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Intersection between Architectural Criticism and Building Performance Analysis: current debates and future directions

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Current sustainability challenges demand the built environment solutions that address diverse concerns: energy and resource efficiency, waste reduction, health and wellbeing. Good built environments can mitigate and help to address the global sustainability challenges. However, defining 'good quality' in buildings is no trivial task. The iconic definition of 'well-designed buildings', Vitruvius notion of 'firmitas, utilitas and venustas', suggests that good quality involves the balance between firmness, utility and delight. This balance can be fostered by the intersection between architectural criticism and building performance analysis. This paper discusses the ongoing debates on the integration between architectural criticism and building performance analysis. It is argued that this integration can provide an architectural philosophy where 'good' buildings balance inhabitants' experience and building performance. The paper concludes by identifying future directions and contributions of the design research community to the interdisciplinary dialogue between architectural criticism and building performance, which to date, has remained elusive.

Keywords: building performance, building quality, architecture, professionalism

1 Introduction

The current sustainability challenges related to climate change, energy efficiency, resource management, environmental protection, human health and wellbeing demand high quality solutions by the built environment. Yet, defining 'good quality' in buildings is no trivial task. The iconic definition of 'well-designed buildings', Vitruvius notion of 'firmitas, utilitas and venustas' is certainly a starting point. Good quality in architecture involves a balance between firmness, utility and delight. The balance between 'firmness, utility and delight' can be fostered by the intersection between architectural criticism and building performance analysis. Juxtaposing architectural criticism and building performance analysis can offer architects the opportunity to revalue the profession. The architecture profession is in urgent need to revitalise so the public and clients understand the value that architects embed in their works (Bachman 2013). 'Architects are rapidly losing niche markets as clients engage with other building professionals who are undertaking work that traditionally belonged to architects (Bachman 2013, p.198). Initiatives such as the AHRC 'The Cultural Value of Architecture' and RIBA's efforts to embed research in design aim to promote the skills and expertise that architects bring to building projects around issues of quality. Architects can

deliver value by creating places where people can thrive, combining aspects of place making, cultural and social dimensions and built environment performance. In the special issue of Building Research and Information on 'New Professionalism'[1], there was a broad range of contributions addressing the role of building industry professionals to respond to current challenges, including the role of architects. Duffy and Rabeneck (2013), focus on the pivotal role of architects to respond to the challenges raised by BRI special issue. In similar vein, Bachman (2013) analyses the situation of the architectural profession and argues that due to the increased complexity of the built environment, considerations related to 'evidence-based design, post-occupancy evaluation, commissioning and quality reassurance' are necessary to address sustainability. These literatures highlight the potential role of architects to champion the responses to sustainability challenges. One way forward is developing an architecture philosophy that integrates architectural criticism and building performance analysis as a means to deliver quality. This can promote holistic approaches to building quality that align aesthetic principles, building performance considerations and inhabitants' health and wellbeing.

Architectural criticism analyses the types of experiences that buildings provide. However, it is unlikely to draw from building performance literature. Friedman argues that 'Built environments are material and social events in a continuous state of becoming'; therefore, '... design excellence must now exhibit measurable attributes that account for energy consumption, environmental integrity, carbon management, context and health impact… good looks and good design through the lens of good performance' (Friedman 2015, pp 267). Academic debates are being articulated under the concept of 'performativity in architecture' to integrate architectural criticism and building performance considerations; notable references include (Kolarevic and Malkawi 2005), (Hensel 2013), (Kanaani 2016).

