of marine and coastal planning by recommending policy enhancement and marine functional zoning. Additionally, marine conservation and tourism can be achieved through promotion of artificial reefs as a new habitat for marine ecosystem. With this approach, it can be a baseline to be followed in another marine habitat.

**Keywords:** Marine and Coastal Planning; Marine Functional Zoning; Policy; Natural Reefs; Artificial Reef; Marine Habitat.

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## From Picturesque Landscapes to Brand-new Cities: A Survey for Understanding the Effects of Protective Structures on Visitor Impression

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### Abstract

In order to prevent the destruction of immovable architectural artifacts unearthed in archaeological sites, it is observed that protective structures are applied. A considerable number of applications for both temporary and permanent protective structures have significant differences in terms of design, scale and material whereas the visitor impression is not particularly taken into account. In this study protective structures are classified according to their practice in the archaeological sites and a survey-based evaluation is revealed in which visitors indicate responses for their impressions. Furthermore, it has been stated that even though there are principles for new structures provisioned by international charters and regulations, there are not only professional approaches but also visitor impressions and experiences that should be considered as design criteria. In the conclusion, the paper points out the importance of engagement of visitors in the design process regarding the site effect of the protective structures.

**Keywords:** Archaeological Conservation; Protective Structures; Archaeological Preservation; Architectural Remains.

Manuscript ID: ICCAUA2022EN0187

## The Evaluation of The Identity Features / Characteristics at Urban Waterfront zones; The Case of Terme

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### Abstract

Coastal settlements generally have various different geographical features compared to other settlements. The social and spatial change of the coast in such settlements is related to the "land use strategy" of this environment. These changes guides the settlements as bring it to be dynamic in the architecture and urban space in the historical process. In this study, the role of the coastal zone, which acts as a border and threshold in the formation of urban identity, is discussed through the town of Terme, which has a river running through it and has a coastline. The survey study conducted in the area is analyzed with the Kruskal Wallis test, and the relationship between the coast and the settlement is examined together with the cross-section analysis. Along with these analyzes, the effect of the coast on the urban identity was emphasized.

**Keywords:** Coast, Identity, Stream, Kruskal Wallis Test, Section Analysis.

Manuscript ID: ICCAUA2022EN0196

## Reflection of History on Soundscapes: The Hanlar District Case Study

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### Abstract

Several landmarks around the city were included in the UNESCO Cultural Heritage list in 2014. The Hanlar District is one of these landmarks, located in Bursa, consisting of unique architectural buildings representing various historical periods. Since world institutions already recognize such structures to preserve them from architectural, cultural, historical, and management aspects, soundscape values should also be considered. This study initially aims to evaluate and archive soundscapes of this unique district to recommend suggestions for the historical and cultural heritage. To do this, the study collected more than a hundred sound samples by using a type-I SPL meter. Given this, the sound samples outside the structures were found at about 3 to 5 dB(A) higher than expected, while sounds of interior structures were detected below the expected sound levels. The study findings call recommendations to tackle sound levels to create a better acoustic environment for historical areas.

**Keywords:** Cultural heritage; Hanlar District; Sound; Digital Architecture; Urban Design.

Manuscript ID: ICCAUA2022EN0201

## Morphological Changes in Kampung Pahandut of Palangka Raya City In Response to the Cultural Shift of Riverside Communities

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### Abstract:

Palangka Raya, the capital city of Central Kalimantan had been rapidly transformed and triggered the-morphological changes in both the environment and architectural order. This paper reveals how the morphological transformation has caused Palangka Raya displayed symptoms of urban deterioration. Focusing on the oldest part of Palangka Raya at the area so called Kampung Pahandut, we conduct field survey and generated 3D mapping using the drone. The study revealed that the city starts to the architectural identity of *rumah panggung* (stilt houses) and suffers the environmental disorder. There has been a tendency in the city orientation, to leave the culture of riverside and shift into ordinary "land city". The urbanization and identification process at Kampung Pahandut had lead the origin context of rivers and waters formed hundreds years ago started to diminish, except right at the riverbank of Kahayan River.

**Keywords:** Change; Morphology; Kampung Pahandut; Culture; Riverside.

Manuscript ID: ICCAUA2022EN0230

# Gamification and Storytelling for Architectural History and Cultural Heritage Awareness

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## Abstract:

Many people, even architecture students, fail to connect with the multi-layered city they live in and with its past. Most inhabitants of such “palimpsest” cities usually live as if the current built environment has always existed throughout history, failing to see the light that the buildings of different periods shed for their own age and their importance to us. When the reflections of the culture, which has been transmitted through generations and diversified by being fed from different sources, cannot be distinguished on various buildings, the architectural heritage of the cities can be overlooked and might be consciously or unconsciously destroyed. Unfortunately, present architectural history or cultural heritage conservation courses do not help to adequately establish a healthy relationship between residents and the city or the cultural site that needs to be protected.

In order to fill this important gap, we have recently proposed an EU project and this paper presents the objectives, partners, methodology and prospective implementations of the project, namely “Palimpsest Cities”, which aims to create an alternative, innovative, the interdisciplinary curriculum of a new course supported with gamification and storytelling techniques. This course will especially be designed for architecture students, and the project also aims to test this approach by various implementations in partner universities, as well as through collaborations with local governments and professional organizations. By doing so, it aims to deliver the content of this innovative course to whole residents of the city from children to the elderly, with a special emphasis on the social inclusion of disadvantaged groups. Likewise, this paper and its presentation will be an important opportunity to disseminate the project before its kickoff and contribute to the essential network our project is seeking for.

**Keywords:** Cultural Heritage; Gamification; Storytelling; Architectural History.

## Traces of Levantine Culture on 19th Century Izmir City Form and Texture

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### Abstract

In the 19th century, Izmir was one of the most important foreign trade centers of the Ottoman Empire. The diversification in the social structure brought about by different ethnic groups such as Turks, Greeks, Armenians, and Levantines affected the cultural and physical structuring of the city. Levantines, who established their own neighborhoods independently of the environment and held the majority of the trade volume of the city, settled on the coastline to be close to the port due to maritime trade, and to evacuate themselves easily in case of danger and need for security reasons. The Levantines, with their spaces that can respond to their unique lifestyles, have influenced the shaping of the urban form and texture of Izmir. In this context, this paper examines the influence of the Levantines on the spatial development and formation of Izmir in the 19th century. In this context, in the study, which was used as a visual representation tool in the 19th century, photographs, postcards, maps and city plans; The traces of the Levantines in 19th century Izmir are discussed with morphological analyzes and evaluations based on architectural types such as the living environments of the Levantines known as Frenk Mahallesi on the city's coastline, and the units that make up the neighborhood texture on the architectural scale, entertainment and accommodation structures newly introduced to the city with the Levantine culture.

**Keywords:** Levantine; Izmir; Urban Morphology; Culture.

## Levanten Kültürünün 19. Yüzyıl İzmir Kent Formu Ve Dokusunda İzleri

### Özet

19. yüzyılda İzmir Osmanlı İmparatorluğu'nun en önemli dış ticaret merkezlerinden biriydi. Türkler, Rumlar, Ermeniler, ve Levantenler gibi farklı etnik grupların beraberinde getirdiği toplumsal yapıdaki çeşitlenme, kentin kültürel ve fiziksel yapılanmasını etkilemişti. Kendi mahallelerini çevreden bağımsız olarak kuran ve kentin ticaret hacminin ekseriyetini ellerinde tutan Levantenler, kıyı şeridinde deniz ticareti sebebiyle limana yakın olmak için güvenlik sebebiyle tehlike ve ihtiyaç halinde kendilerini kolaylıkla tahliye edebilmek için yerleşmişlerdi. Levantenler, kendilerine özgü yaşam biçimlerine cevap verebilecek mekânlarıyla İzmir'in kentsel form ve dokusunun biçimlenmesini etkilemişlerdir. Bu kapsamda bu bildiri Levantenlerin İzmir'in 19. yüzyıldaki mekânsal gelişim ve biçimlenmesindeki etkisini irdelemektedir. Bu çerçevede, 19. yüzyılda görsel temsil aracı olan fotoğraflar, kartpostallar, haritalar ve kent planlarından yararlanılan çalışmada; kent ölçeğinde, kentin kıyı şeridinde Frenk Mahallesi olarak bilinen Levantenlerin yaşam çevreleri ve mimari ölçekte, mahalle dokusunu oluşturan birimler, kente Levanten kültürle birlikte yeni tanıtılan eğlence ve konaklama yapılar gibi mimari tipleri esas alan morfolojik çözümler ve değerlendirmelerle Levantenlerin 19. yüzyıl İzmir'inde izleri tartışılmaktadır.

