



Research Indaba* 18

SCHOOL OF ARCHITECTURE AND THE BUILT ENVIRONMENT

UNIVERSITY OF LINCOLN

B O O K O F A B S T R A C T S

14 FEBRUARY 2018



* Indaba is an isiZulu word for a community meeting.

Research Indaba'18

Good Design emerges through Good Research

School of Architecture and the Built Environment
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Sustainable Architecture and Built Environment
Culture, Society and Space
Construction Science: technology, materials and management

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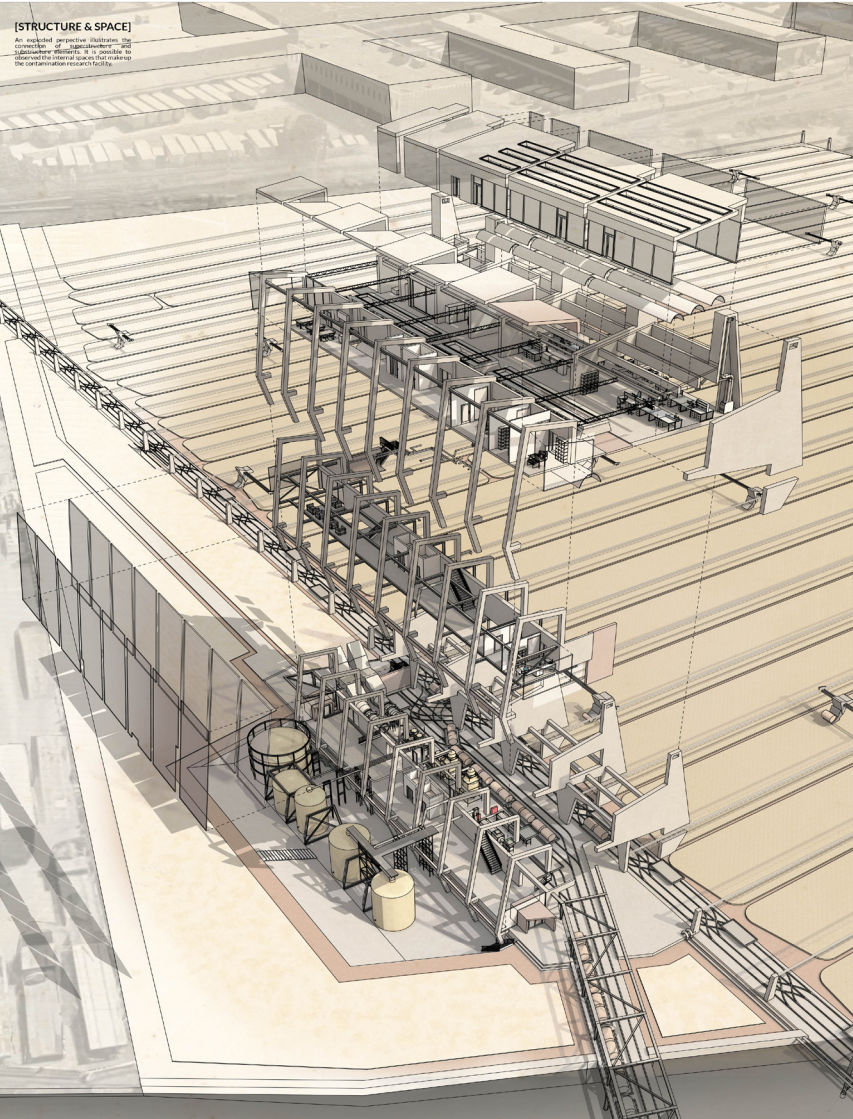
BOOK OF ABSTRACTS





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[STRUCTURE & SPACE]
An exploded perspective illustration of
concrete, steel, and glass structure – and
landscape elements. It is possible to
dissect the spatial organization and
the containment of each facility.

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“Excellent Teaching goes hand in
hand with Excellent Research.”





Good Design emerges through Good Research

Professor Glen Mills,
Head of School, University of Lincoln

Welcome to our School of Architecture and the Built Environment third Research Indaba! The world is continuing to change and evolve at a rapid pace. Our new School of Architecture and the Built Environment is home to a thriving and collaborative research culture. Students and staff have the opportunity to work together to create new knowledge with the potential to transform lives and societies. We embrace the interconnected and interdisciplinary nature of our global built environment through our teaching, learning and research activity. Research is at the centre of our teaching and learning agenda and through research-informed teaching we confront the key challenges that the industry faces, in terms of design, construction and occupation of our built environment.

The School carries out high impact research for the benefit of society. Our vision is to be recognised internationally as a centre of research excellence and teaching innovation in Architecture, Construction Science and allied disciplines for enhancing the design and production of tomorrow's built environment.

We encourage collaborative and interdisciplinary research at all levels and beyond the boundaries and borders within which we are located. Consequently, engagement activity with our local community is an essential element of our strategy. At the same time, many of our research active staff are engaged in national and international leading research with key external stakeholders.

Research and research-informed teaching are essential tools for nurturing our School's environment and playing a leading role in cutting edge education where creating new knowledge is at the forefront of our agenda. The papers being presented at this indaba reflect this interdisciplinary research ethos.



Natural Environment

Social Cohesion

Built Environment

Local Economy

Culture

Human Capital

Local Governance

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Research in the Lincoln School of Architecture and the Built Environment

Research in the School of Architecture and the Built Environment is undertaken through three interconnected research themes.

The research themes are:

**Sustainable Architecture and Built
Environment: buildings and cities**

Culture, Society and Space

**Construction Science: technology, materials
and management**



Sustainable Architecture and Built Environments: buildings and cities

The focus of this theme is theoretical and applied research concerned with reducing the environmental impact of buildings and cities to safeguard the environment as well as to enhance the health and wellbeing of people.

