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Gardens in the sky: Emotional experiences in the communal spaces at height in the Pinnacle@Duxton, Singapore

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ABSTRACT

A boom in high-rise construction and vertical living has resulted in an increase in privately and publicly accessible communal spaces at height within tall buildings. Asia is leading the way in these developments, with one of the most notable projects being the Pinnacle@Duxton in Singapore. Here, seven towers are interlinked by a series of skygardens providing a continuous pathway at the 26th and 50th storeys, accommodating a mixture of functions and spaces. This study intersects literature from the fields of architecture, urban design, skyscraper geography and emotional geographies with observational analysis and interviews to identify and analyse the experiences and emotions of the various stakeholders – the architect, client, building manager and residents – involved in the creation and occupation of skygardens. The results highlight a fear of outsiders and anti-social behaviour among the authorities stewarding the building, explicitly related to the verticality of communal spaces at height. This has manifested in stringent rules governing this otherwise generous social infrastructure, provoking feelings of frustration in the residents and contested ownership between the stakeholders. However, the results also emphasise opportunities for positive emotions to emerge, providing sensations of peace and escapism within these open green spaces at height, lessening the effects of over-crowding and stress often perceived in high-density living.

1. Introduction: emotion, tall buildings and skygardens

Fuelled by urbanisation, population growth and a general dissatisfaction with suburban sprawl, city centres are growing increasingly dense. An outcome of this is a significant uptake in the construction of tall buildings since the turn of the millennium. Statistics from the Council on Tall Buildings and Urban Habitat show over twice as many skyscrapers have been constructed in the first 15 years of the twenty-first century, as compared to the entire twentieth century beforehand (Skyscrapercenter, 2016).

Despite this dramatic increase in construction, the tall building remains a divisive typology, and many question the environmental and social sustainability of current paradigms (Oldfield et al., 2009). Research suggests high-rise living is less satisfactory than other housing typologies for most people, is not optimal for families with children, and can suffer from more impersonal social relations between residents (Gifford, 2007). Fear is a common emotion associated with tall buildings in the literature. Lees and Baxter (2011) note that fear manifests *of*, *in* and *about* high-rise living, linked predominantly to crime and social malaise. Gifford (2007) goes further, suggesting high-rise living can evoke six distinct fears: falling or suicide, being trapped in a fire or emergency scenario, building collapse, attack post 9/11, a fear of strangers sharing your building and hence a fear of crime, and a fear of becoming ill from communicable diseases spread by heightened density.

Some suggest these feelings of fear are fuelled, at least in part, by the vertical design paradigms of tower blocks. Spatial characteristics such as dark ground floor realms with towers raised on stilts or 'piloti' above, and the lack of over-looking and security in communal spaces such as corridors and stairs has been criticised as contributing to anti-social behaviour and thus increasing fears of crime (see Coleman, 1985; Newman, 1972). Here tall building design produces certain affects; people are more fearful if they cannot be seen, and criminals more likely to commit wrong-doing (Lees and Baxter, 2011). However, others highlight broader societal

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issues influencing negative emotions and experiences in high-rise. These include a lack of local infrastructure and employment in areas surrounding high-rise social housing historically, the sub-urbanisation of services and communities in the mid-twentieth century drawing support away from inner-city areas, and the inadequate building maintenance and governance many such buildings have faced (Graham, 2016; Urban, 2012; Bristol, 1991). Further, fear of crime in high-rise is nuanced, and scalar. A Canadian study found that individuals living in high-rise are more likely to be fearful of crime at the neighbourhood scale, because they lack social connections that would enable higher levels of informal social control. However, the fear of crime in the home is lower in apartment buildings due to the 'fortress effect' isolating individuals in the vertical realm from the neighbourhood in which they reside, providing an additional sense of security (Rollwagon, 2016).

A concern for the social and psychological well-being of those living in towers is also often tied to ideas of crowding. This was sparked by the work of Calhoun (1962), who showed that crowding in populations of rats contributed to social disorder, conflict and the neglect of the young by their mothers. This fuelled an assertion that towers, accommodating higher densities and greater numbers of occupants on a given plot, would be crowded and suffer similar social malaise. Yet the perception of crowdedness is dependent on a multitude of factors beyond density and typology, including occupant socio-economic background, culture, age, education, previous living environments, building layout, the quantity and quality of open, shared and private spaces and the community facilities available (Yuen and Yeh, 2011; Anderson, 1972; Jacobs, 1961).

