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INTRODUCTION:

Expanding Horizons for new Visions & Perceptions about future cities have always formed our prime concerns and ultimate intentions. This coincides with the global technological Innovations that create immense transformation in the way cities and communities organize and develop their environments... Launching our second scientific assembly, our aim is to mingle all levels of city designing concepts with the continuous upcoming technological ideas & themes, to accomplish environmental efficiency and prosperity... Thus, the conference incorporates a wide range of themes concerning Architecture design, Sustainability, Green Infrastructure, Socio-economics, Environmental engineering, BIM and themes acquiring knowledge, innovations several other and environmental technologies. The conference is jointly organized by Cairo Higher Institute (CHI) and ARCH space, in collaboration with a group of honorable international experts enriching the research community in fields of environmental, urban design and city planning...Supported by the Journal of Architecture, Arts and Humanistic Science, the conference attempts to enhance and add value for current research and produce an exceptional environment of knowledge exchange...All accepted paper will be published in scientific journals.

CONFERENCE MAIN THEMES:

- Architecture Design and Sustainability
- Green Infrastructure and Sustainability
- Environmental risk assessment in Architecture and Urbanism
- Environmental engineering, sustainability and green technology
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- Construction and sustainable management
- Energy, development and climate change
- Economy and energy in a mina region
- City Mobility and technology



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CONFERENCE DATES:

1- Call for abstract:	7 June 2022
2- Submission for abstract:	12 June 2022
3- Abstract accepted notification:	19 June 2022
4-First round full paper submission:	19 July 2022
5- Second round full paper submission:	2 August 2022
6- Full paper accepted notification:	16 August 2022
7- Conference Date:	24-25 September 2022

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English Scientific Papers



Environmental Architectural Design during the Pandemic Era: Office Buildings as a Case Study

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Abstract:

Environmental Architecture immortalizes buildings and realizes their ability to cope with sudden changes for several decades, Infectious diseases played a huge role in shaping the built environment. Throughout history, the function of those areas has changed and the interior is redesigned as well as the city, planning, and infrastructure, as occurred in the 14th century at the time of the plague's spread. Pandemics come from spreading by humans while they use the spaces as a medium in their daily activities . Therefore, spaces should play as an antiviral medium to ensure wellbeing and health today. The world is panicking at the discovery of a new pandemic that will lead to the closure of most of the outdoor activities in the inhabitant life, and the built environment has always shown the ability to develop after a predicament. One of the most common questions by users is what will happen in buildings that host roaming, mixed exploration, and spontaneous social interaction, such as office buildings? This research aims to adapt the design of the office buildings that host mixed uses to be an antipandemic environment to decrease the case of a pandemic; by integrating the science of medicine, architecture, urbanization, knowledge of modern materials, methods, and theories. As well as looking forward to advanced technology using analytical methodologies by adapting the analysis of already existing buildings altered architecturally to reduce the spread of pandemics through which a proposal can be developed to enhance the performance of office buildings in the time of a pandemic.

Keywords: pandemic, epidemic, office buildings, social distancing, buildings, adaptation



Biomimetic Approach for Thermal Performance Optimization in Sustainable Architecture. Case study: Office Buildings in Hot Climate Countries

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Abstract:

Biomimicry is an applied science that mainly depends on deriving inspiration from various natural solutions to human problems for making practical applications through the study and examination of natural phenomena, designs, systems, and processes. Historically, designers have dealt with nature as an essential source of innovation and inspiration. In future architecture, biomimicry will be applied to achieve sustainable design. Thus, the paper assumes that biomimicry is an environmental solution for optimizing the thermal performance of office buildings through the building's skin. The purpose of this paper specifically is to determine and clarify the effective indicators of applying biomimicry to the skins of office buildings in hot climate countries. This will be accomplished by discussing the general concept of biomimicry and its definitions, approaches, and levels. Then, selected examples of biomimetic skin of office buildings in hot climate countries will be shown, analyzed, and compared to determine the most effective biomimetic indicators that will be suggested to be applied to the office building skin. As a result, the effective use of biomimicry as a tool for sustainable design leads to optimizing building thermal performance, optimum thermal comfort for users, and increased productivity for employers in office buildings. Based on indicators, biomimicry as a creative approach for achieving sustainable design will support architects, students, and scholars in achieving sustainable office building design.

Keywords: biomimicry, office buildings, sustainable design, thermal performance, building skin.



Reshaping social housing spaces as vibrant places Case study: Masaken El Magzar, Mansoura, Egypt

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Abstract:

Developing a relationship to shape the integration of place-making practices in social housing spaces is the main issue of this paper; where social housing is meant to be based on fulfilling the human needs of people in their places, while place-making represents the suitable diverse, variable, and multi-scaled approach to root the social housing patterns in the urban context.

This paper aims to extract a draft code to measure the applicability of place-making characteristics of great places in social housing spaces to reach reasonable criteria for successful social housing places and to investigate the ability of these criteria to apply a new layer of socio-urban studies that deepen the relationship between man and urbanism yet enhance their impact on the environment. Through following qualitative and quantitative methods to deduct a formula to shape the relationship between social housing and place-making; to analyze human needs theories to deduct social housing dimensions; to integrate place-making principles and qualities to draft a code for social housing great places; and to investigate the application of this code on the case of Masaken El Magzar in Mansoura city, Egypt.

Based on the above, the research concludes with a proposed draft code of 3 levels, 1) basic measurements of social housing dimensions and place-making characteristics, 2) secondary requirements, and finally 3) standard indicators. The research suggests that this draft code should be investigated and activated through a set of questions to experts, shareholders, stakeholders, and parties involved in the process of establishing and remaking successful places of social housing spaces.

Keywords: Responsive Urbanism, Place-making, Great liveable places, Social interaction, Sustainable social housing.



"Biophilia as a Sustainable Design Approach for University Buildings Design: a case study in university campus drawing studios Cairo, Egypt. "

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Abstract:

University campuses have a long history of enriching the social, cultural, and economic value of societies. Worldwide, there is a rising demand for the integration of new approaches into the planning and design of university buildings to further improve their quality. According to the literature, many approaches needed to be considered while designing university buildings that can enhance students' performance. Biophilic design is known to have enhancing levels of interaction, and interaction patterns, enhancing health and wellbeing in terms of physiological, psychological, cognitive, and social/ spiritual benefits, while rigorous scientific evidence that supports such claims is rare. Many researchers have previously investigated the application of biophilic elements in working environments, however limited research is related to university building designs, specifically in Egypt. There is limited research on methods for quantifying the effect of biophilic design patterns on the physiological, and cognitive benefit. Thus, in light of the concept of Biophilia, this research aims to identify the correlations between the biophilic patterns and enhancing student performance. Survey questionnaires were administrated to a sample of students who regularly use the selected drawing studio. The extracted data will be analyzed through the use of SPSS software. This paper will benefit researchers who are interested in this field and may serve as a suitable beginning point for them and designers as well as a guideline while designing a university using biophilic patterns.

Keywords: University campus, Biophilia, Indoor environmental quality, Building performance, Thermal Comfort.



Cairo Higher Institute – Department of Architecture International Conference VISIONS FOR FUTURE CITIES Innovations & Environmental Technologies September 2022



Analysis of Sustainability Assessment Rating Systems for Existing Healthcare Buildings

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Abstract:

Sustainability is the goal pursued by societies worldwide. Existing buildings have had their share of those issues, specifically healthcare buildings, as most governments encourage green new construction and neglect existing buildings. Additionally, the benefits of existing buildings in preserving the environment, and its resources and reducing energy and global warming crises. The research objective is to achieve a high-level performance of existing healthcare buildings within a framework of evaluating the most important determinants affecting these buildings.

The paper will focus on presenting the different rating systems such as LEED and BREEAM, by dividing and analyzing these systems, given that each system has its own standards and how it scores evaluation points. As the rating systems help in improving the existing healthcare buildings and get low-negative environmental impacts; they will reduce pollution, reduce carbon emissions, choose non-polluting and sustainable materials, encourage the use of recycled materials, and control waste management.

The paper presents an approach to find out which rating system will evaluate green existing healthcare.

Keywords: Sustainability; Healthcare Buildings; Green Rating Systems



Characteristics of Iconic High-rise Buildings

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Abstract:

Iconography is a degree given to a building and an objective of its architectural design. The iconic high-rise buildings are important in various fields. Distinctiveness in skyscrapers is not achieved by chance or by exciting stories told about the building. Exaggeration in one of design elements does not achieve the uniqueness and architectural creativity. Iconicity is a product of gathering specific main cores. The iconic tall buildings have distinct characteristics that set them different from other buildings.

This paper proposes to combine the distinctive characteristics of the iconic high-rise buildings from different references to form a unified and clear methodology used when designing to achieve the iconicity. The developed methodology can be relied upon in the critical analysis of those skyscrapers to determine the degree of iconicity, and to know the reasons for the failure of some tall buildings in achieving the iconicity with a simple and systematic methodology.

Keywords: Iconic buildings, Iconography degree, Unique concept, Metaphoric form, Sustainable.



Cairo Higher Institute – Department of Architecture International Conference VISIONS FOR FUTURE CITIES Innovations & Environmental Technologies September 2022



Transforming existing Egyptian cities into sustainable cities

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Abstract:

Existing Egyptian cities face many challenges and problems that hurt the quality of life, which made it regress in the sustainable cities index, so this research aims to formulate a set of general frameworks that enable the existing Egyptian cities to transform into sustainability and achieve advanced levels in the sustainable cities index, by using of the theoretical framework of sustainable cities and the analytical framework of some models of sustainable global cities that were suffering from many problems and challenges, they became topping the lists of sustainable cities index by effective planning. The research analyzes the issues and challenges of the existing Egyptian cities and compares them with global sustainable cities, which proves that it is not impossible to reach sustainability to determine the shortcomings of the existing Egyptian cities in achieving sustainability.

Keywords: Sustainability, Sustainable cities, Existing Egyptian cities, Challenges and problems of Egyptian cities.



"Approaching a low carbon metropolis "

A study of urban transformations based on rapid transit projects in Greater Cairo

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Abstract:

Metropolis Cities play a key role in climate crises: they are the main sources of carbon monoxide and carbon dioxide emissions. They differ from rural communities in that they are communities in which different aspects of the global climate crisis overlap. And since there is an urgent and urgent need for strong interventions by city planners in order to confront these climate changes. These cities need innovative ways and systems for their planning and management in effort to reduce its carbon footprint and adjust to climate change.

A number of measures and approaches have been taken to confront the climate change crisis, but are these approaches and measures sufficient to achieve the radical transformation that our cities need.

This research paper discusses an overview of the efforts of some major cities to confront climate change in order to bring about a sustainable transformation. Is the shift towards sustainable smart transport with its various systems sufficient to confront climate changes in Greater Cairo, or do we need plans that are all integrated together to achieve indicators of city sustainability?

Keywords: Urban transformation, a low carbon metropolis, rapid transit, Mobility, Cairo.