**Anahtar Kelimeler:** Levanten; İzmir; Kent Morfolojisi; Kültür.

# An Inquiry into Historic Museum Houses as to Spaces of Memory: The Case of Tokat Canikli Mansion

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## Abstract

Considering that museums today contain the concepts of remembering and reminiscing and are spaces of memory that reflect collective memory, this study aims to analyze museum houses as sites or spaces of memory. Since museum houses are the houses where important people who contributed culturally, scientifically, politically, etc. to the society they lived in, these houses undertake the task of memory in order to keep the memories of these people alive and to protect the values they reveal. This study focuses on Canikli Mansion, which exhibits the identity of a museum house in Tokat, which is an important settlement in Anatolia with its historical and cultural values, and analyzes it as a place of memory. In the study, the meanings of the concept of memory and its relationship with space, museum houses as spaces of memory are introduced, and in this framework, Canikli Mansion is evaluated. The architectural qualities of the space are discussed in relation with the experiences and memories of the past users of the house. The sources used are visual and written representations of the building and face-to-face interviews with the current owners of the family. Consequently, this study reveals how Canikli Mansion, as space of memory, conveys the memory of its users and the values it brings to Tokat, depending on its spatial qualities and values to future generations.

**Keywords:** Museum House; Memory Spaces; Canikli Mansion; Tokat.

## Bellek Mekânı Olarak Tarihi Müze Evler Üzerine Bir İnceleme: Tokat Canikli Konağı Örneği

### Özet

Günümüzde müzelerin hatırlama ve anımsama kavramlarını bünyesinde barındırmasından ve toplumsal hafızayı yansıtan bellek mekânları olmasından hareketle bildiri müze evlerin bellek mekânı olarak irdelenmesi amaçlanmıştır. Müze evler, içinde yaşadığı toplumun kültürel, bilimsel, siyasal v.b katkıda bulunan önemli kişilerin yaşamış oldukları evler olduğundan, bu kişilerin anılarının yaşatılması, ortaya koydukları değerlere sahip çıkılması adına bellek görevi üstlenmektedir. Bu bildiri de tarihi ve kültürel değerleriyle Anadolu'da önemli bir yerleşim olan Tokat'ta müze ev kimliği sergileyen Canikli Konağı'na odaklanmakta ve bellek mekânı olarak çözümlemektedir. Bildiri bellek kavramının anlamları ve mekânla ilişkisi, bellek mekânları olarak müze evler tanıtılmakta, devamında bellek mekânı olarak Canikli Konağı değerlendirilmektedir. Mekânın mimari nitelikleri evin geçmiş kullanıcılarının deneyimleri ve anılarıyla ilişkili olarak tartışılmaktadır. Yararlanılan kaynaklar yapının görsel ve yazılı temsilleri ve ailenin mevcut sahipleriyle yapılan yüz yüze görüşmelerdir. Çalışmada bellek mekânı olarak Canikli Konağı kullanıcılarının belleği ve Tokat'a beraberinde getirdiği değerleri, gelecek nesillere mekânsal niteliği ve değerleriyle nasıl aktardığı ortaya koyulmaktadır.

**Anahtar Kelimeler:** Müze Ev; Bellek Mekânları; Canikli Konağı; Tokat.

# Investigation of Symmetrical Aesthetic Feature of Diyarbakır Behram Pasha Mosque

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## Abstract

It is the aesthetic feature of the architectural product that gives an artistic dimension to architecture. On the other hand, the concept of symmetry is expressed as an important part of the beauty and aesthetic elements, reflecting an uncertain perfection. It is also defined as the counterpart of the sense of proportion and balance. Symmetry, which can be defined as the relationship of harmony, measure and proportion between the building and all building elements in ancient times, is the two equal parts of a whole divided in the middle by an axis, on both sides of the axis today. It is aimed to provide inferences for the future by analyzing the symmetry, which is one of the most important criteria of design in the field of architecture at building and city scale, and which is one of the important criteria in providing aesthetics, on historical buildings with this study. For this purpose, the aesthetic features of the Behram Pasha Mosque, which is known as the work of Mimar Sinan, and also which is mentioned among the works of the Ottoman Period in Diyarbakır, has been analyzed through the symmetry applications in the existing survey drawings of the building. As a result of the data obtained, some evaluations were made on the relationship between symmetry and aesthetics. As a result of the study, the methods of use of symmetry applications associated with aesthetics in the building are the suggestion for structures with aesthetic value for the future.

**Keywords:** Symmetry; Architectural Design; Aesthetics; Ottoman Period.

## Diyarbakır Behram Paşa Camii'nin Simetrik Tabanlı Estetik Özelliğinin İncelenmesi

### Özet

Mimarlığa sanatsal boyut kazandıran, mimari ürünün estetik özelliğidir. Simetri kavramı ise belirsiz bir mükemmelliği yansıtarak güzellik ve estetik unsurlarının önemli bir parçası olarak ifade edilmektedir. Ayrıca oran ve denge duygusunun karşılığı olarak da tanımlanmaktadır. Antik Çağ'da yapı ile tüm yapı öğeleri arasındaki uyum, ölçü ve oran ilişkisi olarak tanımlanabilen simetri, günümüzde, ortadan bir eksenle ikiye bölünmüş bir bütünün, eksenin iki yanında yer alan iki eş parçasıdır. Bu bildiri ile mimarlık alanının yapı ve şehir ölçeğinde tasarımın en önemli kriterleri arasında yer alıp, estetiğin sağlanmasında önemli ölçütlerden olan simetrinin tarihi yapılar üzerinden analiz edilerek geleceğe yönelik çıkarımlar sağlanması amaçlanmıştır. Bu bildiride, Diyarbakır'daki Osmanlı Dönemi eserleri arasında yer alan, ayrıca Tuhfet-ül Mimari'nde Mimar Sinan eseri olarak geçen Behram Paşa Camii'nin estetik özellikleri, yapının mevcut rölöve çizimlerindeki simetri uygulamaları üzerinden analiz edilmiştir. Elde edilen veriler sonucunda simetri ve estetik arasındaki ilişki üzerine bir takım değerlendirmeler yapılmıştır. Çalışmanın sonucunda yapıda estetik ile ilişkilendirilen simetri uygulamalarının kullanım yöntemleri geleceğe yönelik estetik değer taşıyan yapılar için bir öneri niteliği taşımaktadır.

**Anahtar Kelimeler:** Simetri; Mimari Tasarım; Estetik; Osmanlı Dönemi.

## Effects of Urban Morphology Changed By Legal Regulations On Outdoor Comfort Conditions: Ümraniye Example

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### Abstract

In this study, it is aimed to examine the physical changes in the urban texture in urban renewal areas in terms of urban morphology and to determine its effect on outdoor comfort conditions. The study was handled through İnkılap Mahallesi in Ümraniye district. The changes in the forms of the building islands, street relations, building heights, parcel use, and settlement order, which have been transformed on the basis of parcels, are expressed by using satellite images of different dates and photographs taken from the determined streets. Comparisons were made between these building islands and protected building islands in terms of outdoor comfort conditions such as air quality, wind, sunbathing and noise. The extent to which the changing urban morphology with the renovation works affects the outdoor comfort conditions has been evaluated with the general results produced on the building blocks with different dynamics in the same neighborhood.

**Keywords:** Urban Renewal; Urban Morphology; Ümraniye; İnkılap Mahallesi; Outdoor Comfort.

## Güncel Yasal Düzenlemelerin Değiştirdiği Kent Morfolojisinin Dış Mekan Konfor Koşullarına Etkisi: Ümraniye Örneği

### Özet

Kentsel mekanın fiziksel dokusunu ve yapısını inceleyen çalışma alanı kent morfolojisidir. Bu çalışmada, kentsel yenileme alanlarında kentsel dokuda yaşanan fiziksel değişimin kent morfolojisi açısından incelenmesi ve dış mekan konfor koşullarına etkisinin belirlenmesi amaçlanmıştır. İnceleme, Ümraniye ilçesinde yer alan İnkılap Mahallesi üzerinden ele alınmıştır. Mahallenin yapı adası bazında dönüşüme uğramış ve korunmuş konut alanlarına sahip olan Küçüksu Caddesi ve Fevzi Paşa Caddesi arasındaki bölge özelinde çeşitli analizler yapılmıştır. Parsel bazında dönüşüme uğrayan yapı adalarının biçimlerinin, sokak ilişkilerinin, yapı yüksekliklerinin, parsel kullanımının, yapılaşma düzeninin değişimi farklı tarihlerdeki uydu görüntüleri ve belirlenen sokaklardan çekilen fotoğraflardan faydalanılarak ifade edilmiştir. Değişimin görüldüğü bu yapı adaları ve korunmuş yapı adaları arasında hava kalitesi, rüzgar, güneşlenme, gürültü gibi dış mekan konfor koşulları açısından karşılaştırma yapılmıştır. Yenileme çalışmaları ile değişen kent morfolojisinin dış mekan konfor koşullarını ne ölçüde etkilediği, aynı mahallede bulunan farklı dinamiklere sahip yapı adaları üzerinden üretilen genel sonuçlarla değerlendirilmiştir.

**Anahtar Kelimeler:** Kentsel Yenileme; Kent Morfolojisi; Ümraniye; İnkılap Mahallesi; Dış Mekan Konforu

## Traditional Room-Space Setup in “Mansions” of Alanya

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### Abstract

While the plan scheme and structure are important in the traditional building, it is essential to go down to the concept of 'room' at a lower scale to understand these structures. The concept of 'tent', which is the accommodation element of the nomadic life culture, and the entire life cycle that takes place within this concept, being taken into a 'room' over time, in other words, its transformation into a set space, creates the basis of the concept of housing. Although the rooms seem to be constant, they are variable spaces where multiple actions occur: eating, drinking, cooking, washing, and sleeping.

