

NP2002

BIOPHILIC DESIGN: MAINSTREAMING THROUGH THE PLANNING SYSTEM.

Research Question: How does biophilic design, in the form of green roofs, facades and walls, become embedded into the mainstream design process?

The research intends to explore and evaluate the level of mainstreaming of biophilic urban design, focusing on green roofs, walls, facades and other building-integrated vegetated systems. The project also seeks to identify the perceived and actual barriers to wider uptake along with the motivators among stakeholders who are considering applying the concepts of biophilia into building projects.



Figure 1: City of Melbourne Urban Forest Strategy and Precinct Plans 2012-2032.

Sub-questions:

1. Are the technical issues concerning innovative biophilic structures resolved?
2. What is the perception of biophilic urbanism in a standardised design process?
3. What are the main barriers to biophilic structures in the design process?
4. What are the techniques, planning

processes and a business case for mainstreaming innovative biophilic urbanism?

Methodology

The research will use case studies to develop some key mainstreaming principles, masterplans, codes of practice, zoning, regulations, and quantified business cases. Several case studies have been selected, including cities such as Singapore, Melbourne, Vitoria-Gasteiz, and Perth with a focus on Greater Curtin. The research project is due to be completed in 2018.

Results

The urgent need of applying biophilic elements across urban areas has prompted more investigation into barriers, drivers and economic benefits of biophilic structures on a community, precinct and city scale.



Figure 2: Vitoria-Gasteiz in Spain has over 15 years of experience in nature-centred urban design which has led to its official recognition as a biophilic city.

Theoretical literature on the necessity of biophilic design are now available but the applications are not common.

In recent years, a growing body of research on the performance of biophilic structures has shown a significant reduction in the carbon footprint along with other important benefits such as improvement of human health and well-being, enhancement of urban biodiversity and ecosystems.

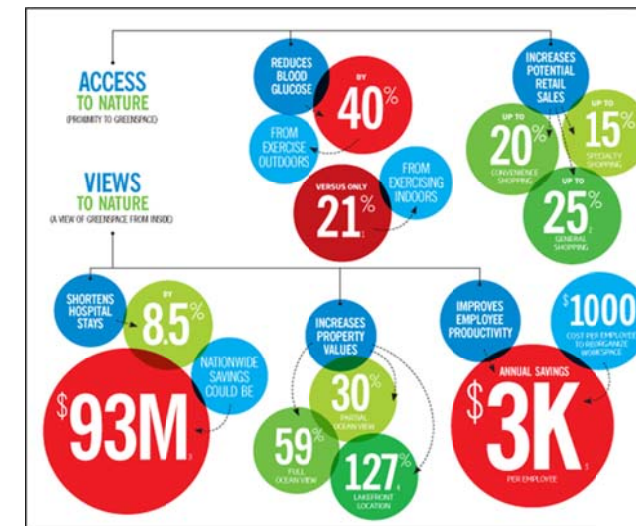


Figure 3: Bottom Line Benefits of Biophilia by William D. Browning, 2012.

Whilst conceptual understanding of the benefits has been recognized, they have not yet been translated into financial gains. Showcase examples are needed including local ecological and cultural contexts, climate and weather patterns, to provide the accurate and appropriate and locally derived data of the economic benefits of the biophilic design.

Conclusions

A Planning Processes Framework to

enable biophilic building-integrated structures is needed, considering the whole strategic and statutory planning process. A Strategic Business Case is necessary to demonstrate: costs to investors, clients and government (if subsidies apply), benefits to clients and public, economic and social return on investment, barriers and drivers for implementing biophilic design.

Anticipated impacts

The Strategic Business Case based on live precinct-scaled projects will demonstrate a much needed conceptual model of cost-benefit analysis and it will include the financially measurable benefits delivered by biophilic structures. The Planning Process Framework will show how barriers to delivery of biophilic design can be overcome.

Biophilic Design to enable precinct planning to include greenery in, on and around buildings through a new Planning Framework and Business Strategy.

For further information please contact

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