



**UNIVERSITI
MALAYA**
Faculty of Built Environment



Book of Abstracts

ASEAN Postgraduate Conference 2021

1st December 2021

Virtual Conference

Theme:
Built Environment in the 21st Century :
Turning Challenges into Opportunities

Organized by:
Centre for Sustainable Urban Planning & Real Estate (SUPRE)
Faculty of Built Environment, University of Malaya



ASEAN Post Graduate Conference 2021

This event was previously known as APGS (ASEAN Postgraduate Seminar) for the past 14 years. For the last three years, we are proud to announce that we have upgraded this event to **APGC (ASEAN Postgraduate Conference)**.

The aims and objectives of the APGC are to bring together researchers to discuss their research, exchange ideas and share their experiences between multidisciplinary and interdisciplinary studies that will bring potential breakthrough researches. It also offers networking and opportunities to learn, improve skills and knowledge. This conference will create a learning and discussion platform for knowledge exchange and collaboration among universities around **ASEAN Countries**.

Date

1ST December 2021 (Wednesday)

Venue

Virtual on Zoom Meeting

Themes and sub-themes

The main theme of the conference is:

"Built Environment in the 21st Century: Turning challenges into opportunities."

However, the participants may submit conference papers related to the theme or any relevant topic of sub-themes that relates to the built environment.

Sub-themes:

- Housing and Settlement
- Urban Renewal and Regeneration
- Covid19/pandemic Preparedness and Responses
- Sustainable Design and Building Performance
- Sustainable Development in Construction Industry
- Project and Construction Management
- Real Estate Investment and Development
- Property and Facilities Management
- Landscape and Urban Design
- Heritage and Conservation
- Information Technology in the Built Environment
- Sustainable Transportation and Mobility
- Tourism and Recreational Planning

Conference Schedule:-

9.00 am	<p>Opening Ceremony</p> <ul style="list-style-type: none"> • Welcoming Address by Associate Professor Dr. Melasutra Md Dali (Head of Centre for Sustainable Urban Planning and Real Estate, FBE, UM). • Opening Address by Professor Sr TS Dr Azlan Shah Ali (Deputy Dean Higher Degrees, Faculty of Built Environment, UM) • Keynote Address by Professor Dr. Rahinah binti Ibrahim • Photo-taking Session
10.00 am 11.15am	<p style="text-align: center;"><u>Parallel session I – Subtheme: Ecology & Environment</u></p> <p>10.00am – 10.15am : Ecology-Related Values of Pocket Parks: A systematic review</p> <ul style="list-style-type: none"> • Presenter: Jun Li <p>10.20am – 10.35am : Evaluation Of Flood Risk Management For Institutional Building In Kelantan</p> <ul style="list-style-type: none"> • Presenter: Wan Nur Zainina W Hassan <p>10.40am – 10.55am : Issues and Challenges of Inclusive Heritage Environment in Malaysia</p> <ul style="list-style-type: none"> • Presenter: Adam Noor Ruzaini <p>11.00am – 11.15am : Challenges, Opportunities and the Way Forward in the Malay Settlement Along River Fringe</p> <ul style="list-style-type: none"> • Presenter: Abdullah Azli <p style="text-align: center;"><u>Parallel Session II – Subtheme: Construction & Technology</u></p> <p>10.00am – 10.15am : Big BIM Data in Construction: A Review</p> <ul style="list-style-type: none"> • Presenter: Lai Ke En <p>10.20am – 10.35am : Potential Of Integration Of Internet Of Things (Iot), Building Information Modelling (Bim), And Blockchain In Carbon Emissions Quantification</p> <ul style="list-style-type: none"> • Presenter: Lai Ke En <p>10.40am – 10.55am : Potential Up-cycling of Green Product Packaging for Promoting Circular Econom</p> <ul style="list-style-type: none"> • Presenter: Zhou Shasha <p>11.00am – 11.15am : Critical Elements In Technology Transfer Office (Tto) Process That Support Successful Research Universities (Rus) Technology Transfer</p> <ul style="list-style-type: none"> • Presenter: Muhammad Sapah Roszaimah