This study is based on the fact that a single nomad tent corresponds to a "room" in traditional buildings. The place of the rooms in the houses, described as mansions, which have been built in a more planned way outside the castle walls of Alanya, in the concept of traditional building and the definition of the ideal room has been examined. The traditional concept of 'room' has been evaluated overhead the rooms in Alanya mansions. For this determination, 11 mansions, which were previously restored, were selected and examined in situ and the spatial components of the rooms were determined. Then, the influence of the combination of these components in space on the space setup was examined. As a result, it was determined that the ideal room type defined for traditional houses was reached in 34 rooms studied in 11 mansions, which was largely achieved.

**Keywords:** Alanya; Traditional Building; Room; Space Setup; Tent.

## Alanya Surdışı “Konak” larında Geleneksel Oda-Mekân Kurgusu

### Özet

Geleneksel yapı bütününde plan şeması ve kurgusu önemli iken daha alt ölçekte ‘oda’ kavramına inilmesi bu yapıların anlaşılması için önemlidir. Göçebe yaşam kültürünün barınma elemanı olan ‘çadır’ kavramının ve içerisinde gerçekleşen tüm yaşam döngüsünün zamanla bir ‘oda’ içerisine alınması ve sabit bir mekâna dönüşümü konut kavramının temelini oluşturmaktadır. Odalar her ne kadar sabit gibi görünse de içerisinde yeme, içme, pişirme, yıkanma, yatma gibi çoklu eylemlerin gerçekleştiği aslında değişken mekanlardır. Bu çalışmada tek bir göçebe çadırının geleneksel yapılarda bir “oda” ya karşılık gelmesinden yola çıkılmıştır. Alanya’nın kale surları dışında daha planlı şekilde inşa edilmiş konak olarak adlandırılan konutların odalarının geleneksel yapı kavramı ve ideal oda tanımı içerisindeki yeri araştırılmıştır. Daha önce tanımlamaları yapılan geleneksel ‘Oda’ kavramının Alanya konaklarındaki odalar üzerinden değerlendirilmesi yapılmıştır. Bunun için daha önce restorasyonları yapılmış olan 11 konak seçilmiş ve bu yapılar yerinde incelenerek odaların mekânsal bileşenleri belirlenmiş ve bu bileşenlerin mekân içerisindeki dizilimlerinin mekân kurgusuna etkisi incelenmiştir. Sonuç olarak 11 konakta incelenen 34 odada geleneksel konutlar için tanımlanan ideal oda tipine ulaşılmaya çalışıldığı ve büyük ölçüde sağlandığı tespit edilmiştir.

**Anahtar Kelimeler:** Alanya, Geleneksel Yapı, Oda, Mekân Kurgusu, Çadır.

# The Importance of Environmental Characteristics in Choosing a Walking Route in Cities

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## Abstract

The characteristics of the streets, which are defined as open urban public spaces, affect the desire and preferences of individuals to walk on the street. In this study, it was aimed to determine the characteristics of the routes preferred by individuals for walking. In the study, sample studies evaluating the importance of environmental characteristics in choosing a walking route were examined, and a survey was designed in line with the results obtained. The survey was conducted with a total of 400 adult participants residing in the Gölbaşı district of Ankara. Environmental characteristics were defined as the independent variable and the tendency to walk as the dependent variable. As a result of the cause-effect analysis, it has been determined that variables such as safety (human, animal, and vehicle), landscape density, pavements, cleanliness and care, calmness and silence, flat terrain and comfort, visual diversity, and lighting have positive and significant relationships with individuals' willingness to walk, respectively. As a result, the environmental characteristics of the routes, especially the perceived safety, the aesthetic pleasure such as landscape density, cleanliness and visual diversity, as well as the qualities such as flat terrain and pedestrian pavements that provide walking comfort, encourage individuals to walk.

**Keywords:** Walkability, Environmental characteristics, Safety, Route preference, Gölbaşı

## Kentlerde Yürüyüş Amaçlı Rota Seçiminde Çevresel Özelliklerin Önemi

### Özet

Açık kentsel-kamusal mekân olarak tanımlanan sokakların özellikleri, bireylerin sokakta yürüme istekleri ve tercihlerini etkilemektedir. Bu çalışmada, bireylerin yürüyüş amaçlı tercih ettikleri rotaların özelliklerini belirlemek amaçlanmıştır. Çalışmada, yürüyüş amaçlı rota seçiminde çevresel niteliklerin önemini değerlendiren örnek araştırmalar incelenmiş, elde edilen sonuçlar doğrultusunda anket formu tasarlanmıştır. Anket çalışması, Ankara ili Gölbaşı ilçesinde ikamet eden toplam 400 yetişkin katılımcı ile gerçekleştirilmiştir. Çevresel özellikler bağımsız değişken ve yürüyüş yapma eğilimi ise bağımlı değişken olarak tanımlanmıştır. Neden-sonuç analizi neticesinde, sırasıyla güvenlik (insan, hayvan ve araç), peyzaj yoğunluğu, yaya kaldırımları, temizlik ve bakım, sakinlik ve sessizlik, düz arazi ve konfor, görsel çeşitlilik ve aydınlatma gibi değişkenlerin bireylerin yürüyüş yapma istekleri ile pozitif ve anlamlı ilişkileri olduğu tespit edilmiştir. Sonuç olarak, rotaların çevresel nitelikleri, özellikle algılanan güvenlik, peyzaj yoğunluğu, temizlik ve görsel çeşitlilik gibi estetik hoşluk ve aynı zamanda, yürüyüş konforunu sağlayan düz arazi ve yaya kaldırımları gibi nitelikler bireyleri yürüyüş yapmaya teşvik etmektedir.

**Anahtar Kelimeler:** Yürünebilirlik; Çevresel Özellikler; Güvenlik; Rota seçimi; Gölbaşı.

# The Relationship Between the Street Rehabilitation Project and Gentrification: The Case of Kayseri Talas Ali Saip Paşa Street

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## Abstract

After the concept of gentrification was first defined in the 1960s, the process began to diversify and become widespread in the 1990s with the effect of neoliberal urban policies and globalization. In our country, especially launching in the 1980s, in metropolitan areas such as Istanbul and Ankara, gentrification has begun to emerge in residential, commercial blocs, and historical city centers. This study aims to examine the relationship between the Street Rehabilitation Project and the transformation process and the gentrification that emerged as a result of this process, in Ali Saip Paşa Street, located in the urban protected area of the Kayseri Talas district. In the study, in-depth and semi-structured interview methods were used to analyze the change and gentrification processes in Ali Saip Paşa Street. Consequently, while there is physical improvement in Ali Saip Paşa Street, it has been determined that housing functions have been replaced by trade, residents have been displaced directly and indirectly, and the stock of cheap housing has decreased. When evaluated within the scope of the determining criteria of gentrification, it has been determined that the gentrification process took place in the Street after the rehabilitation works.

**Keywords:** Gentrification; Street Rehabilitation; Transformation; Urban Planning; Kayseri.

## Sokak Sağlıklaştırma Projesi ve Soylulaştırma İlişkisi: Kayseri Talas Ali Saip Paşa Sokağı Örneği

### Özet

Soylulaştırma kavramının ilk kez 1960'lı yıllarda tanımlanmasının ardından 1990'lı yıllarda neoliberal kentsel politikalar ve küreselleşmenin etkisiyle birlikte süreç, çeşitlenmeye ve yaygınlaşmaya başlamıştır. Ülkemizde özellikle 1980'lerde başlayarak İstanbul, Ankara gibi büyük kentlerde; konut, ticaret alanlarında, tarihi kent merkezlerinde soylulaştırma süreçleri yaşanmaya başlamıştır. Bu çalışmanın amacı, Kayseri Talas ilçesi kentsel sit alanında yer alan Ali Saip Paşa Sokağı'nda gerçekleştirilen Sokak Sağlıklaştırma Projesi ile yaşanan dönüşüm süreci ve bu süreç sonucunda ortaya çıkan soylulaştırma arasındaki ilişkiyi irdelemektir. Çalışmada Ali Saip Paşa Sokağı'nda yaşanan değişimi ve soylulaştırma süreçlerini detaylı analiz edebilmek adına derinlemesine ve yarı yapılandırılmış görüşme yöntemleri kullanılmıştır. Araştırma sonucunda; Ali Saip Paşa Sokağı'nda fiziksel olarak iyileştirme söz konusu iken, diğer taraftan konut işlevlerinin yerini ticarete bıraktığı, yerel sakinlerin doğrudan ve dolaylı olarak yerinden edildiği, ucuz konut stokunun azaldığı tespit edilmiştir. Soylulaştırmanın belirleyici kriterleri kapsamında değerlendirildiğinde, sağlıklaştırma çalışmaları sonrasında Sokak'ta soylulaştırma sürecinin yaşandığı ve söz konusu çalışmaların bu süreci tetiklediği ortaya çıkmaktadır.

