



Analyzing the Built Form for Accommodating Cultural Diversity in Housing: Adaptation and Design Flexibility

Mohammad Arif Kamal^{1*}, Tejwant Singh Brar²

¹ Architecture Section, Aligarh Muslim University, Aligarh, India

² Sushant School of Art & Architecture, Sushant University, Gurugram, India

* Corresponding Author: architectarif@gmail.com

DOI: 10.32629/aes.v4i2.1231

Abstract: India has an age-old habit of aping the western world. Even today, the architecture of most of the metropolitan cities is not based on its immediate surrounding or microclimate instead; it is a creation of the current building trends of the west. The newly developed towns in India not only attempted to follow the trends of globalization and modernization but also got pulled in the whirlwind of the global culture. Today, this global culture is captivating the millennial generation of the city, who in turn is shedding away its traditional and cultural roots by transforming their lifestyles. These upcoming newly developed towns are being interrupted from expressing its diversified cultural and ethnic variation causing dissatisfaction amongst the people in long term. This paper tries to point out the reasons for dissatisfaction caused due to poor infrastructure in the residential sector that is available for adaptation into the urban life and questions the relevance of the existing housing trends in these cities that have failed to cater to the wellbeing of the society. This will be done by studying an established multi-cultural housing in Manitoba, Canada and Yamuna Apartments in New Delhi, India that has been accommodating diversity for decades. The paper discusses the need to preserve and enhance cultural expression and identity of an individual and the community in this era.

Keywords: built form, architecture, flexibility, cultural diversity, housing, India

1. Introduction

The city is a brisk channel for the integration of such individuals and communities into a civil society of solidarity. According to Qadeer, the diversity driven by immigration is a necessary criterion and the civil and cultural rights regime is conditional criteria for the realization of multiculturalism. When these conditions are infused into the institutions and structures of a city, it becomes a multicultural place. He emphasizes that the spaces, services and civic culture of a city act as common points for the integration of the various sub-cultures of urban communities (Qadeer, 2014). The capitalist worldview is what drives contemporary urban society. Millennial from all across the nation move to the city and adapt to a new way of life. The modernization, technology, and western style of life have a significant impact on this development. While they do adjust to city life and culture, studies reveal that this transient adaption eventually wears off and contributes to social unrest and misery. Additionally, it affects their wellbeing and productivity. People are drawn to come under the same globalization tent by turning away from their own culture, customs, and way of life because of the surrounding environment, city features, conditions, and context. India's distinctiveness and variety are being lost in this global culture.

2. Aim and objectives of the study

The aim of this research is to identify the factors that are causing a gap between the space and the user within a community in a residential setting that is consequently affecting the wellbeing of the society. Further, the intent remains to find the key to achieve modernity, embrace transforming lifestyles while acknowledging the need for users to be able to indulge with their cultural roots in today's urban metropolitan city to accentuate the creativity that is released as a result of diversity. It is vital to begin with the basic study of the city, the events that led up to the infrastructure that exists today. The contingency behind its failure to reinforce and elevate the diversity that constitutes its population.

- To identify the reasons that are hindering cultural and ethnic expression by the user i.e. the residents within their space i.e. the housing with respect to the circumstances or the conditions of the city.
- To study the lifestyle of people and the temporary changes they make with respect to their traditions, customs and way of life. The ways in which they adapt to the city-life in terms of possible extensions, flexible usage of spaces, development of plans within the modulated and standardized dwelling available in the city.

- To define the parameters of design that successfully accommodates cultural and ethnic diversity in the dwelling that allows the users to indulge in their native traditions and customs. To determine characteristics of ideal socio-spatial arrangements for satisfactory adaptation in the defined setting
- To establish the relationship between the resident, residence and the neighborhood, discussing ways a multi-cultural community benefits the well being of the society.

