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THE VERANDA: ABSTRACT CONNECTOR OF LIVING BOXES - ARCHITECTURAL ANSWER TO SOCIAL HARMONY

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Abstract

The study investigated the effectiveness of verandas as social spaces in multistorey residential buildings in Malaysia. The study uses a mixed-method approach (quantitative and qualitative). Data were collected using a survey questionnaire and interviews and analysed using SPSS. Qualitative data was collected to assess the personal experiences of occupants, while data from survey instruments were used to investigate factors contributing to the ineffective use of verandas. Both data were used to conclude a possible architectural intervention to restore the veranda as a social space. The study findings evidenced that veranda has not been effectively used as its intended social function. The results show that the residents spend most time indoors due to outdoor weather-induced conditions, and sadly, almost half the residents use the veranda as storage. A significant number of residents reported that they would choose to frequently use the veranda if the space is more effective in size and weather-leveraged condition.

Keywords: Architecture, Multistorey residential, Social space, Veranda.

1. Introduction

The growing urban population increases the requirement for urban housing. With greater urban population density, housing construction struggles to provide enough houses in already congested cities. Demand for vertical living has shifted to emphasise comfort and diversity in recent years. As the number of tall multistorey residential (MR) buildings increases globally, their capacity to provide a quality lifestyle for occupants becomes a problem [1]. The main attractions of MR developments include the scenic view and windy environment, compared to pricing, building safety, insufficient facilities, and traffic congestion [2].

Rapid urbanisation, rural-urban mobility, and rising living costs have critical urban housing in Malaysia. Growing study on residential desire and satisfaction emphasises the importance of socially conscious home design [3]. Social concerns develop as people move from horizontal to vertical communities [1]. Pressure to fulfil demand has created spatial layouts with conventional floor plans and less veranda space. In a multistorey residential environment, the veranda gives occupants privacy, territorial control, and the choice to engage with surrounding public spaces or neighbours [4]. Tropical people do not merge their veranda into the indoor area because it is mainly used for drying clothes but is still a communal space [5].

Vertical living has become popular among urban millennials and seniors. Residents perceived lifestyle shifts to attain a balance between work and family by lowering commuting time would enhance demand for multistorey residential buildings. The transition from horizontal living led by MR buildings' conveniences has overwhelmed its drawbacks, compromising space value and user comfort.

Within the MR, verandas are highly valued, although residents would be happier with more space, seclusion, and climate-responsive designs [1]. In architecture and layout, shared open space and neighbourhood facilities have been emphasised. However, the social potential of the outdoors near houses has been overlooked, disregarding human-environment transactional processes to reach happiness. Verandas intended function as a connector of indoor and outdoor spaces is diminishing [6].

1.1. Problem statement

Humans need social contact. Even if it is brief, social connection is crucial for people. According to social psychology, people choose their home design and surroundings to interact with their neighbours [6]. In residential living, social contact is the readiness to have formal and informal conversations. Social connection in neighbourhoods is crucial for an individual's growth and health.

In Malaysia, multistorey residential (MR) is the most popular residential typology. Does it have spaces that foster social interaction? This type of housing has many advantages in addressing existing housing challenges, yet it causes social issues. As it houses many people, has a simplified circulation system, and brings people closer, a multistorey residential building encourages individuals to get to know their neighbours. Solid walls and floors physically and psychologically isolate MR occupants. Only about 1.6% of MR residents have official or casual social bonds with their neighbours [7].

Most residents adapt to a vertical city's increased density and striking urban morphology. Mixed-use may mitigate the disadvantages of overcrowded urban living. Higher urban population density makes housing development challenging in already congested urban areas [1].

The residents' tolerance and acceptance of the lack of privacy, greenery, open spaces, natural air, daylight, and small living space compensate for the efficiency, accessibility, liveliness, and efficacy of compact living at height. The apparent movement from horizontal living motivated by convenience to vertical living is anticipated to increase rapidly. Most residents are willing to adjust to vertical city living from horizontal living due to its convenience. Pressure to meet demand has developed tighter spatial layouts with conventional floor patterns and less transitional space. Multistorey outdoor spaces lack value and impair user comfort, neglecting the social potentials of nearby outdoor locations and human-environment transactional processes that contribute to happiness [1].