Key areas:

- Sustainable design and construction
- Sustainable planning and development
- Low energy building design
- Building performance analysis
- In situ thermal measurements and monitoring
- Post occupancy evaluation
- User comfort and satisfaction
- Whole life cycle assessment of buildings
- Energy management and carbon foot printing
- Eco-refurbishment/conversion
- Building Information Modelling (BIM)
- Data Integration Design (Big Data and the Internet of Things)



Culture, Society and Space

This research theme is concerned with relationships between the cultural, social and spatial characteristics of built environments and communities. This work includes analysis of the spatial morphology of informal settlements, which are a growing global phenomenon. This theme is also concerned with the health and wellbeing of societies, with an emphasis on the challenges facing an increasingly aging population.

Key areas:

- Space Syntax: theory and modelling
- Spatial morphology of buildings and cities
- Informal settlements
- Refugee settlements
- African traditional architecture
- Low income housing
- Theories of architecture and urbanism
- Place making
- History of architecture and urban design
- Cultural heritage
- Urban regeneration
- Social meaning of built environments
- Vernacular architecture
- Architecture and material culture
- Houses and households
- Building types and built forms
- Spatial agency
- Aging population



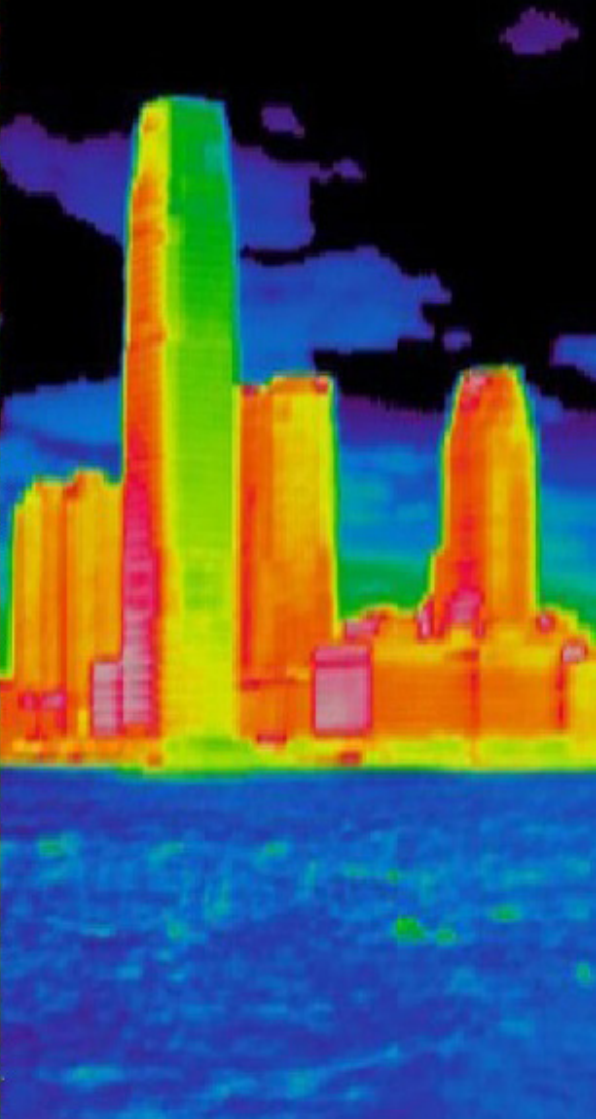


Construction Science: technology, materials and management

Researchers within this theme are engaged in work that addresses innovation in construction science, contemporary and traditional building materials and techniques, fabrication efficiency and the management of building processes.

Key areas:

- Environmental design
- Construction science and technology
- Energy, carbon and buildings
- Integration of structure, services and fabric
- Health, comfort and wellbeing
- Renewable energy and smart grids
- Material innovations
- Conservation of heritage buildings
- Digital engineering
- Building Information Management
- Procurement of sustainable buildings
- Modern Methods of Construction
- Population dynamics and the built environment
- Ecology and natural architecture
- Lean Construction
- Construction Procurement Systems
- Supply-Chain Management



Urban Form and Energy

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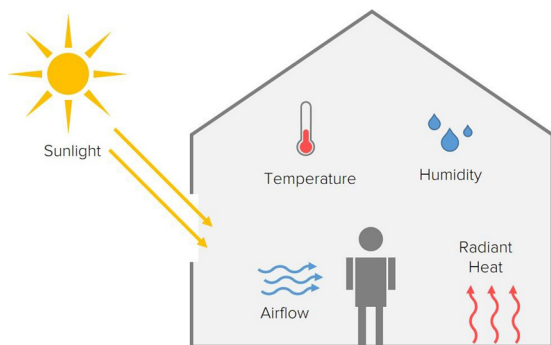
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The form of a city has an impact on its energy use. It has been reported that urban sprawl uses more energy for both transportation and buildings than compact cities, because not only people commute longer distance in sprawl neighborhood, but also detached houses consume more energy comparing to attached tall buildings. Internationally this has resulted in encouraging for compact cities. However, by the advent of renewable energy technologies, urban areas are increasingly generating their own energy from sources such as photovoltaics and ground source heat pumps where both require a larger area that cannot be achieved by compact high-rise buildings. So, these 'disruptive technologies' such as: PVs, electric vehicles, smart grids and blockchain energy supply suggest that dispersed cities of lower density maybe are more energy efficient.

This study adapts a comprehensive methodology which is mainly quantitative (measurement, simulation etc.), to establish the relationship between urban form (the shape of cities) and flows of energy (energy consumed and generated) within a city, and offer a novel way of analyzing urban form that will integrate transport and building energy use and account for disruptive technologies. The research hypothesis is that energy use is not simply the sum of energy flows in the various parts of a city but that urban form has

an 'energy signature'; the whole is greater than the sum of the parts. As a part of the methodology, the city of Lincoln has been chosen as one of the pilot studies. An "urban simulation tool" helps the researcher to conduct sensitive analysis. The models will propose a calculation method for energy-oriented town planning like energy mapping. Life Cycle Assessment (LCA) can be used as a tool to minimize the whole life impacts of activities and services. Due to interdependency of different parameters, the "trade-off" analysis would be unavoidable in this assessment. At the end of the study, the results may be employed as an influential model, guideline or framework for future urban developments of the cities.