This debate is gaining traction in the architecture profession. There is indication that architects are increasingly considering how buildings are designed to offer their inhabitants better experiences and delivering better quality as a result. There is empirical evidence that architects are deploying a number of strategies in this realm i.e. (1) exploring the expectations and needs of occupants and other stakeholders to inform the building design and the as-designed performance estimations, (2) articulating the building design intentions and applying tactics to facilitate the achievement of as-designed building performance intentions (Zapata-Lancaster, 2019). It is encouraging to see that architects are undertaking different types of 'investigations' which could increase quality, foster learning from existing buildings and inform the design process ie. the application of POE results (Hay et al 2018). After all, it is widely recognised that reflecting and learning from building performance: (1) increases stakeholders' knowledge, particularly designers' knowledge about quality and value of design (Whyte and Gann 2001); (2) informs solutions to increase usability and adaptive opportunities in existing buildings (Bordass et alt 2001); (3) informs design strategies in buildings (Carmona-Andreu and Oreszczyn 2004); to name few benefits. Concerns related building quality have been voiced by architecture schools who identify the need to juxtapose design quality and performance analysis (Stevenson 2019). Given these ongoing debates and the urgent need for architects to play a proactive role in addressing global sustainability challenges in their built environment responses, the next section of the paper outlines how architectural criticism and how building performance analysis define

[1] Building Research and Information 2013 Volume 41, Issue 1: New Professionalism

building quality. The paper shows areas of intersection between these disciplines and identifies how the design research community could contribute to the ongoing dialogue and the interdisciplinary integration between architectural criticism and building performance considerations; which to date; has remained elusive.

2 Defining building quality

2.1 Architectural criticism's view of building quality

Bruno Taut, a prominent architect and architecture critic, argues 'the aim of architecture is the creation of the performance and therefore most beautiful efficiency (Taut 1929). Kolarevic (2005) claims that 'performance-based design should not be seen as simply a way of devising a set of practical solutions to set of largely practical problems … design is grounded at one end in intangibilities such as cultural performance and, at the other, in quantifiable performative aspects of building design, such as structure, acoustics and environmental design'. The notion of performance has also been linked to active human agency (Hensel 2013, p.17) and the [balanced?] relationship between people-environment; not only as an objective matter but also as a subjectively perceived reality (Hensel 2013).

The notion of good building quality is also intrinsically related to the notion of experience and delight. In his work on environmental design, Hawkes (2007) argues that '[enjoying] buildings implies a wholly different dimension to the idea of the architectural environment from the pragmatic and mechanical process of climate modification and comfort engineering in quantitative terms such as degrees, noise levels, illuminance'.

Another complimentary notion of quality in architecture is related to the concept of 'performativity. Kanaani (2016) argues that 'Performance-based design theory asserts building performance as a guiding principles and approaches towards the creation of intelligent and novel architecture form-making'. She refers to the paradigm of performativity within the context of architecture principles and building performance propositions. She illustrates this way of thinking by referring to examples from vernacular architecture. She then discusses modern architecture examples and how the application of light (and lighting considerations) has created an intended quality where performativity, where the values of architectural criticism and building performance meet. She emphasises that 'Performance-based design inherently embeds ambitious globalized objectives' (Kanaani 2016), suggesting the benefit of an explicit integration between the fields of architectural criticism and building performance.

It should be noted, that the trajectory of architectural criticism has criticised the emphasis to form without consideration to function, experience or other aspects buildings are expected to deliver (Pallasma 2016). It has pointed out at the creative opportunities afforded by performance considerations to create meaningful experiences for inhabitants of buildings. This is a key proposition where building performance discipline intersects architectural criticism.

2.2 Building Performance field's view of building quality

In order to define building quality as per building performance thinking, we first need to define what performance is. The concept of performance unpins the concept of quality of buildings. Performance approaches in building design imply that explicit requirements are articulated in terms of goals (outcomes) that specify how the building should function

(Gibson 1982, Lutzkendorf and Speer 2005). In the performance-based approach, level of performance is defined in terms of outcomes and expected goals so as to allow different strategies and combinations of building parts/components to be assembled and integrated together in innovative ways that deliver best value for money (Sexton and Barrett 2005).

A seminal contribution that consolidates the diverse and rapidly growing field of building performance analysis is the work by De Wilde (2018, 2019) who defines what building performance is and highlights the complexities and challenges of the field in relation to built environment professions. In his analysis of the implementation of building performance thinking in design, he argues that the performance analysis 'remains elusive in design'(ref) due to the difficulties to identify constraints, design enquiries and knowledge during design process. While his main thrust is the application of normative decision-making approaches; he recognises that design problem solving may operate under 'naturalistic' problem-solving patterns.