Sustainable urban design of urban spaces in residential areas and their impact on human behavior

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Abstract:

Public spaces in residential areas can be considered as a key controller of people's behavior. As these spaces motivate people to socially interact this by the way tailor their personality and mental processes. Besides, this interaction affects the quality of life of individuals and the way they interact with the environment. Accordingly, it is essential for architects to pay more concern to the design of open areas with more consideration to human aspects rather than just physical aspects only. Moreover, the goals and principles of sustainability, especially social sustainability has to be considered. This attributed to the strong relationship and mutual interaction between human needs, design dimensions of residential open areas and principles of social sustainability. However, in some countries, including Egypt, there is a wide shortage in the proper design of open areas within residential communities as the buildings seem to be scary solid blocks. Accordingly, the individuals misally use the islands in the public streets and squares considering them as open areas. This study aims to solve this issue and avoid this misuse. One of the proposed solutions is to study residential open areas aiming at achieving human needs besides providing appropriate urban design elements. This can be performed by investigating the relationship between human needs and urban design elements in residential areas, as well as linking them to the basic principles of social sustainability because it is the link between urbanization and humanity. Moreover, the study presents a proposition to the effectual aspects that can both achieve a successful design of public spaces and fruit human welfare. These aspects include geographical, physical, psychological, and managerial concerns .Each aspect was divided into several requirements. Then, the proposed relation between human needs, principles of design and sustainability to residential open areas is correlated through the satisfaction of these requirements. In order to examine the efficiency of the excluded principles the people's park were taken as a case study.

Keywords: Public spaces, urban design, residential areas, people behavior, human needs, social sustainability



Sustainable Quality-of-Life in Neighborhoods: Bridging the Gap Between Satisfaction and Performance in four types of neighborhoods in GCR - Egypt

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Abstract:

Urban sustainability and quality of urban life are two norms concerning the evaluation of neighborhood in term of performance and satisfaction, respectively. Urban sustainability aims to enhance economic, environmental, and social aspects for current and future generations, it depends on objective measures of performance to ensure that sustainable community perform well. On the other side, Quality of life aims to ensure residents satisfaction about their community in recent times. Isolating sustainability indicators from the practical context of resident's satisfaction and their aim for high quality of life may cause ignorance and low applicability of sustainability. On the other side, applying quality of life, may be associated with negative impacts on sustainability. Accordingly, urban sustainability is met with public ignorance by residents and practitioners, due to people most concern for high quality of life. The reason is the lack of considering residents satisfaction in assessing urban sustainability. An involvement of resident's satisfaction with quality of life as key factor in achieving urban sustainability is required to establish an applicable social sustainable quality of life guideline for urban development.

The research depends on a case study of four types of neighborhoods to provide clarification of three interlocking concerns, trace how urban sustainability behavior and quality of life satisfaction varies across neighborhood categories, define the relation between quality-of-life satisfaction and sustainability performance and define how neighborhoods urban form can compromise to build sustainable quality of life. The results found that satisfaction does not emerge as an important predictor of sustainability, it failed to find significant relation between residents' satisfaction and social sustainability. It is found that both traditional and new planed NHs stands short against achieving sustainability in term of satisfaction and behavior, respectively; compared to early planned NHs that achieve optimized values of sustainable quality of life.

Keywords: Urban Sustainability (US), Quality-Of-Life (QOL), Sustainable Quality-Of-Life (SQOL), neighborhood design, Greater Cairo Region (GCR).



The Search for a New Theory of Sustainable Architectural Design: Breathing Architecture

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Abstract:

To maintain the reduction in fuel consumption and the need to modify the techniques concerning climate change new ideas for example "Parisian worker gardens", New York's "community gardens", and "vegetable squares" of Muscovite, come into the picture. The city aims to produce more clean energy than it consumes within fifteen years for a positive energetic assessment. The city plans to shift more towards renewable energies for example photovoltaic cells, biomass, green architecture such as walls and roofs, etc. The new architecture should also follow these green technologies and methods.

Methodology—The methodology of this paper is based on a qualitative research format for findings and results, depending on:

Data collection, Data Analysis, Theoretical analysis and analytical cases studies integrating the interdisciplinary fields of green technologies and sustainability.

Thus, producing a new language of architecture based on the dynamic relation among materials, structures and finally a new spatial idea. Empirical application and study. Besides rational comparisons and conclusions.



Nanomaterials in facades A Tool Towards Environmental Sustainability in Egypt

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Abstract:

The world is witnessing a comprehensive change for all lifestyles as a result of nanotechnology, which caused revolution in the field of finishing materials it has become one of the important tools for the architect in his buildings to achieve his ideas and strive to improve the efficiency of the energy system. To reach an integrated system for a sustainable Nano-building, Nanotechnology has provided many applications that helped the development of architecture by providing solutions for many materials, Non-structural (insulation materials - coatings - glass...) and others. The quest to improve the efficiency of the energy system in terms of rationalizing the energy consumed to cool interior spaces, in addition to improving and removing environmental pollution.

Nano-thermal insulation is helping to improve the lives of millions of people in developing countries by providing them with materials with distinctive properties that help in thermal insulation of the building.

Nano materials can be used in the cladding of buildings to contribute to achieve thermal comfort for users as one of the principles for sustainability "achieving economic specially in countries suffering from.

The research paper sheds light on the applications of nanotechnology in the field of energy efficiency of through an analytical study for different projects cases.

Keywords: Nanotechnology - Nano materials - thermal insulation – Building facade.



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Lean and green approach as a tool for the Environmental Performance assessment of Industrial Area: A Case Study: Shaq Al-Thoaban area

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Abstract:

The research aims to evaluate the environmental performance of industrial areas using the Lean and Green portal by reducing waste generated by industries and striking a good balance between operation and environmental performance. Indicators including labour force (MP), raw materials (Mt), economic cost (Mo), machinery (mc), and the environment have all been researched as ways to accomplish this (mv). The study's findings revealed that the value of the environment index is just 22%, a very low percentage that denotes neglecting the environmental component in favour of striking a balance among the other factors. The Lean & Green index has a value of 32%. It shows the bad performance compared to the global scale. A number of decisions have been taken in an attempt to improve the performance of industrial regions and achieve balance between different dimensions.

Keywords: environmental assessment, environmental performance, lean and green index, Industrial area



Health Promoting Qualities Framework for Blue and Green Landscapes: Applying Perceived Restorativeness on a Case Study of Nile Riverfront in Greater Cairo Region

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Abstract:

Blue and green landscapes contribute to the quality of life of cities in different positive ways. It has environmental, social, and visual benefits that affect directly the physical and psychological health of city residents in one way or another, in addition to providing ecological benefits for their surroundings. There are plenty of previous studies that investigated the different health characteristics of blue and green spaces. However, there is still a need for more interdisciplinary studies to measure the long-term effect of blue and green landscapes together on the health of their users. Therefore, the presented study aims to investigate and measure the direct impact of blue and green landscapes on the health and wellbeing using Perceived sensory dimensions (PSDs) and perceived restorativeness scales (PRS). The research adopts both qualitative and quantitative analysis as a methodological approach. It follows a methodology that consists of three parts. First a critical review of relevant literature focusing on different theories related to health qualities of landscapes. Then the second part is identifying different healthpromoting aspects and qualities of waterfront green areas. Finally, investigating the concluded qualities empirically and their impact on the health of its users using a case study research design for selected areas on the riverfront of the Nile in Greater Cairo Region (GCR). Accordingly, the study develops a framework to adopt and assess the health benefits of riverfront green areas. The work points out the potential of blue and green landscapes for achieving restorative qualities and enhancing health of residents in contemporary cities.

Keywords: Blue and green landscapes; Riverfront; Perceived Restorativeness Scale; Perceived Sensory Dimensions; Attention Restoration Theory; Supportive Environment Theory.



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Green roof awareness, opportunities, and challenges in Egypt

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Abstract:

Many Egyptian cities are influenced by environmental stress from air pollution, noise, traffic jams, and the scarcity of green spaces. Green roofs represent one of the ways to achieve sustainability as a result of the environmental, social and economic benefits they provide. The research aims to identify the most important roles that green roof technology can provide and to identify the challenges it faces in the Egyptian market. This research deals with the study of the awareness of Egyptian professionals in the various fields of the built environment with green roof technology, its capabilities and difficulties. The research concludes with a set of recommendations aimed at trying to overcome these difficulties in order to maximize the use of green roof technology.

Keywords: green roof, urban agriculture, multifunction, green infrastructure.

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Sponge cities technology: Guidelines for Applying in Egypt

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Abstract:

Cities are currently facing major and severe threat of environmental stability that many researches focus on finding ways to help save, protect cities, and bring back local biodiversity and human breathtaking places. Also achieving resilient cities as one of the SDGs has been a main concern for recent development strategies and researches. Furthermore, multiple planning solutions have appeared to guarantee sustainability and prosperity. This paper introduces Sponge cities as an urgent effective technology for sustainable green cities and one of the recent terms and inquiring strategies for overcoming devastating outcomes of climate change. China, being the first leading country in applying the sponge city technology, has considered it as a necessary design concept and basic measuring criteria for ecological urban development. This technology aims to make maximum use of natural water resources providing an integrated system of environmental performance at the same time, it seeks to protect cities from the dangers of floods resulting from severe climatic changes. This study proposes how can sponge city technology be applied within Egyptian cities; it aims to set a group of guidelines for urban development of local environments in order to prosper and overcome environmental disturbance of climate change. A fast review on definitions and objectives is presented. Then the study determines briefly the main design features and techniques for such technology. Moreover, the paper focuses on specific global experiences for Sponge cities with various objectives and different conditions. These experiences are presented through an analytical study to explore their objectives, construction techniques, impact, future vision and performance. Further on it deals with the Egyptian status to apply the proposed technology on local areas acquiring a pathway to resilient ecosystems.

Keywords: Sponge City Technology, Climate Change, Resilient Cities, Sustainable Development, Infrastructure Solutions.



Taking advantage of single patient rooms as a major support for the healing environment system in Egyptian hospitals

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Abstract:

It is highly recommended to put the healing environment into consideration during the architectural hospital design process, due to its major effects on patients' wellbeing outcome and the staff and visitors' satisfaction. The healing environment components include (for example but not limited to): - The social support measures such as private seating area for family groupings and accommodation zones for family members. - Eliminating patient stressors as (reduce noise, enhance privacy concern, vary light levels to reduce the negative feeling and reduce eye fatigue). - Positive distraction such as (music, entertainment, colour). - Sense of personal control such (lighting level, room temperature). - Engender feelings as (peace and hope, reflection and spiritual connection). - Connecting the patient to the natural surrounding views such as (water elements, outdoor views)[1-6]. This study will review and indicate the necessity and importance of implementing the single patient room system as one of the major elements of the privacy factor, which is included in the healing environments of hospitals[4, 7-11]. Additionally, this work will analyse the risks and disadvantages of using multiple patient rooms in the health care system in Egypt and Arab countries.

Keywords: Healing Environment, single patient room, healthcare facility design, and patient room design.


Sustainable shelters for temporary communities, a case study of refugee children in North Syria.