3. Literature review and theoretical framework

3.1 Defining multi-culturalism

By definition, multiculturalism is a political theory that acknowledges the plurality of cultures and ethnicities within a community and encourages their expression and acknowledgement as essential components of the social order. It presupposes the equality of rights for people and communities, as well as the right of organizations to practice their religions and civic virtues. (Tatjer, 2003).

‘Multiculturalism’ is a paradoxical notion, while ‘multicultural’ is not. The -ism part of the concept may connote ideology, policy or discourse, but in all cases, it stands for an approach to a culturally diverse social reality informed by a normative objective to frame, control and steer developments in a particular direction. While "multiculturalism" is frequently prescriptive or, when used by analysts, is meant to designate either a state committed to a social model viewing multiculturalism as in some way desirable or, more negatively, a state following worthwhile if objectionable motives, "multiculturalism" simply describes a state of affairs — a society composed of people representing different cultural and ethnic backgrounds and attachments (Hedetoft, 2013)

Multiculturalism no longer has the same meaning as it formerly had. "Allowing different cultures to express themselves in the same space" is a key component of interculturalism. Interculturalism was described as "hopefully, about people learning about each other's cultures and respecting them, adopting or adapting parts of other people's cultures or activities as part of learning to live together." It also stressed that interaction and communication make the difference. In this instance, it is important to keep in mind that multiculturalism and tolerance is not the same thing. . The author makes a distinction between the 1950s "live and let live" multiculturalism, which "assumed that if people could keep significant aspects of their culture they would choose to integrate in their own way," the 1980s "'soft' multiculturalism of tolerance and equal rights," and the more recent "hard" multiculturalism of "positive promotion of religious and ethnic identities" in another article on multiculturalism in the Netherlands. (Galanakis, 2013)

3.2 Relationship between culture and society

The book, *Rise of the Creative class* spurred a lot of discussions when it was released. Recently in an article ‘Rise of the creative class- revisited’ which is more relevant to today’s economic situation, he quotes, “When I said that the secret to building better, the idea was not just attracting companies with handouts and tax breaks, but building a “people climate”—and not with stadiums and generic malls, but with parks and bike paths and street-level culture that would make people’s everyday lives better, improve the underlying quality of place, and signal a community that is open, energized, and diverse. (Florida, 2012) A shift in ideology is required, where the people should focus more on the individuality and talent boosted by cultural and ethnic differentiation rather than identifying with branded characteristics of goods. The Creative Class stands at the forefront of what the political scientist Ronald Inglehart has termed the transition to a “post-materialist values” —a shift from values that accord priority to meeting immediate material needs to ones that stress belonging, self-expression, opportunity, environmental quality, diversity, community, and quality of life. Henceforth the social wellbeing of people will only improve with an initiation of dialogue between various groups of people.

A research paper on the Impact of culture on economic development of the city says, “A culture-oriented economic development is one that integrates the symbolic and creative elements into any aspect of the urban economy, pursuing distinction, innovativeness, and a higher level of interaction between localised individual and social knowledge and globalising markets.” It provides a framework for spatial balance, social mobility and access to cultural resources, but also networking of cultural clusters and at its edge’s cultural identity and uniqueness. (Vander & Russo, 2015). On the contrary the author also argues that cultural economic development is short lived. Socio- cultural development of the people and society will improve the efficiency of the people. It is what brings out the creativity and individuality of users. It acts as inspiration within a community that will pave the path for future economic development.

