



How is Affordable Housing Achieved Through Shared Living Lifestyle

Xiaofei Wu^(✉)

School of Architecture, Royal College of Art, Kensington Gore, South Kensington,
London SW7 2EU, UK
x.wu@network.rca.ac.uk

Abstract. Housing is a basic need that remains unfulfilled for the majority around the world. To ensure that everyone has access to high-quality living spaces, architecture and urban development can make a significant contribution to finding new solutions. The chase of equal access to high-quality living space has enabled architects and urban designers to seek new development opportunities for the new era. Yet, the challenge that comes after for this pursuit for affordable housing is the balance between cost and home quality, which is also depended on local cultural preferences.

The purpose of this article is to analyse the housing aggregation of affordable housing and the construction model of people's living space. As a contemporary research response, there will be a gradual and in-depth discussion on the construction methods of affordable housing and people's lifestyle from four aspects: 1) to discuss the current challenges and problems the affordable housing should face and solve; 2) to evaluate the application of typology and flexibility in houses to encourage residents to build by themselves and become self-sufficient; 3) to highlight the advantages of shared living lifestyle for affordable housing; 4) to compare the projects of affordable housing in the world and study the different forms of housing aggregation. This article extensively builds on this basis for seeking potential strategies to be incorporated in the design of living space for affordable housing in the future. In addition, to find and create strategies applicable to affordable housing, this article also analyses related cases in their different economic, social, and urban development contexts for comparison.

Keywords: affordable housing · growing house · typology · self-sufficient · home-sharing · collective life · modular spaces

1 Introduction

In general, the creation of living space takes an important position in the shaping of all communities. At present, the levels of housing supply in many regions in the world are insufficient to fulfil the growing needs of people. This demand is caused by the following factors: population growth, urbanization and centralization in conurbations, and an increase in per capita living space. They are also the challenges and problems

affordable housing should tackle. Therefore, the increase of affordable housing supply is the most pressing need across all nations.

The term “affordable housing” became popular in the 1980s. It covers social housing supply for concessional demographic, including the low-income population, and also middle-class group that are self-sufficient in daily necessities but have difficulty purchasing their own roofs due to the inability of the housing market for fulfilling their needs. It can be a newly constructed property, or a property purchased by the private sector then allocated as an affordable housing [1]. In 2012, a study from the CIO WM [2] compared income and prices in 72 cities, and studied the relationship between average income and cost of living. It should be kept in mind that it is mainly the low-income groups that are affected by the housing shortage. Especially in Germany, the situation is relatively simple, and the affordability of living space varies greatly. This problem is more multifaceted in other parts of the world. In China, homelessness is commonly tolerated, and simple settlements are set up for low-income groups (especially migrant workers) for purchasing low-standard furniture, sanitary and safe small houses in accordance with China’s housing policies and standards that can be rented at a relatively low rent [3]. As people’s awareness to quality living increases in recent year, size of living area no longer stands as a monomial factor for the evaluation of living space’s functionality and satisfaction. A small home with a high standard of comfort, reasonable layout, wide range of functions and variety may offer a better quality of living than a larger home that has been unfavourably planned. This phenomenon has led architects to reflect: on one hand, how to improve space utilization and the happiness of people living in small and limited spaces; on the other hand, how to make better use of large-scale houses to accommodate a large population, at the same time, meet the demand of this group for the use of space.

2 Application of Typology and Flexibility in Houses Make Effort in Affordable Housing

2.1 Create More Flexible Living Environment for Residents

There is a principle commonly known as “woonkariere” among locals in the Netherlands, meaning living space that can be easily vacated for a higher adaptability to the local environment, in whether accommodational, economic, or geographic settings. This concept has imposed a certain impact on the challenges and issues mentioned earlier. This principle has introduced practical strategies that are necessary for the solution to housing issues through expanding the adaptability of living space. There is a residential project in Zeeland, in the south of the Netherlands, which enables residents to not only define the internal structure of the house, but also expand the space later for enabling it as an expansive, growing house. In addition, the shape of the roof and facade care of free selection, designed based on a modular system that allows conversion, and to be turned on in response to changing needs. This precedent is based on a general design that can

cater specific needs of its residents. Its typology is a refinement of its own basic structure, directly derived as a response to the surroundings and the concept of use by residents. Its structure enables the multiuse and wide functionality achievable in its voids – eliminating the necessity for additional installation for supporting daily livings, and providing residents with maximum flexibility for being completely open and to be partitioned and reused as needed. Therefore, with today's rapidly changing and complex urban situation, architects and urban planners are required to come up with visions and suggestions for creating flexible living environments. The change of this dynamic lifestyle also promotes people to respond to new forms of shared life.

