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The Dynamics of a Home: Spatial Adaptations in Malaysia's Multi-Ethnic Row Housing

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ABSTRACT

To gain a deeper understanding of “home” and “housing”, qualitative methods, including in-depth interviews and mental mapping, were employed to examine how Malay, Chinese, and Indian households in Malaysia adapt to contemporary row housing and the factors that motivate them to modify spaces within their original housing layouts. The findings reveal the unique practices of ethnic households and the emergence of adaptive spaces. Rather than presenting cultural practices as fixed or essentialised, we interpret the household spatial adaptations as everyday tactical responses to the constraints of standardized housing forms. These tactics are shaped by lived experience, individual choice, intergenerational values, and socio-religious meaning-making, in line with De Certeau's notion of spatial practice and Lefebvre's triadic conception of space. The paper concludes with a culturally informed design framework that illustrates how diverse households negotiate and define their concept of home, driven by lived experiences and everyday spatial practices.

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Introduction

Built environments are designed to enhance lives, yet they often fail to resonate deeply with their inhabitants. This disconnection raises questions about the extent to which emotional and cultural needs are carefully integrated into design (A. S. Ismail, Zharani, and Mohd Rashid 2020; Ju et al. 2022; Lefebvre 1991). The concept of “home” transcends the mere physicality of a building, representing a dynamic interplay between individuals, their environment, and the passage of time (Hand, Shove, and Southerton 2007; Werner 1987).

In Malaysia, mass-produced row houses, which provide affordable housing while facilitating socioeconomic and ethnic integration among the local population, have constituted the dominant housing typology since independence (Beng, Abd Hamid, and Chee Hung 2015; Hamzah 1997; Samad et al. 2017). However, globalization and urbanization have exacerbated housing development by introducing standardized designs driven by economic and political imperatives (Wiryomartono 2013). The rapid pace of urbanization has led to the establishment of uniform rules and regulations,

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resulting in housing designs that frequently overlook the cultural and emotional needs of the inhabitants (Lah et al. 2015; Robert 2012). Contemporary housing often prioritizes efficiency over cultural and social concerns, a gap that reflects the dominance of material over experiential conceptions of housing (Ruonavaara 2018). Such issues in multi-ethnic countries can compel households to modify their homes to better align with their everyday practices (Masran 2019; Omar, Endut, and Saruwono 2016).

A phenomenological approach provides insights into how individuals and families reinterpret these spaces to align with their lived experiences and diverse cultural practices (Eslampour, MirRiahi, and Habib 2022; Oswald and Hans 2013; Özçetin and Beth Rottmann 2022). The United Nations has highlighted that the right to adequate housing transcends mere shelter; it encompasses the necessity for peace, security, and dignity (Mazzucato and Farha 2023), as articulated in significant initiatives aimed at creating culturally responsive housing (Abdelmonem 2012; Al-Thahab 2016; Elhassi 2018). This includes not confining housing design to a specific size but ensuring that the space allows inhabitants to engage in socially valuable activities and maintain a dignified standard of living (O. O'Connor et al. 2024).

Heidegger's philosophy of home presents a framework for understanding how individuals dwell emotionally and socially, transforming a physical setting into a meaningful home (Norberg-Schulz 1983; Oswald and Hans 2013). It emphasizes that the home is a dynamic space, comprising the emotional, social, and cultural practices of its users (Ahmed 2024; Al-Mohannadi et al. 2023; Rapoport 2000). We argue that Malaysia's multi-ethnic households adapt standardized housing layouts not merely as practical solutions, but as culturally meaningful strategies driven by lived experiences, familial logics, and spiritual values, shaping each household's unique definition of home. Hence, we ask the following questions: How do Malaysian multi-ethnic households adapt to contemporary housing layouts through their lived experiences? What factors motivate Malay, Chinese, and Indian households to modify spaces in their original housing layouts? And, how do adaptive spaces emerging from spatial adaptation accommodate the cultural practices of multi-ethnic households and reflect the meaning of home?

This research also resists the enticement to essentialize ethnic or religious practices. Instead, it situates spatial modifications as expressions of lived experience and spatial negotiation. These negotiations reflect dynamic adaptations to housing constraints, sociocultural pressures, and religious worldviews, echoing phenomenological accounts of home (Norberg-Schulz 1983) and spatial practices as forms of resistance (De Certeau 1984; Lefebvre 1991). The subsequent section outlines the research methodologies employed, including in-depth interviews and mental map drawings, to investigate how Malaysian households culturally reconfigure space. The results and discussion sections present household narratives and the underlying factors influencing spatial modifications, highlighting the cultural significance of adaptive space in shaping the meaning of home. Ultimately, the conclusion articulates the study's contributions and limitations.

The Meaning of Home, Cultural Practice, Spatial Adaptation

In architectural typology, a house is a physical entity that can be constructed and dismantled, created and utilized, perceived and inhabited, and purchased and sold (Ruonavaara 2018). The built form of a house comprises a diverse array of construction

Table 1. The typical typology of landed houses in Malaysian housing developments (The People’s Developer 2025).

Typology	Block Layout	Plan Layout	General View
Terraced house			
Semi-detached (semi-D) house			

materials within a pragmatic framework of land, standard grid systems, and regional factors, all of which play a crucial role in determining the design of a unit (Lawrence 1987; L. Lee and Ryeong Ju 2014; Ng and Teow 2021).

Within this grid system, the monotonous and mirrored-image design of row housing has emerged as the preferred model of housing development in Malaysia (Table 1) (Manaf and Abdul Rahim 2021). This design facilitates faster construction at reduced costs and yields a greater number of houses per unit area, aligning with policies aimed at promoting affordable housing (Hamid, Chee Hung, and Hock Beng 2017; Ishak et al. 2016; Samad et al. 2017). In the context of globalization, housing construction is increasingly shaped by factors such as construction efficiency, cost considerations, political agendas, and the representational identity of corporate entities, often at the expense of the profound significance of the home and its adaptability to the cultural practices of its occupants (Abdul Rahim and Hashim 2018; Ju et al. 2022). Rapoport (2000) posits that the home serves as the most tangible expression of culture, with housing layouts reflecting the values, lifestyle, and identity of their inhabitants.

The concept of home transcends its physical structure; it is influenced by emotional, psychological, and social experiences associated with the living environment (Case 1996; Heidegger 2001; Mallett 2004; Zharani and Selim 2023). It constitutes an emotive space where individuals engage with feelings, memories, and personal experiences that foster a profound attachment (Mazumdar and Mazumdar 1993; Petridou 2001). These sensory experiences are reinforced through cyclical practices within the home, contributing to a sense of nostalgia and identity (Ratnam 2018). Furthermore, as an emotive space, the home embodies the deep spiritual connections individuals develop with their living environment, particularly through religious and ritual practices (Dokras 2020; Lah et al. 2015; Pike, Sargent, and Freeman 2025; Yap and Chuan Lum 2020).

Home, as a psycho-spatial entity, pertains to the ways in which individuals interact with their mind, behaviour, and physical space (Stoneham and Smith 2015).

When an individual employs the term “home”, *“a wide range of places appear to one’s mind, such as a house, a neighbourhood, or perhaps a country”* (Sixsmith 1986, 281). Territorial needs are established through a combination of psychological and emotional bonds between individuals and their living environment, alongside their assertions of ownership, belonging, and personal well-being (Al-Tarazi 2021; Altman 1975; P. O’Connor 2017). This process of personalization differentiates between public and private, or personal and communal spaces (Fernandez 2008; Kottmann 2022; Masran 2019). It enables individuals to navigate spatial constraints while balancing priorities such as privacy, comfort, social life, and affordability (Hashim and Abdul Rahim 2010; Manaf and Abdul Rahim 2021; Omar, Endut, and Saruwono 2016).

