From Japanese to Cairene Houses: A Contribution to the Design of Socially Responsible Housing in Egypt

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Abstract

This article represents a contribution to social and spatial problems of low-income housing units in Egypt. It is an illustrated product of work previously accomplished in several separate studies. In this article, I attempt to offer more tangible solutions and architectural drawings inspired by ideas from traditional Cairene homes and traditional small-scale urban Japanese residences (to which I was exposed during my research in Japan) in light of surveys conducted among housing-unit residents in Egypt. The article first takes a brief look at the history of the emergence of apartments and housing units in Egypt. Second, it explores examples of small-scale apartments and housing units attempting to incorporate traditional patterns and elements into their design. Third, it proposes a 70m² unit plan showing architectural and structural modules, a suggested combination of four units, and proposed spatial organizations and architectural solutions for unit interiors: entrance zone, guestroom, living and sleeping zones, prayer area, washing and ablution area, kitchen, bathroom and guest toilet, and doors and partitions, while incorporating a suggested latticework device that has been proposed and discussed in detail in my previous studies.

Keywords

History and Background

The spatial organization and openings of the traditional Cairene houses of the sixteenth to the nineteenth centuries were consistent with the socio-religious beliefs and customs of the time. During the late Ottoman period,[1] house design was largely influenced by prevalent norms (veiling, gender segregation and home seclusion), requiring the separation of female quarters from the public areas and the use of wooden screens known as *mashrabiyyas*.[2] Even the smaller and more

basic collective housing (*rab'*) was designed or altered to protect these norms.[3] Since veiling customs and gender segregation persisted under the new regime, the attempts by Muhammad Ali (1805–48) to modernize Cairo did not affect society or the traditional city,[4] although the adornment of newly built houses with *mashrabiyyas* was banned during the last decade of his administration because of their alleged potential as a fire hazard.[5] Khedive Ismail (1863–79), on the other hand, loved urban embellishments.[6] Most of the villas in Ismailiyya (the first neighbourhood built as a statement of modern Cairo and initiated in the 1860s) were of typical Palladian design, with rooms arranged symmetrically around a central hall and no intermediate zone.[7] European entrepreneurs and real-estate firms dominated the building sector until the 1930s,[8] and they constructed apartment buildings for the foreign community in a variety of architectural styles (neoclassical, neo-Renaissance, neo-Baroque, Gothic revival and neo-Islamic).[9]

In the late nineteenth century, the encounter with western culture and lifestyle led to a rethinking of Egyptian women's position and the emergence of feminist movements.[10] Between the 1920s and until the early 1950s, women entered public social life, and fought for the right to higher education.[11] This period witnessed the trend, considered a first step in upward mobility, of moving out of the old city into the apartments of western Cairo.[12] Influenced by worldwide architectural trends, buildings in Cairo were already shifting towards modernism by the 1930s.[13] This period saw the rise of multi-storey apartment buildings and the typical spatial organization of apartments or housing units (still applied today): an entrance door opening directly onto a reception area with one, two or three zones; a kitchen, bedrooms and a bathroom arranged along a corridor accessed from the reception area [Figure 1].[14]