2.2 Encourage Residents to Build by Themselves and Become Self-sufficient

Individual residents' participation rate is found higher in affordable housings incorporating the mentioned principles, mentioned in a video, "Self-Made City", in 2013 that suggested self-built structures for the design of public urban spaces to be available and open-ended. In recent years, there have been some interesting phenomena like people started planting flowers on the street, and then being formed as an urban gardening that claimed to be aiming for this cityscape pursuit. As for space making, some people started to form groups, cut-opening the roof and opening up unused spaces in their house to transform them into shared spaces, that claimed to be an attempt of temporary intervention and change for their houses at any time in the future. It is seen that all identified features tend to incline to the general trend of "do it yourself, make the living space better". Therefore, an academic self-build project is presented in this essay. Residents are more inclined towards a personalized home that they were involved in its building process in some ways. Additionally, the specific nature of this kind of solution helps aligning housing needs with social demands, thereby reducing resource consumption and costs for at least a minimum of 20% [4]. For instance, La Borda, a self-organization apartment, which bind a community of fifty people of all ages together, serves a main purpose of providing decent, social, affordable and ecologically sustainable accommodation to the members of the cooperative and promoting intergenerational relationships and community integration (Fig. 1). The most important and unique feature of self-development and collective management in this apartment is the participation of residents in the whole process, and the ability of these residents to define the whole project according to their own needs. Rooms are spread over several floors of the building, seeking mixture of living units consisting of one, two, three or more people. All apartments have a basic structure (55 m²) to which one or two modules are added or decreased to make the different types (40 m², 70 m² and so on). Modular structures will allow apartments to alter their forms, structures, and sizes according to residents' needs for achieving a fair share of labour in production, domestic, and care in the future [5].

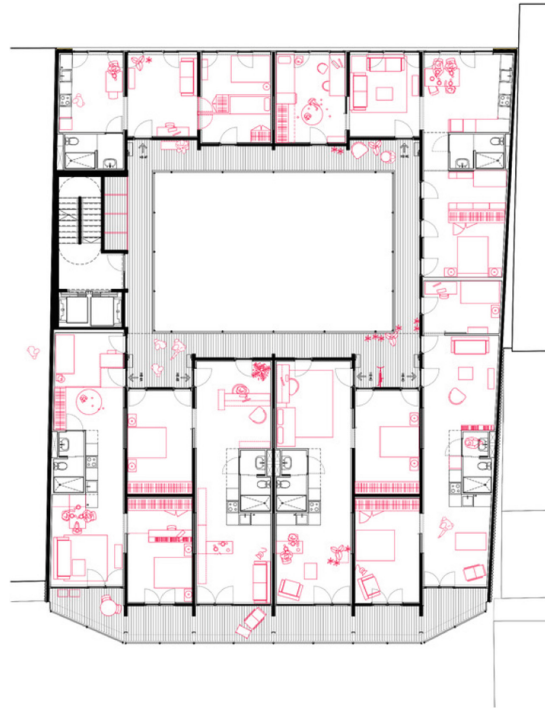


Fig. 1. La Borda, first-floor plan. To the north is a large sharing space, the laundry, shared toilet and storage space. To the south are the dwelling units. Source: Courtesy of Lacol. [<https://www.archdaily.cn/cn/922487/xi-ban-ya-la-bordazhu-zhai-tan-suo-ji-ti-zi-fa-zhu-zhai-de-ke-neng-xing-lacol>]