**Anahtar Kelimeler:** Soylulaştırma; Sokak Sağlıklaştırma; Dönüşüm; Şehir Planlama; Kayseri.

# Change in the Urban Fabric of Historic Cities: Case Study of the Residential Environment of the Old City of Mosul

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## Abstract

This paper focuses on clarifying the change and state of the urban fabric in the residential environment of the old city of Mosul. This city, with a distinctive architectural character, was destroyed and lost most of its features due to the recent war, in addition to the influence of other factors. From this point, the need arose to shed light on the state of the urban fabric, especially the residential environment in the study site. The research aims to study the dimensions of the change in the urban fabric of the city. The research assumed that there were factors that affected the pattern of traditional housing schemes in the city. The research adopted an analysis system for the city's data, in addition to the survey data that was conducted there, and the comparison between the old city and the modern part of the city of Mosul.

**Keywords:** Residential Environment, The Old City of Mosul, Traditional Housing, Urban Fabric.

## التغيير في النسيج الحضري للمدن التاريخية (دراسة حالة البيئة السكنية للمدينة القديمة في الموصل)

### الملخص

يركز هذا البحث على توضيح تغيير وحالة النسيج الحضري في البيئة السكنية للمدينة القديمة في الموصل. هذه المدينة ذات الطابع المعماري المميز، دمرت وخسرت اغلب معالمها بسبب الحرب الاخيرة بالاضافة الى تأثير عوامل اخرى. انطلاقا من هذه النقطة ظهرت الحاجة الى تسليط الضوء على حالة النسيج الحضري وبالاخص البيئة السكنية في موقع الدراسة. يهدف البحث الى دراسة ابعاد التغيير الحاصل في النسيج الحضري للمدينة حيث افترض البحث وجود عوامل اثرت على نمط مخططات المساكن التقليدية في المدينة. اتخذ البحث نظام تحليلا للبيانات الخاصة بالمدينة اضافة الى بيانات الاستبيان الذي تم اجراؤه فيها والمقارنة بين المدينة القديمة والجزء الحديث من مدينة الموصل.

**الكلمات الدالة:** البيئة السكنية، المدينة القديمة في الموصل، المساكن التقليدية، النسيج الحضري.

# BOOK OF ABSTRACTS

## ICCAUA-2022

### SESSION D: Habitat Studies / Infra Habitation

**Session Chairs:**

*Dr. Carlo ALBERINI*

*Dr. Yung Yau*

*Dr. Mazen Mohamed Nassef*

*Dr. Ana Bordalo*

Manuscript ID: ICCAUA2022EN0080

## Investigating the Role of Vernacular Architecture as a Sustainable and Eco-Friendly Architecture in City Branding

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### Abstract

Regarding the tough competition among cities to strengthen tourism industry, building specific identity with distinguishing features of the city has been further emphasized. Vernacular architecture as an eco-friendly architecture with minor impacts on the natural areas, through reflecting the community culture and characteristics of the environment, has the potential to promote the city's brand. In this research, the role of vernacular architecture in making city image has been investigated to provide in-depth knowledge in boosting city image, and the city of Masouleh in Iran has been considered as the case study. Regarding the qualitative nature of this project, a mix of methods including questionnaires and in-person interviews with main types of user (residents, Iranian tourists, and foreign tourists) has been used. Analyzing the results showed that key factors of vernacular architecture including natural landscape, sustainable design, unique local design, and cultural values have significant effects on city branding.

**Keywords:** Vernacular Architecture; Sustainable Design; Eco-Friendly Architecture; City Branding; Masouleh.

Manuscript ID: ICCAUA2022EN0091

## Transfer of Development Rights for Agricultural Land Protection in Izmir's Periphery: A Case Study in Torbali

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### Abstract

Turkey has been experiencing rapid urbanization and urban expansion since the 1950s. With the processes of decentralization, the city is increasingly being brought into rural areas, building pressure is increasing, agricultural production and natural resources are being destroyed, and rural areas are increasingly fitted with urban uses (shopping, tourism, leisure activities, etc.). Rural areas in close proximity to urban areas are more vulnerable to development pressures and are at risk of being abolished or abandoned. On the other hand, with the enactment of the new regulations Transfer of Development Rights is entered Turkish Planning System as a new and innovative solutions. However, there has been any available application of the TDR yet. The study's objective is to assess the TDR's effectiveness as a tool for protecting agricultural land on the periphery of Izmir's large metropolitan area. Izmir's *Torbali* district was chosen as a case study regarding intensive agricultural activity. A bundle of techniques is used including a large survey analysis of the area. A hypothetical mathematical model was applied for assessing and transferring the market-base value for the agricultural land.

**Keywords:** Transfer of Development Rights (TDR); TDR for Agricultural Land's Management; TDR as a Planning Tool.

Manuscript ID: ICCAUA2022EN0127

## Predictive Model for Liveability in Public Housing Delivery in Niger State Nigeria

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### Abstract

The study aimed at identifying liveability variables which can be utilised in the design and as well used for quick liveability assessment of public housing in the study area. Liveability consideration has become a requirement in which cities around the world are re-examining their urban issues so as to enhance the quality of life. Hierarchical Cluster Analysis, Factor Analysis and Multiple Regression Analysis were used to respectively group, reduce number of variables, and validate and measure how well the 21 identified variables predicted Resident Perceived Satisfaction Index (RPSI). The model produced an R<sup>2</sup> value of 71.3% indicating that only 28.7% of variables causing variation in RPSI were outside the prediction domain of the model. The model can be used as a quick liveability assessment tool for the residential environment while variables identified serve as foundation design and planning considerations for public housing delivery in the study area.

**Keywords:** Environment; Liveability; Public Housing; Predictive Model; Satisfaction.

Manuscript ID: ICCAUA2022EN0133

## Architectural Heritage in Medium and Small Syrian Cities: Management Advanced Strategies for Postwar Recovery

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### Abstract

During Syria's war, the architectural heritage suffered significant damage ranging from minor damage to total destruction in many cities. Moreover, the poor or absence of advanced heritage management that supports the recovery of these cities, especially in medium and small cities where attention has been focused on large cities, exacerbated the problem.

The paper suggests directing attention to medium and small cities with traditional fabric. The city of Ariha, which has a population of 80,000 people, was chosen to study its current status, defining its architectural heritage and applying advanced architectural heritage management strategies that depend on advanced techniques and information technology. Reviewing International cases and extracting the best methodologies compatible with the Syrian context, such as reuse, GIS, laser scanning, and 3D modeling, which will contribute to preserving this heritage and help make decisions to support the recovery of these cities during and in the post-war era.

**Keywords:** Heritage; Management; Syria; Medium City; Ariha.

Manuscript ID: ICCAUA2022EN0135

## Designing Alternatives for Residential Apartments in Cairo Using Shape Grammars

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### Abstract

Through observation, it is noticed that the design solutions of the inner spaces of residential units in Cairo have circulation problems. These problems are represented in direct and indirect separation between different zones in apartments, whether private or semi-private. This is due to; reduced areas, site location, building policies...etc. Such problems obstruct resident's way of everyday life, and their living quality. After introducing such problems, this paper proposes a set of shape-grammars rules that facilitate designers, through their process to produce a range of design alternatives for the same area. Shape grammars' rules are set according to three aspects: a) required relationship between zones for Carians culture, b) building policies as a constrain, c) the given building area in different situations (attached to neighbors or free standing, ....etc.) That rules works as a design tools for any designer in Cairo to select the suitable alternative, and facilitate his creativity through the process.

**Keywords:** Residential Privacy; Shape Grammars; Housing Design; Zoning of Houses.

Manuscript ID: ICCAUA2022EN0147

## Structures of Community Life in Portuguese Home-Villages: Two Case Studies

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### Abstract

This study aims to investigate the structures of community life in Portuguese Home-Villages and the consequences of an ageing demographic population; the need to implement home structures for the elderly and on how these can contribute to a revitalization of the depopulated territories. Last datas showed a concentration of the population in the metropolitan areas and a depopulation of the inland rural areas with resident ageing population – mostly in Alentejo-Algarve border. However, this could be perceived as an opportunity rather than a problem in dealing with depopulated villages. Two case studies were selected, the Home-Village of São José de Alcalar and Monte da Palhagueira, both located in the same rural region (Algarve). The characteristics of the urban and population structures were identified, and a comparison with similar structures already existent in other countries was established. A project of intervention was elaborated, aiming to revitalize the Monte do Pessegueiro – already depopulated.

**Keywords:** Home Support; Territory Revitalization; Spatial Equity; Independent Living in Old Age.

Manuscript ID: ICCAUA2022EN0182

## Third Sector Housing in Hong Kong: Prospects and Challenges

Prof. Yung Yau

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### Abstract

The rising unaffordability of private house rental in Hong Kong has led to the proliferation of substandard living spaces (e.g. subdivided flats) in the city. To ease the contemporary housing crisis in Hong Kong, it is necessary to break the present public-private dichotomous divide in the housing sector. Third sector (or social) housing can be a possible way out to solve the housing problem. In the paper, I would like to explore the prospects and challenges of promoting the third sector for housing provision in Hong Kong. Findings of case studies and in-depth interviews with key stakeholders revealed that the third sector housing model is widely welcomed. The new model can fill the gaps which the existing public housing and private housing sectors cannot cover. For example, instead of using allocation by time on the waiting list, the new model can be flexibly designed to allocate housing to people by need. On the other hand, long-term financial sustainability is often regarded most challenging to the operation of third sector housing projects.