Optimization of Energy Use for Heating and Cooling for Occupant's health, Safety, thermal comfort and Energy Insecurity in Palestinians Dwellings- The case of Hebron

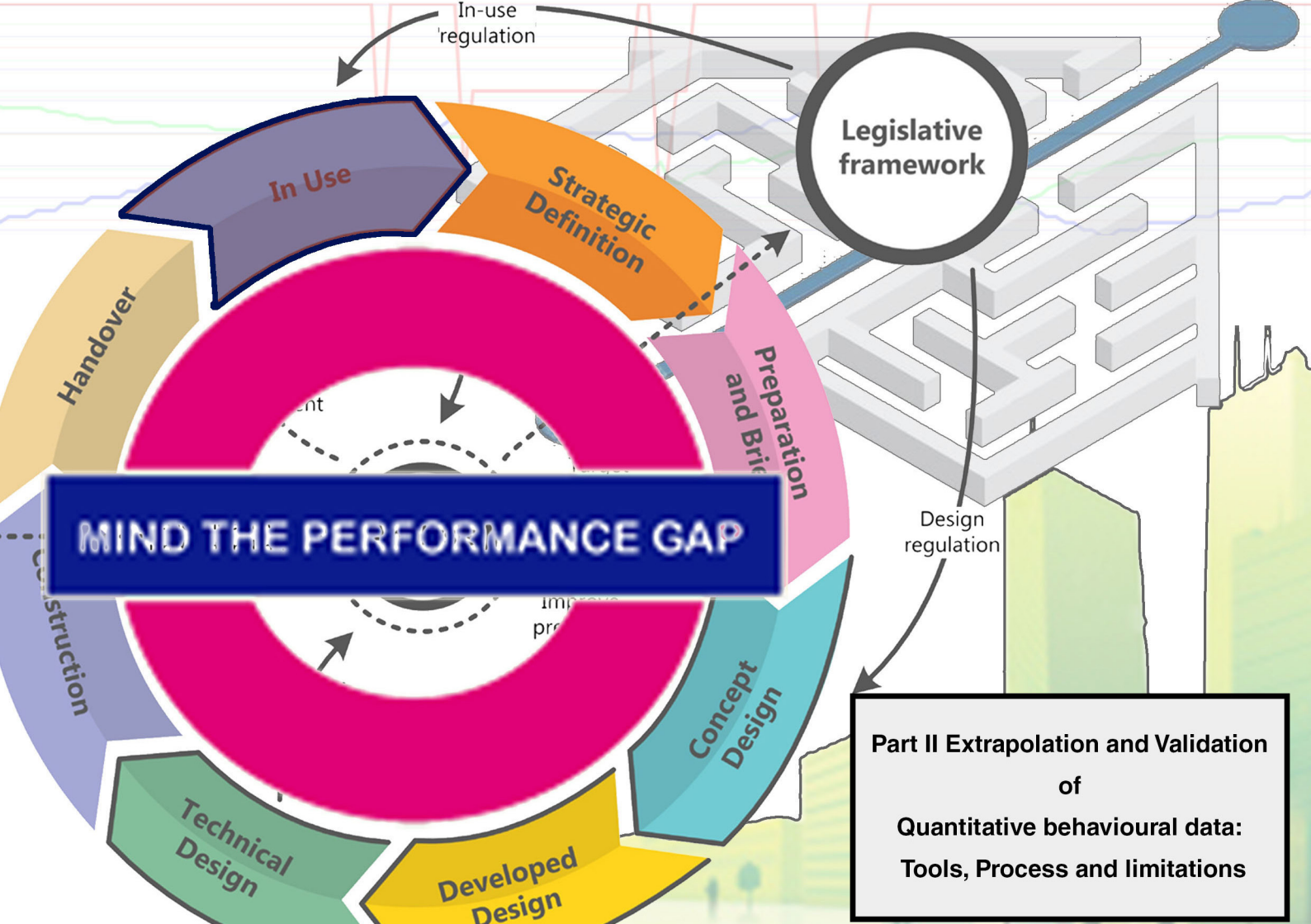
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Most of the energy resources in Palestine are procured through Israel, making energy not only unaffordable to many Palestinians but also insecure which impacts the residents' safety, health and thermal comfort and overall satisfaction. This research addresses the energy consumption in the residential buildings in Palestine. The research uses a mixed method approach (Qualitative and Quantitative) to answer the following question: how to optimize the heating and cooling demand and to ensure higher level of thermal comfort based on the adaptive model in Palestinian residential buildings? What are the design strategies that can be applied in the Palestinian dwellings to enhance health and thermal comfort? A critical literature investigation and primary research thorough data gathering and analysis including identifying the influencing factors that contribute to the energy consumption and the best practices for optimizing the energy for heating and cooling and increasing the comfort level in Palestine was undertaken.

The first part of this research was divided into two main phases: the first phase included the distribution of a comprehensive tailored questionnaire to Palestinian households to calculate the energy consumption, the rate of satisfaction of their internal environment in terms of thermal comfort and the main factors impacting the heating and cooling consumption. Based on the results from the survey, two regression models to estimate both the heating and cooling actual energy consumption were developed indicating the main factors that influence the consumption. The second phase entailed the selection of a sample of 30 dwellings to represent 4 housing typologies of the residential buildings in Hebron. The cases were investigated in winter and summer through field measurements and semi structured interviews with the households to get more insight of actual consumption of the heating and cooling energy in addition to the level of comfort and satisfaction of the occupants by the internal environment of their dwellings. Furthermore, two houses of the study sample were monitored for 3 weeks during summer and 3 weeks in winter. The internal temperature and the comfort level of the occupants were assessed in parallel using data loggers in addition to -right here right now- thermal comfort survey. This paper discusses the work done in more details and its validity, along with the major findings of the first and second phase of the research investigation and future work.