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Abstract:

Civilians are sometimes displaced internally and, other times, externally. Especially children, where children are the weakest victims in these crises, they cannot defend themselves, and many of them lose their families. All they remember from their lives is the destruction, they become in corrupt psychological states, and they need complete health care again. Moreover, when this occurs, there is frequently a late or not efficient response to it, meaning that these people will often be standard in open areas or dangerous areas without receiving proper aid. This can be attributed to the unexpectedly large number of people and how fast they flow or move. This research tries to tackle this subject by providing them with a facility that would soften the fall and be a flow regulator efficiently. The research will study the data revolving around the children's displacement of civilians in Syria. Producing design ideas will follow as a repeatable model to accommodate homeless children. This proposal aims to protect and rehabilitate these children who were absent from their families for several reasons. The research shows that the role of the architects in these emergencies is no less critical than any doctor who helps heal the wounded people affected by these disasters or the soldiers who help in fending off catastrophe.





Environmental health risks assessment to PM10 exposure from petroleum refining activities: a case study of (CORC), Mostord, Egypt

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Abstract:

(PM) Particulate matter is frequently cited as a cause of sickness. It is a confusing combination of various chemical Aerosols and solids composed of tiny fluid, dry solid broken pieces, and solid particles pulps utilising liquid composites. For the goal of regulating quality of air, particles are classified by their diameter despite their vast variation in size, shape, and chemical makeup, Those Particles with a size of ten microns or less (.P.M10) can enter the respiratory system and endanger one's wellness

This study's objective is to describe the particulates (PM10) that emissions from petrol eum refining in the Mostorod area produce., to obtain measurements of the concentrations of particles in the residential areas surrounding the oil refinery, to assess the extent of its danger to the health of the population in these areas, and to set requirements to limit the effects of these emissions on population health.

Keywords: PM10 - Human risk assessment -health risk assessment – Exposure - Air pollution - CORC



Exploring the different technological qualities of dynamic configurations in smart sustainable urban spaces

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Abstract:

Urban spaces are mainly designed for people to improve their quality of life by encouraging physical activity and social interaction. However, digital and smart technologies are now regarded as the primary supporter of any development, particularly in urban spaces, because it drives development in three areas: the development of materials, systems, and tools, which comprise the smart urban space.

<u>Purpose</u>: The paper explore the different technological qualities forming smart sustainable urban spaces through identifying the different dimensions which must be followed to achieve a proposed framework for creating and developing smart sustainable urban spaces.

<u>Argument:</u> The paper focuses on the technological qualities forming smart sustainable urban spaces and their different dimensions, through literature review. In addition to studying and identifying the different technologies configuring smart sustainable urban spaces to reach the relation between the main qualities which form smart sustainable urban spaces, their different dimensions, the digital tools and smart technologies.

<u>Findings:</u> A proposed framework will be conducted to explore the relation between the main qualities which form smart sustainable urban spaces, their different dimensions, the digital tools and smart technologies to create smart sustainable urban spaces.

Keywords: Digital tools and smart technologies, qualities and dimensions of smart sustainable urban spaces, dynamic configuration, human needs



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Sustainable Building: To Achieve Thermal Comfort in Highly Glazed Buildings Using Smart Glass

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Abstract:

The conventional building design provides static solutions for the building envelope, although climatic characteristics are variable parameters, which leads to a discrepancy between building and environment, and hence an uncomfortable thermal environment for occupants. Accordingly, the external facades of many conventional buildings have become a thermal burden on their occupants, necessitating mechanical solutions to achieve thermal comfort, which negatively affects the environment and causes energy crisis, air pollution, and global warming.

It is hypothesized that the usage of smart glass in the building envelope can provide optimum solutions to adapt buildings to the variable climatic and environmental characteristics, thus enhancing the users' thermal comfort and, moreover, contributing to achieving Sustainable Development Goals (SDGs), which seek to improve health, tackle climate change, and responsible energy consumption. This is approved by simulating a high-glazed office building using DesignBuilder software in its base case and after applying the proposed smart glass techniques. Then cooling loads are calculated to investigate energy consumption efficiency.

Keywords: Thermal Comfort; Smart Building Envelope; Smart Glass; DesignBuilder



The effect of using vegetated façades on CO2 emissions in multistory residential buildings, in cold semiarid and a hot arid climate

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Abstract:

CO2 emissions are known as carbon emissions and they are increasing globally, so measures must be taken to reduce their emissions and find solutions that mitigate the effects of high rates of emissions. CO2 emissions are currently increasing, and the construction sector is the largest source of these emissions, accounting for 39% of total emissions; therefore, CO2 emissions must be reduced as much as possible. The research aim is to study the effect of applying vegetated façades, in multistory residential buildings on the CO2 emissions under two different climates, cold semiarid and hot arid. The tool which is used is a DesignBuilder to evaluate the CO2 emissions. Thermal insulation contributes to reducing the carbon footprint of the building and consider as an additional layer applied to the bare wall façade as the same as the vegetation layer therefore in this research the comparison will be between the use of insulation materials and green façade with a bare wall façade of residential buildings to determine the effectiveness of using vegetated facades in reducing CO2 emissions. The study found that vegetated facades reduce CO2 emissions from 36.2 to 51.4 in cold semiarid climates and from 18% to 37.6% in hot arid climates.

Keywords: Vegetated façade, CO2 emissions, Residential buildings.



The Proportions Code and the Environmental Aspects as a Design Generator for the Minarets in Cairo of the Mamluks

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Abstract:

One of the logic approaches to improve the contemporary design criteria of the Minarets understands the design methods of the built Minarets of Mamluks. To demonstrate how the geometrical proportions and environmental aspects played the role of design generator which remained the backbone of the process of "designing" a geometrical analyses of various designs of Mamluk Minarets were presented by concentrating on the derivation process of the design idea. By geometric morphological analysis of 20 Minarets a not fixed certain proportional relationships were found. The study depended on analyzing the proportions of the geometric shapes and the Minarets heights in relation to the whole composition to suggest the proportions code and the environmental principles, which may be considered as the inherent design method that govern the design of the Minarets in Cairo of the Mamluks. The research reached to suggest a design generative technique; this technique is a combination of architectural grammar which can be understood as a bundle design principles which formulate a design guideline. This technique illustrates how Mamluk architects proceeded to apply the proportions code and environmental principles to the practical problem of Minarets design, the research name it 'Unwritten Design Method', which is orderly and methodical arrangement of proportions to produces the Minarets design.

Keywords: Proportions Code, Environmental, Minaret, Mamluk



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The Effect of Using Green Walls in Enhancing the Imageability of Urban Spaces

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Abstract:

Abstract. Recently, the usage of green walls has expanded from providing aesthetic benefits to concentrating on addressing urban environmental concerns including wastewater treatment, in this way enhancing the effectiveness of green buildings. The paper explores the green walls systems and their different types and identify the various benefits of their utilization as an enhancement of the not only on the buildings scale but on the urban scale as well. In addition, the study target to demonstrate the fundamental aspects that affect the urban spaces imageability. From this viewpoint the main objective of this paper is to conduct a guideline showing how green walls system can fulfill the different aspect of imageability resulting in enhancing the imageability of urban spaces.

Key words: Green walls, Green facades, living walls, imageability, urban spaces.



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Parametric study on Environmentally Friendly Blast wall systems

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Abstract:

Protecting people and structures against blast loading that can happen due to several reasons such as wars, terrorism or even accidental explosions, has become of great concern during the last

decade. Blast walls is considered as one of the most effective ways to protect important structures against such hazards. However, limitation in technology of construction using high –technology blast wall systems are a huge obstacle specially in developed countries. Moreover, using high-technology materials in construction industry are very polluting process along with the high expenses during construction phase. As a result, designers tend to propose solutions with readily available materials for blast wall construction, to minimize construction effort as well as decrease its environmental impact. In this paper a parametric study is conducted to draw the attention on using simple blast wall systems in dissipating the blast shock wave energy and assessing its performance.

Keywords: Blast, blast wall, OSB, sand, sustainability.



The Ladder of Emotional Mapping: Visualizing emotions for planning inclusive cities

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Abstract:

Many countries in the modern era strive to keep up with the world's rapid development in many economic, environmental, and social aspects, particularly on the urban scale and city planning, as well as competition for access to the highest levels of luxury in terms of buildings, designs, and iconic buildings that distinguish each country in the media from its counterparts from neighboring countries. in the region, and possibly internationally. Some countries were forced to relocate a number of their cities and capitals, as well as develop new alternatives for them in new places. In the context of implementing these strategies, decision-makers overlook the social and emotional dimensions of citizens, making it difficult for planners and those involved in the design process to understand the human requirements and needs of the user, resulting in the neglect of many aspects that citizens require, such as the design of the urban environment, planning of public areas, and green open spaces.

This paper aims to highlight the importance of taking the emotional side of the user into consideration and integrating them into the decision-making process through participatory planning to develop decision-making strategies that include the preferences of all stakeholders in the planning process.

Keywords: participatory planning, decision-making, emotions, inclusive cities



The Role of Human Needs in Urban Renewal and Development of Urban Spaces for City Centers

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Abstract:

Urban space is a complex and multifunctional mechanism that people move like cogwheels. When the movement slows, mechanism stops and places become abandoned and dead. Public space is the vital part in this mechanism, including everything that surrounds us: paths that we pass every day on the way to work or school, parks that we use for leisure and interaction with nature, squares and other meeting points where we gather to socialize, as well as quiet places to seclude from the rush. All of these elements are very important in daily urban life. I believe the quality of urban life is very closely connected to the presence and quality of public space, where people feel the bond with the city and its people. In other words, it is like an ancient Greek Agora. Human needs are regarded as one of the most important factors that governs the designing of urban spaces, especially in city centers, in order to fulfill the immediate needs of the inhabitants of such spaces, such as security and safety, visual comfort, thermal comfort, etc. However, the attention dedicated to human needs in the designing of urban spaces is quite limited in relation to the other design aspects, despite their great importance in creating a successful urban space.

In this regard, this paper conducts a study of city centers and the stages of their historical development over the ages, indicating the causes that led to these developments. Subsequently, the paper conductus a thorough investigation of urban spaces in terms of their definition, importance, classification, components, and characteristics, in order to deduce the conditions governing the success of these spaces. Afterwards, the paper investigates the behavior and needs of individuals and inhabitants within such urban spaces.

Finally, the paper concludes the mutual relationship between the components of the urban space and the fulfillment of the needs of the inhabitants of such urban spaces in city centers. The paper also determines the extent to which urban spaces impact on the behavior of individuals and inhabitants.

And then applying that study to the center of Abu Dhabi city, as it is one of the best Arab cities that cares about the human needs of users and applying it to Egyptian cities in future research.

Key words: City Centers, Urban Spaces, Human Behavior, Human Needs



Social Sustainability in Residential Communities

"The Quality of Life through Users' Behavioral Attitudes"

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Abstract:

This study investigated the quality of life (QoL) in residential communities through residents' behaviors and how it could affect the social sustainability of the urban environment. Four individual aspects have been discussed; opportunities and constraints, Land use encroachment, satisfaction, and models of relations between users and their urban environment.

A convenient sample of subjects has been chosen, and the merging method "Swapping tools and attitudes" has been chosen to apply its procedures in the fieldwork of the selected case studies. The determined indicators have been evaluated in each case study, and a comparison has been held to evaluate the findings of each setting. The selected case studies are;

Al Rehab City, New Cairo. Zeinhom Residences - El Sayeda Zeinab.

Perceived barriers were found to have direct and indirect effects on human well-being. Recognition of the differential roles played by environmental attributes, residents' satisfaction, and use patterns can help guide planners and designers to create outdoor spaces that enhance urban residents' wellbeing.