3 The Formation of Community Life Has Changed the Lifestyle of Residents in Affordable Housing

3.1 How Does a Home-Sharing Community Model Operate in Architectural Space

In the process of experimenting with new forms of communal life, social bonds, and community self-organization. La Borda is also working to incorporate community life into residents' daily lives, and the best way to do that is to provide more public spaces. An environmental strategy on shared facilities and adaptive spaces within public and private areas is put forward in this discussion. The line between public and private spheres has been blurry, but also offers the opportunity to explore the potentials of the in-between spaces. The potential spaces often serve as a transition zone between two points, which here form an active part of the whole space. It is not an empty hall or corridor, also not a lonely bedroom or a balcony making people bemused, but a series of intertwined dynamic and fluid spaces [6]. To improve community life and development of this apartment, to the greatest extent, La Borda divided into the public spaces, and to maximize the use of public facilities, (Fig. 2) including a shared laundry room set up against the wall, a kitchen and dining room for people to share meals, and encourage



Fig. 2. Public facilities including a shared laundry room, kitchen and dining room for people to gather. [<https://arquine.com/obra/cooperativa-de-vivienda-la-borda/>]



Fig. 3. A central courtyard for people to engage social interaction and enjoy a shared life in La Borda. [<https://world-habitat.org/es/premios-mundiales-del-habitat/ganadores-y-finalistas/la-borda/>]

people to cook together here, a multifunctional room for children and adults to spend time, a public terrace on the fifth floor also provides a common working space, and there is a central courtyard which is the centre of this building. It is not only a large space for social interaction, but also a place of encounter before people go back to their rooms, meanwhile, provides opportunities to meet and communicate with more neighbours (Fig. 3).

3.2 How Does the Home-Sharing Community Model Benefit Residents of Affordable Housing

Firstly, living together offers more opportunity for encounter and limit the chances to be left alone. Second, it can promote the efficiency of healthcare services and household chores. The home-sharing community represents the standard model for room sharing and externalization. Comparing home-sharing community with a row of individual

homes, it becomes obvious that communal use of the kitchen, bathroom, and living areas significantly saves the amount of living space and infrastructure needed, that generally results in lower rents. While the home-sharing community model is largely used by people of limited means, we are seeing an increasing number of examples of home-sharing communities drawn from all age groups and consisting of people who chose this way of living not for financial reasons, but because they enjoy living in a group, with other people close by. One also often finds senior citizens living in home-sharing communities, these people prefer to live communally for non-financial reasons, because such a community is also a way of avoiding loneliness. A study about the shared work explained by Grace Kim who worked in Schemata Workshop. The shared work helps build rapport and trust among the residents, and the consistent and frequent interactions help us create a strong social web which enables us to live longer. According to another study by Julianne Holt-Lundstad, “people who experiencing loneliness have a 32 percent greater likelihood of premature death.” When it comes to mental health, shared living presents opportunities [7]. It has the potential to create new meaningful social connections, in this case, a network of potentially supportive friends which decreases social isolation and is therefore beneficial both for our individual and collective mental health. Sharing the rooms and infrastructure of a home creates social contacts. A community like this also makes it possible to have access to care that would be unaffordable for individuals. Caretakers can be employed in a home-sharing community of elderly, with all residents sharing the cost of labour and relevant. Household chores (shopping, cooking, cleaning, washing, etc.) can be shared out according to the abilities and inclinations of residents, and performed as a community, which also means that they are performed more efficiently. This could pose the question of whether one could come up with a room-sharing model to unlock the potential of the ever larger per-capita living spaces with their low use intensity that would be theoretically available in cities?

4 Potential Strategies to Address the Issue of Affordable Housing Space

4.1 Strategy One: Family Externalization - Small Family Units Locate Functions Outside the Family

To ensure the sufficient and maximum utilization of the living area in the affordable housing, this strategy removes some of the spaces in the family that have public use functions as shared spaces between neighbours. This also improves the flexibility and functionality of the space. One example is Aura, [8] an architecture constructed in Tokyo between 1994 and 1996. It is a radical example of the strategy - externalization of living functions. This building was constructed without integrated kitchens, or even bathrooms. This is possible because these necessities are provided for externally, by many noodle kitchens and bathhouses in the immediate vicinity. While people may find it hard to envisage bathing outside of the home, this option is more acceptable in Japan or China, where culturally the communal bath has a significant social function. Compare with that in Europe, also, we see examples of this kind of externalization of home functions. Today, many people still treat the bar or pub as a kind of substitute living room. After all,