Investigating the effect of Multi-Configuration Household Behavioural Profiles on Energy Consumption Patterns in UK Industry context

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This paper is part of a continued project geared towards the analysis of multi-configuration household behaviour and determining the presence or absence of causal and statistical relationships within a code level 5 Eco-home in Lincolnshire, UK. The research methodology follows a mixed method bottom-up approach to detail and extrapolate energy consumption within households. That is achieved using room-by-room occupancy and, activity logs, questionnaires that use both quantitative scales and extraction of qualitative information, data loggers and the use of an experimental footfall study. The research utilizes the tools through the digitization of data into manageable cross-compatible units, the extrapolation of energy and occupancy trends from self-observation tools. The researcher has used Microsoft Excel to initially catalogue the raw data provided and then with the use of Microsoft Access created the functional relationships used to automate and manipulate the data sets to generate the energy/occupancy-time relationships

to cover time-steps and different periods of use. In addition, the research is using a well-established high resolution behaviour modelling tool created by the Centre for Renewable Energy Systems Technology (CREST), Loughborough as a validation benchmark for the extrapolated data as well as a tool to visually and contextually determine the gap in knowledge being addressed in this research. In addition, this paper will address part of future work being conducted, by a detailed IES model to identify any variance in overall performance of the house, compared with benchmarked data from the house's original specifications. This phase of the research concludes by determining the validity of the data extrapolation methodology and its use as a low-cost framework to bypass the difficulty of studying houses not fitted with often-expensive smart metering systems.

Mumbai is the densest city in the world. It already suffers from repeated blackouts, water rationing and inadequate waste and sewage treatment. The results of the study indicate, on a per capita basis, increasing density will have a significant further detrimental effect on the environment.



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The Design and Monitored Performance of a Zero-energy Building

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This presentation will describe and illustrate the research aspects of an award winning low-energy public library building on Waiheke Island designed by the author. Extensive simulation of the energy performance of the building and renewable energy technologies was carried out throughout the design stages that, after two years of monitoring resulted in a building that approached zero-energy use.

The community library in Waiheke was designed with the intention from the outset to produce a very low energy building. However, with the installation of 128 m² of PV panels, the building is on target to become a net zero energy building.

Temperatures and sunshine hours in Waiheke result in annual cooling degree-days exceeding heating degree-days which would result in higher energy use for cooling than for heating if air-conditioning was installed. In order to reduce energy consumption, an important environmental design principle was to avoid air-conditioning by using passive cooling techniques.

The feedback from the building some 2 years after it was completed have demonstrated its success in achieving its objectives of a free-running building that could be completely off-grid. Indoor comfort


has been achieved without air-conditioning and the RE system has exceed its anticipated contribution.

As the control systems are tweaked and full monitoring continues, the performance of the building will improve. The building already generates more electricity than it uses resulting in excess yield in all but the winter months. Further monitoring will reveal how close the likely increased output from the PVs and further energy savings could get the library to a zero energy building

The building was the winner of the 2015 New Zealand Timber Awards taking out the top award in the Commercial Architectural Excellence Category as well as the Overall Supreme Award.







Cultural heritage as a comprehensive evolutionary perspective on regional resilience of the Bedouins of Nuweiba in South Sinai, Egypt

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Today, the concept of regional resilience has drawn scholar's attention in the context of the current global economic crisis. This has brought about more clarity on the definition and meaning of resilience, however, no global consensus, as 'One size fits none'. In the built environment, there is a tendency to negate the engineering, equilibrium concept of resilience, in which resilience is regarded as a response to external disturbances and a move back to a steady state and the ability of a community to bounce back after a major disturbance. This paper instead advocates and adopts an evolutionary approach to regional resilience, in which the focus is on the long-term capacity of regions to reconfigure their socio-cultural and socio-economic structure.

In a large country like Egypt with long standing culture, heritage and civilization on one hand and the governmental pressure for rebuilding communities and providing long-term strategies for sustainable development. There is a pressing need to advocate a holistic integrative approach to regional resilience instead, where socio-cultural aspects vary intensely, and the focus should be on a sustainable strategy to the many varying regions of Egypt to reconfigure their socio-economic structure. However, Martin

(2012) argues that the long-term adaptive capacity of regions is still 'largely un-researched'. As such, an evolutionary perspective on regional resilience is still work very much in progress and this research is part of work done with reference to the South Sinai region in Egypt.

The paper discusses a timely topic addressing the vulnerable Bedouin communities in South Sinai. South Sinai is a well-known international tourist destination. Bedouin tribes in the area add a distinctive cultural component to the natural attractions. As tourism is the main economic sector in this area, the Bedouin commonly rely on it as the main source of livelihood, thus, finding themselves vulnerable in front of external investors and general recession. In addition, invasion of external developments on local settings and contexts of various remote societies in Egypt has been evident in many cases, as in South Sinai. This in turn risks a potential loss of distinctive indigenous cultures and identities. The paper is part of continued work undertaken by the researcher on cultural heritage in Egypt and presents part of an international research-funded project by the British Council Newton Musharafa Researcher Link Fund between the School of Architecture and the Built Environment, University of Lincoln in the UK and Integrative Urbanism and Sustainable Development (IUSD), Ainshams University, Cairo, to develop a sustainable resilient framework for local community resilience that conserves the cultural heritage of the Bedouins and sustains their livelihoods.

The work presented in this paper stands as a catalyst for generating new sustainable strategies and approaches that will be of utmost importance to the regional resilience focusing on socio-cultural and socio-economic welfare of low-income communities in Egypt and the benefit of other stakeholders at large.



What Happened to Healthy Cheap Homes for Everyone? Challenges of the Natural Building Movement at the Beginning of the 21st Century

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The natural building movement has been developing techniques and practices that meet the aspirations of contemporary architecture. The movement has been promising a revolution and healthy cheap homes for everyone. This begs the question: Why is the movement still so marginal? Why is it not more influential?