One may have noticed that people look for presence/absence of kin, or people with similar ethnicities around before buying a new house. This might offer some relief from the uncertainties of the new urban way of life that they have migrated

to. The author attempts to explain mechanisms through which ethnic identities can be maintained and preserved but also activated in urban setting. “According to Tonnie’s theory of social evolution modernisation was expected to neutralise ethnic diversities thus heading towards a process of declining grip of ethnic identities over urban dweller. This has been conceptualised as convergence thesis proposing a change towards homogenized industrial society” (Mai & Shamsuddin, 2008)

4. Multicultural living in Indian context

Multicultural flexible housing: addressing the need and scope of flexible housing in cosmopolitan Indian cities. Iasef Rian discusses the present scenario of apartments that have been changed, modified or transformed by the needs and choices of resident families where the underlying relationship between users’ spatial necessity and adaptability in apartments unfolds. Subsequently, by reviewing some of the existing apartments in multicultural cities that are designed flexibly, this paper concludes the study by shedding light on the prospect and necessity of flexible housing system in Indian multicultural urban society. It briefly discusses the geographical influences on the culture and traditions of two families in particular and the changes they make within the apartment. Therefore quality of space for living that has become an important issue in the development of urban housing, especially in the high-density urban housing of the Indian metropolitan cities that not only with respect to the occupant’s physical health but also to their well-being which are in turn connected to the social and cultural sustainability of an individual and of a community as well. “Every culture does not fit into typically designed space configuration of the apartments. Thus, it results in space-user conflict” (Rian, 2011). With the rise in the high dwelling system, what is deteriorating is the quality of life generated in these buildings. This research focuses on housing models that have failed to meet the needs of the people and also reduced community interaction at all levels. Social support is the most important factors in predicting the physical health, wellbeing of all age groups (Kamal, 2022).

4.1 Quantity over quality

Housing today, only considers the quantity to cater to not the quality. The explanation to why housing has taken such a big leap is that anonymous slabs are so easy to draw, to site and proliferate that we accept the anonymity of in them and their desperate unsuitability to warm climates. The successful schemes are based on two things, they try to bottom up the approach by disintegrating the elements of housing such as a process and they involve people, the end user, in the process. These apartments, unstopped by the discomfort and anonymity, are nothing more than just mere slab blocks, that once made are then repeated unbounded number of times, disregarding the fact that the people inhabiting the space are all going to be different and so will be their needs. “The fact that a large percentage of households live in congested condition, indicates that a large section of population find decent and adequate housing unaffordable/” (NURHP, 2015). The spaces within the house cannot cater to the living conditions of the family.

4.2 Scope of flexibility in Indian context

The prospect of introducing the system of flexible housing in Indian cities for making housing multicultural, social and healthy with respect to occupants’ cultural transformation and modernity, socio-cultural sustainability, regional identity, and user’s customizability including their health and comfort. According to Rian (2011), besides housing is the best-suited solution for multicultural India where transformation and tradition take place concurrently. In Indian context, various changing factors in housing are mentioned below:

- a) Multi-cultures
 - Changing of tenants of different cultural background.
 - Changing of lifestyle because of inter-cultural influence.
 - Transformation into global culture and modernization.
- b) Family Growth:
 - Changing of number of family members.
 - Growing ages of each family member.
- c) Weather
 - Changing of climate per season.
 - Changing of sun/wind directions per day per season.
- d) Need/Choice: - Different occasions, functions, celebration, guests etc.

5. Case Study 1: The Centre Village Housing, Manitoba, Canada

The Centre Village housing, in Manitoba Canada, an acknowledged multicultural society, has also encountered pressures to diversify the way urban facilities, services and structures are provided. Community spaces facilitate social inclusion,

intercultural communication and provide socio-spatial configurations that transcend ethno cultural divisions and traditional public and private boundaries (Galanakis, 2013). Drawing on the works of Henri Lefebvre, lay down the principles of intercultural theory: “At the core of interculturalism as a daily political practice are two rights: the right to difference and the right to the city. The right to difference means recognizing the legitimacy and specific needs of minority or subaltern cultures. The right to the city is a sense of belonging in an intercultural society based on a shared commitment to political community.” Therefore the role of public spaces and their potential for intercultural communication is an important criterion for a multi-cultural city. Such spaces become a driver for social movements and citizen engagement, creating interconnections between different groups (Sandercock & Attili, 2009).