Key words: Social Sustainability - Quality of life – Residents' Perception - Individuals behaviors.



Health Justice: The Entanglement of Quality of Life and Neoliberalism

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Abstract:

Covid 19 pandemic sheds light on the entanglement of urban planning and public health in neoliberal urban contexts with special attention to justice. "Good health and wellbeing" is one of the sustainable development goals. This article argues that neoliberal urban practices result in a good Quality of Life for privileged populations, but negatively affect the vulnerable and lead to health injustice from the perspective of urban planning. Hence, Quality of Life is negatively affected since health is a crucial aspect within the discipline of Quality of Life. The spatial determinants of health-related Quality of Life are essential to be considered when speaking about justice in cities. This article aims to promote health through raising awareness of these spatial determinants and suggesting some recommendations aiming for the prevalence of health justice.

Keywords: Neoliberal Urban Practices, Health Justice, Quality of Life



Towards New Scenario for Sustainable Coastal Tourism "The role of the Internet of Things (IoT) application for Smart Sustainable Destination"

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Abstract:

This paper investigates an analytical study into the different approaches to using the Internet of Things (IoT) as a smart management application for sustainable tourism development and its foreseeable future evolution as a smart management approach. The idea that the use of such new technologies can be a promising practical approach that different destinations can adopt to solve some of current tourism's challenges and negative impacts on the urban environment, especially coastal sensitive environment. The research aims to study how smart technologies could change the way tourism organizations and stakeholders are developing the way they collect data about current environmental status and how they communicate with their guests "targeted tourists", through studying the impact of applying IoT on enhancing the sustainability of coastal tourism and the quality of tourists' experiences. Therefore, the Delphi technique has been applied to determine the opinions of experts regarding the smart tourism destination approach and new management tools; their advantages, limitations, and expected effects on the management process, in addition to the marketing of coastal tourism destinations. This anticipative analysis highlights the potential of the impact of IoT in the coming years, which could help in identifying the substantive elements that could shape this future scenario of destination management, their potentialities and constraints for future studies by building a bridge between scientific knowledge and practical development plans, and how a systematic model for smart destinations can facilitate the management process for stakeholders.

Keywords: Internet of Things (IoT) - Sustainable Coastal Tourism - Quality of Experience - Technology Forecasting.



BIM & BEM for a Net Zero Energy house model Case Study: A Housing Unit in Riyadh, SA

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Abstract:

Net Zero Energy Buildings (NZEB) are becoming more and more important with the global sustainability movements and energy crisis which increase the need to reduce carbon emissions and energy consumption. The development of Building Information Modelling (BIM) and Building Energy Modelling (BEM) techniques and applications increase its capabilities to support designers in their trials to cope with such movements during the design process and proved its benefits in the Architecture, Engineering and Construction (AEC) industry and used in multiple purposes efficiently. However, the status of the documented trials to achieve a NZE is in its modest situation. This represents a research gap and the intensive for this study that aim to invest the capabilities of BIM and BEM applications to reach a NZE house model in Riyadh, Saudi Arabia. The study adopted a descriptive and experimental approach to apply the NZE concepts on a house model using Revit, Green Building Studio and Insight applications. The reached model could reduce the normal yearly energy combined consumption by about 40% and proved that the building could produce more energy than it consumes.

Keywords: Building Information Modelling (BIM), Building Energy Modelling (BEM), Net Zero Energy Buildings (NZEB), Building Performance Simulation (BPS).



Comparative Analysis between different types of Responsive Design Approach: (Applicability to Use in Different Climatic Regions in Egypt)

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Abstract:

Building and environment integration are necessary to be enabled, and advanced systems must work together to deliver optimal performance in terms of energy comfort and health. Above all, the area where building technology and services overlap, i.e. responsive building components, has great potential to realize the next step in energy efficiency by realizing comfortable indoor and outdoor environments in unprecedented ways. Recent studies have shown that an important reason for introducing new methods as population density increases is to reduce environmental damage. Energy consumption in the built environment accounts for approximately 40% of final energy consumption. In addition, external factors that affect building performance are analyzed, as: Overall building impact, energy consumption, pollution, climate change. To achieve sustainability, it is proposed to use and implement the latest in smart materials and responsive system technology. The results of the dynamic thermal behavior analyze performed in the Building Concepts building simulation tool are then translated into energy, sustainability and cost performance indicators, allowing the user to generate information based on the most relevant factors. This paper, therefore sheds light on new design and construction methods that enable buildings to interact with their external environment and achieve architectural responses to surrounding variables. This study aims to clarify the importance of responsive his architecture to improve the built environment and the appropriate type of envelope based on climate data, applicable to different climatic regions of Egypt. The results confirm that implementing responsive envelopes has a positive impact on improving performance.

Keywords: Responsive systems, Human interaction, built environment, Design efficiency.



Benefits and Challenges of integrating IoT, VR & AR With BIM-based Facility Management process Literature and case-based analysis

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Abstract:

With the emerging technologies of the fourth industrial revolution (4th IR), there are more possibilities to enhance the facility management (FM). Despite the increasing tendencies to integrate new technologies in the process of FM, its potentials in enhancing the BIM-based FM decision making process is not yet totally explored and its application is facing many challenges that should be considered. This paper aims to explore the benefits and challenges of integrating the Internet of Things (IoT), Virtual Reality (VR) and Augmented Reality (AR) to enhance the decision making in the FM process. The paper adopted a descriptive methodology through a comprehensive literature and case-based review to achieve its objectives and concluded that integrating the IoT, VR & AR in the FM process and handling its related challenges from the early stages could greatly enhance and support the FM team and the FM related parties in making quick, accurate and effective decisions, saving energy & cost and optimizing the use of resources.

Keywords: Fourth Industrial Revolution (4IR), Facility management (FM), Operation and Maintenance (O&M), Building information modeling (BIM), Internet of things (IoT), Virtual Reality (VR), Augmented reality (AR).



Green Building Information Modelling to Raise the Efficiency of a Residential Building in the New Administrative Capital

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Abstract:

Recent economic and population growth patterns in Egypt almost guarantee that energy consumption and emissions will continue to rise rapidly if nothing changes. According to the United Nations Development Program, Egypt's energy demand will have been triple by 2030. Additionally, Egypt's total emissions from energy use have been increased eightfold since 1971. The construction industry has been pushed to adopt sustainable building strategies, and the consensus among researchers and practitioners is that the most important phase to make decisions about is during the early stages of design. Arguably, high-performance buildings require a different design mechanism than traditional methods to achieve a holistic, sustainable outcome. Indeed, Building Information Modelling (BIM) can greatly facilitate the informed sustainability in buildings. Although BIM and sustainable design emerge from different underlying factors, they share an important common thread: the success of both depends on large part of building design philosophy loaded from the start. In fact, BIM can greatly facilitate the informed sustainability in buildings. Within the framework of reviewing the literature, researchers concluded the importance of BIM in the early stages of building design. The authors conducted an applied case study to evaluate a residential building in the new Administrative Capital in Cairo, Egypt, and concluded a set of design upgrades to raise the energy efficiency of the building and reduce carbon emissions from operating energy.

Keywords: Building Information Modelling, Green Building Information Modelling (Green BIM), Energy Performance Analysis, Building Energy Modelling (BEM), Energy efficiency, high-performance buildings.



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Setting an agenda for AI adaptivity in Urban and Architecture elearning S. K. ¹, L. G. ², F. H. ³, A. G. ⁴, M. H. ⁵

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Abstract:

The rapid spread of technology and learning systems have altered the viewpoint about the lack of E-learning to the human element. The intersection of AI and education is highlighted by many technologists and researchers showing the diverse possibilities and challenges of using AI in education. However, little research addresses the potential of using AI to create an adaptive e-learning experience that brings a fully personalized experience to e-learners in architecture and urban educational fields.

Building on that, we postulate that adaptive AI learning could be useful for urban online teaching and urban development MOOCs, specifically as urban planners need to explore different scenarios of future city making. Therefore, the aim is to explore how educators from the architecture and urban field E-Learning stakeholders perceive AI in the creation of urban Moocs as well as other online teaching activities, as well as address the ways in which adaptive learning can be created in urban e-learning MOOCs using AI.in attempt to answer what is the current perception of educators about AI adaptivity in e-learning?

To achieve this, first, we review the literature available on the topic to provide a comprehensive and inclusive look at adaptive AI learning, its potential, and its challenges. This overview informed and guided the formulation of the survey questions. Then we conducted a survey on educators in Architecture and urban fields from universities in Egypt. The unfamiliarity of the participants with AI provides us with deeper insights into perceptions of educators' AI adaptivity in online learning and MOOCs.

The study develops a framework for adaptive e-learning using AI in an attempt to create more interactive and personalized e-learning experiences that can be used in different fields and for different types of learners.



Transformation Of Urban & Architectural Qualities In Old Cities In Oman Over A Decade

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Abstract:

Cities have been expanding over the years, transforming and evolving with all the new technologies being introduced, and this has affected the layout of the city physically, culturally, and environmentally. In certain regions, such as the Sultanate of Oman, this has resulted in the creation of urban sprawl, abandoning some buildings, neighborhoods, and villages, and losing the urban and architectural qualities that represent the original identity of the place. Research has shown that multiple initiatives by the community have been made to rehabilitate some of those structures.

This study aims to examine two case studies in the Sultanate of Oman and show the transformation in the urban and architectural context of the existing structures over the past decade. A combination of qualitative data collection methodology was used, including on-site observations, analysis of primary and secondary data, and interviews with locals experiencing the changes over the years. The results showed that there was a strong interrelation between the desire of living in a high-tech environment and rooting for their origins. Also, the built structures and their uses reflected the awareness of the different generations about the quality of space. Further research would help identify the factors that could create the right balance between a contemporary living quality and the original character of the place.

Keywords: Architecture, Urban Heritage, Sustainability, Rehabilitation, Ecotourism



Influence Of Landscape Elements on Visual Design Elements in Order to Enhance the Visual Quality of Urban Spaces

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Abstract:

The research and development process for the physical structure of the built environment includes a lot of consideration for the visual quality of urban environments. It creates a welcoming and fulfilling environment for the community. Positive impressions and meanings will encourage the community to respond favorably to its urban area when there is a strong visual representation of the urban environment. The goal of this study is to identify the most effective landscape components that influence aesthetic appeal and help urban space designers make better choices. From this vantage point, the study seeks to pinpoint the landscape and visual design components that improve the aesthetic value of urban areas. The main goal of the paper is to develop a prospective framework for urban designers and architects to assist them in future decisions with regard to designing landscape elements that enhance the visual quality of urban spaces. To achieve this goal, the paper will rank the most effective landscape elements according to their influence on the visual design elements from the experts' (urban designers and architects) point of view.

Keywords: Landscape elements, visual design elements, expert's perception, effective landscape elements, visual quality



Sustainability assessment of a slum upgrading intervention in Ghait El Enab, Alexandria, Egypt.

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Abstract:

A sustainable city is largely related to how well the infrastructure is developed which is important to encourage economic progress and decrease poverty. In 2012, UN-Habitat has established the City Prosperity Index (CPI) as a multi scale sustainability measurement tool extending from national urban policies to sub-cities. This article demonstrates the use of the City Prosperity Index (CPI) to measure what has changed in the infrastructure dimension of the Bashayer El Khair 1 (BK1) project in the Gheit El Enab area in Alexandria before and after upgrading.