The home occupies a central role as a social setting for establishing and nurturing interpersonal bonds among household members while fostering friendships with neighbours and guests (Werner 1987). From a socio-spatial perspective, the home underscores the importance of housing in accommodating social relationships, multigenerational family structures, and community interactions (Abu-Ghazze 2000; Kostenwein and Ruiz Carvajal 2024; Soligbo 2020). Consequently, the home encompasses emotional, psychological, and social experiences that cultivate a sense of belonging, security, and spiritual connection to the physical and social environment through meaningful dwellings (Ahmed 2024; Anisimova and Rustamovich Asadulin 2023; Awaliyah 2023; Heidegger 2001).

Lefebvre (1991, 154) emphasized that “a space is never empty but embodies meaning.” His triad provides valuable insight into the phenomenology of home modifications in contemporary row housing and elucidates the layered dimensions of “home,” particularly within multi-ethnic contemporary housing. In this context, conceived space refers to the standardized housing layout imposed by housing policies and regulations, perceived space comprises the physical modifications made by residents, and lived space represents the residents’ emotional, cultural, and spiritual meanings embodied in these adaptations.

De Certeau’s (1984) concept of spatial tactics complements this view by emphasizing the everyday, adaptive practices through which households creatively repurpose spaces to meet their needs within the constraints of imposed architectural forms. Households in this study do not passively inhabit space; rather, they actively repurpose it, engaging in minor acts of resistance and reinvention that make space livable and meaningful. While spatial adaptations vary by household, they are not interpreted as representative of homogeneous ethnic categories. Instead, we draw on Lefebvre’s (1991) concept of lived space: an emotional, symbolic, and embodied realm where individuals create meaning through dwelling. These adaptations emerge at the intersection of personal agency, cultural memory, religious values, and material constraint, thus resisting both essentialism and architectural determinism.

Rather than passively accepting the imposed design, households tactically transform their living space, enacting a subtle form of spatial resistance where these adaptations range from minor adjustments to major structural alterations. Drawing on Lefebvre’s and De Certeau’s frameworks (Figure 1), the analysis identifies emergent spatial typologies that illustrate how home dwellers reinterpret spatial functions to express cultural logic and spatial values, which are often overlooked in

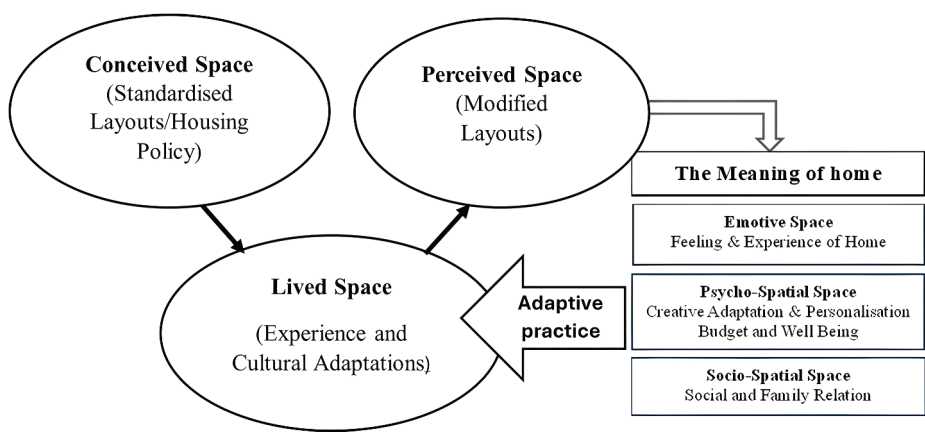


Figure 1. The conceptual framework of the present study (source: Authors).

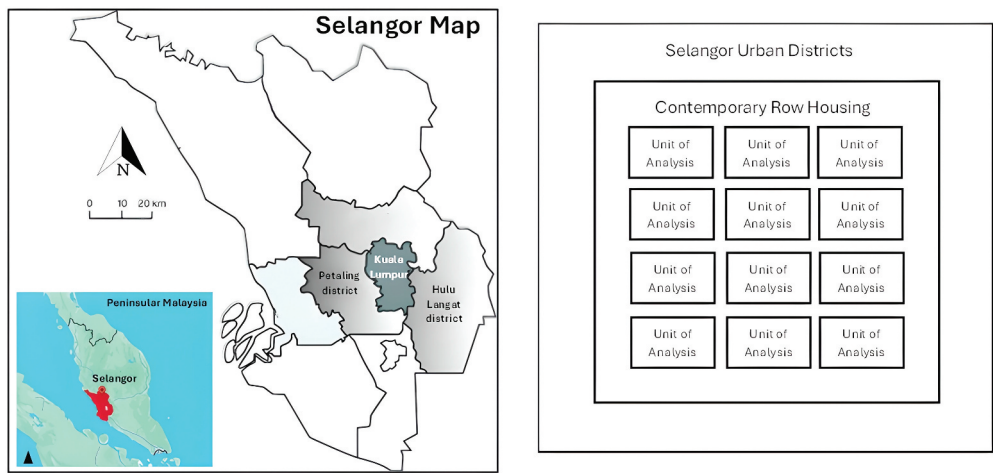


Figure 2. A map depicting the location of the state of Selangor in Malaysia, where households are identified as the unit of analysis (source: Authors).

housing policy and design frameworks (Maliki, Abdullah, and Bahauddin 2015; K. Lee 2024; Selim 2017).

Methodology: Area of Investigation and Techniques

This investigation employed an embedded case study approach to examine how Malaysian multi-ethnic households modify their homes in response to the rigidity of standardized housing layouts (Bass, Beecham, and Noll 2018; Saunders, Lewis, and Thornhill; Saunders, Philip, and Adrian 2019).

H	Birth of Place	Gender	Ethnicity	home typology	Renovation	Total reno	Renovated Space	Own home
3	Selangor	Male	Indian	terrace house	Yes	more than once	interior and exterior	Yes
5	Malacca	Female	Malay	terrace house	Yes	more than once	interior and exterior	Yes
6	Selangor	Male	Malay	terrace house	Yes	once	interior and exterior	Yes
9	Negeri Sembilan	Male	Chinese	terrace house	Yes	once	interior and exterior	Yes
10	Penang	Female	Chinese	terrace house	Yes	more than once	interior and exterior	Yes
11	Perak	Female	Indian	terrace house	Yes	more than once	interior and exterior	Yes
12	Johor	Male	Chinese	terrace house	Yes	once	exterior	Yes
15	Johor	Female	Chinese	terrace house	Yes	more than once	interior and exterior	Yes
18	Selangor	Male	Chinese	semi-detached	Yes	once	interior and exterior	Yes
19	Kuala Lumpur	Female	Malay	terrace house	Yes	more than once	interior	Yes
21	Perak	Male	Indian	terrace house	Yes	more than once	interior and exterior	Yes
22	Malacca	Male	Malay	Semi-detached	Yes	more than once	interior and exterior	Yes
24	Johor	Female	Malay	terrace house	Yes	once	interior and exterior	Yes
25	Johor	Female	Malay	Semi-detached	Yes	once	interior and exterior	Yes
38	Selangor	Female	Malay	Terrace house	Yes	more than once	interior and exterior	Yes

Figure 3. A Microsoft® excel spreadsheet of the respondents' responses in the online survey, which highlights the diversity of the final sample (source: Authors).

Selangor, a state that embodies Malaysia's urban growth and ethnic diversity, particularly in the *Petaling* and *Hulu Langat* districts (Figure 2) (Hidayati, Yamu, and Tan 2021), making it an appropriate focus for this investigation. This site was chosen for its accessibility, diversity, and familiarity to the researcher, who has professional experience as a project architect in this region.