	<p><u>Parallel Session III – Subtheme: Behavioral Studies In the Built Environment</u></p> <p>10.00am – 10.15am : Testing a confirmatory model of personnel attitude towards CMMS performance in SmartPLS using Consistent PLS</p> <ul style="list-style-type: none"> • Presenter: Shamsudeen Musa <p>10.20am – 10.35am : The effect service quality on emotional attachment in Premier Polytechnics</p> <ul style="list-style-type: none"> • Presenter: Rohida Bt Shafie <p>10.40am – 10.55am : Contemplative Urban Park Stimulate Pro-Nature Conservation Behaviour and Perceived Restorative Experience</p> <ul style="list-style-type: none"> • Presenter: Mohd Zahid Bin Mohd Salleh <p>11.00am – 11.15am : Life After Fall: Exploring The Physical Activities And Home Adaptations In The Continuity Of Living Amongst Malaysian Elderly</p> <ul style="list-style-type: none"> • Presenter: Nurul Farhana Mohamad Johdi <p><u>Parallel Session IV – Subtheme: Housing & Building Studies</u></p> <p>10.00am – 10.15am : Phase Change Material Integrations To Building Walls In The Tropics: A Case Study For An Office Building With District Cooling Supply</p> <ul style="list-style-type: none"> • Presenter: Haoxiang Zhan <p>10.20am – 10.35am : The Influence of Public Artworks with Children's Painting Characteristics on Urban Culture and Public Space</p> <ul style="list-style-type: none"> • Presenter: Luo Na <p>10.40am – 10.55am : Patients With Varying Backgrounds And Influencing Factors During The Epidemic</p> <ul style="list-style-type: none"> • Presenter: Luo Yajie
11.15am-.30am	Break
11.30am-.45pm	<p>Workshop How to Publish Research Articles in High Impact Journals</p> <ul style="list-style-type: none"> • By Dr. Noor Suzaini Binti Muhammad Zaid
12.45 pm	<p>Closing Ceremony</p> <ul style="list-style-type: none"> • Best paper award announcement <p>Closing remarks by:-</p> <ul style="list-style-type: none"> • Organising Chair – Dr Tham Kuen-wei

Keynote Speaker:-

Professor Dr Rahinah Ibrahim



Professor Rahinah Ibrahim, Ph.D., is Professor and former Dean at the Faculty of Design and Architecture, Universiti Putra Malaysia (UPM). Ibrahim has 7 years' experience in property development and architectural practice before joining UPM. A trained architect, she received her Ph.D. in Construction Engineering and Management from Stanford University. She established the Sustainable Design Informatics Research Group for developing theories and emerging computer-integrated applications in sustainable product innovation. For her research and academic achievements, she was awarded the "Top Research Scientists of Malaysia 2012" and the "National Academic Award (AAN2013)" by the Academy of Sciences Malaysia and the Malaysian Government respectively.

Professor Dr Rahinah Ibrahim is an expert in the field of integrated design management in building and construction. She is an entrepreneur scientist who brings construction knowledge from her research to the design process that improved society's lifestyle. Her H-index is 10 (SCOPUS) with a citation of 312.

Her knowledge contribution is evident when she invented Independent Sewage Treatment Plant (i-STP) technology to treat the wastewater pollution under the toilets of timber homes in water villages in Sabah. She has considered geophysical challenges, which were obtained through ethnography research at water villages in Sabah, highlighting the importance of integrating socio-economy and humanity knowledge for successful uptake and deployment of R&D technologies. The i-STP technology intervention will improve the surrounding's water quality over prolonged exposure and reduce the risks of spreading dangerous waterborne pathogens. This technology has won first place in GIST-APEC Startup Training in Australia among eight APEC countries. Currently, she is working on Smart Sanitation at Water Settlements pilot project under the United Nations Environment Programme (UNEP) to develop a business model, namely OceaNori. The first ten units of i-STP tanks at a selected water village in a Marine National Park in Sabah will be installed from this pilot project.

Professor Dr Rahinah is also renowned for her invention of a new timber IBS framing system for the construction industry, which led her to receive the National Academic Award in 2013 under Arts and Creativity Category for the SABSsystem timber framing system by MOE.

She has contributed to ASM STI Linkages Committee in advising pitchers at Global Innovation in S&T event during the launching of Angels in Science and Building Construction "SME Clinic on IR 4.0: Angel Investors' Initiatives for the Healthcare Sector in 2019. Currently, she is the Focal Lead for the Implementation Working Group Global Wastewater Initiative (GW2I) under UNEP for planning and overseeing demonstration projects in the Southeast Asia region.

Opening Address Speaker:-

Professor Dr Sr Azlan Shah Ali



Professor Sr Azlan is a professor in the Department of Building Surveying, Faculty of Built Environment, University of Malaya (UM), Kuala Lumpur, where he has been a faculty member since year 2004. He was promoted to the full professor post in July 2013, which make him as one of the youngest professors in the University. Prof. Azlan is also currently a Visiting Professor at School of Built Environment, Liverpool John Moores University, UK. He has held various responsibilities in the academic administration including an Acting Dean, Deputy Dean and Head of Department of the Faculty of Built Environment, UM. Previously, he worked with the building industry since 1998. In 2020, Prof. Azlan was appointed as Director for Building Surveying section, Unit Perundingan Universiti Malaya Sdn Bhd (UPUM Sdn Bhd) - University of Malaya's consultation arm - while still holding his Deputy Dean position. Under his leadership, UPUM Sdn Bhd secured 5 Building Condition Assessment (BCA) consultation projects from the government of Malaysia amounting more than RM3 million. The awarding projects as recognition by the government for his expertise in the field of building condition assessment.