Local MR buildings have incorporated many vernacular passive architectural aspects into building vertically, but the veranda, which is more than a climatic design feature, is vanishing. As a connector of space, the veranda's original function to be incorporated into indoor area houses via outside has also diminished, and its poor usage owing to adverse microclimate [5]. This study aimed at determining how verandas in multistorey residential buildings can serve as social spaces within the local MR. The following are the objectives of the study.

- To examine the effectiveness of the veranda being used as a social space
- To establish to what extent the veranda’s functional use can be restored with possible architectural interventions

Understanding how verandas can be used as an architectural intervention can help create a successful social space in multistorey residential buildings.

1.2. Research limitations/implications

The study is narrowed to focus only on the veranda at multistorey residential (MR); some limitations have become apparent. For instance, the analysis and targeted typology were only applicable for residentials with veranda disregarding corporate towers and mixed-use residential, which combines commercial.

1.3. Social implications

The study can be beneficial for aspiring designers and architects to garner a deeper understanding of borrowing traditional spaces from vernacular architecture, which allows social etiquette and tradition to be maintained hence improving its potential for social, cultural, and environment within the Malaysian MR.

2. The Veranda

Various definitions emphasise how distinctive the veranda's architectural characteristic is in terms of housing design and environmental sustainability. The term veranda originated from India, where it is s called ‘baranda’ in Bengali and other languages than Hindi. It appears to be a straightforward modification of Portuguese and older Spanish veranda (baranda), balustrade, or balcony. Veranda or engawa in traditional Japanese households is often used for socialising.

The veranda is also defined as an open portico or light roofed gallery running down the font, and maybe other sides, of a house or other building. Many historians believe the veranda was inspired by 18th-century Southeast Asian building-edge treatments, while others suggest it was copied from British-Indian verandas. The veranda originated in 16th-century Spain, where the Portuguese term 'Varanda' was used. Despite its contentious cultural and philosophical origins, the veranda is a local landmark [8].

2.1. Functions of the veranda

Verandas function as transitional spaces and filter environmental elements in residences. It is a necessary building element for tropical climate comfort. Tropical countries such as Brazil have a narrow circulation terrace. In the back of a house, a functional veranda extends the kitchen, transitioning from public to private spaces and protecting the house from the sun and rain. The veranda's urban counterpart is a narrow terrace on the second floor [5]. The veranda integrates the house and garden and allows sheltered street observation.

2.1.1. As buffer

A veranda is a form of climate-adapted barrier that protects from the harsh climatic elements. It defines a space in homes and filters interior and outdoor climates [9]. Despite having balconies above it, an attached structure is still a veranda because it is a covered 'buffer' between the inside and the outside. As a result of the balconies above the threshold, the space below is classified as an awning.

It can be described as a veranda because it is positioned within the site boundary and does not project into the street [7]. Another example of the veranda as a buffer is the open arcade of Italian Renaissance buildings' veranda (loggia) [5]. The veranda's buffer space derives from its villa-like separation from the surrounding landscape [8]. In traditional Japanese houses, the veranda (engawa) is an outdoor-indoor transitional space marked by wooden flooring instead of mats. The veranda's connection to the garden is emphasised by stone steps leading up to it. The veranda architecture contrasts with the Japanese courtyard house, which employs side verandas and peristyles in linked housing.

2.1.2. As a climatic element

A veranda is a liveable, covered transitional space that is open on one or more sides. The building's façade blocks rain and sun. It is ventilated with outside air and lighted with a lower intensity than the rest of the house. This light differs from that in adjacent indoor places [8]. The veranda is a shaded transitional zone. Thus, the solar radiation from the sun can be managed.