During the 1950s and the 1960s (Nasserite period), Egyptian women increasingly entered the workforce[15] and veiling virtually disappeared in Cairo as western dress became a sign of middle-class status.[16] Meanwhile, Cairo's continuously rising population created a critical need for housing. Government policy tackled the problem by constructing subsidized public housing projects
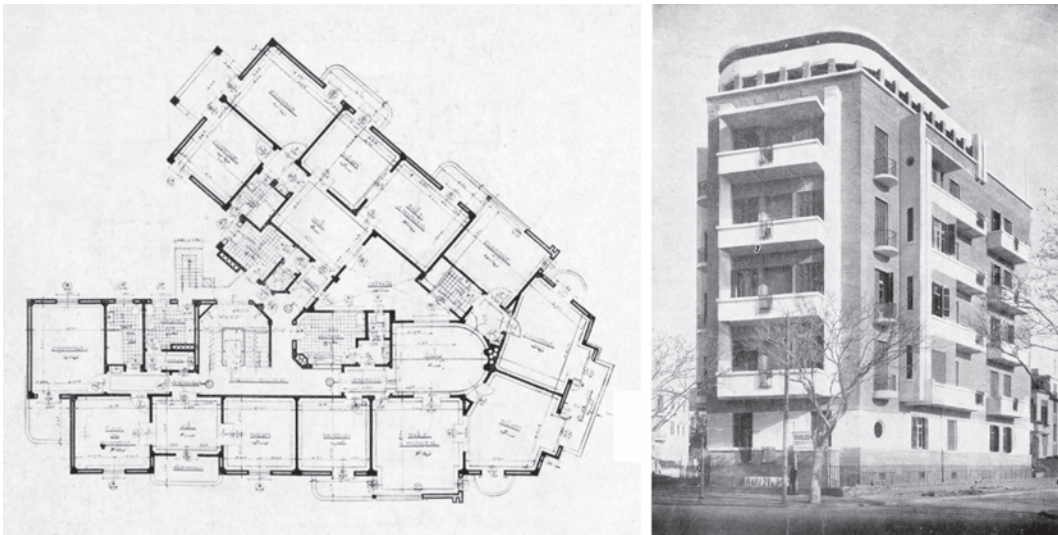
Sayyid Karim, 'Imarat Halim Bey Dus', *Majallat al-Imarah* 1.2 (1939): 91–93.

Figure 1: The building of Halim Bey Dus (1930s).

for low-income and middle-income groups, a policy that continues to the present.[17] All these housing projects adopted modern external and internal architectural design.[18] Socially, the Sadat era (1970–81) was the beginning of a new period of nationalism and soul seeking. Two wars with Israel,[19] the 1978 Camp David Peace Treaty[20] and economic discontent created by the 'Open Door' policy were the main reasons behind the shift towards more conservative Islamic values.[21] Starting in the mid-1970s, lower-middle-class working women gradually started wearing veils, but continued to attend universities and to be employed in large numbers in all fields. During the Mubarak era (1981– 2011), privacy and public veiling concerns spread to all social classes.[22]

The move towards more conservative Islamic values (expressed, for example, in changing norms of modesty and dress) was not accompanied by changes in housing unit or apartment design. Instead, there was a noticeable shift towards postmodern styles by architects and designers.[23] Also, individual households started modifying their homes, prompted primarily (according to surveys) by privacy and veiling concerns, inflexibility and inefficiency of internal space and the need for additional rooms.[24] Resisting the constraints of modernism, Egyptian architects based their new designs on perceptions of historic styles such as the Pharaonic and Islamic.[25]

The postmodern movement influenced public housing in Egypt. In 1996, Mubarak launched a national campaign to provide attractive subsided lower-income housing ('Shelter for All' or the National Housing Project).[26] To overcome negative perceptions and improve the architectural standards for public housing prototypes, plans and designs were selected via national architectural competitions. The winning design was based on a mixed Islamic architectural vocabulary (only externally); pointed arches, *ablaq* (alternating light and dark courses of masonry), woodwork and balcony interplay [Figure 2].[27] Surprisingly, the design was constructed only once, before it was simplified – probably to reduce cost – following the same spatial organization used since the mid-twentieth century [Figure 3].

Problem

Surveys reveal that while economic and political criteria determine the designs of most housing units provided by the government, user needs are not taken into consideration.[28] Although extensive research on users' needs, post-occupancy evaluation and the designs of new and older housing units is available, none of it offers tangible solutions to issues such as veiling and privacy concerns, storage space, adaptability to changing lifestyles and family growth within small-scale units in multi-storey buildings. Many households therefore individually modify unit interiors and thresholds according to their needs. While decision-makers have recently been emphasizing the value of adapting traditional elements of Cairene courtyard houses and incorporating them into new projects, this has not gone beyond political discussions; economic aspects continue to be the determining factor in housing construction.[29]

According to Spahic Omer, a clever synthesis of knowledge and authority is the best way to take the idea of Islamic housing from the world of abstract ideas to the everyday world of corporeal challenges and realities.[30] Several factors contribute to the difficulty of achieving this.[31] The first is the size factor. Traditional middle-class Cairene homes were large enough (approximately 400 m^2 to 600 m^2) to reflect socio-religious beliefs and customs on their spatial organizations. Second, while these homes are useful as sources of inspiration for housing design principles, they do not offer standard design patterns and solutions. Third, it is

Ibrahim Mostafa Eldemery, 'Islamic Architecture: Cultural Heritage and Future Challenges', in *First International Conference of the UIA-WPAHR-V on Architecture & Heritage as a Paradigm for Knowledge and Development Lessons of the Past, New Inventions and Future Challenges* (Alexandria: BA, UIA and SEA, 2002), 8.