Prof. Azlan completed his PhD at Universiti Teknologi MARA, Malaysia specialising in building refurbishment. His research interests lie in building maintenance and refurbishment with the focus to improve management strategies. He has collaborated actively with researchers in several other disciplines of built environment, particularly surveying and architecture local and internationally. Prof. Azlan has been involved in several academic research and consultations with a total amount of more than RM6 million includes collaborative research for software development with Spanish companies CYPE, amounting more than RM1.5 million. He has published over 200 peer-reviewed technical publications in journals, proceedings, and books. He received the University of Malaya's Best Lecturers Award in 2012-, and 3-times Excellence Service Award from UM for his significant contribution in teaching and research works. Prof. Azlan is currently a Chartered Building Surveyor, UK; a Registered Building Surveyor, Malaysia; a Registered Property Manager, Malaysia; a Professional Technologies, Malaysia; a Fellow of The Royal Institution of Surveyors Malaysia (FRISM) and The Royal Institution of Chartered Surveyors, UK (FRICS). He has served as a committee member includes secretaryship of the Building Surveying Division, RISM for more than 13 years.

Welcoming Address Speaker:-

Associate Prof. Dr. Melasutra binti Md Dali



Dr. Melasutra is a Registered Town Planner under the Town Planner Act (Act 538) and also a member of Malaysian Association of Social Impact Assessment. She has 22 years of experience in University Malaya as lecturer at Faculty of Arts and Social Sciences and Faculty of Built Environment. Her teaching subjects are related to urban land use planning, social planning, planning theory and recreational planning. While serving UM, she also involved in several researches and consultancy services on Social Impact Assessment, Urban Redevelopment, Development Plan studies. She has been appointed as Council Member for Petaling Jaya City Council in 2008-2012 and be part of the One Stop Center committee. During the tenure she was also appointed as Panel Member for Local Agenda 21 of the city. She is now carrying out collaboration research with Nippon Foundation under the preview of Asean University Network- Disability and Public Policy on research Towards Inclusive Learning Environment. She has published in book, book chapters and journals and involved in consultation works related to urban planning issues, redevelopment planning and social impact assessment studies. She has supervised number of PhD students in the field of urban planning.

Workshop Speaker:-

Dr. Noor Suzaini Binti Muhammad Zaid



Suzaini holds a PhD degree in Planning and Urban Development from the Faculty of the Built Environment, University of New South Wales. She has teaching experience in the fields of building surveying, urban planning, and sustainable development. Her current research interest focuses on vertical greenery systems, operational energy and user behaviour, climate change mitigation and adaptation in built environment. Suzaini was part of the testing of the United Nations Environment Programme's Sustainable Building and Climate Initiative (UNEP-SBCI)'s Common Carbon Metric and Protocol tool Pilot Test Phase 1 and Phase 2 in the Malaysian context, through her PhD research. Her research was conducted in collaboration of the Ministry of Higher Education Malaysia, University of New South Wales, UNEP-SBCI, and the City Hall of Kuala Lumpur. Her current research project includes Investigating Social Psychology Factors for User Behaviour Change Towards Energy Efficiency and Conservation; COVID-19 Survivability in Wastewater Systems; Development of Community-based Microbial Farming in Dwelling Areas; and Rejuvenating Public Space Through Re Imagining Recyclable Plastic & Construction Waste. Past research project includes SULED-BIM: Sustainability Led Design Through Building Information Modelling with collaboration with University of Manchester under the 2015 UK Newton Fund; Barriers to Women's Mobility under UK Arts & Humanities Research Council (AHRC); Carbon Abatement Module for University of Malaya Eco-campus; and Green offices - A healthy workplace of the future. Other projects she is involved in are within areas of affordability, acoustic properties of residential buildings, and housing and rehabilitation.

Conference Advisor:-

Dr. Sr Aiyoriza binti Mohd Aini



Dr Sr Aiyoriza is a senior lecturer and formerly the Programme Coordinator for PhD and Master By Research Programs at the Faculty of Built Environment, University of Malaya, Malaysia. She completed her PhD in the area of sustainability and responsible property investment at Kingston University of London. In the past, she has completed national studies on elderly housing, Housing-Income Index©, and financing issues for first-time home buyers. Her current research focus is on multigenerational housing and housing pathways for vulnerable groups including migrants. Outside of academia, she has acted as a consultant for private developers and government agencies. She teaches Corporate Real Estate, Valuation, and Property Finance & Investment to both undergraduates and postgraduates in UM. She has been invited as speaker, forum panellist at national conferences and as guest lecturer in other local universities. She is also the trainer for UM's iCON project; THINK SOLVE INNOVATE & GET STARTED (personal development & financing) modules. She has also been appointed as UM internal auditor and program assessor. In 2017, she was selected as of the Youth Experts in the TN50 Circles of the Future (Living & Well-being). She was recently appointed as Board of Trustee of Aubrey Barker Fund (UK). Dr Aiyoriza is registered as Probationary Valuer with the Board of Valuers, Appraisers, Estate Agents and Property Managers