This transitional space connects controlled interior light and climate as indoor and external rooms interact through the veranda. In tropical climates, high humidity and temperature create discomfort. Heat gain through convection increases and the sensation of heat is reduced by increasing airflow near the body. The veranda allows fresh air into the house, enables windows to remain open even when it rains, and provides a covered, ventilated space [10]. The veranda acts as a transitional and boundary space, affecting the transmittance of daylight inside. It reduces glare and contrast by restricting direct sunlight and permitting diffused light to enter. In

these regards, the veranda's depth and the reflective qualities of its surfaces are critical design aspects (as shown in Fig. 1).

Another aspect of the environment influenced by the open nature of the spaces is acoustics. The veranda can be fitted with screens that reflect noise from outside or inside, depending on whether the noise is desired or unwanted. Combinations of depth, including sound-absorbing surface materials, can aid in noise reduction [11].

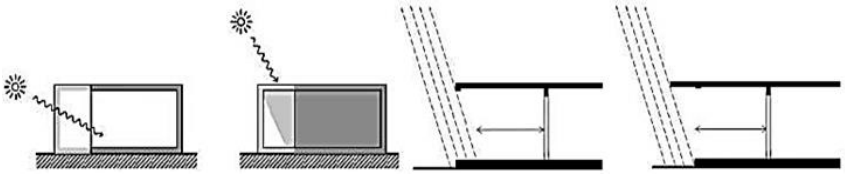

Fig. 1. Impact of the veranda as the climatic control element [9].

2.1.3. Social space

A veranda connects the inside and outside of a house. Individuals entering from the street can interact with private rules. The transition from the secure private interior to the public exposure of urban living is one way this change is implemented and experienced in architecture. This vernacular feature catalyses social interaction within the home and with street life [11]. This space gives occupants a sense of privacy while acting as an external barrier. The veranda's legacy as an architectural and typological aesthetic transcends broader social relevance or functional appropriateness to address changing spatial uses and organisational structures within the house and to alleviate tropical climate extremes [8].

2.1.4. As corridor streets

The old concept of streets in the sky has been reimagined for a new era in buildings that offer a variety of dwellings ranging from basic one-bedroom apartments to generously scaled family houses, encouraging a diverse social mix within one vertical city. The veranda was reconfigured to manage street-home contact. The climate becomes less important than the social structuring of the transitional zone. This aspect of the veranda depends on its height and the slope of the residential lot.

The veranda connects the indoors and outdoors. There are back and side verandas and a veranda hierarchy mirroring the social order, where the veranda satisfies various physiological, psychological, and behavioural demands. Another distinguishing feature of this role is wider hallways than the small ones found in ordinary residential towers that serve as bridges between apartments. Larger hallways function as social streets due to 'friendly' alcoves with outdoor furniture where people can talk and relax.

2.2. The current state of veranda

Malaysia's rapid development has replaced kampongs with modern houses. So many kampong ideals have been lost. Many families dislike having a veranda in their living room because it is used to dry clothes. Urban socialisation is a topic of interest in international literature. The transition from horizontal to vertical groups

raises concerns about social interaction. The convenience of vertical living in metropolitan settings, which limits access to public and private spaces, transforms outdoor areas in multistorey residential (MR) buildings into exciting social spaces while not ignoring outdoor locations near houses.

Malaysian homes have verandas. This passive sustainable design aspect comes from a traditional Malay house characteristic [6]. Verandas are underestimated despite their many benefits, contributing to social and environmental challenges. Current home designs in Malaysia are incompatible with the environment and social conditions, affecting residents [10]. Modern MR layouts have smaller outdoor spaces.

The Malaysian MR layouts are becoming denser as urbanisation and rural-to-urban migration increase. It has standard floor plans and a relatively small veranda. Most Malaysian residential designs had a grid pattern, conventional design, rigid spaces, ad hoc restorations, low ventilation, poor lighting, and condensed thermal comfort [12].