Respondents were selected through an online screening survey shared among personal and professional contacts who live in contemporary row housing. The selection criteria included: (1) Malaysian homeowner-occupants who had modified the exterior and/or interior of their homes; (2) households comprising family members, such as spouses, children, or extended relatives; (3) respondents aged over 18 (minors were excluded); and (4) households that had occupied their current homes for several years.

From 15 individuals who responded to the survey, 15 homeowner-occupants who had modified their homes and lived in their property for several years were selected (Figure 3), comprising seven belonged to Malay households, five to Chinese households, and three to Indian households. This distribution aligns with the study's aim to investigate spatial practices across diverse cultures.

In accordance with ethical standards, informed consent was obtained from the respondents, who were identified using their household numbers (H1, H2), neighbourhood initials (e.g. Damansara Jaya: DJ), and ethnic group identifiers (Malay: MLY, Chinese: CNY, Indian: IND) to maintain confidentiality. Establishing trust was crucial, as some respondents exhibited reluctance to disclose personal information. Prior to the fieldwork, a pilot study was conducted to ensure that the interview questions and methodologies were culturally sensitive and relevant.

Semi-structured interviews were conducted to obtain rich qualitative insights (Creswell 2009) by allowing respondents to articulate their individual experiences, perceptions, and motivations for modifying the exteriors and interiors of their homes. The interview questions, framed around emotive, psycho-spatial, and socio-spatial dimensions, examined how Malaysian households adapt to contemporary housing layouts through their lived experiences. The inclusion of both Malay and English facilitated open dialogue, thereby encouraging respondents to share nuanced insights.

A compilation of original house plans was prepared for the interview sessions, enabling the respondents to illustrate the modifications made to the original designs. The original



Figure 4. The mental maps and sketches that the respondents created (above) and photographs of the home tour (bottom) captured the distinct spatial functions in each household (source: authors).

house plans, where available, were provided by the respondents, while others were reconstructed from their recollections during the interviews. In the initial session, two-dimensional visual drawings were employed to meticulously document and map information regarding the transition of a house into a home. The respondents engaged in mental map drawings to depict the original and modified layouts of their homes (Figure 4).

During this session, an unexpected opportunity arose as the respondents requested assistance from the interviewer, with comments such as, *“Could you please draw them for me?”* and, *“Would you like to inspect the room for more visual clarity?”* Their responses indicated that this method was effective in fostering trust. The home tours involved observations accompanied by unstructured enquiries to elucidate the architectural features, spatial functions, and personal experiences of the respondents. With the respondents’ approval, the tour commenced at their private frontage and proceeded to the rear, including the rooms on the upper floors.

A thematic analysis (Braun and Clarke 2006) was then conducted using NVivo, informed by Lefebvre’s spatial triad and De Certeau’s notion of spatial tactics. This framework helped trace how conceived spaces (standardized layouts) were reconfigured as perceived spaces (modified layouts) and lived spaces through everyday negotiations. To address research questions 1 and 2, the first analytical process included a review of the interview transcripts and spatial modification patterns in Malay, Chinese, and Indian households. Initially, emerging codes from the respondents’ quotes described various



Figure 5. The technique used to analyse the interview transcripts and visual drawings (source: Authors).

household scenarios and patterns. For example, “creating a room for a prayer altar” or “I transformed the car porch into a living room for guests”. These spatial adaptation patterns were categorized into themes that motivated respondents to modify spaces in the original layouts and repurpose space functions.

Consequently, the respondents' mental mappings produced during the interview sessions were digitally replicated using AutoCAD®. These adaptive spaces were analysed using NVivo 14 to support the modification narratives in contemporary housing, focusing on their private outdoor frontages and private indoor spaces (Figure 5). Bubble diagrams were used to illustrate the hierarchy of space in the modified layouts, helping to visualize the spatial adaptations of each ethnic household, with colour codes indicating their priority. Lastly, in addressing Research Question 3, the typology of the adaptive space was identified to understand how it reflected the lived and spatial practices of households. Across the multi-ethnic sample, various adaptive patterns emerged, including transitional, multiplied, negotiated, and sacred spaces, that supported hospitality, gendered logic, nature integration, individuality, and religious or convertible functions.

Results on Diverse Home Practices and Spatial Adaptations

In the original standardized housing layouts, the private outdoor space encompassed the driveway, car porch, front yard, side yard, and backyard, while the private indoor space comprised the living room, dining room, kitchen, and bedrooms. This section presents the spatial adaptation patterns that emerged in Malay, Chinese, and Indian households, accompanied by their narratives on home modifications. Each group of respondents highlighted recurring themes in their modification, however, these are not treated as fixed or homogenous cultural expressions. Instead, the study foregrounds

phenomenological perspectives by examining how individuals tactically negotiate and transform space in everyday life.

Spatial Adaptation Among Malay Respondents: Incorporating Hospitality and Gendered Spaces

While specific patterns emerged among Malay respondents, these should not be viewed as definitive expressions of Malay culture writ large. But they are understood as lived responses to the constraints and opportunities within contemporary row housing. In line with De Certeau's (1984) framework, these adaptations function as tactical manoeuvres negotiated through personal, religious, and gendered logics. In this case, the home serves as a social setting for establishing interpersonal bonds among household members and fostering friendships with neighbours and guests (Werner 1987).

The private outdoor frontage transforms into lived space, as many respondents reconstructed their housing perimeter fencing, characterized by a semi-permissible design featuring a solid wall with small gaps. While preserving privacy and security, this design facilitates religious modesty and encourages mutual care among neighbours. H2_JP_MLY, a Malay woman, reflected on how her adaptive strategies reinforce Islamic teachings regarding neighbourly kindness and the sharing of food, emphasizing the importance of neighbourhood engagement while still respecting a neighbour's privacy.

The fencing is our shared space. With these small gaps, I can see our neighbours and feel safe. Furthermore, we can both easily exchange items without entering our home units. – H2_JP_MLY

H4_BBB_MLY, a Malay-Muslim man, emphasized that the semi-permissible fencing served to preserve the traditional *kampung* (village) lifestyle of his childhood, wherein everyone in the neighbourhood was familiar with one another. For him, privacy was intrinsically linked to the proximity between their living space and neighbouring units, advocating for the use of softer tactics and layered access (Figure 6), rather than relying on a solid physical barrier.

Despite their openness to neighbourhood engagements, H4_BBB_MLY highlighted the significance of a transitional space to buffer their private outdoor frontages and indoor private areas. He noted that the contemporary mirror-image housing configuration



Figure 6. The semi-permissible fencing, greenery, and converted car porch into a guest living area in H4_BBB_MLY, illustrating layered access and symbolic boundary (source: Authors).

imposed by the standardized layout necessitated structural modifications that extended beyond merely addressing environmental concerns. He emphasized that the modified room effectively accommodated guests, thereby creating a transitory lived space that is not only functional but also culturally meaningful.

The intense morning sun made the living room unbearably hot. I enclosed the car porch to create another living room for guests. The decision aligned with my wife's request to keep guests from entering our main living space. This enclosed area lets me welcome guests while she prepares and tidies the living and dining areas. – H4_BBB_MLY

As a Malay-Muslim, these alterations also facilitated segregation, with male guests occupying the guest area while women were invited into the family living room, particularly during social or religious gatherings. The entrance to the guest room features a porch that serves as a transitional space for removing and storing shoes, thus maintaining cleanliness in the living spaces for prayers.

A different approach was utilized for spatial adaptation to terraced houses in addressing hospitality and privacy due to spatial constraints. Rather than transforming the space, the family living room often served as the guest seating area. Within the housing perimeter, the original entrance porch was modified to serve as a visual buffer between the public, private outdoor, and indoor spaces. This transitory space, reproducing spatial layering of control, illustrates Lefebvre's (1991) concept of lived space, which not only maintained the family's privacy from public view but also safeguarded women's privacy.