Figure 1. A street view of the Centre Village Housing, Manitoba

The Centre Village housing cooperative is a design thought that brought together a neglected inner-city neighbourhood to provide its residents with a unique congregation that was built on the idea of community building (Figure 1). On an unused L-shaped land, the project created a micro hamlet of 25 residences spread among six, three-story buildings. A through-street and a shared courtyard, which weave the city through the project and offer amenities for residents and the nearby community, are both defined and brought to life by the blocks' configuration. Children can play in peace and safety in the planted courtyard, and the new street serves as a hub for informal gatherings (Figure 2). Each residence has a separate entrance, either at level level or via an outdoor staircase, which both encourages inhabitants to interact and get to know one another and reduces internal circulation and overall building size.



Figure 2. Different levels plans (L1, L2 & L3) of the Centre Village Housing

The units have rich and dynamic compositions created from small 8' x 12' modules for compact spaces and cantilevered 14' x 12' modules for bigger living rooms with greater vistas. They were designed to make the most of space, material, and daylight. The master bedroom and living room must occasionally be expanded, so the base module is occasionally replaced by a larger 14' x 12' unit that cantilevers off the main spine. One-bedroom units range in size from 375 square feet to four-bedroom homes with an average size of 875 square feet when the modules are stacked and linked together. Even modest apartments have lots of seclusion because each unit's rooms are spread across multiple floors, which was crucial because many of the renters are multigenerational families. Every upper unit has a rooftop patio, and any second-story residences have outdoor stairs leading up to them. Despite the small size of the housing units, the 8' band allowed for cross ventilation and multiple views in each one (Figure 3).



Figure 3. An open space for interaction and outdoor activities between clusters

Through the window cowlings, which 'punch' the internal space out of the structure, capturing views and extending the imagined living spaces outdoors, a vivid orange hue is projected out from the living areas to define the ceiling plane in the space and reflect light. An average flat contains eight or more windows, which are freely placed throughout to broaden the illusion of space and reflect light while also mediating the limited internal area. The combination of standardised modules produces diversity and richness on the site, resulting in a composition of small one, two, three, and even four bedroom residences that appears disorganised but was actually carefully planned. These housing bars are arranged around a landscaped courtyard and an inside streetscape, two shared inner communal spaces (Figure 4). Each unit has a separate entrance from one of the two communal areas, which are intended to encourage both individualism and connection to the greater community of residents.