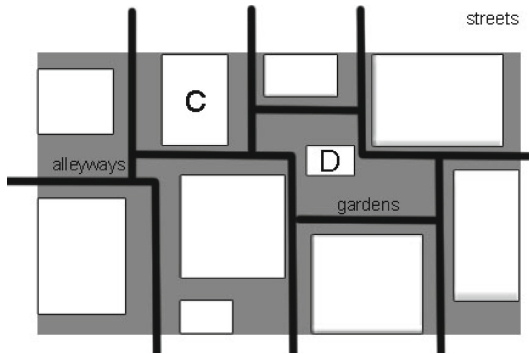


Fig. 4. The unit C and D served as some common spaces to provide a social network among the buildings. (Photo Credit: Original)

the potential spaces could be experienced the externalization process to create spaces for interaction and for community. In apartment buildings, certain functions could be opened up to the community and used by the residents of several homes. Key facilities such as a laundry or guest rooms could be shared with a small fee paid for their use. Facilities such as swimming pools, fitness rooms, roof gardens, or day-care facilities that would not be sensible or affordable for an individual home - could be communally maintained. For instance, Ryue Nishizawa's work for Moriyama House spreads all the space units in the apartment building except the most basic space units into the urban structure in the suburbs of Tokyo, thus obscuring the public and private functions. The floor plans of some apartments are contained in ten independent, irregularly sized independent buildings. Bathroom and kitchen elements which have been reduced accordingly and are only designed to meet basic functional needs only are arranged in a small cube (Unit D). Moriyama's living room (Unit C) soon served as a kind of common room (Fig. 4). There, residents often lunch together, enjoy a cold beer on a hot summer day, or screen a film from the roof. As Moriyami has put it, "The neighbourhood-like arrangement of these ten mini - houses resulted in an unexpected social network: a new kind of communal and shared living lifestyle. This space gives you the freedom to do anything you like, and it makes you want to" [9]. Especially, the network of earth-covered alleyways and landscape between the units has become loci for everyday interactions - to chat, drink sake, or light fireworks (Fig. 5). In addition, the white cubes together also form a series of outdoor spaces that seamlessly blend into the nearby urban street space (Fig. 6). Neighbours can go across the cube group through some open entrances then go out to the street, at which time-shared living is happening. Thus, the Moriyama House blends the dimensions of city and building, thereby suspending the usual boundaries between interior and exterior and between public, communal, and private spaces. Reinterpreted in this way, In other words, when they step into the habitable land, even on the nearby streets, even on the alleyways between the units, people are participating in one another's lives (Fig. 7).

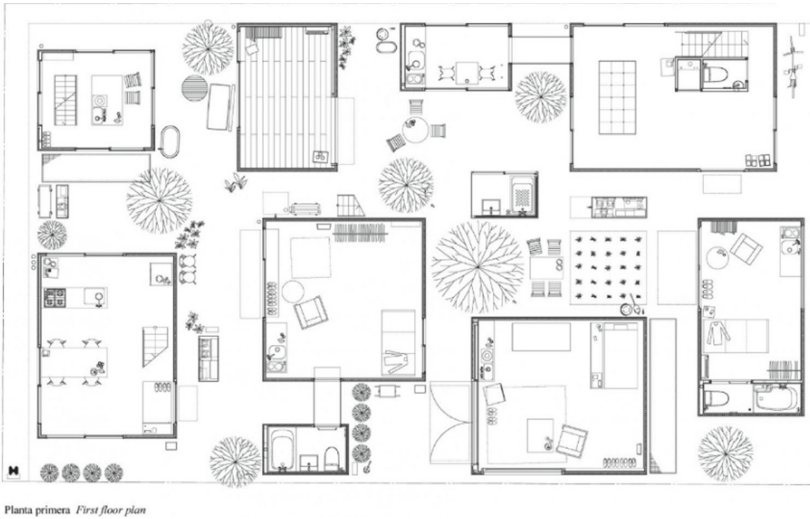


Fig. 5. The site plan and floor plan of Moriyama House, by Ryue Nishizawa, Tokyo, 2005. [<https://arquitecturaviva.com/works/casa-moriyama-tokio-3>]



Fig. 6. The urban spaces are integrated and open. (Interpretation through the spatial relationship between the building and the street.) [<https://arquitecturaviva.com/works/casa-moriyama-tokio-3>]

4.2 Strategy Two: Mass Housing - The House is Built in Large Volumes, and the Functions are Transformed According to the Requirements of the Collective Lifestyle