Given these complexities, many consider it more challenging to achieve social satisfaction and community well-being in high-rise buildings, as compared to mid and low-rise forms (Lawson, 2010). A concept long considered as an opportunity to overcome this is the design and integration of communal or public spaces typically found at ground being positioned at height within skyscrapers. This idea was first introduced in built form in Le Corbusier's Unite d'Habitation (1952): a 19-storey housing block with a publicly accessible internal shopping street halfway up and communal facilities including a kindergarten on the roof. Variations of this model of high-rise mass-produced housing were created throughout the mid-twentieth century, many of which include some form of communal spaces at height, often termed 'streets in the sky'. However, this concept is now largely discredited, in the west at least, due to infamous failures of built examples, such as at Pruitt-Igoe in St Louis, completed in 1954 (Murphy, 2016). Here, 33 blocks of high-rise housing with communal 'streets' located every three-storeys descended into crime and decay soon after it was occupied. It was eventually demolished, a mere twenty years after construction. Some blamed at the lack of overlooking and 'defensible space' in the streets in the sky as fostering anti-social and criminal activities (Newman, 1972). Others saw the systematic deindustrialisation and disinvestment in the surrounding local economy, along with poor build quality and lack of maintenance as influencing factors (Graham, 2016; Bristol, 1991).

The distrust of communal and public spaces at height is further inculcated in popular media through sci-fi dystopias such as *Metropolis*, *Blade Runner* and *The Fifth Element*, where vertical socio-public realms are a symbol of humanity's alienation from the world and each other. This alienation is highlighted by the passive role played by occupants, incapable of being agents in the operation of their environment, or as instigators of collective activity.

The past decade has witnessed global reconstructions of economic, political, social and cultural practices with a significant shift towards Asia. One impact has been the resurgence of communal and public spaces at height across high-density Asian cities. Nowhere is this more apparent than in Singapore. Here is a city state of 5.5 million people where 80% live in high-rise social housing (Department of Statistics Singapore, 2016), the latest iterations of which have wholeheartedly embraced ideas of communal spaces at height. These are often landscaped with greenery, open to the elements or rarely glazed in. They are typically referred to as *skygardens*.

Such a design strategy is driven by aesthetic, environmental and brand motives. The use of skygardens in Singapore can be considered an attempt to embody quality living commensurate with the city's status as a successful global city (Teo, 2015). Ergo, the design of skygardens in Singapore is representational to lifestyle and income backgrounds similar to affluent consumer societies in the west. Finding itself evolving from an industrial to consumer city, Singapore has branded itself as 'The Garden City', reflecting its streets lined with large canopied trees and rain-forested environments. Sassen (2000) suggests the replication of consumption and gentrified residential spaces reflect cities catering to a transnational class through urban space displayed in property development. As such, skygardens can be seen as a strategy to personify the Garden City brand to a global audience, through the urban form of the skyscraper. The skygarden is also implicated in experiences and emotions in everyday living, in the built environment and the city. There is a wealth of research suggesting links between greenery, gardens, nature and well-being. For example, greening of the built environment can contribute to higher levels of physical activity, reduction of stress, social cohesion and health. Famously, Ulrich's (1984) seminal study suggests hospital patients with a view of a tree recover quicker, have fewer negative evaluative comments from nurses and fewer post-surgical complications than those with a view of a brick wall. More recently, research shows residents living in areas with more streetscape greenery perceive their health as better and have a better mental health status than those living in streets with less landscaping (de Vries et al., 2013). Others have demonstrated relationships between physical and visual access to workplace greenery, a positive workplace attitude and decreased level of stress (Lottrup et al., 2013).

One of the most significant contemporary examples of skygardens is the Pinnacle@Duxton. Completed in 2009, this development represents the first large scale integration of skygardens into a high-rise housing project in Singapore (Fig. 1). It consists of seven 50-storey towers, linked by snaking skygardens at the 26th and 50th storeys, with additional public facilities at ground and level three. The 26th storey accommodates communal skygardens

Fig. 1. The Pinnacle@Duxton, Singapore. Seven 50-storey towers linked by skygardens at both the 26th and 50th storey.

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