Keyword: sustainability, slums, CPI, slum upgrading, Ghait El Enab.



"How does the interior design of learning spaces impact the students` health, behavior, and performance?"

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Abstract:

<u>The importance of research</u>: human beings are greatly affected by their surroundings, especially in learning spaces. Lighting, colors, seating arrangement, and other factors all have a physical and psychological impact on students, which is reflected in their behavior, and performance.

Research problem: Although there have been previous studies that have linked a student's behavior to the interior design elements of the learning space, there is no extensive, combined study that can guide the design of university educational spaces to achieve the highest possible efficiency for the students.

<u>Research Objective:</u> Set criteria to assess the learning space; This standard states whether or not a learning space can provide an appropriate learning environment that can help students physically and psychologically.

<u>Research methodology:</u> (theoretical approach) relied on a review of previous theoretical and practical studies to gather sufficient information to determine the criteria for evaluating each element of the educational space and how it impacts students, this is shown by presenting definitions of human behavior and how it is influenced by the built environment, and then used to illustrate how the interior architectural design of the educational space impact students, reaching the ideal status for each element in the final table. (analytical approach) in which a questionnaire was conducted for students as a field study and then analyzed for results.

<u>Results</u> showed that many existing educational spaces have problems with interior design elements. Some of these problems, such as lighting, ventilation, and temperature, can be avoided from the beginning by orienting educational spaces correctly and thus obtaining adequate natural lighting, ventilation, and temperature without having to rely on industrial means. Noise can also be reduced if a suitable location away from the noise is chosen, as well as careful selection of finishing materials of sound insulation material. On the other hand, the color of the white wall, which many studies have confirmed harms the space users of students and teachers but is still used, is a problem that is easily avoidable but still recurring. It is preferable to use cold or warm colors instead. The significance of this research is in assisting in the creation of a suitable educational space that meets the needs of students while avoiding all of the problems mentioned above in many educational settings.

Keywords: learning Environment, Students Behavior, classroom setting.



Guidelines for Urban Quality Assessment to Uplift Sustainable development of the Built Environment. Case Study of AL Rehab Neighborhood

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Abstract:

A high-quality built environment with is an urban environment that is bound to grow healthy and strong in the turmoil of time and crisis. Egyptian society had always been one that holds values that create a strong urban built environment strongly social and engulfed with the unbreakable bonds of culture and history. But there have never been the proper assessment guidelines for urban quality elements to aid an integrated fully functional sustainable development plan. this research paper presents guidelines for urban quality assessment to uplift sustainable development. Developing countries are in desperate need of new techniques to improve the quality of their urban quality, the lives of people drastically changes when they feel as one with their community. The culture and personal needs of the Egyptian urban community should be taken into consideration to improve the quality of urban life.

Keywords: urban quality, dimensions of urban quality of life, urban quality assessment, built environment, sustainable development, standards of living, quality of life.



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A Review of Inclusive Design and Multisensory Interactions Studies and Applications in Public Spaces.

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Abstract:

Inclusive design (ID) is one of the innovative strategies contributing to understanding public spaces designed for occupants' diversity and needs. This paper aims to provide an overview of the importance, procedure, and future scope for evaluating multisensory interactions while applying ID principles. Through this work, it is possible to move the knowledge forward to participate and fill the scientific gap related to the two concepts of multisensory perception and inclusive design in public spaces for all the people with special needs concentrating on visually impaired people. The focus of this paper is organized into three parts discussing both concepts: (1) a thorough review of the literature from 2002 to 2022; (2) a review of data collection and processing techniques; and (3) a review of the research studies motivations, implications, and its future scopes and applications.

Keywords: Inclusive design; Multisensory interactions; Visually impaired people; Public spaces; Data collection; Processing techniques.



Comparative Analysis of River waterfront Urban Spaces to enhance social interaction: Case Study of Mamsha Ahl Masr in Cairo

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Abstract:

River waterfront is one of nature's elements which used as an additional buffer separate between the river and area around to create public space to let the society enjoy the riverfront in general it's included parks, walkways, Services and other enjoyable recreational areas.

The paper indicates the principles and the aspects of the riverfront development that play an important role in the improvement of the quality of life for the human who interact with these types of development projects as representing them in the matrix especially in Egypt.

The research aims are to measure the scale of development of river waterfront in Cairo by analyzing the aspects and principles to riverfront development and how they are applicable along the riverfront by comparing the development of the riverfront globally and locally.

Finally, the paper expressed in the literature review the terminologies of the river waterfront and the principles and aspects of the river waterfront development to extract from them a matrix discusses the relation between them with the SDG'S. then, the subsequent analysis of the international case studies of the riverfront development around the world to use it to modify the matrix conducted from the literature review and to establish a comparative analysis to measure how much the principles and aspects of the riverfront development applicable especially in the selected case study area (Mamsha Ahl Masr).

Keywords: River waterfront – Sustainable Cities and Communities – Activities – comparative analysis.



Applications of smart material to enhance daylighting as a tool to improve sustainable of atriums

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Abstract:

Helwan University.

Applications for smart building materials include making them more environmentally friendly, better able to suit user needs, and less likely to cause environmental issues. This kind of material has been suggested recently, following great scientific advancements and novel sustainable architecture techniques, as smart materials that allow controlled transmission of light and heat into the building and remove some of the traditional limitations in window application, smart material technologies are key feature competitiveness of the twenty-first century. Various building materials can greatly increase the levels of functionality, "Smart materials" will play a crucial role in building technology development; These materials that are part of an intelligent structural system, have the ability to sense its environment, so smart materials can function like living systems, an important element of an architectural design strategy that is environmentally sustainable is the use of daylight as part of an integrated, controlled lighting strategy. For well-designed structures, the atrium could be a significant source of daylight. It also offers other environmental advantages such as solar energy gain, reduced energy loss, and natural ventilation. The major elements of the atrium for the daylight design are a system of skylights and windows to provide daylight levels in the spaces adjacent to the atrium.

Keywords: Smart materials - smart daylighting systems - daylighting - Atrium.



Transparency in architecture and its mutual effects between built and natural environment

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Abstract:

This paper is concerned with studying the concept of transparency in architecture which emerged as one of the design concepts in the 20th century.

It's not only limited to the physical aspect related to the penetration of natural light through transparent surfaces into the building, but is linked to the psychological and spiritual aspects of the building's occupants through the virtual removal of barriers between them and the natural environment.

Since ancient ages, people have been interested in the connection between inside and outside the building in the architecture of caves, it was initially purely functional, whether through making an entry and exit opening and also window openings were made to provide ventilation and lighting from the natural environment to the built environment.

Through the different ages until reaching the industrial revolution, the building industry developed significantly, and the building structure became metal and then concrete rather than stone blocks, which gave a clear flexibility to increase the connection between inside and outside the building by increasing the glass surfaces, especially with the production of glass panels with large areas up to the invention of transparent aluminum at present.

by studying a variety of iconic buildings which representing a group of different architectural schools till reaching the contemporary architecture, the paper deals with how the concept of transparency has been developed and become an essential part of the architectural design philosophy.

Transparency is not limited to the link between the built environment and the natural environment through glass surfaces, but goes beyond that to create a state of integration between the outside and inside of the building which is completely denies Le Corbusier's concept at his early beginning "the house is a machine to live in".



Child Friendly City as a Participatory approach to enhance sustainable development: Case of Mingdong Community, Ningbo.

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¹Assistant Professor, CHI and Community Development Expert.

Abstract:

The aim of this paper is to introduce a model in children active participation mythologies in the community design process. It is divided into four parts in addition to the introduction and conclusion, the first part is literature review introducing children, the Child friendly urban planning as a concept, children participation approaches, and sustainable development. The second part is the methodological approach proposed by author to reach a prototype model for children participation in community design process. The third part is presenting model empirical application on Ningbo china followed by discussion and conclusion parts. The prototype model was developed during YPPs workshop conducted by ISOCARP in Ningbo 2019. The YPP workshop presented an initial step to encourage child friendly Urbanism and shape their knowledge. The model combined child rights and sustainable urban development by answering three questions: How do the younger generations experience and perceive the city? How may Mingdong be imagined as a community that welcomes children? How should you proceed? The case study presented a testing ground for the task of enhancing Community children to participate actively and be core of development process during all phases.

Keywords: Child Friendly City, Sustainable development, Children Active Participation, Community design.



A systematic framework for improving the quality of lighting in the internal environment of elderly homes "Study of the visual and non-visual effects of lighting"

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Abstract:

Human comfort has always been the primary goal of architecture, and this comfort is dependent on a variety of environmental factors, including lighting. In recent years, lighting research has seen remarkable progress in terms of visual effects, advanced lighting technology and systems, and increasing energy efficiency. Still, no significant attention has been paid in scientific research to the non-visual effects of lighting, or the effects that do not constitute an image but affect human performance and health. The main issues of vision, glare, and lighting systems are usually considered regardless of whether or not the lighting system provided benefits the human bodies that use it. This study provides research evidence on the effects of visual and non-visual lighting on the elderly from four aspects: sleep quality, alertness, mood, and performance of visual tasks, intending to develop a methodology that combines the needs of the elderly for lighting appropriate to their visual needs and personal well-being. Most lighting research focuses on the young and healthy, but our visual and nervous systems are known to deteriorate with age. The findings indicated that dynamic lighting with controlled intensity and color can improve sleep quality and mood in the elderly. This science is considered an emerging science because no specific criteria have been met so far, but all existing values are the diligence of researchers in this field. As a result, it is recommended that research in this field be intensified to develop specific and clear criteria that meet the visual and psychological needs of the elderly to ensure the quality of life in their internal environment.

Keywords: Lighting, visual and nonvisual effect, elderly, Long-term care facilities, Nursing home



Digital Transformation: towards Sustainable and Smart New Cities in Upper Egypt (New Qena Case study)

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Abstract:

Despite the ongoing development of IT and innovative technologies in all aspects of life, the transformation of cities to be smart and sustainable is still at a starting level in developing countries. Decision-makers and planners still face numerous challenges in achieving the digital transformation of Egypt's new cities. The research aims to investigate and highlight the significance of innovative technologies in driving digital transformation in new cities in Upper Egypt. That could lead the city to invest and build the qualifications to become a sustainable smart city in the future. The research studied three cases in the Arab world in order to apply the lessons acquired from their digital transformation experiences and its sustainable plans. Consequently, the paper presents proposed guidelines to achieve sustainable and smart transformation in New Qena. This framework assists planners, authorities, and decision-makers in improving the quality of life and services and developing a vision for the future transformation of the city.

Keywords: Digital Transformation, Smart City, BIM, Digitalization, Upper Egypt.



Simulating urban land development by role-playing experimental gamification, in Egyptian context

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Abstract:

This paper aims to investigate the experimental application of simulating city planning thru role-playing serious games, focusing on the impact of different key actors' decisions on land development in the Egyptian context. The paper argues that using role-playing games is an effective approach in realizing the complexity and multi-actor perspectives in achieving sustainable urban land development. A game was developed to simulate key stakeholders' groups interaction over urban land in a stylized extension area of a growing city. It was experimented with Egyptian architecture and urban planning practitioners, moreover senior and postgrad students who took part in the game, and discusses its outcomes.