For instance, a low wall at the initial entrance porch separated H2_JP_MLY's home from her neighbours. As a Muslim woman, she found it uncomfortable being exposed, particularly to the glances of male neighbours. Hence, she raised the wall slightly above eye level for visual privacy. Additionally, the configuration of the seating area in the living room and the position of the TV room were also significant. She created a secluded entertainment zone for children by transforming the front porch into an indoor living area.

While it functions for the children's area, it also tactically redirects the attention of adult guests, particularly males, from viewing the women preparing meals for them at the back of the house. These adaptations observed in H4_BBB_MLY and H2_JP_MLY are tactics (Certeau 1984), allowing occupants to readjust spatial control and comfort to perform daily life through personal lived experience.

In H2_JP_MLY's original layout (Figure 7), the position of the kitchen adjacent to the living room raised concerns about cooking odours and visual exposure since the family living area was also used for guests. Initially, the kitchen expansion addressed her critical need for a large kitchen, with a separate wet kitchen for heavy cooking, a dry kitchen for light cooking and extra storage for her traditional cooking equipment. However, it also served as a visual buffer between the front and back of the house.

As a traditional Malay woman, I enjoy being in the kitchen and cooking. So, I repositioned my kitchen further back, away from the living room. Now, no one at the front of the house (living room) can see me in my kitchen. – H2_JP_MLY

A socially gendered space was also constructed by H11_JP_MLY, an elderly Muslim man in his eighties, who often hosted extended family and religious gatherings to reinforce familial ties. His personal observation was that female relatives would congregate in the back portion of the house to converse while preparing food. This inspired him to



Entrance porch

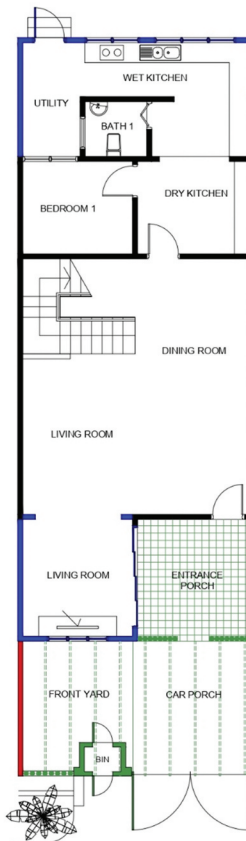


The extension of TV room in the front house

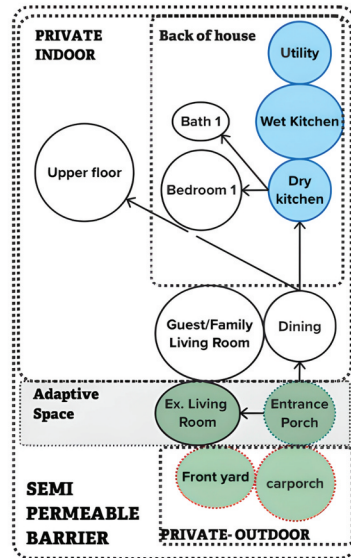
Original Ground Floor Plan



Current Ground Floor Plan



Modification



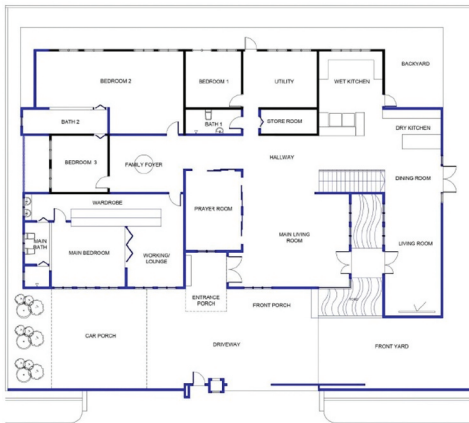
H2_JP_MLY

Analytical Diagram

Figure 7. H2_JP_MLY repurposed the entrance porch as a buffer between the private outdoor and indoor areas and extended the TV room, tactically separating the front house for temporary hosting guests while the rear of the house for privacy and modesty. (source: Authors).



Original Ground Floor Plan



Current Ground Floor Plan



Current home front elevation with covered main entrance towards guest living room

Modification

- 1st
- 2nd
- 3rd
- Shared

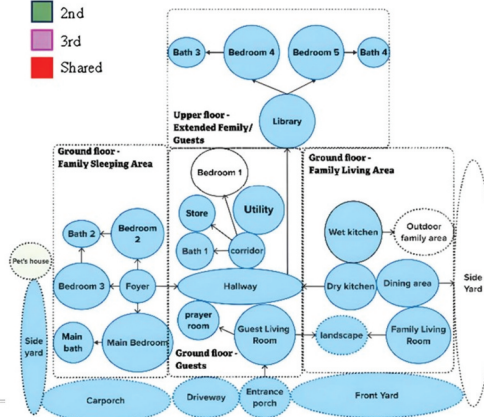
H10_PP_MLY
Analytical Diagram

Figure 8. H10_PP_MLY's home features horizontal zoning that reflects spatial resistance to the rigidity and mirrored design of the original layout (source: Authors).

transform the entire ground floor into an open space while adding a dedicated living area for female use. For him, this adaptation provides spatial flexibility and temporal use to host his family gathering tradition while fulfilling the religious requirement for communal prayers and gendered space.

We transformed the backyard into the main kitchen and the original kitchen space into a dry kitchen for food preparation. Bedroom 1 was transformed into another living space, with a television, for mothers and children. The front area is reserved for formal occasions and communal gatherings, particularly our religious activities. The bedrooms on the upper floor are exclusively for anyone to rest. – H11_JP_MLY

In higher-class households, mirror-imaged layouts are tactically reformed to accommodate communal gatherings and living while personalizing spatial control. This spatial adaptation demonstrates a resistance towards the rigid layouts, expressing

a preference for horizontal zoning (Figure 8) to delineate between guest, family living, and family sleeping areas.

H10_PP_MLY, a Malay Muslim couple in their 50s, combined two semi-detached (semi-D) units, thereby segregating the residence into a guest zone, a family zone, and a family private zone. This tactical spatial adaptation created a single cohesive home and maximized land use for individuals of all ages, thereby preserving familial connections under one roof.

We hardly lived in this house in its original state – we modified everything and maximised the land so that all my children could live with me. I envisioned a home with clear external and internal boundaries while still fostering happy interactions between everyone. – H10_PP_MLY

In addition to gendered space, H10_PP_MLY preferred to locate their daughters' rooms adjacent to the parents' room. This symbolic boundary-marking tactic was also employed by H4_BBB_MLY and H9_USJ_MLY to monitor and safeguard their privacy, safety, and modesty, in keeping with their traditions and religious practices.

Spatial Adaptations Among Chinese Respondents: Outdoor Nature Integration and Individuality

The home is where individuals or families engage in territorial behaviour, balancing privacy, social life, spatial comfort, and functionality to foster a sense of belonging (Altman 1975). The spatial adaptation in some households demonstrates a deliberate emphasis on connecting indoor spaces with outdoor elements while safeguarding familial privacy. In this case, the private outdoor frontage of each household is distinctly defined and often reinforced physically, but the approaches to personal and religious values vary. For instance, H3_DJ_CH, a Chinese Christian, incorporated various trees and wild plants around his house to reduce noise and air pollution from daily urban traffic, creating a tranquil *kampung* (village) vibe within the home environment. This informal adaptation of greenery reflects a spatial tactic in De Certeau's (1984) sense, shaped by cultural belief and sensory comfort, and exemplifies lived space, where past experiences become materially embedded in home design.

I love being surrounded by greenery since I was originally from a *kampung* (village). Different people have different lifestyles and priorities. – H3_DJ_CH

Meanwhile, H5_JS_CH, a Chinese female resident of an intermediate terrace house, was repurposing her original unit layout by constructing a high and robust wall around her house for visual solitude and individuality in a modern, bustling setting while staying connected to outdoor nature (Figures 9 and 11).