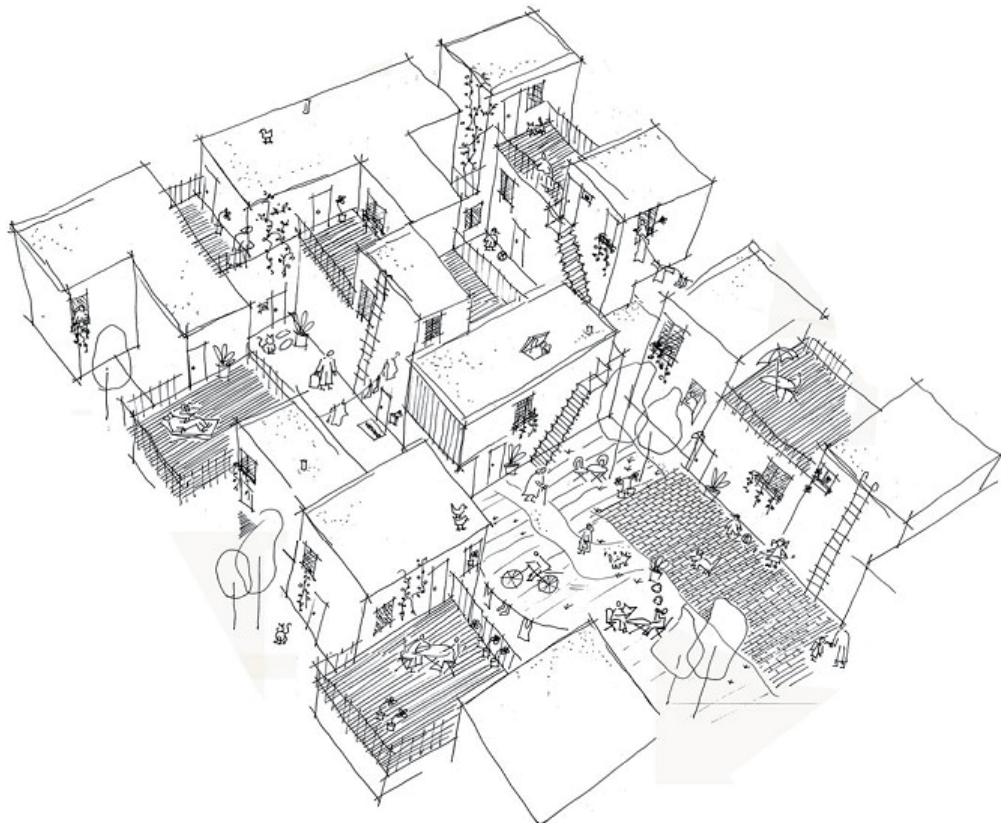


Figure 4. An Axonometric view, showing different blocks of the Centre Village Housing

There is no back side to this project because doors and windows are placed on all sides of the blocks, which enhances street quality and increases safety and security everywhere. Additionally, a typical home has eight or more windows on at

least two of the building's sides, offering a lot of different views, light, and cross-ventilation opportunities (Figure 5). To give Centre Village its own identity in the city, the windows' deep-set, vivid orange cowlings that adjust seclusion and views inside the units. The project is gradually showing how creative architecture may influence urbanism and enhance social interactions.



Figure 5. A narrow street enclosed by different blocks of the Centre Village Housing

6. Case Study 2: Yamuna Apartments, New Delhi

The Design Group, an Architectural consultancy constructed the Yamuna apartment complex between 1973 and 1981. This housing project, which is situated in one of South Delhi's most populated and residential regions, established a benchmark for the industry - at least one that no private architect could ignore. The Yamuna complex was also the first to make explicit references to conventional shapes. An architect Ranjit Sabhiki of the Design Group said, "The winding traditional street with its community activity along it was recalled." The inside of the Yamuna apartments is divided into private, semi-private, and religious rooms, continuing the spatial hierarchy of the site. The balconies that connect the living and dining areas to the street provide a connection and security from it (Figure 6). The kitchen, which also houses the family shrine where prayers are said, is located to one side of the living space. It must be kept out of the typical circulation paths inside the flat in order to protect the sanctity of this spot (Gupta, 1991).



Figure 6. The Yamuna Apartments housing complex, New Delhi

The Yamuna apartments' dwellings are divided into eight building blocks. While automotive traffic is restricted to the site's perimeter, these blocks have been set out around a system of winding pedestrian streets (Figure 7a). The architectural idea is inspired by the structure of traditional neighbourhoods in north Indian cities, which include a bustling network of tiny streets where residents may relax and socialise with their neighbours (Hans, 1984). Additionally, in a manner reminiscent of a traditional Indian town, these winding pedestrian streets come together in a central square (Figure 7b). A market or a village

well are typically located in the central square of a village, which serves as a gathering place for the locals. Yamuna Apartments uses a similar idea, with the centre square serving as the focal point of the housing development and housing stores, community clubs, and canteens. The usage of balconies to protect exterior walls from the scorching sun and the inclusion of terraces for summertime outdoor sleeping are other aspects adapted from the region's traditional architecture.