Conference Chair:-

Dr Tham Kuen-wei



Tham completed and passed his Viva-Voce for his Doctorate in Real Estate Finance from the University of Malaya in 2021. He is a licensed auctioneer in the states of Perak, Melaka, Selangor and Penang, having done property foreclosure consultancy, auctioneering, research and market feasibility studies for High Court of Malaya, District Land Offices, MBSB, Maybank, Public Bank, Standard Chartered, AmBank and CIMB. Tham had experience working for the Malaysian Judiciary Body (High Court of Malaya) and Savills Ltd, a UK based real estate consultancy firm in transactions and real estate dealings involving public listed companies of prime commercial properties, large industrial factories and oil palm estates. In 2017, Tham was awarded a research scholarship and grant by Khazanah Nasional to conduct his PhD in University of Malaya. He was awarded the Royal Education Award from the Rulers' Conference of Malaysia (Majlis Raja-Raja) by HRH Sultan Nazrin Shah of Perak, Chancellor of University of Malaya in 2016. Tham had been engaged personally by public listed companies and professional institutions such as the Royal Institution of Surveyors Malaysia (RISM), Luminor Capital Singapore Ltd, Alliance Bank Berhad, Real Estate Housing Developers Association (REHDA), Genting Group Berhad & EcoWorld Berhad in consultancy services, talks and public seminars involving real estate and Feng Shui. Tham had also published several research papers in Scopus-Indexed and Clarivate Thomson Reuters-Indexed Journals in relate to Real Estate Finance.

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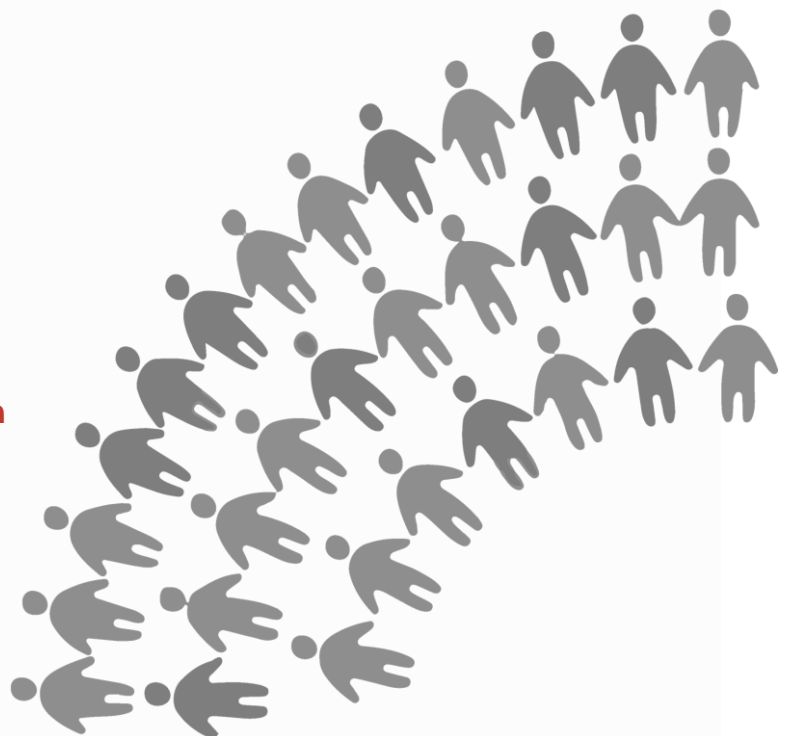


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Ecology-Related Values of Pocket Parks: A systematic review

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ABSTRACT

The rapid development of cities has greatly improved people's living standards, but it has also brought many problems: scarce land resources, tight energy supply, traffic congestion, increased pollution, and environmental damage. When facing the challenge of environmental degradation, the landscape green space system, as an urban oasis, is an important way to restore the urban ecological environment. And the ecological environment not only relies on large green space, but also needs small green space as an ecological supplement to form a sustainable urban ecological pattern. Therefore, it is necessary to study the ecological value of pocket parks for small green spaces. While relaxation and leisure function is still the main function of pocket parks, other additional values of pocket parks such as physical and mental health, cultural value, and ecological value are gradually being paid attention to by researchers. However, there is a lack of literature review on the ecology-related values of pocket parks. This article uses a systematic literature review method to search pocket parks and ecological related keywords in the four databases (Web of science, Scopus, Google Scholar, CNKI), in order to sort out the focus of the previous researchers and the ecological value trends of pocket parks. The analysis found that the ecological value of the pocket parks is reflected in the urban heat island effect, biodiversity, sponge city construction, hydrological environment, etc. Strengthening the connection between pocket parks under the current research background will increase the ecological value of pocket parks and promote the ecological sustainable development of landscape and urban design. The results of the study suggest that the ecological design of pocket parks should pay more attention to connectivity and process, and to the integration of multiple values. This research will provide a basis for the pocket parks integration and sustainable urban ecological patterns.