The empirical application of the game was developed in four pilot experiments with 71 players. it was developed based on the Egyptian land management context and applied in Greater Cairo. The results revealed that participants who engaged in the role-playing simulation game had higher levels of understanding and motivation while dealing with urban land use planning. This study's findings give a strong support for the value and the necessity of combining authentic land management contexts with simulation gaming when dealing with real-world difficulties of making decisions in complex issues like urban planning. In conclusion, the experiment results proved an effective approach in simulating multi-actor objectives while dealing with underlying dynamics of urban land development.

Keywords: Simulation games, City planning, Role-playing, Actors' decisions, land development



The Notion of Liner parks as a continuous sidewalk for sustainable urban space: " Case Study of Constructed Wetland Park 10 Ramadan City"

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Abstract:

Long and sinuous in design, a linear park, LPs takes its shape from the city's underlying geography and frequently follows natural features like stream channels and valleys. LPs are city corridors that connect various regions of the city. Because of the inherent variety in function, management, and physical design, they are more complicated than regular parks. LPs were identified as an intriguing green space typology, and the researchers explored the benefits and drawbacks of these multifunctional spaces, which include greenways, waterfronts, and transportation infrastructure, and are typically located on re-used sites that connect significant urban nodes. LPs are used for both mild and strenuous physical activity. People perceive linear parks as a hierarchy of diverse supplies that give a variety of advantages that enable active and passive leisure activities. Each linear park has different cultural, ecological, environmental, social development, agricultural, and recreational values.

This research suggests a conceptual method for designing a sustainable linear park based on analyzing three national and international case studies and a focus on a specialized Case study on the 10th of Ramadan "constructed wetland park" and questionnaire analysis, then cooperating between them to measure how each approach affects each other through statistical analysis to achieve the most effective sustainable linear park.

Keywords: liner park -sild walk - New city - 10th of Ramadan- sustainability



Integrating the principles of lean management into the design process of green tall buildings

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Abstract:

Tall buildings have become a sign of Economic and technological development in advanced countries, resolving different issues coming from the significant increase in the urban dwellers and land price. This type of buildings is characterized by its high levels of energy consumption and design complexity. The design process of tall buildings involves many professionals from several disciplines, requiring an efficient management to coordinate and interpret the interrelations between these various disciplines in the design stage taking into consideration the global awareness of energy consumption and the urgent need to reduce the quantity of energy used by this type of buildings. Lean process tools and methods have been adapted to the design management process in the AEC industry - known as Lean Design management (LDM) - to improve the context of design and overcome its deficiencies with minimum wastage with a greener comprehensive view of the whole project. Applying lean design management tools to the design process of tall buildings will help in overcoming the challenges coming from the complex design process of tall buildings. Thus, the objective of this paper is to set preliminary guidelines for the integration of the lean design management concept with the design process management of green tall buildings, through a literature review. More than 200 research paper -ranging from 2010 till present mostly indexed in Scopus database- including the aim of the study were selected for review. Research found a number of preliminary guidelines for optimizing the design process of green tall buildings through the adaptation of the lean design management concept. This research is meant to be the first phase of the study to assess the application of lean principles to the design process of tall buildings through practical analysis of case studies that will be carried out in further studies.

Keywords: Green Tall Buildings, Lean Design Management (LDM), lean principles, design management.



A strategy for Lakes ecological restoration by integrated constructed wetlands, Case study: lake Qaroun, Egypt

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Abstract:

Wetlands have a significant impact on healing degraded ecosystems and restoring environmental balance for their broad range of benefits. Lakes are considered a type of wetlands combining terrestrial and aquatic ecosystems, it's important to restore lakes' wetlands to regain the ecological services provided by these systems, which might have been severely altered by human pressure, pollution, and urban development. This paper investigates the concept of ecological restoration of Lake Qaroun wetlands proposing an ecological restoration strategy to enhance the current situation of the site by using integrated constructed wetlands. The research conducts a literature review of wetlands restoration concept and the values of integrated constructed wetland as a restoration approach, besides showcasing several case studies of lake restoration plans then choosing two similar case studies with same the environmental challenges to determine the efficiency range of their restoration plans and their physical impact on site. Lake Qaroun's previous development plans and the current situation were reviewed to determine the factors of success or failure. The proposed strategy of ecological restoration using integrated constructed wetlands, combines an extensive management /monitoring program supported by governance inclusion and public participation, to be further implemented to achieve a better impact and a successful restoration process.

Keywords: Ecological – Integrated Wetlands – Qaroun Lake – Restoration.



Design Guidelines for Central Libraries in Egypt; Towards High Qualified Environmental Efficiency.

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Abstract:

Libraries are gateways to knowledge. They are centers of resources and ideas and provide information to users, where users read, study, work and practice many other functions. Therefore, library is interested in the precise details of the reader's comfort, providing high qualified facilities within a sustainable building & environment, where sustainability isn't restricted on producing or designing a green building, but in fact it includes much more comprehensive concepts.

This study adopts an Environmental comprehensive for designing libraries, considering it as an optimum approach to create a proper environment fulfilling physical, psychological, spiritual, and cultural...etc. human needs.

The paper focuses or deals with the set of variables affecting users, and factors orienting architects & designers to appropriate designs, it studies various views, motives, obstacles that users face either individually or ingroups. The study presents various projects in Cairo and Alexandria, and evaluates their success in achieving a high qualified environment regarding previous determined factors. Furthermore, the study assesses to what extent designing central libraries in Egypt have reached efficiency and its impact on users. Finally, the study concludes a set of design guideline aiming to raise & increase efficiency and create a highly qualified environment for users in central libraries in Egypt.

Keywords: Central Libraries– Design Guidelines – Sustainable Building - Environment - Egypt



Knowledge, Perception, and Intention of Professionals Related to The Transformation from Gray to Green Infrastructure in Egyptian Cities.

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Abstract:

Green infrastructure (GI) has become one of the most important urban trends that helps to preserve and develop the city's ecosystem. With global climate change and increased carbon emissions, the need to transition from gray infrastructure to green infrastructure has increased. Or the integration of green infrastructure and existing gray infrastructure in existing cities. In Egypt, which faces significant environmental and urban challenges from an increasing population, rising temperatures, decreasing water levels, and high pollution in cities, the value of green transformation could minimize these impacts and increase quality of life. This research aims to study the knowledge of Egyptian researchers and specialists in the fields of architecture and engineering about GI techniques. Understand their perception and ability to deal with GI. In addition to studying the challenges and opportunities facing Egypt's green transformation from a specialized perspective. The results confirmed the lack of awareness of green infrastructure among the selected sample. The research confirmed the existence of social and economic obstacles facing the green transition. The research sets a framework for increasing knowledge and expertise in the field of green transformation in the Egyptian market.

Keywords: Green Infrastructure (GI), Knowledge, Perception, Transformation, City.




مواد البناء الذكية نحو مباني بيئية صحية

(دراسة حالة: وحدة المرضي بالمستشفيات)

Smart Building Materials Towards Environmental Healthy Buildings Case Study: Inpatient unit in hospitals

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الملخص:

تعتبر البيئة الداخلية للمستشفيات محفز أساسي للشفاء فانتشار الأمر اض والأوبئة في الآونة الأخيرة من أخطر الأمور التي أصبحت تهدد حياة الإنسان , يهدف البحث إلى محاولة الوصول لتصميم بيئة داخلية يتم فيها ربط الأسس ومعايير التصميم باستخدام المواد الذكية مع نظم الأتمتة والتكنولوجيا الحديثة لتوفير بيئة آمنة وصحية للمرضي. ويتم تحقيق الهدف من خلال در اسة خصائص بعض المواد الذكية ومواد النانو التكنولوجية والمقارنة بين مز اياهم يتم تطبيق إستخدام الأنسب من حيث الأهمية كمواد بناء أو تشطيبات في وحدة المرضي بمباني المستشفيات لتوفير بيئة داخلية آمنه للمرضي والمخالطين لهم والتقليل من المخاطر الفيزيائية و الكيميائية و الملوثات والبكتريا والفيروسات التي تنتقل لداخل غرف المرضي والإنبعاثات الناتجة من بعض المواد الميتخدمة وبذلك نتمكن من توفير بيئة علاجية صحية آمنه تساعد علي كونها عازل لنمو البكتريا و تقال من المخاطر الفيزيائية و الكيميائية و الملوثات والبكتريا و الفيروسات وسعية تستقل لداخل غرف المرضي والإنبعاثات الناتجة من بعض المواد المستخدمة وبذلك نتمكن من توفير بيئة علاجية صحية آمنه تساعد علي كونها عازل لنمو البكتريا و تقال من المخاطر الفيزيائية و الكيميائية و الملوثات والبكتريا و الفيروسات وضية تستقل اداخل غرف المرضي والإنبعاثات الناتجة من بعض المواد المستخدمة وبذلك نتمكن من توفير بيئة علاجية ولدر اسة تنقسم الى عدة محاور (المحور الاول) عناصر وحده المرضى (المحور الثاني) در اسه المواد الذكية وخصائصها و (المحور الثالث) در اسه أهم المواد المستخدمه من خلال تحليل نموذج لإستخدام المواد الذكية في ولمستشفيات

> **الكلمات المفتاحية:** مواد التشطيبات الذكية- وحدة المرضى ـــ انتقال العدوي



تقنيات الخامات ودورها في التصميم الداخلي للمباني الثقافية

Techniques of materials and their role in the interior design of cultural buildings

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الملخص:

تطورت المواد الخام على مر العصور المختلفة حسب البيئة التي يعيش فيها الإنسان و نظرا لاستخدام الإنسان للخامات الحجرية كخامات أوليه وحيث أن الخامات التقليدية منها الطبيعي او الصناعي قد استنفذت خصائصها على مدار قرون من الزمان في التطور التكنولوجي ، فقد اتجه العلم إلى البحث عن خامات جديدة يطلق عليها "الخامات الذكية" يكون لها مميزات أخرى وخصائص مختلفة يمكن توظيفها في التقنيات الوظيفية المختلفة، و هذه الخامات ظهرت وتطورت مع تطور تكنولوجيا النانو ، و هذه الخامات لها القدرة على التأثر بالظروف واتخاذ ردود افعال مختلفة الاتجاهات حسب خصائصها , ونظرا لظهور خصائص مستحدثة لمثل هذه الخامات على الساعة، و هذه الخامات فقد أدى ذلك إلى دفع عجلة الابتكار و الاختراع بالإضافة إلى توظيف هذه الخامات في وظائف مستحدثة يطلق عليها الوظائف الذكية.