**Keywords:** Social Housing; Third Sector Housing; Affordable Housing; Allocation by Need; Marginalized Groups; Housing Policy.

Manuscript ID: ICCAUA2022EN0207

## Social Hybrid Architecture for Water Regeneration in Rural Settlements. A Case Study in La Vega Del Guadalfeo (Spain)

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### Abstract

This article combines two problems such as the eutrophication of seas and oceans with the spontaneous appearance of rural settlements and the infrastructures that support them. According to Koolhaas, the rural world constitutes the new space for work and research. After a bibliographic review of the possible strategies, a hybrid building is proposed between an ecological purification infrastructure and a social recomposition artifact. As a case study, the problem of dissemination in the Vega del Guadalfeo is analyzed. The results show the design of an ecological treatment plant that can recycle wastewater from illegal rural settlements through worm filters and a system of artificial wetlands. This is part of a building that makes up for the lack of facilities that is typical of the scattered one with an exhibition hall and public meeting spaces. The paper proposes recommendations to institutions on the scope of this type of infrastructure.

**Keywords:** Eutrophication; rural settlements; quantum growth; worm filters; constructed wetlands.

Manuscript ID: ICCAUA2022EN0209

## Exploring the Factors Influencing Residential Location Choice of a Household: Learnings from the Indian Context

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### Abstract

Residential location choice has remained one of the major spatial choices taken by a household that defines how a household is going to use the urban spatial system. Earlier studies concerning developed and developing economies conclude the influence of socio-economic factors, housing characteristics, and neighborhood characteristics on the location choice of a household. However, the evidence from the Indian context is limited in the literature. Therefore, the present study aims to explore the influencing factors from the Indian context by taking a case study of Bidhanagar Municipal Corporation. The study considers 34 variables related to household, housing, and neighborhood characteristics. Using a multinomial logit regression, a utility function is estimated with 450 data samples obtained through household surveys. The results indicate the significance of car ownership, monthly income, distance to work, distance to family/relative/friends, distance to quality schools, quality of physical infrastructure such as water availability, power availability, housing quality among others.

**Keywords:** Residential Location Choice; Multinomial Logit Regression; Indian Context.

Manuscript ID: ICCAUA2022EN0032

## Affordable Housing for Low-Income Community in Thailand: The Challenges of the Improvement of the Quality of Life

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### Abstract

The major problems of the urban poor are lack of land, housing insecurity and access to basic infrastructure. The increase in inadequate housing and homelessness among the urban poor are clear manifestations of their relative poverty. For decades, affordable housing has been a strategy of the Thai government to promote access to housing of an adequate standard. My main focus of this paper is on two low-income communities which constructed new settlements on new lands. Both were supported by funding and housing loans from the Thai Community Development Organizations Institute (CODI), and I was appointed to lead the projects as a community architect. This paper aims to explore the challenges of promoting affordable housing and how people deal with these challenges. They were involved in the participatory planning, design processes and worked collaboratively with each other. Additionally, financial assistance was a vital mechanism to facilitate community building processes. The outcomes of the processes generated by the activities and solutions respecting the needs of the people. Also, collective saving groups were a significant development to learn together and overcome the considerable constraints.

**Keywords:** Affordable Housing; Urban Settlements; Low-Income Community; Collective Saving Group.

Manuscript ID: ICCAUA2022EN0039

## Assessment Of The Service Delivery At The Internally Displaced Persons' Camps (Idps) in The Federal Capital Territory, Nigeria

Owoeye Olusegun Idowu<sup>1</sup>, Danlami Gideon<sup>2</sup> and Ohadugha C. Bernhard<sup>3</sup>*Department of Urban and Regional Planning**Federal University of Technology, Minna**E-mail<sup>1</sup>: olu.idowu@futminna.edu.ng*

### Abstract

Exploitation of natural resources by man has triggered conflict which has made man to flee from his original place of abode to seek shelter in other places within the country as IDPs or outside the country as refugees. Surprisingly, unlike the refugees, IDPs remains the major concern of their home country. Systematic random sampling technique was used to sample 331 households in Kuchigoro and Durumi camps. This study is aimed at assessing the types of service delivery in the IDPs camps in the FCT. With a view of determining the effectiveness of the services delivered to the IDPs in FCT. The following objectives were considered for the study: Identify the socioeconomic characteristics of the camps, assess the types of service delivery in the camps, and examine the effectiveness of service delivery in the IDPs camps. The study however, discovered that, electricity in Kuchigoro camp (96.8%) is not available in the camp likewise in Durumi camp (99.5%) is not available in the camp which is an indication that the camps are suffering from energy poverty. The study concludes that concludes that, the IDPs in Abuja camps does not have access to service delivery in areas of electricity supply, potable water supply, healthcare, education, relief materials and security services and recommends that basic services should be made available for the IDPs in Abuja to enhance their living standard.

**Keywords:** Disaster; Standards; Resources; Political; Displaced.

Manuscript ID: ICCAUA2022EN0220

## The Divided and Inaccessible City: A Critical Analysis

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### Abstract

The contemporary city, where fellow man is a stranger, has become a fragment – a partitioned city. The privatisation of public spaces, commercialisation of civic life, and the alienation of man are some of the manifestations. How does privatisation bear on our everyday life? Might this indicate the emergence of a new (insurgent) city? The burgeoning field of urban studies has left us rather with far more questions than answers. Putting the reality of this entity into perspective; the paper aims to examine these questions.

**Keywords:** Economic Exclusion; Social Alienation; City.

Manuscript ID: ICCAUA2022EN0213

## House and Land: An Architectural Review of Bulk Housing in Australia

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### Abstract

Australia is a suburban nation, and Australians value home ownership highly. The standalone house on a “quarter acre” block is seen as almost a natural birth right. Yet architects only design about 3% of housing in Australia, the vast bulk of Australia’s housing is designed and built by “volume builders” who buy up huge tracts of land on the urban fringe of the major cities and roll out vast areas of new housing every year. This paper examines the role of the volume builder from an architectural perspective, looking at the design and planning of suburban homes and suburbs, as well as at their environmental and urban design performance. Data were collected and analysed from two suburbs in outer Melbourne using observations and interviews with the residents. Our findings indicate that social and environmental outcomes are often poor and suggest ways that these might be improved.

**Keywords:** Bulk Housing; Architecture; Urban Design; Sustainability; Melbourne.

Manuscript ID: ICCAUA2022EN0221

## (To) Shelter: The State, Society and the Solitary

Siepan R. Khalil

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### Abstract

In the city, many speak of a housing crisis. Affordability becomes a forgotten term, and inaccessibility becomes the new norm. Within each crisis is the need of society to overcome it. Yet when it comes to housing, the solitary individual is being pushed into a corner. For it is the capitalist notion, that the individual is to be blame for his situation. Has there been a shifting boundary between the state and market? Who really benefits from the consequences of this crisis? What are the exact changes of policy, and who or what is to be put to blame on? The paper formulates these questions and asks, to shelter from what? This paper then, is meant for the reader who is concerned with the urban issues of today.

**Keywords:** Housing Policy; Welfare State; Political Economy.

Manuscript ID: ICCAUA2022EN0224

## Toward 2030: The Role of Resilient and Sustainable Urban Planning to Foster A Greener Decade in Coastal Areas

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### Abstract

Nowadays, more than 600 million people lived in coastal areas, outlooks forecast that they will be more than one billion by 2030. Cities occupy less than 2% of the world lands, but are responsible for 70% of CO2 emissions. Coastal areas constitute the most exposed regions facing climate change impacts. This contribution aims at stimulating a reflection over the role that sustainable and resilient urban planning can have in fostering SDGs in coastal regions. Sustainable urban planning can constitute the trigger to reduce global impacts that cities generate on environment as well as resilient urban planning can contribute to make cities more safe, efficient and equitable to cope with threats deriving from global scale. This contribution argues that the practice of urban planning should definitively embrace a holistic and multi-scale approach, moving from geography to design, from the integrated coastal zone management to the urban design.

**Keywords:** Sustainable Urban Planning; Resilient Urban Planning; Integrated Coastal Zones Management; Waterfronts Regeneration Projects; SDGs.

# BOOK OF ABSTRACTS ICCAUA-2022

## SESSION E: Pandemic Studies

**Session Chairs:**

*Dr. Dalia Hussain El Dardiry*

*Dr. Hidayet Softaođlu*

Manuscript ID: ICCAUA2022EN0042

## Courtyard and Controlling the Spreading of The COVID 19 Virus in Commercial Buildings

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### Abstract

The designing of commercial spaces that practice daily large amount of social and trading activities is a massive responsibility to the designer, especially the post-COVID 19 pandemic because it should be a safe environmental place for such activities. The world health organization (WHO) announced a solid recommendation to practice trading activities in open-air. They said that generally, it is crucial to control the spreading of viruses. The WHO reported that having fresh air in such areas is considered a successful issue to have safe places in the pandemic period. The research discusses the courtyard, one of the types of open spaces in the commercial building, as a successful solution to accommodate safe open-air spaces between such commercial buildings. The implementation of the other WHO precautions such as social distances and sanitizing is a have towards a safe and healthy place. In addition, the social impacts will be considered in the research.