Keywords: ecological values; pocket park; influencing factors

Big BIM Data in Construction: A Review

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ABSTRACT

Construction is well known for its fragmented nature. To solve the issue, the sector has been pushed to advance with the adoption of technologies. Amid several advancements, building information modelling (BIM) acts as the backbone of construction digitalization where it produces huge data throughout projects' lifecycle and integration capability. This situation drives beyond BIM conventional capacity since the processing system become incapacitated. Consequently, the fusion of voluminous data requires an appropriate platform to be relied on in which concept of big data (BD) seems relevant. However, there are limited studies available that discuss on the recent development of BD in the context of BIM which has placed the notion in oblivious state. Therefore, this study attempts to provide insights on the latest development in relation to big BIM data (BBD) research in construction. This study is considered significant as it forms as precursor for future BBD research in construction sector.

Keywords: Building Information Modelling, big data, integration capability, huge data, big BIM data

Testing A Confirmatory Model Of Personnel Attitude Towards CMMS Performance In SmartPLS Using Consistent PLS

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ABSTRACT

The study sought to test a theoretical model on effect of personnel attitude towards effective CMMS in high-rise office buildings in Lagos-Nigeria using a confirmatory analysis. Data were collected from 134 certified International Facilities Management Association (IFMA) members handling high-rise office buildings through a structured questionnaire. Data were analysed using Smart PLS version 3 with a more recent confirmatory analysis known as consistent PLS that creates model fitness values to assess the model fit. Further confirmation was done using Importance Performance Map Analysis (IPMA) which is a useful method to broaden the strength of results of estimated path coefficient by taking the performance of each construct into consideration. Thus, conclusions can be drawn on either by importance or by performance. The results of PLS-SEM exhibited both direct and indirect impacts towards CMMS performance. CMMS features and personnel attitude exhibited a significant direct positive effect (t -value = 4.954) and (t -value = 3.723), the effect size (f^2) was considerably large, and the predictive relevance (q^2) was moderate accounting for ($f^2 = 0.288$, $q^2 = 0.128$) and ($f^2 = 0.179$, $q^2 = 0.070$) respectively. A specific indirect effect was also established through CMMS features. Overall, the results showed that personnel attitude has both direct and indirect impact on CMMS performance model accounting for a joint contribution of 58.8% (Adjusted $R^2 = 0.588$).

Keywords: CMMS, personnel attitude, Performance, Smart PLS

Life After Fall: Exploring The Physical Activities And Home Adaptations In The Continuity Of Living Amongst Malaysian Elderly

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ABSTRACT

The purpose of this study is to explore the changes to physical activities and adaptations after falls among older adults in Malaysia. Housing in Malaysia is often not designed with the needs and safety of older adults. However, falls affect one in four older Malaysians aged 65 years and above, and most falls occur in and around individuals' homes. This paper examines the changes to physical activities, and physical home environment post falls. In addition, the paper will also discuss the attitude towards home modifications or reluctance to make any changes and how the family dynamic influences the decisions. Home-visit interviews were conducted on 13 University of Malaya Medical Centre (UMMC) patients who have sustained at least one injurious fall or two falls at their respected houses in the past 6 months. In addition to semi-structured interviews, observations were made including sketching floor plan and recording images in order to understand the physical activities and movement patterns of the respondents after falls. The study found limited physical activities due to Fear-of-Falling (FOF) after they return to the house. Movement pattern shows the respondents spend most of their time in the living room and bedroom after fall. There was a low level of interest in home modifications after the patients have returned to their homes due to several reasons including losing familiarity and cost. Respondents who made home modifications were persuaded and supported by family members. The findings are useful to future-proof housing design and guide policymakers in Malaysia to create the necessary assistance, including funding for effective home adaptations to ensure the safety and independence of the elderly post fall.