As cities grow, rural-to-urban migration increases, and living costs increase, affordable housing in cities becomes more critical [13]. Most people prefer vertical housing because it is more convenient. As a result of the need to meet demand, denser layouts with fewer transitional rooms were created. Value and comfort are lacking in multistorey outdoor spaces. These houses, built on a stringent spatial planning layout, disregard the social and communal potentials outdoors near residential areas, ignoring the human experience dialogue with the environment to achieve greater satisfaction [14]. Verandas have been underutilised as an effective social space, and their failure has led to a significant inward living with very little regard for the outdoors. Vertical passive vernacular elements have always been incorporated into local MR buildings. However, verandas are a lesser-known architectural element in Malaysia, yet they play an important social and environmental role.

The veranda, which is more than just a climatic design element, is diminishing. Its intended function as a space connector to be merged into indoor space residences via outdoors has also decreased, and its poor use is expected owing to the harsh microclimate.

Verandas in Malaysian MR buildings are shrinking and losing their significance. Asian building regulation handbooks define a veranda as a protected space at ground level and a balcony as a cantilevered raised area at a higher level [10]. In Malaysia, building by-laws are subsidiary legislation under the 1974 street, drainage, and building act, with the latest update in 2012. Building Uniform By-Law 38 of Selangor states that veranda-ways and exposed footways must be 2.25 metres wide (Selangor Uniform Building Amendment No.2 UBBL 2012). By-Law 37, which regulates projections over streets, only specifies a maximum of 1.83 metres and no minimum. Although verandas are a climatic design feature in Malaysian MR buildings, they are rarely used as social spaces due to the harsh environment.

3. Methodology

The study adopted a mixed method (quantitative and qualitative) approach. This strategy allows for more comprehensive and synergistic data collection and analysis [15]. Data was collected using a survey questionnaire and interviews, and Statistical Package software (SPSS v.25) was used to analyse the collected data. Qualitative data

was collected to assess the personal experiences of occupants, while data from survey instruments were used to investigate factors contributing to the ineffective use of verandas. Both data were used to conclude a possible architectural intervention to restore the veranda as a social space in urban vertical housing in Malaysia.

Fifteen (15) occupants from Klang Valley were interviewed from two (2) multistorey residential buildings. Concurrently, the survey instrument used in this study was adapted from an existing survey on outdoor space usage experience and was based on literature reviews. The survey instrument included two sections; section A is on respondent background information, and section B is on current veranda usage and prospective interventions to promote better use in the future. The data was collected using a Google Docs survey.

A total of 264 respondents completed the survey. However, only 95 respondents reported living in multistorey residential (MR). The data was then analysed using the Statistical Package software (SPSS v.25).

4. Findings and Discussion

This study aimed to explore the veranda's role as a social, communal space catalyst in local MR buildings. Among the 264 respondents, 57% are from Selangor, 32% from Klang Valley, 3% from Penang, 2% from Johor, and 6% from other regions of Malaysia. Most respondents (36%) live in MR. This was followed by 25% living in double-storey terrace houses, 21% in semi-detached or bungalow, and 16% in 21/2 or 3-storey terrace houses (as shown in Table 1). These findings are corroborated by authors [16], who suggest that within the restrictions of the vertical city, most citizens have adapted willingly to the increased density of the city with overcrowded urban living surroundings. Only MR residents were included in this investigation.

Table 1 shows how often multistorey residential spaces are used. Nearly half (48%) of multistorey residential respondents spend most of their time in the living room, 40% in the bedroom, 3% in the corridor, and 4% on their balcony. More urban residents choose inward living, according to [10]. This preference by tenants may be owing to the severe microclimate (hot sun) of outdoor spaces, such as a veranda or balcony, without incorporated shading devices.

Table 1. Usage of different spaces in multistorey residential.