My research attempts to map problems that the movement faces by identifying potential challenges and analysing critical comments, statements and narratives of the people involved in this movement. Selecting critical narratives is intended to form an invitation to discussion on how the natural building movement could promote its valuable ideas and techniques in a more effective way.

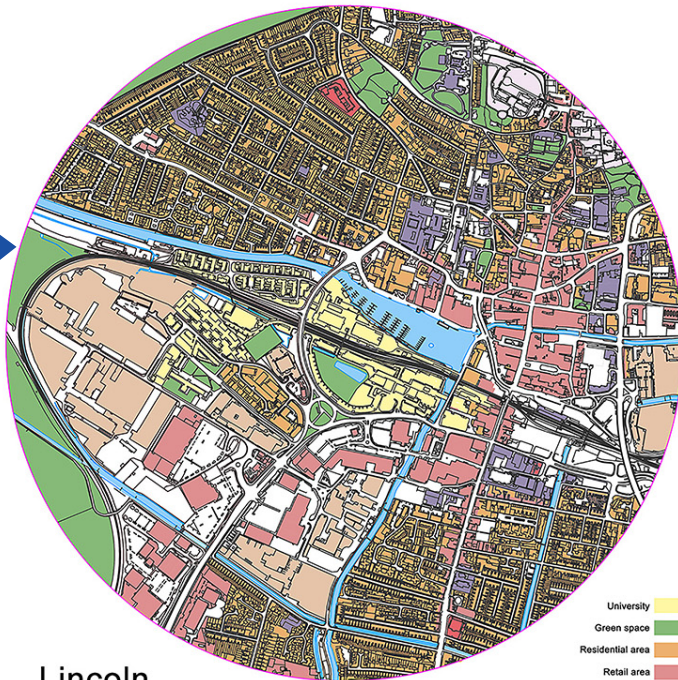
Natural buildings (NBs) are nothing new but the natural building movement is. People have used stone, earth, timber, straw or bamboo since mankind came up with the idea to build. But probably never before has it been so relevant to appreciate those techniques.

In 21st century, when the construction industry is blamed for being responsible for one third of waste and half of carbon dioxide emissions, it seems unwise to ignore alternatives, yet this is exactly what happens.

In the last four decades NB movement has been dedicated to developing technologies able to produce cheap, healthy buildings for all – without waste and with minimal consumption of energy by using unprocessed, biodegradable materials and technologies which are accessible and socially relevant.

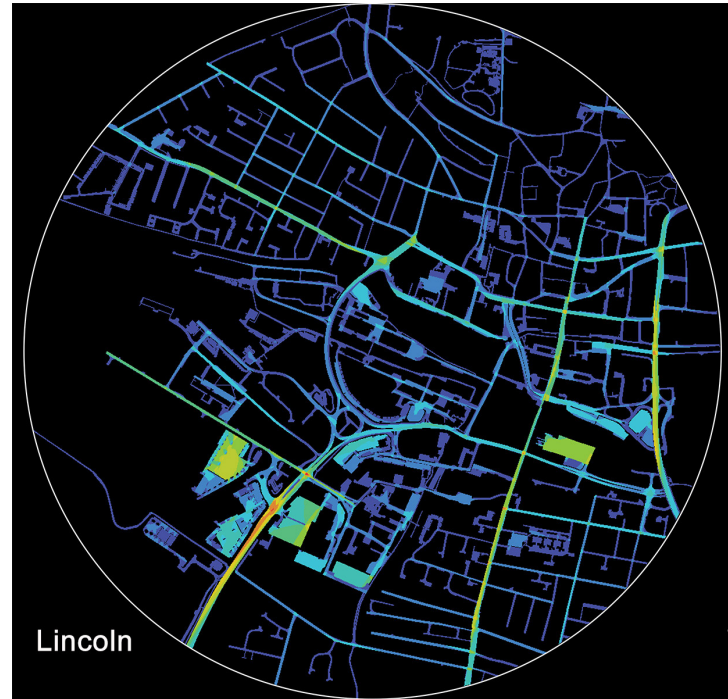
This presentation does not offer final recommendations but is an invitation to a discussion about the condition of the movement and its potential to create a real change.





Lincoln

- University
- Green space
- Residential area
- Retail area
- castle and cathedral
- Industrial area
- School
- Commercial area
- Water



Lincoln

City/Campus Duality

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On the 19th of April 2013, the Museum of the History of Polish Urban space transformations can include direct changes to the physical components of the city and these alterations integrate with changes to the social composition and socio-cultural dynamic of the community itself. A key inter-relationship pertinent to spatial-cultural dynamics in many United Kingdom (UK) cities is the physical relationship between the university and the city.

This paper discusses the reciprocal spatial impact of the university of Lincoln campus and the surrounding urban space on the city of Lincoln. Lincoln is a historical cathedral city, in Lincolnshire; one of the counties in the East Midlands. The city is rich in history and architecture, which has its origin in pre-Roman times. Lincoln is well known for its well-preserved Gothic cathedral and its historical castle centre in the Bailgate and Steep Hill areas. The University of Lincoln (UoL) has its origins in 1861, originally situated in Hull, a city 30 miles from Lincoln. The new university moved to its new main campus in Lincoln in 2001 which was opened by Queen Elizabeth II.

The University's main campus is on the Brayford pool and, significantly, it was the first new city centre campus to be built in the UK for several decades. University growth is not just about campus development, it is also about driving development within towns and cities. Universities are often the heart of a town or city and UoL as a case study provides a significant example of how a university campus transforms the socio-economical spatial environments of a city. These transformations

are reflected in the spatial integration and connectivity between the campus and city.

The paper aims to identify key socio-spatial relations between UoL and Lincoln city. The paper utilises mixed method research through the use of Space Syntax and observation techniques as a basic method/tool for investigation and analysis. The main findings of the study show the spatial configuration of the city is influenced by the campus, and vice versa, which indicates the duality in the relationship between the city and the campus.

“The concept of integral and inclusive design has gradually acquired global significance in the social, the academic, and the professional field, and is now going mainstream.”