This method is also effective that can be characterized by an extremely high population density and a high number of home units, and then let people participate in a collective life. The famous mass housing - Urban Tulou [10] constructed in China in 2010. This new type of Tulou is a communal residence between the city and the countryside in Shenzhen, integrating living, storage, shopping, spiritual, and public entertainment into one single building entity. Its entire interior spaces are clustered, and can accommodate two hundred



Fig. 7. A collective life in Moriyama House. [<https://post.moma.org/the-life-in-between-ryue-nis-hizawas-moriyama-house-tokyo-2002-2005/>]

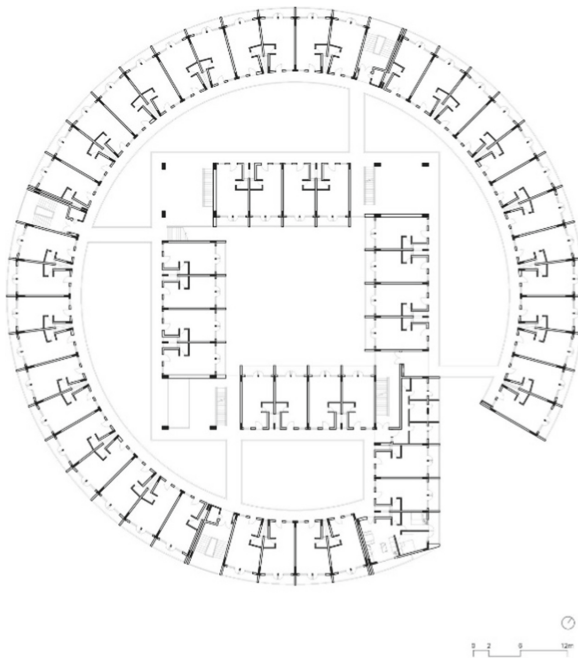


Fig. 8. The floor plan to show a ring shape of Urban Tulou, Shenzhen, China, 2010. [<https://architectureindevelopment.org/project/346>]

to seven hundred people, so the group-living in this building is like experiencing a small community life. These ensure maximum social integration and provide usable living and public space for co-living families and multi-generational families. Based on the clear spatial structure, the units in it are evenly laid out along its perimeter in a ring shape, like modern slab-style dormitory buildings, but with greater opportunities for building social interaction and preserving community spirit among low-income families (Fig. 8). On the



Fig. 9. The exterior view image and middle courtyard for collective use of Urban Tulou. [<https://architectureindevelopment.org/project/346>]

middle ground level, a protected courtyard for collective use is formed, and it is divided into many different functional areas as some public domains to meet the needs of daily life (Fig. 9). As well as, there is an arcade-style passageway in front of the apartment of the residents, providing them with a universal communication area. In terms of a shared living lifestyle, generally, this shared mode in traditional village usually takes place on the street, as numerous shops, small businesses and restaurants are located on the ground floor of residential buildings, which are generally connected to the street. However, in the architectural space of Urban Tulou, the way of shared lifestyle has been widely applied, additionally, residents of each level can participate in the sharing life well. This strategy of construction makes spaces functional and social mix, allows this mass-scale form to achieve the human scale on all levels. Therefore, this strategy not only minimizes the cost of infrastructure, but also guarantees the privacy and self-sufficiency of living units and forms a social and neighbourhood environment. In addition, it is not only beneficial to the formation of the community, but also promotes the transformation of people's lifestyle to sharing, and this modular space can be applied to the wider urban space through replication in the future.

5 Conclusion

This article concludes the possibility of encouraging more self-made projects for promoting a pursuit in individuals' desired lifestyles, the filling of physical voids for communal purposes, and the creation of new housing type for affordably catering individuals' growing standard and needs for living. The strategies suggested in this essay are all some attempts to be explored in an available model of a community life in affordable housing for increasing sense of satisfaction and positivity, and the quality of living status in modern cities. Whether it is to limit the area of living space, or externalizing spaces into shared and open spaces, arrangements for the pursuit of shared-living for affordable housing

is always for their common feature of high adaptability and transformability for higher usage. This drawing of subjective and active autonomy, and the saving of expenditure from independent living, or even the solution of population problem through creating a comprehensive building for this accommodational arrangement successfully adopts traditional model into the modern city, making a big sense of a co-living lifestyle ever as before.

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