Figure 2: Future Housing Project in El Obour City, 1998.
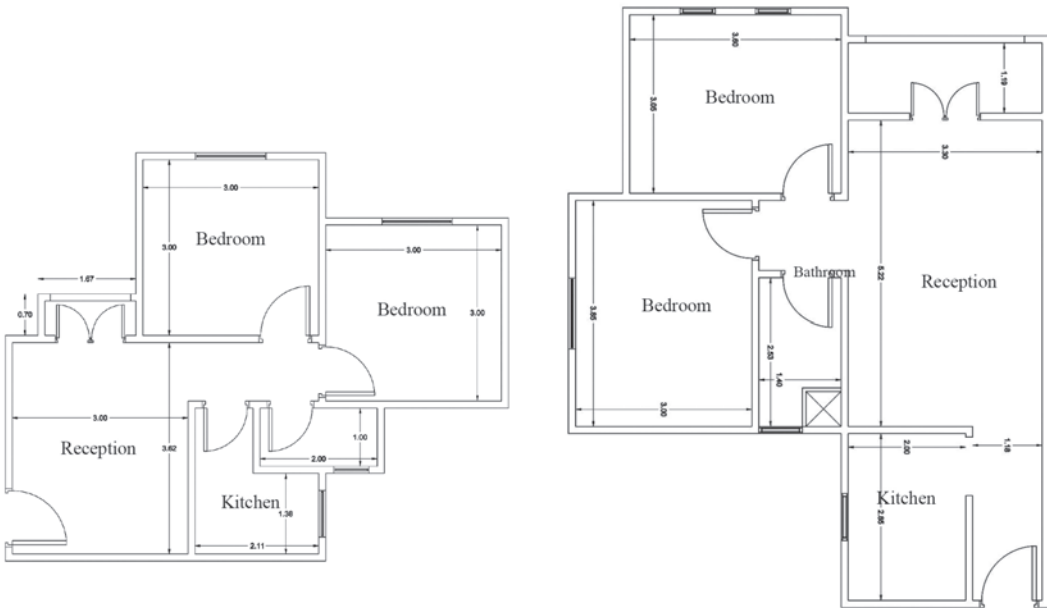
National Housing Project Executing Authority, *The National Social Housing Project* (Cairo: New Urban Communities Authority, 2010), 6 and 13. Plans redrawn by the author.

Figure 3: Typical 42m² and 63m² plans of the National Housing Project (1990s and 2000s).

necessary to adapt the social ideas incorporated into traditional house designs to contemporary requirements. Women today, for example, do not need a harem's *mashrabiyya* to hide behind; their conception of privacy has changed. Moreover, high cost, negative impacts of urban pollution and dust accumulation, and altered perception of veiling and privacy concerns make reviving the functions of the traditional *mashrabiyya* by mere reproduction an unrealistic practice.[32]

Aims and Method

An opportunity to conduct research in Japan allowed me to study traditional small middle-class urban houses, developed from the earlier Samurai residences and typical of the period between the late ninetenth century and the 1980s. Although originating from an entirely different cultural background, the social design principles of these small Japanese houses are similar to those of larger traditional Cairene homes. Their simple, practical and organic design patterns could contribute significantly to resolving Egypt's small housing unit issues.[33] The Japanese also have a traditional latticework, *kōshi*, including a townhouse variation known as *machiya no kōshi*. Found in dense urban contexts, they have social and environmental functions similar to those of the *mashrabiyya*, yet are much simpler, more flexible and less exposed to pollution and dirt.[34]