Staying in an intermediate unit, we wanted more sunlight and excellent natural ventilation. It is wonderful having the front wall—I can freely invite my close friends here, and we can enjoy the indoor and outdoor spaces openly yet privately from any external pressures. – H5_JS_CH

H8_TV_CH, a Buddhist and *Feng Shui* (Chinese geomancy) practitioner, explained that the arrangement and design of natural components in both outdoor and indoor environments constitute sacred lived space (Lefebvre 1991), wherein ritual, energy, and spiritual



Figure 9. An enclosed green barrier constructed by H5_JS_CH (left) and H3_DJ_CH (right) to enhance nature integration within housing constraints and urban pressure. (source: authors).

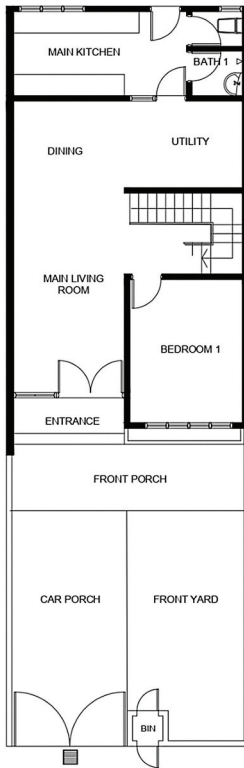


Figure 10. H8_TV_CH decorated the entrance pathway with curvilinear potted plants and religious symbolism, reinforcing spiritual protection and the smooth flow of *chi* (positive energy) inside the home. (source: Authors).

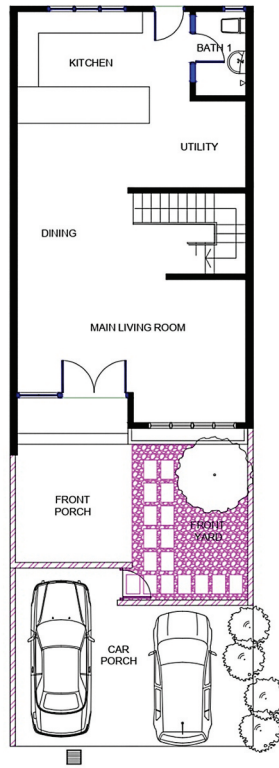
wellbeing are integrated into the home. For instance, a principal tenet of *Feng Shui* is to avoid sharp edges or obstructive objects to facilitate the unimpeded flow of *chi* (positive energy), thereby ensuring harmonious circulation and optimal natural ventilation. In response to the rigid layouts, he reconstructed a green space over a water pond in his side yard, as its undesirable location adversely affected the fluidity of *chi*. This spatial adaptation within his private outdoor and indoor environments was vital for providing adequate natural light and ventilation, thereby promoting the wellbeing of his household. Additionally, a built-in Buddhist temple (Figure 10) was placed in his front yard corner, separate from the car porch, offering ample space for individuals to pray and reflect.

In a compact housing design, H5_JS_CH opened the ground floor layout to seamlessly integrate the front and back of the house, thereby enhancing natural cross-ventilation while fostering family interactions. Initially, the kitchen was enclosed to accommodate traditional heavy cooking; however, she utilized new kitchen technologies to transform it into a modern, versatile space, allowing for a functional display kitchen within her front living areas (Figure 11). The transitional balance between indoor and outdoor spaces

Original Ground Floor Plan



Current Ground Floor Plan



Modification

- 1st
- 2nd
- 3rd
- Shared

H5_JS_CH

Analytical Diagram

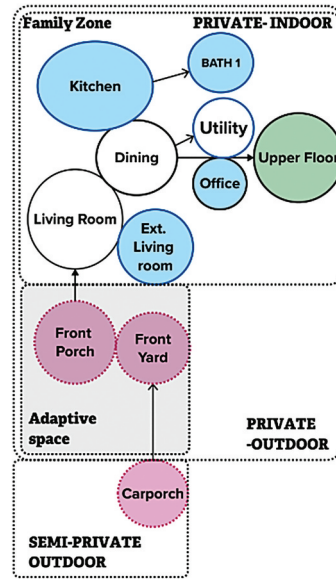


Figure 11. H5_JS_CH reinterpret and spatially negotiate indoor and outdoor for nature and familial privacy, expressing resistance to the original compact layout. (source: Authors).

permits households to reorganize these areas exclusively for the family's daily use within the enclosure.

In this study, most Chinese respondents tended to prioritize functionality and efficiency, which were shaped by smaller household size, financial conditions, and individual lifestyle preferences. According to respondents, the Chinese traditionally value familial closeness and living in proximity, albeit with a different approach. Privacy is essential for maintaining their intergenerational lifestyle, as it mitigates familial disputes and spatial conflict.

It was my idea to have a multigenerational household. Most Chinese households still embraced this tradition. So, the old can take care of the young, and the young can take care of the old. We didn't merge our units, allowing each household to maintain its own lifestyle. – H3_DJ_CH

Some Chinese respondents envisioned tactical adaptations to support individuality, intergenerational living, and flexible use of housing, particularly in terraced homes. Through lived space (Lefebvre 1991), both cultural tradition and forward-looking planning shaped these spatial negotiations. H3_DJ_CH waited 10 years to purchase the