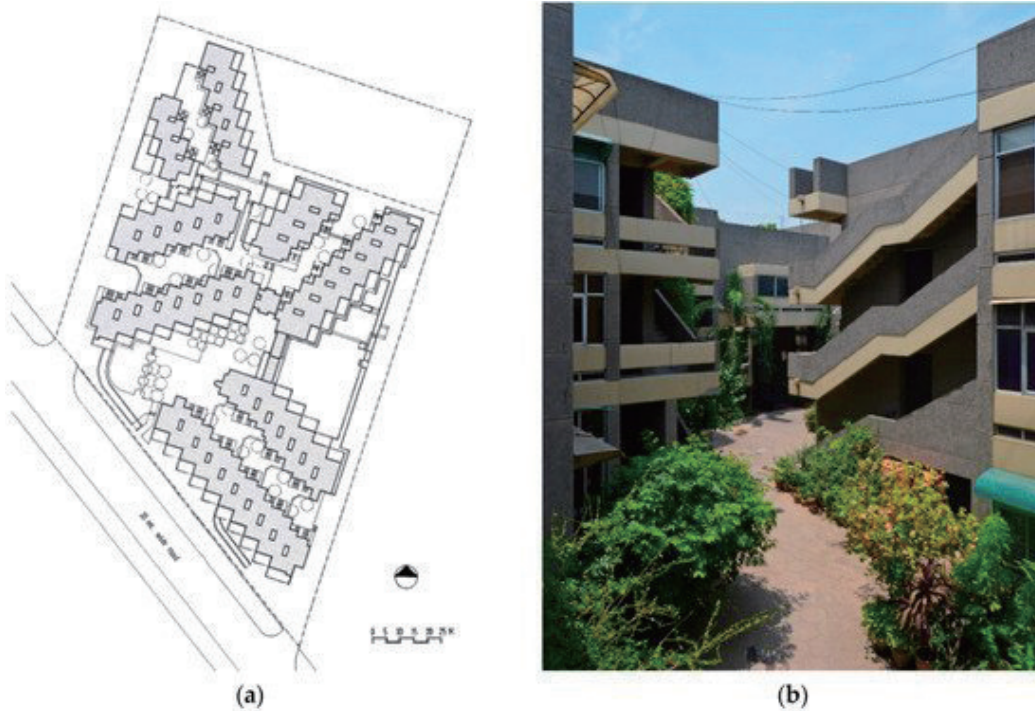


Figure 7. (a) Site Plan of Yamuna Apartments with housing blocks placed along four radially-converging streets; (b) housing units overlooking the narrow pedestrian streets

6.1 Climate Design of the Dwelling Units

In order to ensure thermal comfort, the architects of Yamuna Apartments gave cross-ventilation top priority in unit designs because the usage of air conditioning in homes was very uncommon in India in the 1970s. To guarantee proper cross-ventilation, each unit has internal ventilation shafts in addition to evenly spaced openings on two sides (Figure 8). Additionally, space has been made available in the internal ventilation shafts for the installation of desert coolers (Chatterjee, 1985). The projection of deep balconies to shield the exterior walls from incident sunlight is one of the additional measures taken in response to the local environment (Kamal, 2012). Between levels, there are balconies that alternately have square and rectangular shapes to break up the monotony of the facades and to ensure that adjacent rooms receive enough natural light.