الكلمات المفتاحية:

معايير واعتبارات – التصميم الداخلي – الخامات الذكية – تقنية الخامات



(دراسة حالة للارتقاء بمستوى معيشة السكان وتحقيق الاستدامة من الإمكانيات والثروات الطبيعية) (جزيرة هيسا – أسوان)

Ecotourism and its impact on economic development in Nubia Within the framework of the sustainability plan

(A case study to raise the standard of living of the population and to achieve sustainability through the use of natural resources and capabilities)

(Heissa Island – Aswan)

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الملخص:

تعتبر مصادر التراث الثقافي والطبيعي من أهم عوامل الجذب السياحي، و هو ما يعرف باسم السياحة البيئية، و التي ترتكز على مقومات ثلاثة و هي التراث سواء الثقافي أو الطبيعي والزوار و السكان المحليون، في وسط إيجابي يكفل مصلحة الجميع في علاقة تكاملية وتبادلية ومتوازنة يكون في كل منها أداة لخدمة الآخر، لذا يعتبر قطاع السياحة أحد القطاعات المهمة التي تُساهم في دفع عجلة الاقتصاد الوطني، و عليه كان لزام توسيع قاعدة السياحة للشام و ترجع الإشكالية الرئيسية أن الأنشطة السياحية ترتكز على السياحة القائمة على زيارة الأثار في مناطق بعينها، أو و ترجع الإشكالية الرئيسية أن الأنشطة السياحية ترتكز على السياحة القائمة على زيارة الأثار في مناطق بعينها، أو من أي أزمات عالمية أن الأنشطة السياحية ترتكز على السياحة القائمة على زيارة الأثار في مناطق بعينها، أو من أي أزمات عالمية أو محلية سواء كانت سياسية أو اقتصادية أو كوارث طبيعية أو جوائح صحية منعكسة بشكل من أي أزمات عالمية أو محلية سواء كانت سياسية أو اقتصادية أو كوارث طبيعية أو جوائح صحية منعكسة بشكل ما أو زمات عالمية أو محلية سواء كانت سياسية أو اقتصادية أو كوارث طبيعية أو جوائح صحية منعكسة بشكل ما أي أزمات عالمية أو محلية سواء كانت سياسية أو اقتصادية أو كوارث طبيعية أو جوائح صحية منعكسة بشكل ما أو زمات عالمية أو محلية سواء كانت سياسية أو اقتصادية أو كوارث طبيعية أو جوائح صحية منعكسة بشكل ما أن أزمات عالمية أو محلية سواء كانت سياسية أو اقتصادية أو كوارث طبيعية أو جوائح صحية منعكسة بشكل السياحي سواء عاملون في الفنادق أو يعملون في مهن حره تعتمد بشكل أساسي على السائح الأمر الذي يؤدى إلى دانشار البطالة وتعثر الأمور المعيشية على جميع المستويات في أثناء هذه الأزمات. لذا فالورقة البحثية تهدف إلى در اسة جزيرة " هيسا " النوبية، وإبراز ما فيها من نقاط قوة تكفي لتطوير السياحة البيئية، وفي الأساس استامة در اسة جزيرة " هيسا " النوبية، وإبراز ما فيها من نقاط قوة تكفي لتطوير السياحة البيئية، وفي الأساس استدامة در المة متمع ككل بحيث لا يكون اعتماده على النشاط السياحي في مدينة أسوان أو في الأثار الفر عونية الموجودة حارج الجزيرة.

(العمارة التراثية – السياحة البيئية – التنمية المجتمعية – الحفاظ على التراث – التنمية العمرانية)



العلاقة بين التصميم العمراني والاستدامة الاجتماعية للفراغات العمرانية

The relationship between urban design and the social sustainability of urban spaces

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الملخص:

تتضمن التغيرات الحادثة فى التطور الحضرى للانسان زيادة اهمية الفراغات العامة فى المدن و الاحتياج اليها وهذا جعل اسايب انشائها وتصميمها تتطور داخل المجال الحضرى بالجمع بين الجانب البيئى والجانب العمرانى وسعت الكثير من الدول لتحقيق ذلك الى انتاج اساليب جديدة فى التصميم والتخطيط تهدف الى تصميم الفراغات العامة وجعلها اماكن المقابلات وممارسة الرياضة واماكن لعب الاطفال والاسترخاء ويتضمن البحث دراسة العلاقة بين التصميم العمرانى وابعاده (البعد التشكيلى – الوظيفى – الانشائى – والترخاء الحسى – الاجتماعى – البصرى) وبين الاحتياجات الانساية (الراحة – الاسترخاء – الاكتشاف – الارتباط الفعال – الارتباط الغير فعال) وينتج من خلال هذه الدراسة معايير تقييم وظيفية واجتماعية من لذلك يهتم البحث ب : لذلك يهتم البحث ب :

> الكلمات المفتاحية: التصميم العمر انى – السلوك الانسانى – المناطق المفتوحة الخضراء – الحدائق



التأثير التبادلي بين التصميم وسلوك المستعملين تطبيقا على الفراغات العامة

The complementary effect between design and user behavior in application to public spaces

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الملخص:

تكوين بيئة مادية تتماشى مع احتياجات وسلوكيات المستخدمين هو الهدف الاساسي للتصميم والتخطيط للبيئة العمر انية. وقد أوضحت الدر اسات أن الفر اغات العمر انية التي لا تُشبع متطلبات المستعملين؛ تؤدي إلى تأثير ات سلبية (بيئية/ سلوكية/ اجتماعية/ ثقافية/ ...) على هؤ لاء الأفر اد. مما قد يؤدي إلى هجر تلك الفر اغات العمر انية أو محاولة إدخال تعديلات عليها لتتماشى مع احتياجاتهم، أو اكتساب الأفر اد سلوكيات جديدة تساعدهم للتأقلم مع تلك الفر اغات. ويتعرض البحث بالدر اسة (ما يسمي بسوق الرحاب القديم) ، ويهدف البحث إلى التنسيق بين وظيفة الفراغ العمر اني والسلوك الإنساني خلال عنصر الزمن ، بهدف الارتقاء وتطوير وتحسين وضبط السلوك الإنساني داخل الفر اغات العمر انية من خلال مرونة التصميم وقابليته للتطوير بالتغذية الراجعة (feedback).

> الكلمات المفتاحية: الفراغات العمرانية - الزمن – السلوك الإنساني – المرونة -التصميم العمراني



تأثير البعد الاجتماعي على الكفاءة العمرانية ''روية لتحقيق جودة الحياة بالمدن الجديدة ''

The impact of the social dimension on urban efficiency "A Vision to achieve quality of life in new cities"

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الملخص:

تهدف المجتمعات العمرانية الجديدة لوجود رؤية مجتمعية واضحة، تعمل على خلق مجتمع صحي يتميز بمؤشرات لقياس كفاءة تنيمتها ومدي قدرتها علي تحقيق الاحتياجات الاجتماعية للسكان.

وعليه فقد عمل البحث علي تأكيد مفاهيم الأبعاد الاجتماعية وأثرها على كفاءة العمران ودراسة المنظور العالمي لجودة الحياة، وتقديم صياغة للمؤشرات التي تساعد علي تقيم جودة الحياة الاجتماعية ومستوياتها في مصر.

وتم اختيار مدينة بدر كدر اسة حالة لقياس مدى تحقيق مؤشر ات جودة الحياة الاجتماعية وتقيمها مع صياغة اقتر احات وسياسات للتطوير ، وينتهي البحث بنتائج در اسه استبيانية لسكان در اسة الحاله.

الكلمات المفتاحية:

البعد اإلجتماعي – الكفاءة العمر انية - جودة الحياة - المدن الجديدة – مؤشر ات جودة الحياة



الملخص:

يعتبر قطاع البناء والتشييد في المملكة العربية السعودية ثاني أكبر القطاعات غير النفطية المساهمة في دفع عجلة التنمية الوطنية وتحريك النشاط الاقتصادي، وشهدت المملكة في العقود الماضية نمواً هائلاً فيّ هذا القطاع مما أدى إلى تسارع وتبرة تنفيذ المشاريع وتسبب في إرباك منظومة العمل، وظهور العديد من المشاريع المتأخرة والمتعثرة. وعلى الرغم من الجهود الكبيرة التي تبذلها الجهات الحكومية السعودية لتجنب هذا التأخير والتعثر، الا ان أغلب الدر اسات الحديثة في هذا المجال أظهرت أنه ماز ال هناك نسبة كبيرة من المشاريع متأخرة ومتعثرة نتيجة لعوامل ومسببات متعددة تناولتها در اسات مختلفة أظهرت أن ضعف إعداد الجدول الزمني للمشروع أحد أهم هذه المسببات على الرغم من توافر العديد من التقنيات الرقمية التي يمكنها دعم مديري المشاريع ومعدى الجداول الزمنية لتطوير وإحكام الجداول الزمنية، و هو ما يمثل الإشكالية الرئيسية لهذه الدر اسة التي تستهدف بحث ودر اسة الإتجاهات الحديثة للتقنيات الرقمية ذات العلاقة بالجداول الزمنية لمشاريع التشييد واستكشاف دورها في دعم تطويرها وإحكامها، والتحديات التي تواجه تطبيقها، منتهجة في ذلك منهجاً استقر إئياً يتم فيه تحليل الأدبيات ذات العلاقة بموضوع البحث وتأكيد أهمية هذه التقنيات من خلال استعراض عدد من الحالات الدراسية التي تم فيها تطبيق مثل هذه التقنيات بنجاح. وقد أظهرت النتائج أربعة من أبرز التقينات الرقمية لدعم إحكام الجداول الزمنية تقنيات التطبيقات المباشرة للجدولة الزمنية، وتقنيات ربط الجداول الزمنية بالنموذج ثلاثي الأبعاد للمشروع وتقنيات متابعة المشروع والتواصل حول الجداول الزمنية وتقنيات الحوسبة السحابية لتبادل الملفات ذات العلاقة بإعداد ومتابعة الجداول الزمنية، وإن ضعف المهار إت التقنية لدى المخططين يمثل ابر ز التحديات التي تو اجه تطبيق هذه التقنبات.

الكلمات المفتاحية:

الجدول الزمني، إدارة جدول المشروع، المبادلة بين الوقت والكلفة، التقنيات الرقمية، البعد الرابع لنمذجة معلومات المباني 4D BIM، اسلوب التحليل الشبكي.



"نمذجة معلومات المباني والمحاكاة الرقمية لتقييم بدائل تحسين الأداء الحراري لنوافذ واجهات المباني - حالة دراسية: وحدة سكنية بمدينة الرياض "

BIM and Digital Simulation in assessing window alternatives for enhancing heat Performance of building facades - Case Study: A Housing Unit in Riyadh, SA

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الملخص:

تعتبر واجهات المباني من أهم عناصر الغلاف الخارجي لتنوع وظائفها وتأثيرها على إستهلاك طاقة المبنى بأكمله، وتمثل نوافذ المباني أحد أهم مفردات التصميم المعماري للواجهات والتي يوليها المعماري المصمم أهمية كبيرة ويقاوم أي بدائل مقترحة لتغيير موقعها أونسبها من قبل الفرق الهندسية المشاركة في العمل التصميمي، وهو ما يمثل إشكالية هذه الدراسة التي تستهدف طرح بدائل تصميمية للنوافذ لتحسين الأداء الحراري للواجهات اعتماداً على متغيرات لا تؤثر على مساحتها أو موقعها بالواجهة، وتوظيف تطبيقات نمذجة معلومات المباني والمحاكاة الرقمية لتقييم الأداء الحراري لهذه البدائل ودعم المصمم في إتخاذ القرارات التصميمية المباني والمحاكاة الرقمية لتقييم الأداء الحراري لهذه البدائل ودعم المصمم في إلى أن البدائل المقترحة لنوافذ أحد المباني السكنية في ذلك المنهج الوصفي والتجريبي. خلصت الدراسة إلى أن البدائل المقترحة لنوافذ أحد المباني السكنية في مدينة الرياض أثرت إيجابياً في تحسين الأداء الحراري للواجهات، وأن تطبيق المعماري للتقنيات الحديثة سواء على مستوى التطبيقات أو على مستوى المواد له دور كبير في دعم المعماري للتقنيات الحديثة سواء على مستوى التطبيقات أو على مستوى المواد له دور كبير في دعم المعماري التقنيات الحديثة المطروحة لتحسين الأداء الحراري المعابي في تحسين الأداء المواد له دور كبير في دعم المعماري لتقييم البدائل المطروحة لتحسين الأداء الحراري للمباني وتفادي المواد له دور كبير في المراحل المبكرة من التصميم.