Integral and Inclusive Design – A Better Approach for Housing Production for The Low-Income Earners: A Case Study of The South- Eastern States of Nigeria

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Integral and Inclusive Design (designing for the people, allowing them to make inputs, bearing in mind its effect on the community), has gradually become a global concept that represents integral and inclusive design for everyone. The concept of integral and inclusive design has gradually acquired global significance in the social, the academic, and the professional field, and is now going mainstream. There is the absence of a methodological framework to fix the underlying scientific investigations and existing literature. Hence, the main objective of this paper, is to discuss the enabling physical environment, prescriptive and descriptive approaches for Integral and Inclusive Design from the author's point of view, where all stakeholders involved in the housing production and delivery are brought together right from the pre-contract stage. This paper presents a variety of real people in real situations (including those with permanent functional limitations and those with temporary disabilities, due to illness, accident or pregnancy). This paper also considers the use of post-occupancy evaluation (POE) as a means of determining the reaction of users, the real people in existing designs,

identifying factors that will help to improve their current conditions, thereby guiding future designs of buildings for different individuals. It concludes that integral and inclusive design or 'Design for All', can only be complete if sustainability strategies are incorporated such as involving all the different stakeholders from the conceptual stage, till the post-contract stage, as an utopian construct, deeply rooted in human rights and in human search for comfort and elegance. It is therefore being proposed that, the acceptance of POE as an important and mandatory part as well as incorporating all key stakeholders of the proposed housing design, will lead to the production of better sustainable designs of buildings.





Source: Braunstone Residents'
network

Placing the Built Environment in social capital interventions: A case study in Braunstone NDC

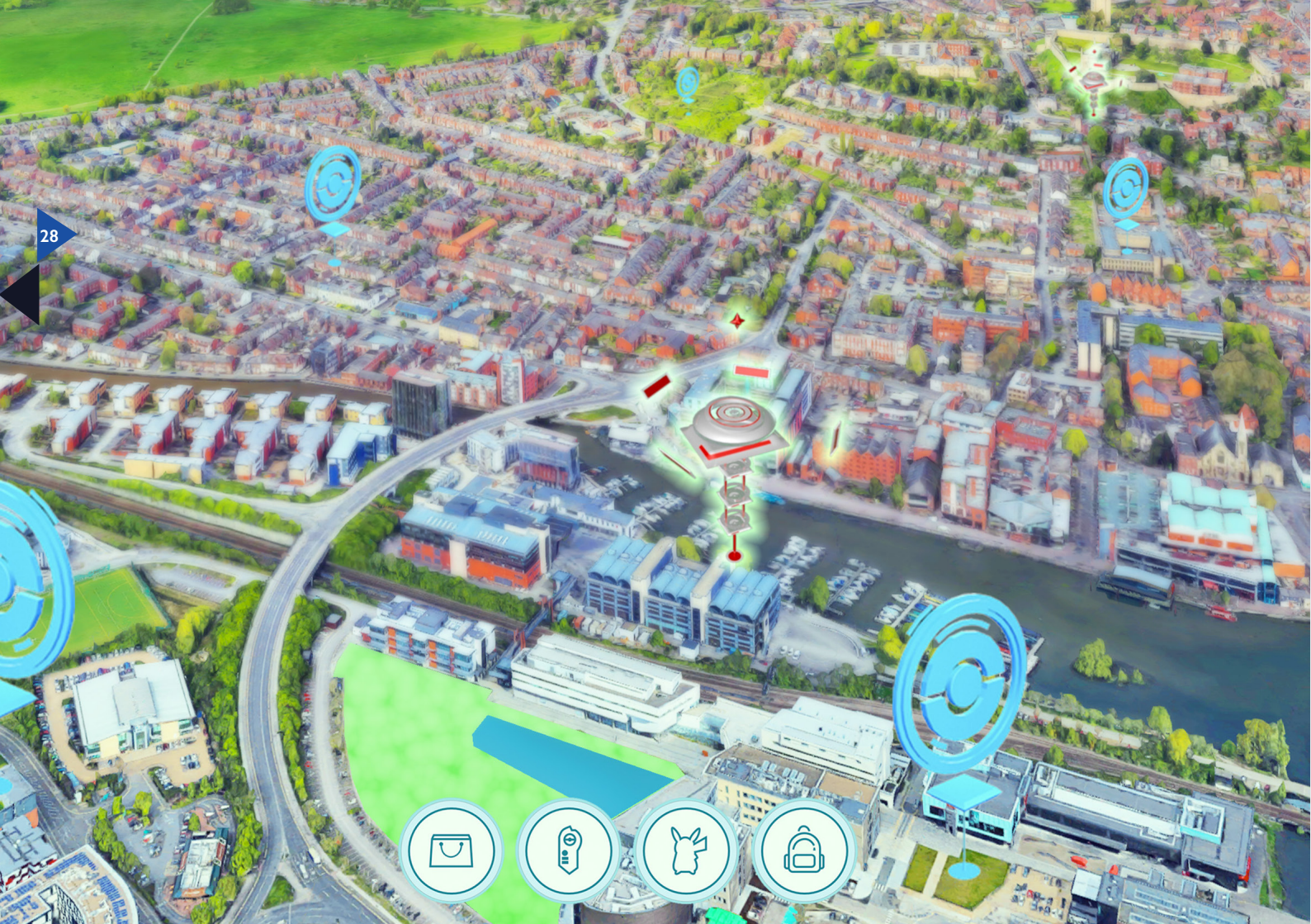
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In sustainable development models Social Capital is considered as a significant component of social sustainability. In Area Based Initiatives such as New Deal for Communities (NDC) in the UK interventions to develop social capital was considered as a means to empower the community for long term capacity building after NDC. In parallel, there were interventions to improve the built environment, mainly as new build of facilities and retrofitting derelict properties. Seven years after completion of Braunstone NDC, this research aims to understand: What are the outcomes in Area based interventions for Social Capital? Is there, and if so what is the nature of causality between Social Capital and the built environment in Area Based Initiatives? Does the Built Environment play a role in the evolution of Social Capital over time? As Social capital is believed to evolve over time, data was collected in 2010 through 200 questionnaires, three focus group interviews and observations of facilities in use. In 2017 further data was collected with focus group interviews and on-site observations with local action groups: the history group; resident network and food share groups, publications of the B-connected initiative and social media of the residents' network. Initial results suggests that the built environment can affect place branding, sense of identity and type of bonding and bridging between groups of people.