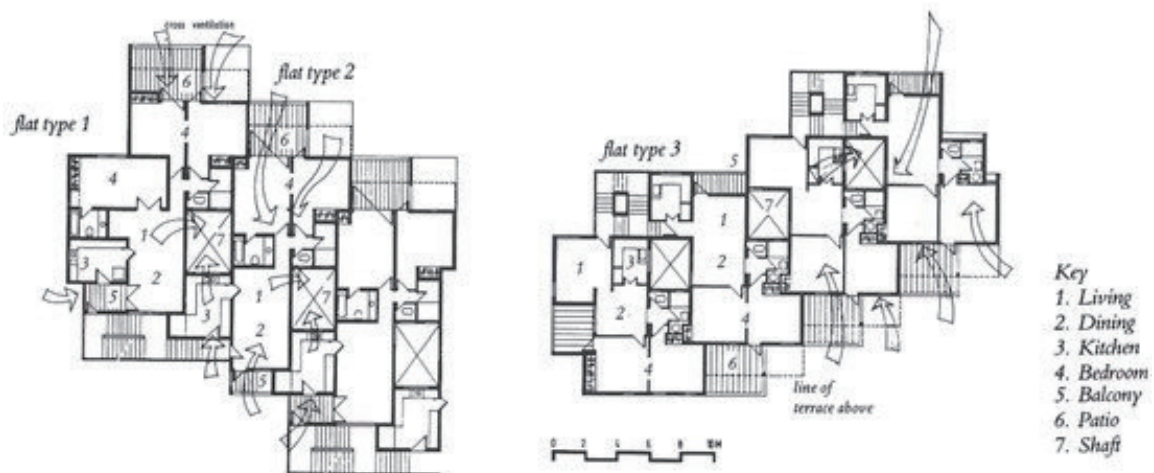


Figure 8. Typical floor plans of three unit types showing the air flow and cross-ventilation.

6.2 Building Materials and Construction Technology

The limitations of the regional economy had an impact on the selection of materials for the Yamuna Apartments. Exposed stone aggregate plaster has been placed in place to finish the outside walls. A cheap and low-maintenance substance, aggregate plaster is made of just cement and locally crushed stone. Stone aggregate plaster gives the structure a beautiful grainy appearance despite being a cheap material. The structural elements are made of in-situ cast reinforced cement concrete. Due to the in situ construction's labour-intensive nature, the local labour force was more heavily involved in the building process. The Yamuna Apartments did not necessitate significant technology improvements for its development because it is a low-rise, medium-density housing scheme. However, the architects have used the most recent technologies available whenever it was necessary. A waffle slab has been used to span the community club, creating a room without columns. Additionally, the home plan makes liberal use of cantilevered staircases and balconies. However, the housing project's striking structural expression gives it strong Brutalist overtones, which mutes its regional characteristics.

6.3 Cultural Appropriateness

The Yamuna Apartments' design benefited from the architects' prior awareness of the target demographic they were targeting. The occupants were a close-knit community of South Indian-born civil workers who had similar housing needs. In light of this, the architects created an integrated communal settlement that draws design cues from traditional Indian city neighbourhoods. The housing blocks are tightly packed together around the small sidewalks, with the semi-private spaces of the apartments overlooking these sidewalks. Each unit has been constructed to open onto the pedestrian spine since the sense of privacy in Indian neighbourhoods is not as strong as it is in the West. Each housing unit's entrance staircase acts as a street extension (Bansal, 2013). Each home is accessed by a balcony, which aids in the transition from the common areas to the individual units' private spaces. The internal arrangements of the units maintain the conventional hierarchy between the various rooms (Lang, 2002). In each home, a semi-private zone with a living room, kitchen, and dining area is separated from a private zone with bedrooms and terraces (Figure 9). Due consideration has been given to maintaining the sanctity of the kitchen—regarded as a holy place—by keeping it separate from the lavatories because all of the residents share an orthodox Hindu lifestyle. To make it easier to practise sleeping outside during hot summer nights, the bedrooms have access to the semi-open terraces on the back side.