An interesting point should be made in relation to the historical evolution of building performance analysis, particularly in the context of energy efficiency in existing buildings. The energy efficiency agenda started as a response to oil crises. Solutions were initially informed by engineering perspectives and deployed technical solutions to overcome challenges. In the last couple of decades this area has rapidly evolved to consider the 'human' element of buildings and the impact of the occupants on building performance, including their impact on performance gaps. Building occupants are increasingly recognised as knowledgeable agents who are eager to take action in buildings. The building occupants, or inhabitants, are no longer perceived as passive recipients of buildings. They are seen as actively engaged agents who interact with buildings and their technologies. As a result, buildings are seen as complex systems that need support the needs and expectations of inhabitants (Cole et al 2008, 2010, Tweed and Zapata-Lancaster 2018).

There are interesting insights to learn from the pathway that building performance evaluation[2] field has adopted in relation to the energy agenda in existing buildings. Current developments are embracing socio-technical approaches and user-centred perspectives to nudge behaviours. Interventions are combining technical solutions and behavioural aspects to achieve reductions in energy use in buildings.

An interesting observation about the developments in architectural criticism and building performance analysis is that both fields have raised concerns about the undermined quality of buildings. It is argued that the industrial context had favoured 'simplistic, deterministic and linear assumption of industrial-age production' (Bachman 2013 p 754). Current challenges demand solutions that are 'organic, open cycle, complex and systemic' (Bachman 2013).

[2] Building Performance Evaluation is the process of assessing if a building satisfies the needs and purposes of its inhabitants and wider stakeholders, it can be conducted at any stage of the building life cycle. It is related to Post Occupancy Evaluation when focused on operational stage and occupants' perspective. Building Performance Evaluation is one of the 'branches' of application of building performance analysis in existing buildings.

3 Way forward

Architectural criticism and building performance analysis can complement each other and enrich the solutions to current sustainability challenges faced in the built environment. On one side, building performance analysis can augment the scope of the architectural criticism analysis. On the other side, building performance analysis can learn from arch criticism in that criticism 'reflects prevailing cultural and philosophical attitudes of its time' (Davis 2015, p23)

These 2 disciplines have traditionally deployed different lenses, methods and philosophical positions to assess building quality. Yet, ultimately, their agendas and goals are fundamentally complementary. In the developments and debates of these fields, there is an overarching concern about quality. Architectural criticism is moving beyond the narrow view that mainly focuses on aesthetics (buildings as sculptures/works of art as ultimate goal) and building performance analysis is moving beyond a utilitarian view of buildings (buildings are no longer seen as mere physical assets or 'machines for living'). Both disciplines are considering the socio-cultural dimension that enriches the concept of quality. Such renewed focus has the potential to revitalise and bring together the dialogue between architectural criticism and building performance analysis. This future integration can be facilitated by the design research community.

Key themes where these disciplines could converge, facilitated by design research thinking are: (1) consideration of multilevel perspectives i.e. integration of social and cultural factors; balance between the perspective of different stakeholders: i.e. occupants, developers, policy makers; connecting different stages of the building life cycle; applying designerly ways of knowing and problem-solving models; considering the synergies between variety of scales (from buildings to cities). The integration offers the opportunity to develop a philosophy where accountability, responsibility and leadership goes back to architects.

Current developments are rapidly changing the landscape of the building industry work, ie. the digital applications and new modes of collaboration. Design research thinking can offer new forms of evidence-based responses to recurrent and contemporary challenges related to climate change, sustainability and global challenges (energy efficiency, health and wellbeing, waste reduction, circular economy, resilience, global warming). Integrated solutions that combine considerations of inhabitant's experience and building performance analysis can help building industry professional, particularly architects, to devise new solutions and approaches improve building quality by delivering increased building performance and higher satisfaction of occupants in buildings.

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