Keywords: physical activities, falls, elderly, home modifications, psychological response

The Effect Service Quality On Emotional Attachment In Premier Polytechnics

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ABSTRACT

The enrolment of students in Technical and Vocational Education & Training (TVET) is decreasing and its known as the second-class choice in Malaysia education (Malaysia Education Blueprint, 2015-2025). However, TVET courses are useful for supporting shortages of skill workers (Proceedings Report, 2019). This study aims to identify service quality whether has impact on emotional attachment. The total population of the study was 15,633 conducted via quota sampling. A total of 900 questionnaires were distributed to the students in three Premier Polytechnics in Malaysia. Out of 650 questionnaire respondents, only 450 are valid. Data were analysed using multiple regression statistics to test the hypotheses. The result shown that service quality ($\beta=0.669$, $p<0.05$) contributed 44.7% ($r=0.669$) of variant changes in emotional attachment. This indicated that Premier Polytechnics could utilise emotional attachment to attract new students. It is suggested to involve all Polytechnics and consider other factors such as digital learning.

Keywords: Service quality, emotional attachment

Contemplative Urban Park Stimulate Pro-Nature Conservation Behaviour and Perceived Restorative Experience

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ABSTRACT

Depression, anxiety, and stress are becoming more prevalent among people of all generations worldwide. A contemplative urban park may be beneficial to one's mental health. As a result, people will value the benefits of urban parks in their lives and become more environmentally conscious. The study argues that contemplative urban parks influence pro-nature conservation behaviour as well as perceived restorative experiences. Two stages of data collection have been performed: 1) Contemplative urban park evaluation and 2) Assessment of pro-nature conservation behaviour (PNCB) and perceived restorativeness (PR). A developed structural model with three hypotheses (PNCB and PR) was examined using the Smart-PLS tool. The findings revealed that all of the hypotheses have statistically significant evidence to support the study's argument. This paradoxical finding revealed that environmentally conscious people are more likely to associate restorative experiences with the contemplative urban park. Therefore, Malaysian urban parks design should incorporate and emphasize restorative elements to gain psychological benefits while motivating environmental consciousness. This opportunity will gradually transform urban life's psychological challenges into wellness.

Keywords: Contemplative urban park, pro-nature conservation behaviour, restorative experience

Evaluation Of Flood Risk Management For Institutional Building In Kelantan

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ABSTRACT

Flooding is a very serious issue and annual occurrence disaster in Kelantan state on the east coast of Peninsular Malaysia. The 2014 flood is considered to be the worst and largest recorded flood in the history of Kelantan. The impact of this flood has caused the state with costly of damage and a massive destruction as well. The importance to the refinement of the effects of these floods is the need to draw up a flood management policy, which is driven by understanding of the frequency of this flood impact. In flood research studies, better understanding of the causes, effects, and patterns of floods is crucial in reducing the impact of floods in the future. This paper present the findings and analysis of questionnaires survey to 50 respondents who directly involved in managing the institutional building. Based on findings from literature reviews on previous research, natural factors combine with heavy monsoon rainfall and intense convection rain factors the flood become significant to the Kelantan. These include the regional geography, land topography, and excessive run-off water originating from the South of Kelantan highlands. In addition, rising tides, insufficient dam capacity and poorly organized city expansion plans also contributed to the problem. Efforts of government agencies to address these issues seems to have been constrained by lack of data, lack of awareness among locals people, and lack of knowledge about flood risk reduction. These are lead to the issues and problems of disaster relief provided by the government to the victims. Therefore, the aim of this research is to assess the current understanding of flood risk management used in Kelantan and to offer recommendations so that future floods disaster preparedness and mitigation.

Keywords: Flood; Flood risk management; Mitigation; Preparedness

Phase Change Material Integrations To Building Walls In The Tropics: A Case Study For An Office Building With District Cooling Supply*

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University Of Malaya

ABSTRACT

Urbanisation at a surging rate poses a threat to the urban energy systems. Series of energy-relevant actions have been taken by the building industries to implement effective policies in regulating energy consumption sustainably. Also, the office buildings in cities are the dominant consumer in energy supply chain, especially buildings with district cooling system (DCS). In the tropics, energy consumption supplied from district cooling systems to office buildings are likely to be increased to supply cool air to the occupied areas. Whilst, phase change materials (PCMs) are gradually becoming popular amongst energy-efficient solutions due to their benefits in discouraging stored latent heat with maintaining almost unchanged temperature. It has low thermal conductivity which act as a good thermal moderator given that phase change occurs. Additionally, validated thermal effectiveness of PCM integration to tropical office buildings boosts further controversies and research involvements in the tropics, which is rarely explored extensively in the building sector. Hence, this study intends to explore the application of PCMs' onto buildings' wall and how their thermal performance could achieve energy-saving respectively to building with district cooling systems. To evaluate PCMs' effectiveness, the parametric investigation is conducted via a quantification way within a studied office building in tropical cities such as Kuala Lumpur. The results would help potential current and future research for better understanding on PCM application in the tropics and how such materials function well for a better thermally-performed wall.

Keywords: PCM Integration, Building Wall, Office Building, Peak Shaving, Thermal Performance.