Pride in where you live continues to be important to locals where local action groups continue to play a role. However, with the well-known relative success of Area Based Initiatives in especially in outer city single ethnicity working class areas in the UK, inconclusive results may point towards an over theorised causality between place and capacities of marginalised communities to shape their destinies'.



Virtual Placemaking - The re-discovery of architectural places through augmented play: A playful emergence between the real and unreal

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In current time reality is being augmented virtually. There is an increasing use of augmented reality and virtual reality technology and application. Few augmented reality applications have found their ways to every day's handheld devices of the public. Software developers are competing to enter the market and to provide a virtual experience for everyone through applications and games. With the availability of 4G networks and the proposition of the following generation of network, more devices are being wirelessly connected. This connection provides location-based services including mapping. Games are utilising location-based maps to provide an augmented gameplay experience.

One of these games which stood out and gained popularity is Pokémon Go. While this game was released for entertaining

purposes, it brought few extra perks that affected different aspects of its players' lifestyles. One of these perks is allowing them to have a new experience of wandering around in the urban context, moving from one stop to another looking for gaming rewards and naturally re-discovering the city and its architecture from a pedestrian level. In addition, a new phenomenon emerged, a phenomenon of collective playing crowds (Pokémon Masters) which can be spotted in specific locations at certain times. The new experience and the phenomenon are powered by gamification. Since architects and urban designers hold some responsibility for the current reality of architectural spaces. A question is suggested regarding the effect and the potential of such applications and games for architects and designers.

This paper introduces the concept of "Virtual Placemaking" for architects and designers as a potential application and approach in design. This will be achieved through: exploring the effect of Augmented Reality Games on the experience of architectural and urban spaces; identifying the role of Augmented Urban Gamification in rediscovering cities and redefining architectural spaces.

“There seems to be particular project delivery approaches and mindsets embedded in the organisational fabric of the construction industry that prevail regardless of the attempts to address the recognised inadequacies.”

Why do Wasteful Construction Procurement Practices Persist within the UK Construction Industry?

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The construction industry is often criticised for its opportunistic, risks averse, adversarial and very competitively cost-driven environment. These characteristics have been attributed by scholars to various factors including fragmentation, an adversarial hierarchical structure, confusing and treacherous contractual arrangements, a highly competitive and cost- driven environment, and the sequential organisation of construction processes. The prevailing project-procurement processes are thought to be a root cause for these issues, and to adversely affect the extent of cooperation and trust needed for project success.

Numerous industry reports have been commissioned by the United Kingdom (UK) Government and industry organisations, over the past eighty years, with the aim of highlighting concerns and suggesting means for improvement. These reports have proffered different solutions for delivering the industry-wide reform needed, including the use of partnering and framework arrangements, new models of construction procurement, Building Information Modelling (BIM), and Project Bank Accounts (PBAs) to support collaborative practice. However, despite the many criticisms and the different solutions offered, the construction industry persistently

resists the radical change demanded of it. There seems to be particular project delivery approaches and mindsets embedded in the organisational fabric of the industry that prevail regardless of the attempts to address the recognised inadequacies – Thus, the study raises the question of why prevailing (imperfect) construction-procurement practices persist?

Through the use of a grounded theory methodology, this study contributes to knowledge by: (i) providing a compendium of prevailing procurement practices in construction, and (ii) exposing the root-causes for the apparent coherence of prevailing procurement practices in construction. In particular, this study identified various (imperfect) institutional factors that contribute to the generation, prevalence and persistence of wasteful procurement practices in construction. Consequently, it is argued that any industry-wide initiatives for improvement will stall or at least fail to achieve its full potential, unless these 'institutional barriers' are addressed.





The Longitudinal Post Occupancy Evaluation of an Office Building

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This presentation presents the results of two post occupancy evaluations (POE) of an office building with around 200 occupants. The first POE was carried out in 2008, three years after the completion of building, to determine the energy performance of the building and perceived comfort levels of its occupants. The comfort survey was conducted on line using a questionnaire using the commonly used seven-point psycho-physical ASHRAE scale.

Longitudinal post occupancy evaluations are effective in better understanding long term performance of buildings. There are not however extensive results reported on this in the literature. In 2016, we started the second POE of the same office building to analyse its long-term performance. In addition to a similar on-line survey we carried out in 2008, we also included further questions in the survey to analyse the potential of adaptive comfort.

In the second POE, we also measured the internal environmental conditions of the building using humidity/temperature data loggers recording data for a total period of 30 days at five minutes interval. In addition to data loggers, other environmental parameters such as light and sound levels as well as CO₂ concentrations were measured using hand held equipment.

One of the main findings is that the adaptive approach to comfort, though mainly applicable in naturally ventilated buildings, could play a major role in enhancing users' comfort in HVAC buildings.



Inside learning - a participatory app for researching the effectiveness of school environments

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Our current knowledge of school building design in relation to its effects on learning is not well developed. This is due to the complex nature of the environments, lack of consensus about criteria for their pedagogical assessment, and attendant methodological challenges. Post-occupancy evaluations fail to assess whether the school estate can support particular institutions' pedagogies and they don't consider view of their key constituency, i.e. students. Whilst there appears to be a strong link between effective engagement with users and the success of environmental change in having an impact on behaviour, well-being, and attainment, facilitating collective decision making is today often prohibitively expensive.