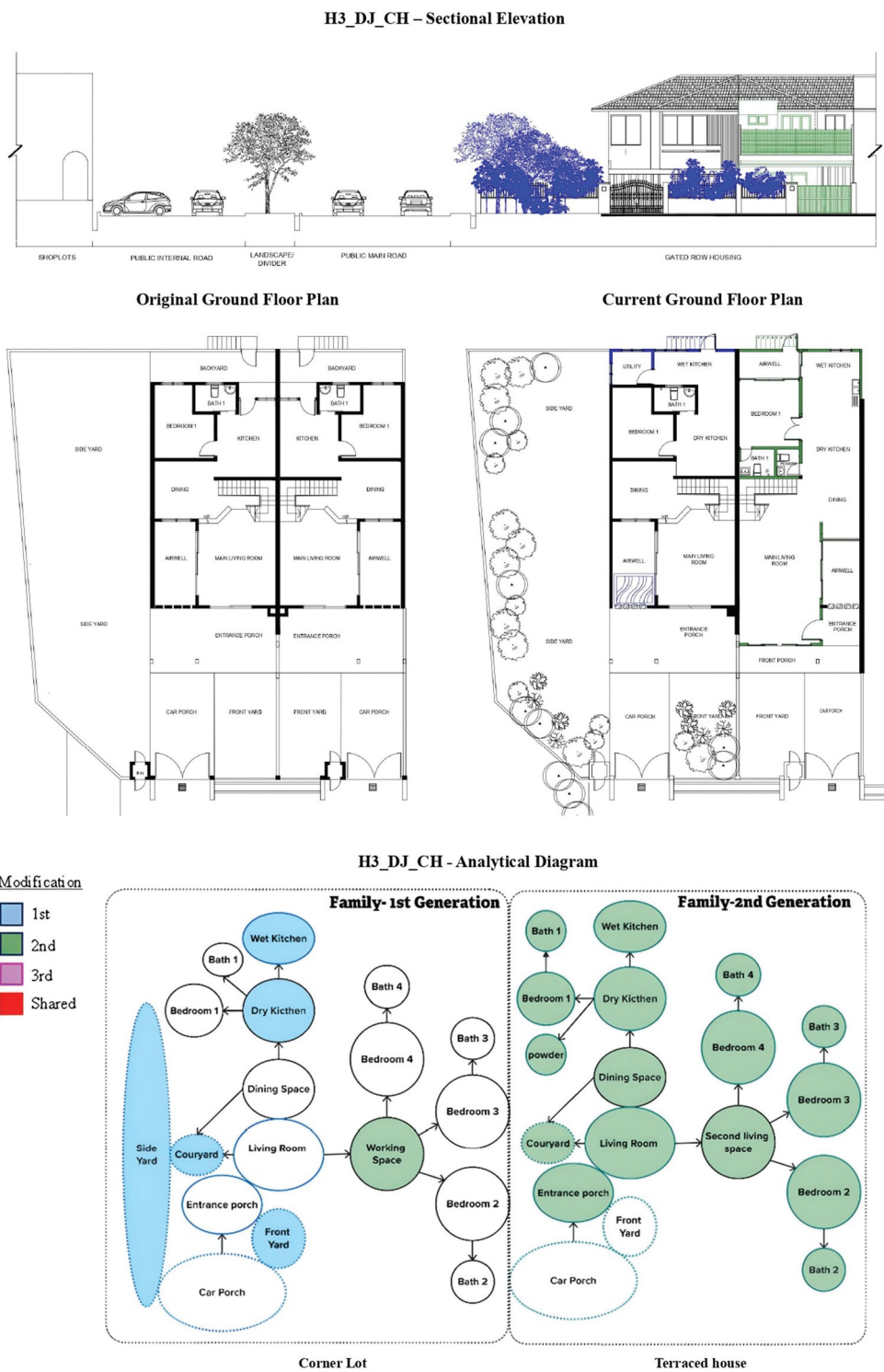


Figure 12. The sideways expansion made by H3_DJ_CH to his residence to maintain close familial ties while respecting individual privacy. (source: authors).

adjacent unit to his house for his married son (Figure 12), reflecting a long-term spatial tactic that aligned with his values of family proximity and independence.

H5_JS_CH, an elderly homeowner, contemplated renting out her upper floor as a future business venture. She recognized the necessity for a dedicated staircase or modifications to the existing steps to provide direct access from the ground floor to the upper level. This tactical adaptation involved dividing the ground floor to serve as her residence while reserving the upper floor for new family members or tenants. Meanwhile, H13_JLP_CH envisioned using the living area on the ground floor as a shared space while designating the rear of the house as an independent studio for his old age.

Spatial Adaptations Among Indian Respondents: Religious Symbolism and Flexible Use

The home serves as a site where individuals and families engage with emotions and sensory experiences shaped by cyclical practices, particularly rituals that deepen attachment to place (Heidegger 2001; Oswald and Werner Wahl; 2013). This expression was described by Indian respondents, where most had modified their homes to create a sacred lived space (Mazumdar and Mazumdar 1993), emphasizing spiritual continuity between outdoor and indoor areas. In these cases, private outdoor and indoor spaces often incorporated both structural and symbolic elements to uphold security and a sacred presence within the home.

The initial layer of fencing featured a green landscape incorporating various types of trees and plants. This greenery, primarily located at the front of their units and beyond, served both functional and cultural purposes for cooking and daily prayers and as a buffer between public and private spaces.

Originally, the house's fencing was relatively low. We felt really exposed. I raised the wall and added greenery to reinforce greater privacy. It is best for the temple to be indoors, but we didn't have a proper room for it. So, I try to keep the entire space clean to maintain a sacred atmosphere. – H1_JP_IND

H1_JP_IND, a Hindu male, reinforced the perimeter fencing with a green barrier and solid wall to enhance family privacy. Additionally, he constructed an outdoor pooja (ceremonial worship) altar in the front yard and erected a roof over the entire private outdoor area to bolster modesty and practical use. This spatial adaptation not only addressed environmental and aesthetic concerns, but also primarily aimed to preserve their religious identity while adapting to the standardized contemporary housing.

The shaded private outdoor frontage was transformed into a spatial negotiation for flexible use, serving as a prayer area in the morning, a drying space for laundry in the afternoon, a play area for grandchildren after school, and a secure vehicle parking space at night. During religious festivals, it became a space for welcoming guests, where shoes would be removed before entering the front gate to preserve the religious and modest atmosphere. The perimeter wall fencing was adorned with the figure of the deity *Ganesha* (the Elephant God) to repel any malevolent energy from entering the house.

In this study, both Indian-Hindu and Indian-Christian households designated a pristine room as sacred while modifying other areas flexibly to accommodate evolving domestic



Figure 13. H1_JP_IND creating a peripheral layer of greenery and religious symbolism that envelops their private outdoor space as a sacred environment while adapting it for daily ritual and domestic use (source: Authors).

needs. For instance, H1_JP_IND established an indoor temple in his living room, whereas H6_TSG_IND had an indoor temple on the upper floor, which was central to all the interior areas, highlighting the prominence of sacred space while other spaces remain convertible for practical needs.

When I first moved in, the first thought I had was the position my pooja (ceremonial worship) altar. It needs to face a positive direction. – H1_JP_IND

H7_TEK_IND, a Christian female respondent, consistently situated her altar in the central area, designating it as a sacred site. For her, the holy altar provided both spiritual protection and practical security. She recounted an incident where her belongings remained untouched during a burglary, as the intruders did not further enter the sacred space due to the presence of a prayer altar.

Meanwhile, H6_TSG_IND noted that adherence to *Vaastu-Vidya* (ancient Indian architecture and design) principles improved his spatial quality and living environment, highlighting that ritual, positive energy, and spiritual wellbeing are also embedded in his home. Colour and natural elements promote the wellbeing of inhabitants, enhancing their sensory experiences through the five senses.

He added that some individuals prefer vibrant colours (Figure 13), while others prefer soothing colours, such as cream or pastel for their homes. His staircase was redesigned with an odd number of steps to signify affluence and enhance circulation within spatial constraints. *Vaastu-Vidya* principles also influenced the placement of the *pooja* altar, which was located on the upper floor to cultivate deeper spiritual connections and eradicate any negative energy circulating among the extended family.

H1_JP_IND also emphasized the family tradition of communal living and structurally modified his house to accommodate his elderly parents, growing children, and other family members, especially his married sons. He tactically redesigned the spatial configuration by allocating personal rooms for each young couple on the upper floors while maintaining shared spaces, such as the kitchen and living area. The ground floor was

reserved for the elderly and children, ensuring safety and accessibility while reworking spatial constraints in a compact housing layout that was originally designed for a nuclear family.

Sons, traditionally, tend to stay close to their parents. I told my sons that if they wanted to stay and care for me, I'd provide them with rooms. The young couples use the upper floors, while my wife and I took the ground-floor bedroom (Bedroom 1). The front room (Bedroom 5) is for my grandchildren. – H1_JP_IND

Similarly, H6_TSG_IND enlarged his home by constructing additional rooms on the upper floor for his married sons (Figure 14). He later redesigned and expanded his kitchen to accommodate his wife's vegetarian cooking preference and the family's diverse dietary needs.

In contrast to other households, H7_TEK_IND expressed a different class perspective, favouring familial proximity within a neighbourhood rather than communal living under one roof, as she believed owning a home signified maturity and responsibility. These adaptive practices reveal diverse negotiations of religious practice, family structure, and spatial limitations within Indian households, reflecting personalized tactics (Certeau 1984) and how standardized layouts are negotiated through lived cultural practices (Lefebvre 1991).

Adaptive (lived) Spaces and the Malaysian Multi-Ethnic Home Design Framework

Rather than framing spatial typologies as ingrained in ethnic groups, this study interprets them as emergent from a set of overlapping and intersecting constraints, including gender roles, religious obligations, family structures, and climatic considerations. These are tactical responses to the conceived space of standardized layouts, reflecting lived negotiations rather than ethnic norms.