Critical Elements In Technology Transfer Office (Tto) Process That Support Successful Research Universities (Rus) Technology Transfer

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ABSTRACT

Malaysian Research Universities (MRUs) is responsible to generate a large and growing proportion of scientific inventions. However, the success rate of commercialization in MRUs innovations are low based on start-ups/spinoffs companies and Intellectual Properties Rights (IPR) produced. Only 5% of the research and development from MRUs is being commercialized. Therefore, there is a need to enhance Research Universities (RUs) technology transfer in order to increase success rate of commercialization of innovative goods and services that are consistent with regional economic growth. The purpose of this study is to identify the critical elements in Technology Transfer Office (TTO) process that support successful Research Universities (RUs) technology transfer. This study conducted as systematic literature review synthesis method to evaluate the trend, identify the gaps and recommend future approach in order to increase rate of commercialization within Research Universities (RUs) technology transfer that focuses on roles and responsibilities of TTO, startups/spinoffscompanies process of formation and innovation ecosystem. Results of the study would include characteristics of successful RUs technology transfer through TTO and strategies to increase successful commercialization of innovations through RUs technology transfer. This study contributes in best practices in TTO that support successful of RUs technology transfer to increase success rate of commercialization of innovative goods and services that are consistent with regional economic growth in Malaysia.

Keywords: Research Universities . Technology Transfer. Startups . Spinoffs . Technology Transfer Office. Innovation Ecosystem.

Potential Of Integration Of Internet Of Things (IoT), Building Information Modelling (BIM), And Blockchain In Carbon Emissions Quantification

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ABSTRACT

Global warming is a critical problem that resulted from excessive greenhouse gas emissions and 97% of the greenhouse gases are carbon emissions. Various assessment methods have been done to measure the carbon emissions, but the traditional methods are deemed to have low productivity and the accuracy of the quantified carbon emissions is debatable. This will affect the effectiveness of mitigation efforts to reduce carbon emissions. This paper aims to review the potential of integrating the Internet of Things (IoT), Building Information Modelling (BIM), and blockchain to quantify the carbon emissions throughout the project life cycle. The current literature will be reviewed to identify the state-of-art for the application of IoT, BIM, and blockchain for carbon emissions quantification. The review concluded that IoT, BIM, and blockchain have the potential to reduce manual effort and human errors in measuring and recording real-time carbon emissions. IoT is capable to extract real-time data from the physical environment. Meanwhile, BIM can reduce document errors, enhance the collaboration between the stakeholder, and improve the workflow across the supply chain, and Blockchain is well-known for its tamper-proof characteristic which increases the reliability of the data stored. These technologies have great potential to enhance the reliability and accuracy of carbon emissions measurement as compared to traditional manual approaches. In short, the integration of the technologies can increase the credibility in quantifying the carbon emitted and facilitate the selection of the most appropriate retrofit scenarios for emissions reduction.

Keywords: Research Carbon emissions quantification, blockchain, Building Information Modelling (BIM), Internet of Things (IoT).

Challenges, Opportunities and the Way Forward in the Malay Settlement Along River Fringe

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ABSTRACT

The need for a better quality of life is driving the pace of urbanization in our country. Today, almost 80 per cent of Malaysians choose a metropolis area as their residence, which is arguably far beyond the rate of world urbanization currently at 55 per cent. Currently, the Malay settlement in their homeland is under threat. Despite Malaysia's 64-year independence, the Malay settlements continue to lack infrastructure services. The question is why the situation in the Malay settlement remains precarious. This situation demonstrates that they are confronted with a significant predicament that only worsen if the issue is not addressed immediately, fearing that the Malay would be unable to compete in the pace of urbanization. Malay settlement at the river's fringe is a rampant problem heightened with the threat of natural calamities. The main objective of this study is to assess the impact of urbanization and the threat of natural calamities on the morphology of Malay settlement patterns in Kota Bharu, Kelantan. The research approach employs exploratory approach, drawing on existing literature on the consequences of urbanization and natural calamities, as well as data collected from 350 local respondents during fieldwork in April 2019. Furthermore, it is supplemented by observation and visual analysis data, which architects, planners and urban designers commonly deployed to evaluate the context of a discussion. These include physical, social, cultural, and public facilities, and the data gathered has been amalgamated using IBM SPSS V26, supported by interview techniques and photographic evidence. Mapping techniques are being used to generate existing settlement patterns through the Google Earth and Google Maps application. Finally, AutoCAD 2018 software delivered the most updated layout on the Malay settlement patterns study area. According to the results, the impact of the floodwall construction in 2014 has resulted in changing patterns of Malay settlements. Eventually, the area became a target for private developers interested in future Malay settlement expansion.