My previous work proposed guidelines and ideas inspired by traditional homes in Cairo and urban Japanese residences for research on household needs and uncontrolled modifications of housing units.[35] In addition, it was not only concerned with the internal spaces, but also with the in/out relationship, i.e. unit thresholds (entrance, windows and balconies), an issue that I examined in three separate studies.[36] In this article, I shall attempt – within the limits of available resources – to offer more tangible solutions, and architectural drawings, for addressing the social and spatial needs of families living in small-scale, low-income housing units. This article is an illustrated product of work previously accomplished in several separate studies. Although 90 per cent of the Egyptian population is Muslim, this research is concerned with the social and spatial needs of all low-income Egyptian households living in urban contexts.[37] As will be explained, even the suggested prayer and ablution space solutions have practical uses in the daily life of families generally. Similarly, privacy concerns, very important for Muslim women, represent an essential social need in Middle Eastern societies overall.

This work first explores examples of attempts to incorporate traditional elements into the design of small-scale apartments and housing units. Second, it proposes and describes a 70m^2 unit plan showing suggested entrance zone, guest room, living and sleeping zones, prayer area, guest toilet, bathroom, ablution area, kitchen, doors and partitions. Third, it provides illustrations of a suggested four-unit arrangement along with architectural and structural modules. Based on my previous work, an improved *mashrabiyya*, addressing social and environmental needs of families living in urban contexts and incorporating ideas from the traditional Japanese latticework *kōshi*, is installed in the suggested unit design.[38]

Traditionally Inspired Housing Unit Attempts

Most examples of attempts to incorporate traditional spatial patterns and elements are private residences – the only configuration that affords the revival of traditional patterns and elements. The works of Hassan Fathy, a noted Egyptian architect who pioneered appropriate building technology, and Abdel Wahed El Wakil, considered the foremost contemporary authority on Islamic
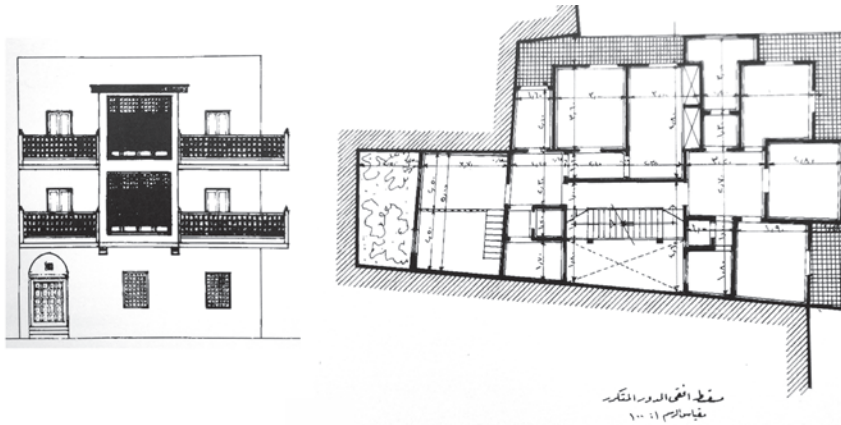
Figure 4: Maaruf Muhammad Maaruf Housing (1960), designed by Hassan Fathy.

architecture who acknowledged the importance of Fathy's work in his design development, are cases in point.

For instance, the apartment building of Maaruf Muhammad Maaruf (1960), designed by Hassan Fathy, consists of three storeys, each containing two units [Figure 4]. According to Steele, the large projecting *mashrabiyya* bay, similar to that used in Old Cairo's medieval al-Sinnari house, turns what might otherwise be considered a rather conventional apartment layout into a memorable and commercially attractive design.[39] The entrance to one of the apartments opens on to a hall around which rooms are organized, reminiscent of the concept of a *salah* (central hall) introduced into Cairo's residential architecture during Khedive Ismail's attempts to build modern Cairo (1863–79). The spatial organization of the second apartment is the typical one mentioned earlier. Toilets are in a separate compartment from washing and bathing areas, probably because this is more practical and because they are not considered suitable places for ablution.[40]

Minya Village (1982) consists of nine two-storey high, compact housing clusters, inward facing and organized around individual and uniformly square central courts [Figure 5].[41] Apart from the structural and roofing systems and construction methods, the organization is similar to present housing-unit design. The unit entrance is from the public zone, the kitchen is devoted to the guest area and the bathroom to the sleeping area. Again, the toilet is in an isolated compartment.