The Emergence of Guest-Oriented Patterns Among Malay Households

In the Malay households studied, a socio-spatial logic emerged, where spatial modifications reinforced guest-oriented patterns within the standardized housing layout. These configurations are best understood as tactical negotiations of everyday life (De Certeau 1984), rather than as uniform ethnic traits. Spatial adaptations were shaped by the cultural norms of *adab* (social etiquette) and Islamic values, reflecting the need to balance hospitality, communal adaptability, and gendered spatial norms in contemporary housing. Two adaptive (lived) spaces emerged from these modifications; multiplied and transitional spaces, constructed by respondents to accommodate both cultural norms and religious values.

Multiplied spaces are identified as serving the same function as conceived spaces in the original housing layouts. For instance, H4_BBB_MLY converted his car porch and multiplied the living room to accommodate guests while preserving the need for family privacy. Similarly, H2_JP_MLY multiplied the living room as a television room to entertain guests. H11_JP_MLY provided further evidence of how his spatial adaptation, based on the formation of gendered spaces for family gatherings, motivated him to multiply the

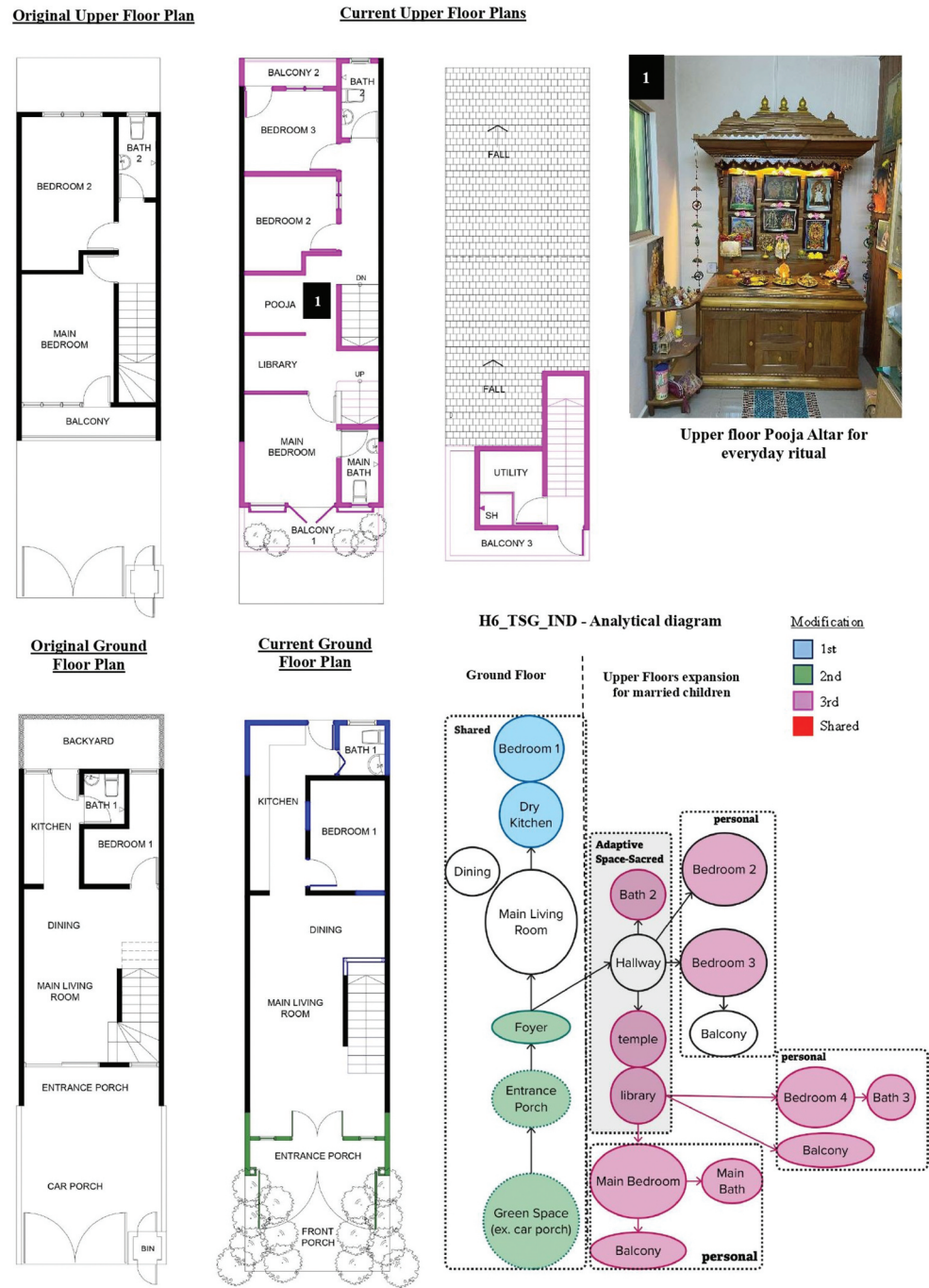


Figure 14. The vertical expansion and interior enhancements made to the original layout, including added bedrooms and a larger shared kitchen to support intergenerational communal living, reflect everyday spatial negotiation. (source: authors).

living room function for female use. This adaptation is consistent with the work of Hand, Shove, and Southerton (2007), which explains the necessity of multiplying the function of a rigid space to accommodate evolving social and cultural needs.

Transitional spaces serve as buffers between public, private outdoor, and private indoor spaces. For instance, H2_JP_MLY upgraded her entrance porch and raised the wall for privacy to address her uncomfortable direct encounters with male neighbours when receiving guests. Meanwhile, H10_PP_MLY changed the original layout entirely and repurposed the internal spaces into zones for guests, family entertainment, and family sleeping areas, thereby improving spatial transition and accessibility. This finding aligns with several previous works that have emphasized the importance of transitional spaces for social interactions while preserving family privacy, particularly in Eastern households (Maliki, Abdullah, and Bahauddin 2015; Özçetin and Beth Rottmann 2022).

Many previous works have observed these adaptations reflect a similar spatial pattern to traditional Malay homes in *kampung* or villages (Abdul Rahim and Hashim 2018; Ju et al. 2022; Zohri 2010). Traditionally, guests are mostly entertained at the *anjung* (porch), a covered, semi-private multi-purpose entrance raised above ground level (Asif et al. 2018). While they vary in their spatial modifications, each household demonstrates three spatial zones – the front (guest), middle (family), and back (kitchen or women's realm). The arrangement demonstrates the religious values of maintaining *aurat* (modesty), limiting interactions with non-*mahram* (marriageable) individuals, and delineating spaces for different genders (Awaliyah 2023; H. Ismail et al. 2014; Lah et al. 2015). Therefore, these adaptive lived spaces emerged to mediate the constraints in row housing layouts, subtly asserting control over guest access and social interactions. These adaptations enable households to incorporate transitional and guest-oriented layouts that preserve cultural identity and social expectations in contemporary living.

The Emergence of Nature-Integrated Patterns Among Chinese Households

In most Chinese households, spatial adaptations reflected a deep connection to nature, climate considerations, and ritual practices, demonstrating a psycho-spatial approach to the home. Three adaptive (lived) spaces emerged through spatial adaptation (Lefebvre 1991), including transitional, sacred, and multiplied spaces. In response to rigid housing designs, households tactically reconfigured space to introduce natural elements, creating tranquil settings that fulfilled their emotional and psychological needs for solitude (Al-Tarazi 2021). These changes subtly resist the constraints imposed by standardized housing layouts in line with de Certeau's (1984) concept of spatial tactic.