**Keywords:** COVID 19; Courtyard; Architectural Design; Commercial Building; Built Environment.

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## Post-Pandemic Urban Future: Identification of the main trends of change in Latin America, through the application of the Delphi method

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### Abstract

The pandemic is a difficult subject to address due to its high degree of uncertainty. This condition is accentuated in Latin America, where limited information hinders any forecasting. Therefore, alternative methodologies are needed to identify the urban effects of the pandemic and its trends. This study applies the Delphi method to gather expert opinions on the influence of the global emergency, systematized in a consensus. Additionally, it employs machine learning algorithms to transform them into predictions. The sample is made up of 26 panelists from different Latin American countries, who participated in successive questionnaires until stable results were reached. The data reveal a pessimistic view of the post-pandemic, as well as a very slight consensus. Inequality is the main topic, while the factors of change are telework, e-commerce and emerging commuting habits. In summary, the research identifies the issues that are shaping the post-pandemic urban agenda.

**Keywords:** Pandemic; Urban Planning; Uncertainty; Prospective; Latin America.

Manuscript ID: ICCAUA2022EN0121

## The Impact of The Covid-19 Pandemic Crisis on BIM Architectural Practice in France

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### Abstract

The pandemic crisis of covid-19 has affected the world of industry and construction worldwide. In France, the government has made lockdown and telecommuting mandatory for some areas for months. In recent years, the BIM (building information model) is increasingly adopted in construction, research has shown that in France, agencies that use BIM software and regularly exchange their digital BIM models with their partners are a minority, and that France is not a leader in this field. In this research we will answer the question of how the Covid-19 pandemic crisis has impacted BIM architectural practice in France, based on questionnaires sent to architectural design offices, we will demonstrate the new collaborative tools used and their contributions to the adoption of BIM in agencies.

**Keywords:** BIM; Covid-19; Architectural Practice; Collaboration; France.

Manuscript ID: ICCAUA2022EN0111

## New Normal Third Places After COVID-19 Pandemic

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### Abstract

This study examines the changes of third-place usage in the new normal era –immediately after the COVID-19 pandemic and explains the adaptation strategies of users in using the third places. This is qualitative research in which social media data is used to examine the change in third-place usage before the COVID-19 phase (normal era) and two phases during the new normal era. Mount Lavinia in Sri Lanka is considered for the empirical study. The results of the research found third-place usage in the first phase of the new normal era is lower, compared to the normal era and higher in the second-phase of new normal era. This implies users adapting to the situation gradually, therefore, there is minimal impact to the new normal third-places. This research suggests planning attempts are necessary to enhance the resilience of third-places to face this sort of pandemic situation.

**Keywords:** Third Places; COVID-19; Adaptation; Pandemic; Social Media Data.

Manuscript ID: ICCAUA2022EN0203

## Delineating the Impact on Design Parameters Due to Covid-19

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### Abstract

The lockdown imposed due to Covid-19 has caused economic and social challenges around the world. It has adversely impacted the real estate and construction sector. The ongoing pandemic has created a need to reassess the building design strategies to mitigate the threat of the virus. The novelty of the research lies in ranking the design parameters with regards to the pandemic, to provide better design solutions for all stakeholders. This research aims to identify, assess and rank the impact due to Covid-19 on different design parameters in architecture. An analysis of the identified parameters has been carried out by surveying architects and occupants. Recommendations have been made to provide better design solutions for the pandemic age.

**Keywords:** Architecture; Covid-19; Design Parameter; Pandemic.

# Challenges of Architectural Education Post Covid-19 Pandemic: Analytical Study of the Potentials and Problems Associated with Distant Learning

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## Abstract

Architectural education is considered the cornerstone in the establishment of cities, through the contributions of today's architecture students who would be future architects providing built contributions in cities. Accordingly, it is of extreme importance to regard how architecture students are founded from an ideological and practical level, which has been widely studied in regards of pedagogy realms. Thus, this paper aims to analyze the consequences of the spread of Covid-19 pandemic on distant learning strategies applied on architectural programs. The paper aims to find answers for whether distant learning policies have affected the capabilities of graduates, and can e-learning provide solutions for future architectural education. The methodology adopted is a qualitative, analytical method, discussing the pros and cons of distant learning experiences during the past two years, on stakeholders of the educational process at Cairo University, Architecture Program. The research concludes with potentials for future enhancement of e-learning experiences.

**Keywords:** Architectural Education; Distant Learning; Blended Strategies; Quality of Life; Quality of Education; Potentials in Future Education.

## تحديات التعليم المعماري في عصر الوباء العالمي كوفيد-19 دراسة تحليلية للإمكانات و النتيجة عن نظام التعليم المعماري عن بعد المشكلات

### الملخص

يمثل التعليم المعماري حجر الأساس الذي يتيح للمدن جودة حياة أفضل، من خلال ما يقدمه طالب العمارة اليوم والمعماري المستقبلي من إسهامات في المدن المختلفة. لذلك، فبناء طالب العمارة فكراً وأيدولوجياً وتقنيا يعد أحد أهم المواضيع في المجالات البحثية المعاصرة. من هذا المنطلق، يهدف البحث إلى تحليل تبعات الوضع العالمي من تفشي وباء كوفيد-19 وما ترتب عليه من تأثير على التعليم المعماري بالتطبيق الفعلي لمناهج التعليم عن بعد. فهل يؤثر التعليم عن بعد على قدرات خريج طالب الهندسة المعمارية بالسلب أم بالإيجاب؟ وهل يمثل التعليم المدمج حل طويل المدى للمشاكل المستقبلية؟ اعتمد البحث على منهجية إستقرائية لمناهج التعليم المستحدث مع تحليل كمي لمساويء ومميزات التجربة خلال العامين السابقين وكيف أثرت على شركاء العملية التعليمية من أساتذة وطلاب وخريجين، من خلال دراسة تحليلية لبرنامج قسم الهندسة المعمارية بكلية الهندسة جامعة القاهرة. ويخلص البحث إلى إمكانات التطوير لمجال التعليم المعماري.

**الكلمات الدالة:** التعليم المعماري؛ الدراسة عن بعد؛ استراتيجيات مختلطة جودة الحياة؛ جودة التعليم؛ الإمكانيات في تعليم المستقبل.

# BOOK OF ABSTRACTS

## ICCAUA-2022

### SESSION F: Civil Engineering

Session Chairs:

*Dr. Yarah Basyoni*  
*Dr. Sertaç ORUÇ*

Manuscript ID: ICCAUA2022EN0084

## Seismic Vulnerability of Interaction Soil-Pile-pier bridges under Mainshock-Aftershock Sequences Using the Fragility Methodology

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### Abstract

Pile foundations strongly influence the performance of supported structures and bridges during an earthquake, only mainshock actions are considered without incorporating the effect of mainshock-aftershock (MA) sequences. This study primarily investigates the seismic fragility of mainshock-aftershock (MA) sequences damaged of bridge with consideration the effect of interaction soil-pile-structure, type of soil and mass effect. Analytical fragility curves are developed for the bridge components based on the outputs of an Incremental Dynamic Analysis (IDA) using 19 synthetic ground motion records. The results indicate that these parameters are significantly influenced on lateral capacity, ductility and seismic fragility on the ISPS. The increasing in the axial load exhibit high probabilities of exceeding the damage state.

**Keywords:** Seismic; Interaction Soil-Pile-Structure; Incremental Dynamic Analysis; Fragility Curves; Bridge.

Manuscript ID: ICCAUA2022EN0090

## Effects of Underground Circular Void on Strip Footing Laid on the Edge of A Cohesionless Slope Under Eccentric Loads

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### Abstract

Owing to the comeback of small-scale models, this paper presents results of an experimental study based on the effect of underground circular voids on strip footing placed on the edge of a cohesionless slope and subjected to eccentric loads. The bearing capacity-settlement relationship of footing on the slope and impact of diverse variables are expressed using dimensionless parameters such as the top vertical distance of the void from the base of footing, horizontal space linking the void-footing centre, and load eccentricity. The results verified that the stability of strip footing is influenced by the underground void, as well as the critical depth between the soil and top layer of the void. The critical horizontal distance between the void and the centre was also affected by the underground void. Furthermore, the results also verified that the influence of the void appeared insignificant when it was positioned at a depth or eccentricity equal to twice the width of footing.

**Keywords:** Strip Footing; Eccentric Load; Slope; Underground Void; Bearing Capacity.

Manuscript ID: ICCAUA2022EN0093

## The Influence of Road Traffic on Heavy Metal Contamination of Road Dust and Roadside Soil along A Major RN3 Highway Through A Rural Area in Northeastern Algeria

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### Abstract

This study examines the assessment of heavy metal contamination of pavement-side soils. In our case we studied the section of National Highway 3 (RN3). In the environment of sampling sites there is no industry or dangerous activity on the environment, the heavy metals addressed in this study are (Pb, Cu, Cr, Fe, Ni, Zn), their origin being road traffic. Results indicated that concentrations in road dust were higher than in soil. The distribution of heavy metal concentrations in dust is Fe>Pb>Zn>Cu>Cr>Ni, and the distribution in the ground is Fe>Pb>Cu>Zn>Cr>Ni in the direction of Biskra and in the opposite direction and decreases everything away from the road, while the distribution in the central solid ground is Fe>Cu>Cr>Zn>Ni. Climatic conditions such as wind, rainfall, temperature, humidity and the nature of the terrain were also significantly related to their enrichment in these roadside soils.