The drawings for the Iraq Housing Programme (Musayyib, 1958) include master planning of an entire city, as well as a detailed examination of one component [Figure 6].[42] Each housing unit is vertically organized on two floors joined by an internal staircase applying the traditional collective housing (*rab'*) concept.[43] While it provides the needed separation between public and private zones, the internal staircase is costly and exhausting to the household members using the kitchen or toilet downstairs, or on occasions when the guest area is used as a sitting area. Moreover, the staircase in multi-storey apartment buildings does not solve spacing issues, because the total number of units remains the same whether they are horizontally or vertically organized (in the latter case, the staircase actually requires additional space). Fathy applied this concept (*rab'*) to unit combination and internal spatial organization in the Jeddah Duplex Housing Project (1970s) [Figure 7].[44]
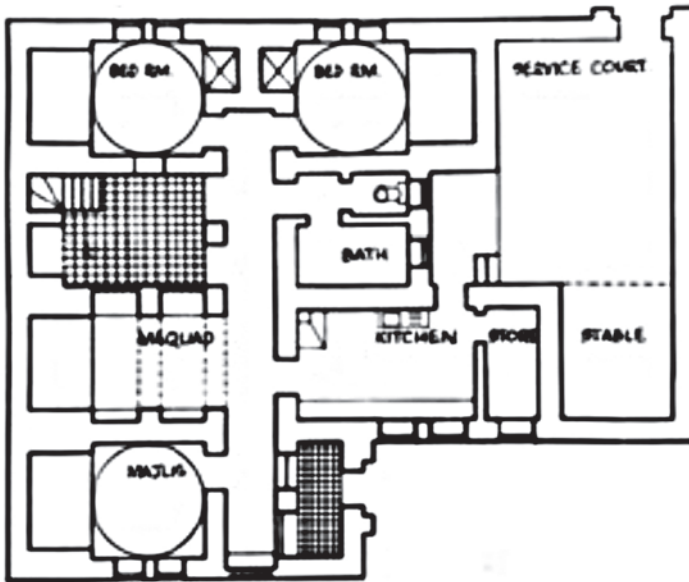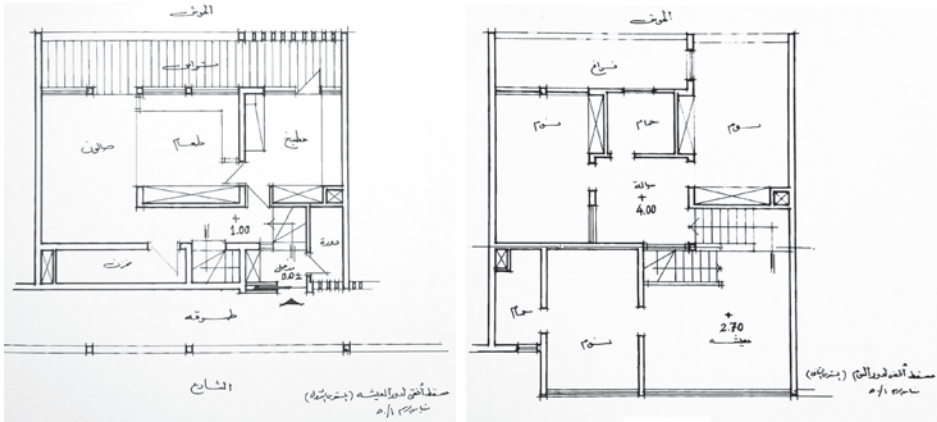
ArchNet Digital Library, http://archnet.org/library/sites/one-site.jsp?site_id=3765.

Figure 5: Minya Village (1982), designed by Hassan Fathy.
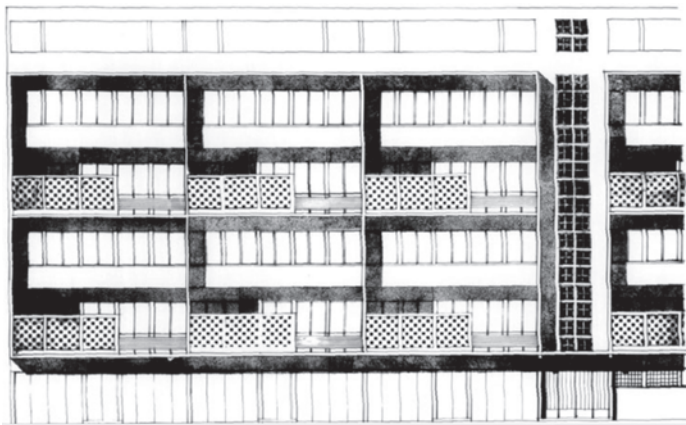
ArchNet Digital Library, http://archnet.org/library/sites/one-site.jsp?site_id=3773.

