

Editorial introduction: Design and Technology of Sustainable Architecture

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Editorial introduction

Design and Technology of Sustainable Architecture

Guest Editors

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The role of architecture and architects in sustainable design has aroused interests and discussions in both academia and profession. Architectural design, especially in terms of climate adaptability and responsiveness have been seen a huge positive impact on building design, construction, use, operation and maintenance. Factors such as building layout, orientation, envelope, and interactions with both the technological and immediate natural and surrounding built environment, influence immensely both energy consumption as well as efficiency and comfortability for the human user.

“Seminar on the Teaching and Research of Architectural Technology, and Forum on Sustainable Architecture and Design” was held from 19th to 21st April 2018, Singapore. The forum invited scholars and architects to come together on various topics of climate responsive architectural design. This forum provides opportunities for scholars to explore emergent internet-data-technology and sustainability design and control strategies regarding different climatic zones, in order to facilitate exchanges of practice knowledge, those who have focused on the calibration and controllability of building performance and operation (testing and experiments) of research labs; those who shed experience on teaching, and those who have come to forge a working connection among different universities.

This Issue consists of two selected research papers. The two papers responded to local climate from the point of view of the physical environment in both hot-humid, and cold climate, including solar thermal, natural ventilation and indoor air quality, etc. The third paper was selected from a sustainable urban design perspective.

Natural ventilation, as a passive cooling strategy, is a key climatic controlling means that is widely accepted and adopted by contemporary designers in response to mainstream green and health studies. [Song & Lau, \(2019\)](#) analysed the development of evaluative contents related to natural ventilation in the Singapore green building standard – Green Mark, conducted studies on typical naturally ventilated buildings prior to proposing effective design strategies.

For those “well-type” spatial connectors between urban railway traffic and building complexes, it displays an efficacy by means of delivering air, light and sun within the enclosure. [Tian, Jin, & Li \(2019\)](#) selected the well-

type space of five commercial building complexes of subway transit stations in Beijing in order to testify their physical environment status and user satisfaction in those coldest periods of winter. Possible solutions for optimizing well-type enclosure are proposed as a reference to optimizing integrated design integrating rail transport and other building complexes in urban settings.

Existing literature suggests that tradition has discouraged the use of bicycles in Indian cities. [Biswas, Mittal, & Padmakar \(2019\)](#) investigated further the reasons for less or unpopular cycling in Indian cities from a generalised understanding to a spatial analytics-based understanding at a neighbourhood scale. The study highlighted an array of non-conventional parameters in order to understand people's reluctance to cycling in the Indian context, and indicated feasible strategies for a citywide cycling implementation.

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