Items	Choice	Frequency (N)	Percentage (%)
Space where most time is spent.	Balcony	4	4
	Living	46	48
	Other	4	4
	Outside corridor	3	3
	Room	38	40
	Total	95	100

Table 2 shows how respondents use vertical verandas. As expected, the veranda is primarily (24%) used for drying clothing and unused by residents. Respondents said that the veranda is least (5%) utilised for social interactions or functions, while about one-fifth (18%) use it to unwind with fresh air and around one-tenth (11%) use it to relax with friends. Verandas are used for gardening less (9%) than for

storage (10%). Most interviewees said they do not use the veranda because it is used for storage and drying clothing. These findings agree with Lau and Zhang's study [17], which reported that inefficient usage of a balcony in local vertical living is attributable to its small size.

Table 2. Current functional use of the veranda by respondents of MR.

Items	Choice	Frequency (N)	Percentage (%)
Current use of the veranda	Drying clothes	36	24
	Functions/ social event	8	5
	Gardening	14	9
	None	37	24
	Rest and relax with friends	16	11
	Storage	15	10
	To have private time/ unwind/ fresh air	27	18

The respondents were also asked why they do not use the balcony for social events. The primary reason (31%) respondents do not even utilise the balcony is that it is exposed to rain and hot weather. These findings were followed by the rationale the veranda space is limited and not suited for any activities (30%), and less than one-fifth (17%) of the respondents indicated it lacks privacy. Despite elevated modern verandas, respondents were concerned about safety and security (13%). The lowest reason (9%) was the space being too windy, especially at higher levels (as shown in Table 3). These findings suggest that the veranda's intended purpose to be incorporated into indoor area residences via outside has declined, and its ineffective use is frequent due to the harsh microclimate. In the local MR, the veranda works more as a climatic architectural component than a social space, as stated by Kowaltowski et al. [5].

Table 3. Reasons for not using the veranda.

Items	Choice	Frequency (N)	Percentage (%)
Space used for social interaction with neighbours	Balcony/veranda	1	1
	Lobby	49	52
	Outside Corridor	45	47

Most respondents (35%) rarely spend time on the veranda. About 32% reported they have never used it for private time. As expected, 5% always use the veranda for privacy (as shown in Table 4). During the interview session, most respondents supported these findings.

"I never use the balcony because it is very hot and gets wet if it rains" (Interviewees 4-6, 8 & 13).

The respondents were then asked about the veranda's physical features. Most respondents chose larger and protected verandas, 90% and 88%, respectively. As expected, residents preferred the veranda space that allows conversation with neighbours. The respondents did not prioritise safety (40%) (as shown in Table 5).

Table 4. Use of Frequency of respondents using them for private time.

Items	Answers	Frequency (N)	Percentage (%)
Enjoy spending private time on the veranda.	Often	5	5
	Sometimes	27	28
	Rarely	33	35
	Never	30	32

Table 5. Respondent's preferences for the veranda's physical qualities.

		Percentage (%)		
		Yes	**Not sure**	**No**
Prefer a veranda that is	Larger suitable for varied activities	90	10	0
	Sheltered from harsh weather	88	8	4
	Allows communication/interaction with neighbours	80	15	5
	Safety (with security grilles, etc.)	40	2	48

Table 6 illustrates the likelihood of respondents using covered and larger verandas. More than half (58%) of respondents agreed they would use the veranda more often if it is sheltered from inclement weather. These results agree with [12], where the authors argue that most housing schemes in Malaysia are planned in gridiron layout, mundane design, rigid spaces, with poor ventilation, lighting, and thermal comfort, resulting in unacceptable living conditions and culture in urban and suburban communities. Pressure to fulfil increasing housing demand has developed denser spatial layouts with conventional floor plans and fewer transitional areas. In multistorey buildings, outdoor spaces lack social value and user comfort [1]. Interviews with residents to understand why the veranda is less used as a social space support the quantitative findings.

"*It is very dusty and hot if I open the sliding doors of the veranda, not conducive for social gatherings, so mostly I only use it as storage"* (Interviewees 1 & 3)

"*Even with blackout curtains, the balcony will rarely be opened/used as it is too hot and get wet when it rains"* (Interviewees 2, 7& 14)

Table 6. Likelihood of respondents using sheltered and larger-sized veranda.