The construction of transitional spaces often involved modifying existing boundaries and transforming house frontage into a private enclosed garden for security reinforcement, *kampung* memory and sensory comfort. Other households highlighted the importance of incorporating and personalizing nature elements within their home environment, aligning with *Feng Shui* principles as practised by the majority Chinese-Buddhist communities in Malaysia (Lah et al. 2015; Yap and Chuan Lum 2020). Furthermore, households like H8_TV_CH emphasized a sacred outdoor space dedicated to a Buddhist temple and the *Datuk Kong* shrine (ancestral spirits of the landscape), protecting the house from negative energy and harmonizing the living environment with green features. While most respondents identified as Buddhist, not all strictly

adhered to Feng Shui principles, citing the high cost of consultation services. The interior space often had non-specific gender zones since the open layout encouraged family interactions, while the outdoor space was designated for socializing with close friends and guests. This spatial arrangement shared a similar family living pattern to traditional Chinese courtyard housing, where courtyards served as social spaces and buffers to other family houses (Abass and Ismail 2016; Hu 2008).

While they vary in their spatial modifications, each household highlighted their spatial preference for family closeness and independence. For example, H3_DJ_CH strategically purchased the adjacent unit for his son's new family for sideways expansion without merging the units. H5_JS_CH noted that her upper-level modification could accommodate her married daughter or tenants while she occupied the lower floor. H13_JPL_CH envisioned transforming the back of the house into a studio unit and kitchenette for his solitary occupation, while the remainder of the house served his extended family. This exhibited the actively changing role of the home to accommodate the evolving social structure and lifestyle needs (Lefebvre 1991). Although there is a traditional aspect to preserving family togetherness, these adaptations for individual lifestyles reflect multiplying spaces rather than spatial negotiation, as observed in Western and metropolitan cultures (Iacovou and Skew 2011; Kottmann 2022). Despite the adaptability of indoor layouts, integrating outdoor spaces for nature, such as enclosed gardens constructed by respondents, remained valued features for psychological and spiritual comfort. These spaces not only reduce reliance on mechanical technologies but also assign cultural meanings to the home environment (Lefebvre 1991).

The Emergence of Religious-Oriented Patterns Among Indian Households

For most Indian respondents, their everyday spatial negotiation was closely intertwined in religious and ritual practices while also enhancing functionality and flexibility for family and domestic activities. Two adaptive lived spaces emerged from these spatial modifications: sacred and negotiated spaces. These adaptations were shaped by sensory, symbolic and spiritual experience, reflecting an emotional-spatial understanding of home. Importantly, these spatial practices varied across households, influenced by intersecting factors such as class, gender roles and individual belief systems, rather than a fixed cultural template.

As highlighted in previous studies (Devi and Abdul Rani 2024; Dokras 2020), the northeast placement of the pooja altar is commonly considered auspicious in Hindu traditions, a predominant religious practice among Indian Malaysians. Hindu respondents like H1_JP_IND and H6_TSG_IND incorporated transitory green landscapes within and beyond the private outdoor space, enveloping their home as religious zones while preserving family privacy. These adaptations manifest ritual practices and spatial needs in the living environment, physically reinterpreting the original housing layout (Certeau 1984; Lefebvre 1991). The proper placement of the pooja altar enhanced the use of surrounding space, enabling households to perform multiple domestic activities while maintaining alignment with Vaastu-Vidya, a cosmological principle that honours the "Domain of Brahma" (Dokras 2020). By contrast, H7_TEK_IND, a Christian respondent, maintained a sacred room with no specific orientation but one that was central to her living areas. The inclusion of deity figures and religious rituals illustrates how spiritual

values shape the home, embedding cultural meanings within standardized layouts (Lefebvre 1991).

The rear of the house was adapted into dry and wet kitchens, illustrating how practical needs intersected with ritual considerations, in a way akin to some Malay respondents. Cultural studies on kitchen use (Devasahayam 2005; Mazumdar et al. 2004) note that food preparation in both Hindu and Muslim traditions is deeply tied to cleansing and purification rituals. In Hinduism, the emphasis on vegetarianism did not hinder spatial adaptation. Rather, households like H6_TSG_IND expanded the kitchen to accommodate younger family members' needs while maintaining religious principles. These modifications reflect the negotiation between traditions and modernity within the lived space and the tactical responses employed by households to daily constraints. In this context, the rear of the home was often maintained as a gendered private zone, where women retained control over the preparation of food for the entire family (Devasahayam 2005; Özçetin and Rottmann 2022; Lordoğlu 2022; Zohri 2010).

Whether through sociality, spirituality, or territoriality, households across all three communities revealed deeper cultural logics that transcended merely practical demands or fixed traditions. While the forms of spatial adaptation varied, they all involved tactically rearranging rigid housing layouts to better accommodate their lived values. These findings reinforce Lefebvre's concept of lived space as an active site of cultural production and unfold De Certeau's notion of everyday negotiation within the home environment.

Conclusion

This study contributes to bridging theoretical concepts with empirical housing practices, demonstrating how multi-ethnic households negotiate rigidity in contemporary housing through everyday spatial practice. The phenomenology of modifications in Malaysian households was elucidated by the layered dimensions of homes offered by Lefebvre's spatial triad. This framework illustrates how the conceived space, the standard mirror-image housing layout designed by architects and developers, is physically adapted and modified through the lived experiences of multi-ethnic households.

Four spatial typologies derived from phenomenological experiences – transitional, negotiated, multiplied, and sacred – emerged as adaptive responses to the rigidity of housing layouts, demonstrating how everyday spatial practices materialize cultural and ritual logics, echoing De Certeau's spatial tactic. These adaptive lived spaces illustrate a culturally informed design framework, reflecting how diverse households dynamically negotiate cultural, spiritual, and functional needs within standardized housing.

For instance, nature-oriented layouts, as illustrated by some respondents, incorporating greenery are not merely for aesthetic features but evoke *kampung* or village memory, serve as transitional buffers, express belonging, and carry spiritual symbolism. In most cases, guest-oriented layouts preserve modesty and facilitate communal gathering or prayers, functioning not only for hosting but as cultural continuities. Meanwhile, the emergence of religious-oriented layouts moves beyond dedicated prayer altars to reflect embodied spiritual principles and everyday domestic rituals. Hence, the placement and use of these spaces are determined by lived practices, shaping emotional-spatial, psycho-spatial and socio-spatial expressions of home, echoing Heidegger's notion of dwellings as

lived, embodied experience. These adaptations are dynamically co-produced through everyday acts and processes of meaning-making.

While the study was limited by a small sample size, it offers rich insights into how diverse lived experiences shape housing practices within a specific context, opening a pathway for further exploration of household behavioural patterns. Future research could benefit from integrating behaviour-related theories, such as Bourdieu's habitus and Altman's territoriality, to deepen the understanding of homes and housing shaped by habits, power relations, and spatial constraints. Although some aspects of these theories were touched upon in the findings, the study remained focused on the tactical adaptations and spatial resistance of households to standardized row housing and does not suggest that these are static or universally representative. This approach extends Lefebvre's triad and De Certeau's spatial tactics, highlighting the need for more adaptive housing designs that are responsive to the realities of diverse households. Incorporating perspectives from policymakers, developers, and architects could further enrich the analysis of constraints and possibilities within the housing industry.

The interpretations presented in this paper emerge from a situated engagement with respondents' narratives, drawings, and spatial environments. While patterns are observed across households, these should not be conflated with fixed cultural prototypes. Each modification reflects a specific intersection of memory, religion, gender, class, and constraint. This reflexivity acknowledges the researcher's positionality and the need to resist flattening complex lived realities into neat typologies.

Finally, this paper avoids reading spatial adaptations as static reflections of culture or ethnicity. Instead, it reveals how everyday spatial tactics, as theorized by De Certeau, allow households to navigate and reshape the rigidity of standardized housing. By foregrounding Lefebvre's concept of lived space, the study demonstrates that the home is never merely inherited, but it is made, remade, and imagined through practice. The framework invites future inquiry across global urban contexts, where cultural meaning, memory, and economic constraint intersect in the making of home.

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Data Availability Statement

The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials.

Ethics Statement

The study received ethical approval from the Faculty Research Ethics Committee (FREC), the interviewees have been anonymized, and all respondents provided informed consent.

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