**Keywords:** Pollution; Contamination; Heavy Metals; Traffic; Road; Dust; Environment; Wind; Pavement.

Manuscript ID: ICCAUA2022EN0094

## Selection of Optimal Geometry of Curved Roof-Trusses Based on Steel Weight Optimization

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### Abstract

The use of curved roof-truss in the construction of steel structures became a more widely used option that allows the designer of the building to have more flexibility in space planning and in creating architecturally significant structural systems. The aim of this study initiates from the need to produce a guide on selecting the truss geometry including shape, span range, depth, panel size, bay distance, and elevation, for a particular application area providing optimum performance and cost-effectiveness. With this objective, a parametric study was designed, based on four curved trusses (Pratt, Howe, Warren, and Modified Warren) with a range of geometry sets using Circular Hollow Structural Shapes. The optimization was performed by using the design results of RFEM (2018) software for 432 models to minimize the material costs under a set of particular constraints imposed by design code specifications on nodal displacement, member stress, and stability. In addition, this paper also attempts to introduce comparative diagrams that can be used for choosing the optimal type of curved roof-truss.

**Keywords:** Curved Roof-Truss; Pratt; Howe; Warren; Modified Warren.

Manuscript ID: ICCAUA2022EN0096

## Potential Contributions of Topology Optimization for Building Structures: A Redesign Case Study on Saint Voukolos Church

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### Abstract:

Topology optimization, which has been used in many sectors for a long time, has recently become one of the new research and application trends in the field of architecture. Topology optimization, which can be considered as a part of additive manufacturing, is one of the initiatives to reduce the use of materials during the construction phase by deciding in the architectural design processes (Jipa et al., 2016). The topology optimization applied according to the load distribution of the structure also reveals unique forms for each structure (Sigmund, 1994). The aim of this paper is to examine the potential contributions of a structure designed with topology optimization to the structure in terms of material and form and to create an exemplary model in this context. For this purpose, Saint Voukolos Church, one of the old masonry buildings in Izmir/Turkey, was selected and redesigned with topology optimization. The topological optimization of this structure, which was 3D modeled in Rhino, was made with TOPOS, and two (existing and redesigned) designs were compared in terms of structure, material and form. As a result, it has been seen that the topologically optimized proposed structure can be built with much less material than the existing structure and more original forms can emerge.

**Keywords:** Topology Optimization; Structural Optimization; Highrise; Architecture.

Manuscript ID: ICCAUA2022EN0112

## The Effect of Using Iron Slag As a Replacement for Fine Aggregates for Green Concrete Mixes

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### Abstract

Green concrete is defined as a concrete which uses waste material as at least one of its components, or its production process does not lead to environmental destruction. The goal of sustainability is to maintain balance among economy, environment, and society, and to ensure that today's needs are met without compromising the needs of future generations. This research studies the possibilities of using iron slag as total or partial replacement of fine aggregates to make green concrete. Compressive, tensile and flexural strength tests were conducted in by adding iron slag as replacement of sand in green concrete mixes in various percentages (10%, 20%, 40%, 60%, 80%, 100) at 7, 28 and 56 days. The results showed that the optimum percentage of Iron slag replacement is 60%.

**Keywords:** Green Concrete; Sustainability; Iron Slag; Flexural Strength; Compressive Strength.

Manuscript ID: ICCAUA2022EN0146

## The Effect of Latex on The Characteristics of Asphalt Concrete Wearing Course

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### Abstract

The Laston has a high degree of flexibility, located above the surface layer, this layer is susceptible to damage due to high temperatures, more. Asphalt as a pavement if spread will experience hardening, so that additional materials are added to make it flexible. The AC-WC mixture uses 60/70 penetration asphalt with the addition of latex. The purpose of knowing the characteristics of the marshall AC-WC mixture at the optimum asphalt content. The addition of latex 3%, 5%, 9% of the total volume of asphalt. The process is through heating asphalt and then adding latex, the proportion of aggregate is based on the ideal mixture gradation. Samples were made on hot mixture by Marshall test method. The results showed that the selected AC-WC mixture with a latex variation of 3% of the total, all asphalt properties were met. Stability 3201.1, Flow 2.4, MQ 1679,339kg, VIM 5% VMA 17.799%, VFA 74.426%.

**Keywords:** Latex Addtives; Asphalt; Marshall Test.

Manuscript ID: ICCAUA2022EN0167

## Age of Resilient Urban Mobility Routes Planning

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### Abstract

In this age of Engineering wisdom, contemporary city design calls for: Smart, Livable, Sustainable and Resilient cities. Whether it's the aged-city, a new-city, or the city-in-transition, users' travelling objectives are alike. In this demanding era, it's mandatory to minimize time lost in travelling. A pool of strategies is available: from promoting working from home, to creating enjoyable daily trips. In this research, mobility routes are evaluated for a selected mode of transport, from the user's point of view. An impedance function measures the utility of choosing one mode of travel over another. The function measures: travel factors, network geometrical factors, safety factors and other factors. The main challenge is to develop a versatile model that quantifies these factors; as one Key Performance Indicator (KPI). The presented KPI facilitates planning of mobility routes and the choices for decision makers. Preliminary results show, the easiness and intuition of the presented model.

**Keywords:** Resilient Cities; Mobility Routes; Key Performance Indicator (KPI).

Manuscript ID: ICCAUA2022EN0174

## Behavior of Reinforced Concrete Frames on Flexible Foundations Subjected to Both Horizontal and Vertical Ground Motions

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### Abstract

This paper investigates the behavior of combined horizontal and vertical accelerations on the seismic response of reinforced concrete resting on shallow foundations. Five and nine-storey buildings are considered to represent low- and medium- rise buildings. The building was assumed to be founded on shallow foundation with soil class corresponding to soft soil deposits, The soil of foundation was modeled by an equivalent massless spring coupled with a gap. The accelerograms used in this investigation in the nonlinear range are the horizontal and vertical components of the New Hall earthquake. Although most building codes postulate that SSI generally decreases the force demand of buildings, and increases the deformation demand, it was found that the inclusion of the vertical ground motion with SSI, the horizontal displacement are decreased compared to the case with only the horizontal component.

**Keywords:** Horizontal and Vertical Accelerations; Shallow Foundation; Spring Couple; Gap; Nonlinear.

Manuscript ID: ICCAUA2022EN0181

# Climate Impacts on Infrastructure Projects and Risks Allocation

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## Abstract

The intricate nature of infrastructure projects makes them open to disputes which also generate high costs. One of the major reason of conflict is climate change/adverse weather induced impacts through the life cycle of the infrastructure asset. Therefore it is essential to allocate these climate/weather-induced risks with a clear as well as well-balanced meanings of responsibilities. Known as standard forms of construction contracts (SFCs), normally established by expert organizations as well as construction professionals, have actually advanced to resolve this demand. International Federation of Consulting Engineers (FIDIC) contracts can be an example of these widely known contracts. The risks that infrastructure projects are exposed to and risk allocations in FIDIC Conditions of Contract were briefly discussed in this study. Risk related clauses, in particular climate/weather related risks, were analyzed in terms of related parties and risk clusters. Research findings can help to consider construction contracts from a risk point of view and can provide guidance for carefully considering the possible climate/weather impacts.

**Keywords:** Climate Change; Infrastructure; Contract; FIDIC.

# Analysis of Technical Indicators for Leak Performance in District Metered Areas with Active Leak Control

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## Abstract

Active leak control method is applied to detect and prevent unreported leaks in distribution systems. These leaks are determined and repaired by applying this method. However, during the application of this method, the field works are carried out in the field and cost is incurred. For this reason, it is necessary to analyze the benefits obtained after applying this method. This benefit is basically the amount of leakage prevented by the application of this method. In this study, active leakage control was applied in isolated measurement zones in drinking water distribution systems and the gains were analyzed according to technical performance indicators. In this context, the province of Malatya was chosen as the application area of the central distribution system. In the application area, active leakage control has been applied in 4 isolated measurement zones. The total volume of leakage prevented at the beginning and end of the study was determined. Then, technical performance indicators were calculated for each isolated measurement zone. These indicators are basically leakage amount per unit network length, leakage amount per unit service connection, infrastructure leakage index (ILI). Thus, the benefits obtained in the considered time period were analyzed according to the physical properties of the system. With the help of these indicators, it provides an opportunity to evaluate whether the active leakage control implemented improves the leakage performance of the system or not. It is thought that the outputs obtained from this study will make important contributions especially for practitioners.