This presentation will introduce a bespoke tablet/smartphone application designed to explore the relationship between the students' engagement in learning and the spatial affordances in several recently completed urban secondary schools. The

research tool employs the Experience Sampling Method. It collects information from individuals about their school related experience in situ – by sampling participants' thoughts, feelings or behaviours as they occur and in the environment within which they occur. It combines a focus on lived experience with an attempt to use the tools of empirical investigation. The procedure gathers both quantitative and qualitative data that allows the comparison of the compatibility between the buildings and the pedagogies they host, examining how particular spatial organisations might be congruent to collaborative and cooperative learning, and possibly inspiring future design interventions.



Digital Architecture Studio

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Whilst distance learning, such as the Open University, is a well-known and accepted form of education, online learning, through digital means but in real time, is increasingly becoming more popular. In recent years, universities around the world are being compelled to move more into the digital realm of teaching and learning, in order to broaden the base of the potentials of education, be able to address diasporic communities, and address increasing impacts on resources. Such course offerings are popular in the more empirical fields such as business, management etc. but have had limited application in the more creative, studio based fields such as architecture. Whilst a number of universities in the United States offer online degrees in Architecture at both undergraduate and postgraduate levels, the numbers in the United Kingdom fall short of the potential that they could offer in allowing a broadened sector of student admissions.

The University of Lincoln considers moving into digital education an imperative in addition to broadening the international profile of the University through collaborative projects. This Digital Architecture Studio aims to fulfil some of these aspects through experimental teaching using online teaching in architecture as opposed to distance learning. This paper will describe the origins of the current project, show some of the studio work that has occurred thus far, and conclude with the potential of moving architecture into a broadened digital work space.



“The architecture of the everyday
is constantly evolving, subscribing
to the requirements of society and
determined by material and fashion.”



Immigrants, protest and aspiration: the curious case of the current polemic in South African vernacular architecture

Dr. Debbie Whelan

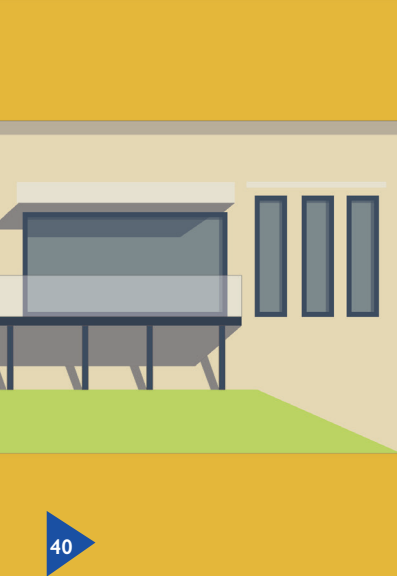
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The architecture of the everyday is constantly evolving, subscribing to the requirements of society and determined by material and fashion. In settled, established countries with obvious and long-determined social stratification there is limited scope for drastic change in the quotidian vernacular, restricted as it is by standard norms derived from tradition, in addition to a strictly imposed legal framework which controls building design and implementation.

However, for societies which have recently experienced significant change, new vernaculars are more overt. In South Africa, a rapidly expanding black middle class is unilaterally establishing its own hybridised, often experimental vernacular, utilising a neo-classical toolkit to replicate affluent homes constructed in themed gated estates, defying the now marginalised colonial aesthetic and its reactionaries. At the same time, the architectural profession ponders appropriate buildings forms for the sub-continent. This paper discusses these hybrid vernaculars, suggesting that the role of the articulate profession in the polemic of relevant architecture is redundant in the face of the production of mass architectures by the inarticulate new middle class.

“For societies which have recently experienced significant change, new vernaculars are more overt.”





“Post occupancy evaluation shows that the energy use in Passivhaus homes are generally very low, and that running costs are considerably less than standard housing.”

Passivhaus: the architectural typology of low energy housing

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The growing number of Passivhaus buildings in the UK suggests an increasing acceptance of the low energy design methodology. Post occupancy evaluation shows that the energy use in Passivhaus homes are generally very low, and that running costs are considerably less than standard housing. However, the move to adopt Passivhaus Planning Package (PHPP) as a mandatory standard has been resisted in many areas with a belief that the benefits are outweighed by the limitations imposed on architectural design when using PHPP. Case study analysis of 42 Passivhaus homes has been conducted to examine the architectural typologies that are generated from the use of PHPP in the UK. This research explores the impact of the Passivhaus design approach on orientation, fenestration, size and spatial relationships of the buildings and determines the impact that it has on architectural design. Qualitative research with the occupants of these homes provides a further understanding of the lived experience of Passivhaus and how users adapt to the technical systems that are required to achieve Passivhaus certification. The case study analysis reveals connections between adaptations made by those living in a Passivhaus to achieve comfort, and questions how different this really is to standard housing.

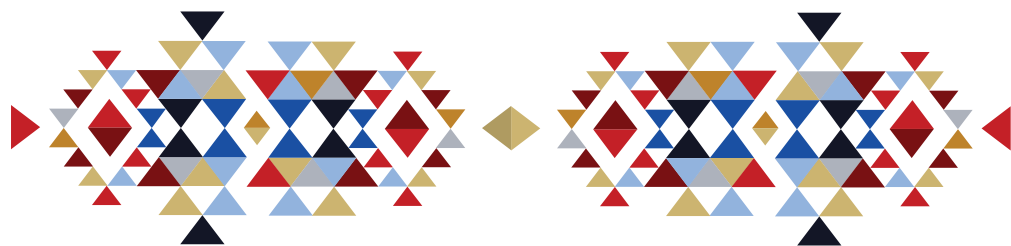


Ngiyabonga : Thank you

This year's Indaba was planned by a dedicated team that, for the last few months, has worked hard to produce another successful moment in the School of Architecture and the built Environment.

A very special ngiyabonga (word of thanks in isiZulu) to the following for their energy and inspiration: Susan Simpson, Dr Amira Elnokaly, Professor Behzad Sodagar, Professor Glen Mills and all the students who assisted. Thanks also to all the presenters and chairpersons.





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