Keywords: Malay settlement, urbanization, natural calamity

Issues and Challenges of Inclusive Heritage Environment in Malaysia*

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ABSTRACT

Heritage is part of culture, community, history and identity of a country. Therefore, heritage must be made accessible to all. Currently part of our community are unable to access our heritage environment. The needs of this community is being pushed even further in this pandemic era eventhough the concept of inclusive cities was part of Goal 11 in the UNESCO's Sustainable Development Goal (United Nations, 2017). This vulnerable communities include people with disability (PWD), people with temporary disability, elderlies, stick users, pregnant women, and parents with strollers. There are many issues and challenges await to achieve this goal. The Covid-19 pandemic definitely impacts all countries and adds to the challenges. Things are already happening but the pandemic is making things worse. Therefore, it is vital to make take action and make our heritage environment accessible to all. Heritage inclusivity includes access to, from, within and around the tourism spots and buildings such as museum, galleries, landmark buildings and cultural facilities. Currently, heritage environment has given a great challenge to some users to access them independently. This paper aimed to address the issues and challenges of inclusive heritage and the possibilities to improve the situation. This paper is looking into themes of Heritage Environment, Sustainable Heritage, Inclusive Heritage, Heritage Conservation and Universal Design using the Elsevier database using Mendeley Web search engine as starting interface, and furthering with content analysis of documents collected under the area of heritage and universal design. The analysis are made using Malaysia as the key reference and furthering with compare/contrast table to other developed countries.

Keywords: Heritage Environment, Sustainable Heritage, Inclusive Heritage, Heritage Conservation, Universal Design.

Potential Up-cycling of Green Product Packaging for Promoting Circular Economy

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ABSTRACT

Up-cycling is called creative reuse, which is the process of converting by-products, waste materials, useless, unnecessary products into new materials or products. They are considered to have higher quality and value. To reduce unnecessary waste disposal to landfills, it is necessary to recycle the packaging and make a unique up-cycling to expand its use value. This article attempts to record potential up-cycling of green product packaging for promoting circular economy. The initial research is based on the selection of literature reviews; designers can consider using product packaging recycling and upgrading reuse. This article describes the results of a literature survey on green recycling systems, resource recycling, and product up-cycling. The results suggest that by recycling unique and sustainable product packaging, users should be more aware of the resource reusing of renewable materials, promote the upgrading of product packaging, and circular support economy. The research results will help provide a reference for the up-cycling of green product packaging to encourage the development of the circular economy. This study contributes to the future development of a proposed framework for upgrading and transforming green product packaging.

Keywords: Green product packaging, recycling system, reuse, up-cycling, packaging design.

The Influence of Public Artworks with Children's Painting Characteristics on Urban Culture and Public Space*

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ABSTRACT

With the rapid development of society, the urban environment is facing great challenges. It is necessary to carry out public art design in urban public space. Integrating public art design into urban cultural construction can build a good urban image. The purpose of this study is to explore the impact of public art works with children's painting characteristics on urban culture and public space. This study presents a preliminary literature review to understand the background knowledge of public space. It includes the analysis of the relationship between public works of art, urban culture and public space. The purpose is to explore the impact of public works of art with the characteristics of children's painting on people's happiness in public space. The research results include analyzing the background knowledge of public space, exploring the relationship between public art and urban culture, and analyzing the impact of public art works with children's painting characteristics on the public space and the people's happiness. They lead to the development of the theoretical framework of improving the quality of public space and urban cultural connotation through excellent public art works, so as to stimulate public happiness. This research can help artists to create more high-quality public art works for the urban environment, so as to arouse people's happiness. At the same time, the research helps to build a good public space and urban image and to promote the development of the city.

Keywords: Public space, public art, urban culture, children's painting characteristics, subjective well-being

Patients With Varying Backgrounds And Influencing Factors During The Epidemic*

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ABSTRACT

The spread of COVID-19 has created a sense of panic among the general public, which necessitates a change in the way people visit hospitals in order to protect the resident patients. This study is part of a larger case study research methodology for improving the safety of resident patients in a Chinese public hospital. Combining information from resident patients and the types of diseases they suffer, as well as factors that can affect hospitalised patients, to find a precise and effective solution to infection prevention. Previous research was more concerned with a patient's recovery under normal circumstances. Isolation is the best way to control an outbreak once infected people have been identified. As a result, given the patient's condition and mental state, the same precautions will not be taken for all patients suffering from various diseases. The authors present an early selective literature review in this paper to evaluate general approaches that can be used to respond to major diseases and prevent infection during an epidemic. Then it conducts additional research on how to apply the findings to the Chinese public hospital. The findings are expected to lead to the recommendation of key aspects in developing a guideline for inpatients with various diseases while they are in the hospital. This study contributes to the documentation of various inpatients' information analysis and is expected to assist Chinese public hospitals in making various types of patients' stays more reassuring in wards.

Keywords: resident patients, diseases, mentality, precautions, Chinese public hospitals.