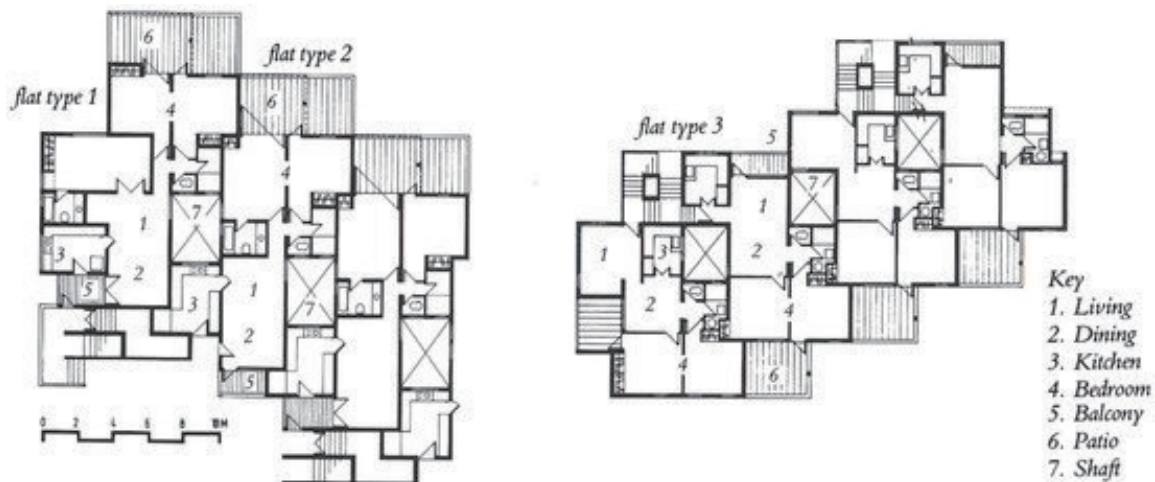


Figure 9. Typical floor plans showing the internal layouts of three types of units.

7. Analysis and Discussion

Home is a language, where the unsaid can be heard and even the unwanted seems to belong in this space. It is a language that has no meaning to an outsider, but to the inhabitants of the space alone. According to Witold Rybczynski in his book *History of an Idea, an Ideal Home*, he observes that a home is an amalgamation of the following characteristics (Rybczynski, 1987):

- Comfort and well being
- Nostalgia and Memory
- Austerity: Complex yet simple
- Efficient

e) Privacy

The house offers its residents both physical and mental comfort. We all have a fundamental need for domestic well-being that must be met in order for us to feel comfortable in our homes. However, when fulfilling this need, we must not conflate comfort with décor, the way a room looks, or its intended uses. Comfort is a cultural concept that has little to do with the flimsiness of surfaces or finishes; rather, it has to do with a feeling of security in relation to a particular style of activity, which was in turn influenced by how people perceived comfort. (Verma et al., 2022)

Other important factors

- a) Site and scale
- b) Language and style
- c) Openings and light
- d) Spheres of living

The type of entrances a person prefers or the location of the God in their home is determined by their lifestyle and innate culture. These elements are crucial in differentiating the unit's access, the proportion of private to public spaces within the interiors, etc. The ultimate goal of this research is to achieve a degree of flexibility in the design that offers the ideal balance between spatial necessity and cultural adaptation.

8. Conclusions

It has been observed that the residential architecture of in various cities in India is inadequate in terms of allowing the residents to express their individuality, traditions and culture. It has failed in providing its users with spaces that create an amiable and social environment encouraging community interaction. The current architecture has promoted mass adaptation to the idea of global culture and western lifestyle. This wave of modernity has led to loss of cultural heterogeneity (Nasir & Kamal, 2021). This paper tries to point out the reasons for dissatisfaction caused due to poor infrastructure in the residential sector that is available for adaptation into the urban life and questions the relevance of the existing housing trends in these cities that have failed to cater to the wellbeing of the society. The paper also studies the established multi-cultural housing in Manitoba, Canada and Yamuna Apartment in New Delhi that has been accommodating diversity for decades. The paper also discusses the need to preserve and enhance cultural expression and identity of an individual and the community in this era. A set of parameters was laid out to guide the basis for the research. Based on these preset parameters, through the medium of surveys, interviews and visual observations data was collected to identify the design characteristics that are preventing cultural expression, unfamiliarity in surrounding, dip in community interaction, creative thinking, uniqueness and finally dissatisfaction amongst the residents of the city.

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