Items	Answers	Frequency (N)	Percentage (%)
Likelihood to use a Veranda that is sheltered from rain and sun	Frequently	55	58
	Sometimes	24	26
	Rarely	8	8
	Not sure	8	8
Likelihood to use a Veranda that is larger than the current one.	Frequently	64	68
	Sometimes	29	30
	Rarely	0	0
	Not sure	2	2

Respondents were asked if they would utilise the veranda if it were protected and larger. The majority of respondents (68%) said they would use the veranda more if it were more accessible. This finding agrees with scholars Zin et al. [10] that the veranda in Malaysia MR has shrunk, reducing its usage as a social place. The use of verandas in Malaysian MR in urban contexts is underappreciated, despite their effectiveness in social and environmental spaces [2].

"My balcony space is too small and congested with air-conditioning compressors and storage items, so I only use it to dry clothes" (*Interviewees* 1, 4 &15)

"The balcony space is too small for me to do any activities, cannot do many things there, so I use it as storage space" (*Interviewees* 2, 5 & 7).

The veranda in multistorey residential (MR) should provide occupants with a certain level of privacy and territorial control, as well as the possibility to touch and interact with surrounding public places or neighbouring properties [18]. Communal areas, especially verandas, are crucial in MR buildings, although their application in the industry is lacking [16]. The interviews showed residents prefer to keep to themselves and cherish privacy. Because the veranda's vernacular role is for social interaction, some attributed this to concerns about invading others' privacy or boundaries. They are content to greet their neighbours but do not feel obligated to engage in more intimate conversation.

According to interview data, most respondents rarely use the veranda as a social space. Survey data suggests that most respondents do not use the veranda to interact owing to space, privacy, and weather issues. Lau [16] found that the lack of social spaces in the local MR reduces veranda utilisation, preventing community interaction.

Rising demand for urban vertical housing has led to denser layouts. Veranda spaces are increasingly narrower, reducing their intended functions, according to [5]. This study found that occupants inefficiently used small verandas as social space. The study proposes expanding verandas to 7.5 m^2, the average room size in Malaysia, to support social events or activities. Alternatively, the veranda can be restored to its original vernacular location at the entrance, creating a sensation of horizontal living with increased interaction with neighbours in MR buildings. This intervention provides significant veranda space within MR buildings that intend to use it as a social space and effectively respond to climate to provide a moderate and acceptable indoor environment from cross-ventilation.

As for the rear veranda in local MR, which is inefficiently used due to climate and weather conditioning, shade measures should be considered. In a tropical climate like Malaysia, building location is essential based on sun path and wind direction. Vernacular housing strategies must be adopted, incorporating functional areas founded on socio-cultural linkages and "community closeness." MR buildings' social spaces can be enlarged with architectural intervention.

5. Conclusion

The study examined relevant literature and reconsidered typical MR and lack of social interaction due to community cohesion. The present MR design in Malaysia features higher density layout plans with congested common spaces, but it meets the population density. Verandas have been inefficiently utilised as abstract connectors and social catalysts between residential units. Adopting vernacular spatial planning strategies such as circulation channels and their relationship with residential units in

'Kampung' houses against the context it exists in can efficiently utilise occupants' behavioural patterns of space usage. This may provide a better spatial layout with veranda space as a social inhibitor among vertical residential units.

With the research of previous vertical design strategies by other Architects, the 'Streets in the Sky' may be offered as tools and recommendations to students, researchers, urban planners, and policymakers for improving the urban lifestyle of vertical living communities. Like traditional Kampung houses, the vertical living pattern can support the culture within the units, which must be carefully constructed to provide needed services and social spaces, such as hierarchical layouts to guarantee that services are within reach of residential units. Vertical design strategies may be used as a guide for architects to allow appropriate spaces to accomplish their intended role of a veranda as a key for social space designs in tropical MR buildings.

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