الكلمات المفتاحية:

نمذجة معلومات المباني (BIM)، محاكاة أداء المباني BPS، الأداء الحراري لواجهات المباني، نمذجة طاقة المباني، متغيرات النوافذ.



معهد القاهرة العالي للهندسة - قسم العمارة مؤتمر دولي الرؤى المستقبلية للمدن المعاصرة التطبيقات والتقليات المبتكرة سبتمبر 2022



"كفاءة الطاقه في المباني"

التقليل من احتياجات المبنى من التبريد

Reduction of cooling energy needs for buildings

حنان حسن علي عرفات¹

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1 مدير عام احتياجات المقاولات وزاره الإسكان والمرافق

الملخص:

يهدف البحث الي تسليط الضوء علي مشروع يهدف الي تطوير وتنفيذ ورصد التدابير المخصصة التي تؤدي الي تقليل احتياجات تبريد المباني. مع العمل على تطبيق اليات مبتكرة لنشر استخدام الطاقة المتجددة وكفاءة الطاقة لتوفير إطار عمل يخدم قطاع التشييد والبناء كمايهدف إلى توسيع نطاق تقنيات الطاقة النظيفة في مصر ، ويتم ذلك من خلال التركيز على تقليل احتياجات التبريد للمباني تطوير قانون لتقليل احتياجات التبريد للمباني عن طريق بعض التعديلات في التصميم والمواد المستخدمه أولاً ، تطوير مرسوم تشريعي بشأن تقليل احتياجات تبريد المباني من خلال عدة محاور وهي: أولاً ، تطوير مرسوم تشريعي بشأن تقليل احتياجات تبريد المباني ، من خلال عدة محاور وهي: سيتم بعد ذلك اختبار القانون من خلال حالة در اسيه واقعيه في مبنى عام شتم بعد ذلك اختبار القانون من خلال حالة در اسيه واقعيه في مبنى عام احتياجات تبريد المباني تثانيًا ، التدريب علي آلية من خلال برنامج مصمم لتحقيق كفاءة الطاقة والطاقة المتجددة بالتالي تقليل ترييم بعد ذلك اختبار القانون من خلال حالة در اسيه واقعيه في مبنى عام احتياجات تبريد المباني بريد المبني التالي من خلال التريام مصمم لتحقيق كفاءة الطاقة والطاقة المتجددة بالتالي تقليل احتياجات تبريد المباني تريم الماني من خلال برنامج مصمم لتحقيق كفاءة الطاقة والطاقة المتجددة بالتالي تقليل رابعا, دراسة أفضل سوق للتكنولوجيا المتاحة (BAT) عن طريق تقيم تدابير يو فير الماقة الممكنة لتكييف الهواء وتقليل احتياجات تبريد المبنى من خلال تطوير نماذج محاكاة المباني. رابعا, دراسة أفضل سوق للتكنولوجيا المتاحة (BAT) عن طريق تقيم تقايل المناحي.

الكلمات المفتاحية:

كفاءه الطاقه- تقليل احتياجات تبريد المباني- تقييم تقنيات التبريد





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	در اسية: وحدة سكنية بمدينة الرياض "	قســــــــــــــــــــــــــــــــــــ	
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3	التقنيات الرقمية لإحكام الجداول الزمنية لمشاريع التشييد	أحمد عمير محمد	3
	تحليل مبنى على المراجعات الأدبية للإتجاهات والتحديات	سيد مصطفى،	
		محمــــد سـليمان	
		الجار الله	
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		الفباني	
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		مروة احمد	
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	الأستدامة من الإمكانيات والثروات الطبيعية)		
	(جزيرة هيسا – أسوان)		
8	قنيات الخامات ودور ها في التصميم الداخلي للمباني الثقافية	شيماء عبد المجيد	8
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	(در اسة حالة: وحدة المرضي بالمستشفيات)	ناصر شبكة ، مروة	
		أحمد	

مؤتمر دولي

التواريخ الخاصة بالمؤتمر:

دعوة لتقديم الملخصات	7 يونيو 2022
تسليم الملخصات	12 يونيو 2022
دعوة لتقديم الأبحاث الكاملة	19 يونيو 2022
تقديم الأوراق البحثية كاملة ،الجولة الأولى	19 يوليو 2022
تقديم الأوراق البحثية كاملة ،الجولة الثانية	2 أغسطس 2022
الإخطار بقبول الاوراق البحثية	16 أغسطس 2022
موعد المؤتمر	24-25 سبتمبر 2022



سحاور المؤتمر:

- التصميم المعماري والاستدامة
- البنية التحتية الخضراء والاستدامة
- تقييم المخاطر البيئية في العمارة والعمران
- الهندسة البيئية والاستدامة والتكنولوجيا الخضراء
 - الموارد الطبيعية والسياحة البيئية
 - السياسة الحضرية والاقتصاد الاجتماعي
 - ادارة المياه ومشاريع المناظر الطبيعية
 - المدن الساحلية وتغير المناخ
 - لمبانى وكفاءة الطاقة.
 - ليتقنيات للتقنيات البيئية
 - للمذجة معلومات البناء والاستدامة
 - مستقبل التعليم المعماري
 - تحديات العمارة والتراث العمراني
 - الأداء والتقييم في العمارة والعمران.
 - لبناء والإدارة المستدامة
 - الطاقة والتنمية وتغير المناخ
- الاقتصاد والطاقة في شمال افريقيا والشرق الاوسط
 - للمحافظ الطرق والمواصلات بالمدن

مؤتمر دولي

المقدمة:

تتسع الرؤى المستقبلية للمدن وتمتد لتشمل آفاقً وتصورات جديدة تتزامن مع التقدم التكنولوجي العالمي، والذى بدوره يحكم ويؤثر على المنهجيات والإستراتيجيات التى تتبعها المدن والمجتمعات العمرانية لتطوير بيئاتها... وينطلق هذا المؤتمر العلمى الثانى "رؤى لمدن المستقبل-الإبتكارات وتكنولوجيا البيئة 2022" بهدف الدمج بين الأفكار والمبادئ التصميمية للمدن بجميع مستوياتها وبين هذا التقدم والتطور التكنولوجي المستمر للوصول الى الكفاءة والتميز... ومن ثم يضم المؤتمر العديد من المحاور التى تتعلق بالتصميم المعماري، الإستدامة، البنية التحتية الخضراء، الهندسة البيئية الإجتماعية والإقتصادية، نمذجة معلومات البناء، وغيرها من المحاور التى تستهدف المعرفة، الإبتكار والتقنيات البيئية.

وينظم المؤتمر مجموعة من الشركاء الاكاديمية، كلية الهندسة جامعة طنطا، معهد القاهرة العالى للهندسة وعلوم الحاسب و الادارة، بالإشتراك مع شركة ارك سبيس للدراسات الهندسية والاكاديمية، وبالتعاون مع مجموعة من الخبراء والأساتذة الدوليين لإثراء المنظومة البحثية في مختلف المجالات البيئية المعمارية والعمرانية وتخطيط المدن. وسوف يتم نشر أبحاث المؤتمر في المجلة العلمية لكلية الهندسة بجامعة طنطا والمجلة الدولية IOP Conference المؤتمر في المجلة العلمية لكلية الهندسة بجامعة طنطا والمجلة الدولية وحلق بيئة علمية نشطة ومتميزة.

		اللجنة المنظمة:	VFC 2022
		جنة:	رئيس الل
مصر	معهد القاهرة العالي	حمد هارون	أ.م.د أ
			الأعضاء:
مصر	معهد القاهرة العالي		د. هيام عمير
مصر	معهد القاهرة العالي		د. ایمان حاتم
مصر	معهد القاهرة العالي		د. سارة السيد
مصر	معهد القاهرة العالي		د. آيه الخولي
مصر	معهد القاهرة العالي	فتاح	م.م. داليا عبداا
مصر	معهد القاهرة العالي	اب	م.م. هايدي ايه
مصر	معهد القاهرة العالي	ن	م.م. منار حسير
مصر	معهد القاهرة العالي		م.م. منار محما
مصر	معهد القاهرة العالي	دي	م.م. شيماء مج
مصر	معهد القاهرة العالي	جندي	م. آيه محمد ال
مصر	معهد القاهرة العالي		م. دارين طارق
مصر	معهد القاهرة العالي		م. فاطمة أحمد
مصر	معهد القاهرة العالي		م. هبة جابر
مصر	معهد القاهرة العالي		م. محمد أحمد
مصر	معهد القاهرة العالي	(م. بانسيه طارق
مصر	معهد القاهرة العالي		م. رولا محمد

مؤتمر دولي

أ.د. سلوى محمد أبوالعلا	المركز القومي لبحوث المياه	مصر
أ.د. شعبان طه	جامعة بنها	مصر
أ.د. وائل يوسف	جامعة الازهر	مصر
أ.د. ولاء نور	جامعة طنطا	مصر
أ.د. يحي سراج	جامعة المستقبل	مصر
أ.د. زينب فيصل	جامعة بنها	مصر
أ.م.د أحمد هارون	معهد القاهرة العالي	مصر
أ.م.د. احمد محمد صلاح	جامعة قناة السويس	مصر
أ.م.د. احمد سراج	جامعة الفيوم	مصر
أ.م.د. ألكسندر خضر	أنهالت هونششول	ألمانيا
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أ.م.د. مي وهبه مدكور	جامعة طنطا	مصر
أ.م.د. أسامة قنبر	جامعة طنطا	مصر
أ.د. ولاء صلاح الدين	الجامعة البريطانية بمصر	مصر
أ.م.د. ياسمين صبري حجازي	جامعة الزقازيق	مصر
د. هيام عمير	معهد القاهرة العالي	مصر

		VFC 2022
مصر	جامعة عين شمس	أ.د. حسام البرمبلي
مصر	المركز القومي لبحوث الاسكان و البناء	أ.د. حسام الدين ابراهيم
مصر	الجامعة البريطانية بمصر	أ.د. حسام بكر خليل
مصر	جامعة الازهر	أ.د. ابراهيم مبروك
مصر	جامعة بنها	أ.د. اسلام نظمي سليمان
السعودية	جامعة الملك سعود	أ.د. جمال شفيق عليان
مصر	الجامعة البريطانية بمصر	أ.د. خالد دويدار
مصر	جامعة عين شمس	أ.د. لیلی خضیر
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