**Keywords:** Urban Water Management; Leakage; Isolated Zone; Performance Indicator.

## Aktif Kaçak Kontrolü Uygulanan İzole Ölçüm Bölgelerinde Sızıntı Performansı için Teknik Göstergelerin Analizi

### Özet

Dağıtım sistemlerinde meydana gelen ve yüzeye çıkmayan sızıntıların belirlenmesi ve önlenmesi için aktif kaçak kontrolü yöntemi uygulanmaktadır. Bu yöntemin uygulanması ile sızıntılar belirlenerek onarılmaktadır. Ancak bu yöntemin uygulanması sırasında sahada çalışmalar yapılmakta ve maliyet oluşmaktadır. Bu nedenle bu yöntemin uygulandıktan sonra elde edilen faydaların analiz edilmesi gerekir. Bu fayda temel olarak bu yöntemin uygulanması ile önlenen sızıntı miktarıdır. Bu çalışmada içmesuyu dağıtım sistemlerinde izole ölçüm bölgelerinde aktif kaçak kontrolünün uygulanmış ve elde edilen kazanımlar teknik performans göstergelerine göre analiz edilmiştir. Bu kapsamda Malatya ili merkez dağıtım sistemi uygulama alanı olarak seçilmiştir. Uygulama alanında 4 adet izole ölçüm bölgesinde aktif kaçak kontrolü uygulanmıştır. Çalışmanın başlangıç ve sonu itibarıyla önlenen toplam sızıntı hacmi belirlenmiştir. Daha sonra her bir izole ölçüm bölgesi için teknik performans göstergeleri hesaplanmıştır. Bu göstergeler temel olarak, birim şebeke uzunluğu başına sızıntı miktarı, birim servis bağlantı başına sızıntı miktarı, alt yapı kaçak indeksi (ILI), şeklindedir. Böylece göz önüne alınan zaman aralığında elde edilen faydalar sistemin fiziksel özelliklerine göre analiz edilmiştir. Bu göstergeler yardımıyla uygulanan aktif kaçak kontrolünün sistemin sızıntı performansının iyileştirip iyileştirmediği kapsamında değerlendirme imkanı sunmaktadır. Bu çalışmadan elde edilen çıktıların özellikle uygulayıcılar için önemli katkılar sunacağı düşünülmektedir.

**Anahtar Kelimeler:** Kentsel Su; Yönetimi; Sızıntı; İzole Bölge; Performans Göstergesi.

# Analysis of Cost and Benefit of Leakage Management in Isolated Metering Areas: Field Practices for Pilot Areas

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## Abstract

Operating cost in urban water management is the most important component that should be reduced for administrations. The most basic way to reduce this is to minimize faults (reported failures) and leaks (unreported failures). The increase in the number of failures increases the volume of leakage, the frequency of maintenance and repair, and therefore the operating cost. For this reason, leaks that do not come to the surface especially need to be managed with the right methods. In this study, it is aimed to analyze the cost of the methods applied in the management of non-surface leaks in distribution systems according to field data and to calculate the benefit resulting from the application of these methods. For this purpose, Malatya water distribution system was chosen as the application area. In the application area, the costs of the inspections (crew, working hours and equipment) made by acoustic methods in the pilot isolated areas and the benefits of the detected leaks were analyzed in detail. Thus, the economic efficiency of the applied method and process is determined and monitored. It is understood that the studies will be inefficient if the costs of detecting faults that do not come to the surface are higher than the benefits to be obtained, especially in regions where the loss rate is low. In such areas, it is necessary to monitor flow and pressure changes, maintain the current situation and implement site inspections depending on the increase in leakage rate. It is thought that the outputs obtained from this study will contribute to technical personnel and decision makers.

**Keywords:** Water Management; Leakage; Cost; Benefit Analysis.

## İzole Ölçüm Bölgelerinde Sızıntı Yönetiminin Ekonomik Maliyetinin ve Faydasının Analizi: Pilot Bölgeler İçin Saha Uygulamaları

### Özet

Kentsel su yönetiminde işletme maliyeti idareler için azaltılması gereken en önemli bileşendir. Bunu azaltmanın en temel yolu ise arızaların (yüzeye çıkan) ve sızıntıların (yüzeye çıkmayan) en aza indirilmesidir. Arıza sayısının artması, sızıntı hacmini, bakım onarım sıklığını ve dolayısıyla da işletme maliyetini arttırmaktadır. Bu nedenle özellikle yüzeye çıkmayan sızıntıların doğru yöntemlerle yönetilmesi gerekir. Bu çalışmada dağıtım sistemlerinde yüzeye çıkmayan sızıntıların yönetilmesinde uygulanan yöntemlerin maliyetinin saha verilerine göre analizi ve bu yöntemlerin uygulanması ile ortaya çıkan faydanın hesaplanması amaçlanmıştır. Bu amaçla Malatya içmesuyu dağıtım sistemi uygulama alanı olarak seçilmiştir. Uygulama alanında pilot izole bölgelerde akustik yöntemlerle yapılan denetimlerin (ekip, çalışma saati ve ekipman) maliyetleri ve tespit edilen sızıntıların faydaları detaylı bir şekilde analiz edilmiştir. Böylece uygulana yöntemin ve sürecin ekonomik verimliliği belirlenmekte ve izlenmektedir. Özellikle kayıp oranının düşük olduğu bölgelerde yüzeye çıkmayan arızaların tespit maliyetlerinin elde edilecek faydalardan fazla olması durumunda yapılan çalışmaların verimsiz olacağı anlaşılmaktadır. Bu tür bölgelerde debi ve basınç değişimlerinin izlenmesi, mevcut durumun korunması ve sızıntı oranındaki artışa bağlı olarak saha denetimlerinin uygulanması gerekir. Bu çalışmadan elde edilen çıktıların teknik personeller ve karar vericiler için katkı sunacağı düşünülmektedir.

**Anahtar Kelimeler:** Kentsel Su; Yönetimi; Sızıntı; Maliyet; Fayda Analizi.

# Dynamic Analysis and Water Demand Model with EPANET in Drinking Water Distribution Systems

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## Abstract

Providing long-term water management in distribution systems is very important for sustainable network management. The basic principle in urban water management is to deliver the desired amount and quality water to the subscribers on time. In order to achieve this, the amount of water demanded in the network should be accurately defined. In demand flow, the amount of demand according to network characteristics, leakage rates, population or number of subscribers, authorized unbilled demand flow in the region should be determined accurately. On the other hand, dynamic modeling has a very important place in network hydraulic analysis. It is very important to define fire flow rates especially in areas where critical structures (historical artifacts, wooden structures, chemical facilities) are located in the region. In the event of a fire in the region, the flow rate required for fire intervention must be provided and sufficient pressure must be created. In order to achieve this, a model in which all components are taken into consideration should be developed in the region. Therefore, in this study, it is aimed to create and analyze the demand flow and dynamic model in a distribution system with EPANET. For this purpose, an application was carried out for the pilot isolated region in Malatya central distribution system. During the establishment of the model, necessary data, modeling stages and results obtained were detailed. In the dynamic model, demand flow rates and pressures were monitored for different time periods by making fire analysis.

**Keywords:** Water Management; Dynamic Model; Water Demand; Hydraulic Analysis.

## İçme Suyu Dağıtım Sistemlerinde EPANET ile Dinamik Analiz ve Su Talep Modeli

### Özet

İçmesuyu dağıtım sistemlerinde sürdürülebilir şebeke yönetimi için uzun dönemli planlama yapılması oldukça önemlidir. Kentsel su yönetiminde en temel prensip yeterli miktarda ve kaliteli suyun zamanında abonelere iletilmesidir. Bunu sağlamak için şebeke ve bileşenleri detaylı analiz edilmeli ve talep debisi doğru bir şekilde tanımlanmalıdır. Su talep modelinde, şebeke özellikleri, abone tüketim davranışları, sızıntı oranları, nüfus, abone sayısı, yasal faturalandırılmamış kullanıcılar doğru bir şekilde tanımlanmalı ve analiz edilmelidir. Diğer taraftan dinamik modelleme şebekenin hidrolik davranışını ortaya koymak adına önemli bir yere sahiptir. Bölgede özellikle kritik yapıların (tarihi eserler, ahşap yapılar, kimyasal tesisler) bulunduğu alanlarda yangın debilerinin belirlenmesi oldukça önemlidir. Bölgede yangın çıkması durumunda yangına müdahale için gerekli debi sağlanmalı ve yeterli basınç oluşturulmalıdır. Bunun için bölgede tüm bileşenlerin dikkate alındığı bir model geliştirilmelidir. Bu nedenle bu çalışmada EPANET ile bir dağıtım sisteminde talep akışı ve dinamik modelin oluşturulması ve analizi amaçlanmıştır. Bu amaçla Malatya merkezi dağıtım sisteminde pilot izole bölge için bir uygulama yapılmıştır. Modelin oluşturulması sırasında gerekli veriler, modelleme aşamaları ve elde edilen sonuçlar detaylandırılmıştır. Dinamik modelde yangın analizleri yapılarak farklı zaman periyotları için talep debileri ve basınçları izlenmiştir.

**Anahtar Kelimeler:** Kentsel Su; Yönetimi; Dinamik Modelleme; Su Talebi; Hidrolik Analiz.

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