Figure 6: Iraq Housing Programme (Musayyib, 1958), designed by Hassan Fathy.

ArchNet Digital Library, http://archnet.org/library/sites/one-site.jsp?site_id=3770.

Figure 7: Jeddah Duplex Housing (1970s), designed by Hassan Fathy.

The Family Housing Project designed by the Arab Bureau for Designs and Engineering Consultation in the Tenth of Ramadan City (a new city outside Cairo) in 1983 consists of a block of four buildings accommodating sixteen apartments on two floors [Figure 8]. Based on the *wikala* (traditional caravan-serai) and *rab'* plans, the ground floor is allocated for commercial activities while the apartments are on the upper levels, all arranged around two central courtyards designed to enhance climatic conditions and fulfil privacy needs.[45] Internal design solutions of the unit itself are conventional: an entrance door opens directly onto the guest (and living) area, which in turn leads, via a corridor, to the bedrooms. The kitchen and the guest toilet are part of the outer zone, and a bathroom lies between the bedrooms. Since toilets, kitchens and bedrooms overlook it, the function of the courtyard (service or social) is
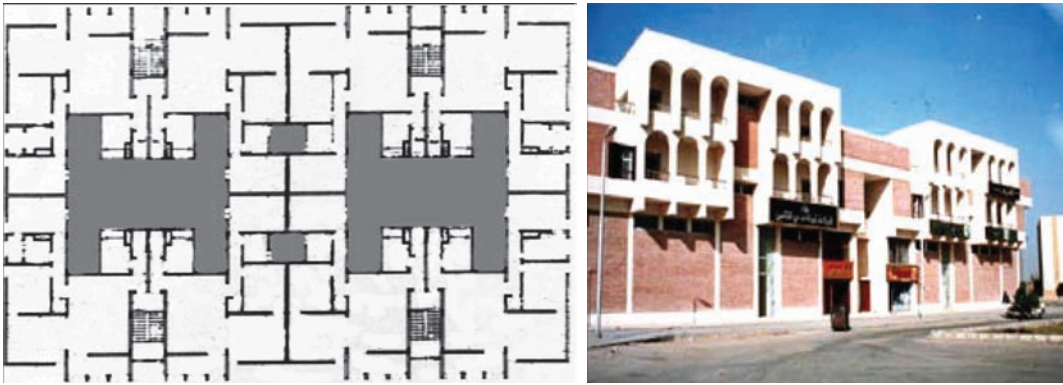
Khaled Galal Ahmed, 'Reinitiating the Debate about Neighborhood Design: A Multi-Dimensional Approach for (Family Housing Project) in Egypt', in *Proceedings of the Symposium of Housing III: Neighborhoods are more than Houses* (Riyadh: High Commission for the Development of Arriyadh), 47.

Figures 8a–8b: Family Housing Project (1983) in the 10th of Ramadan City, designed by the Arab Bureau for Designs and Engineering Consultation.

unclear. Furthermore, unit placement resulted in each room having different orientations (North, South, East and West), a consistent issue in most housing projects.

None of the above projects offer internal flexibility or threshold solutions, other than traditional *mashrabiyyas* or fixed screens. The location of installed screens indicates that they serve aesthetic and environmental, rather than privacy, purposes.

Proposed 70 m² Low-Income Housing Unit Plan

Figures 9, 10, 11 and 12 respectively illustrate a proposed 70 m² housing unit with latticework covering openings; functional zoning and circulation; a labelled plan showing the merits of the proposal; and a three-dimensional cutaway illustrating the unit's spaces and *mashrabiyyas*. Figure 13 consists of interior shots showing spatial relations between the rooms. Figures 14 and 15
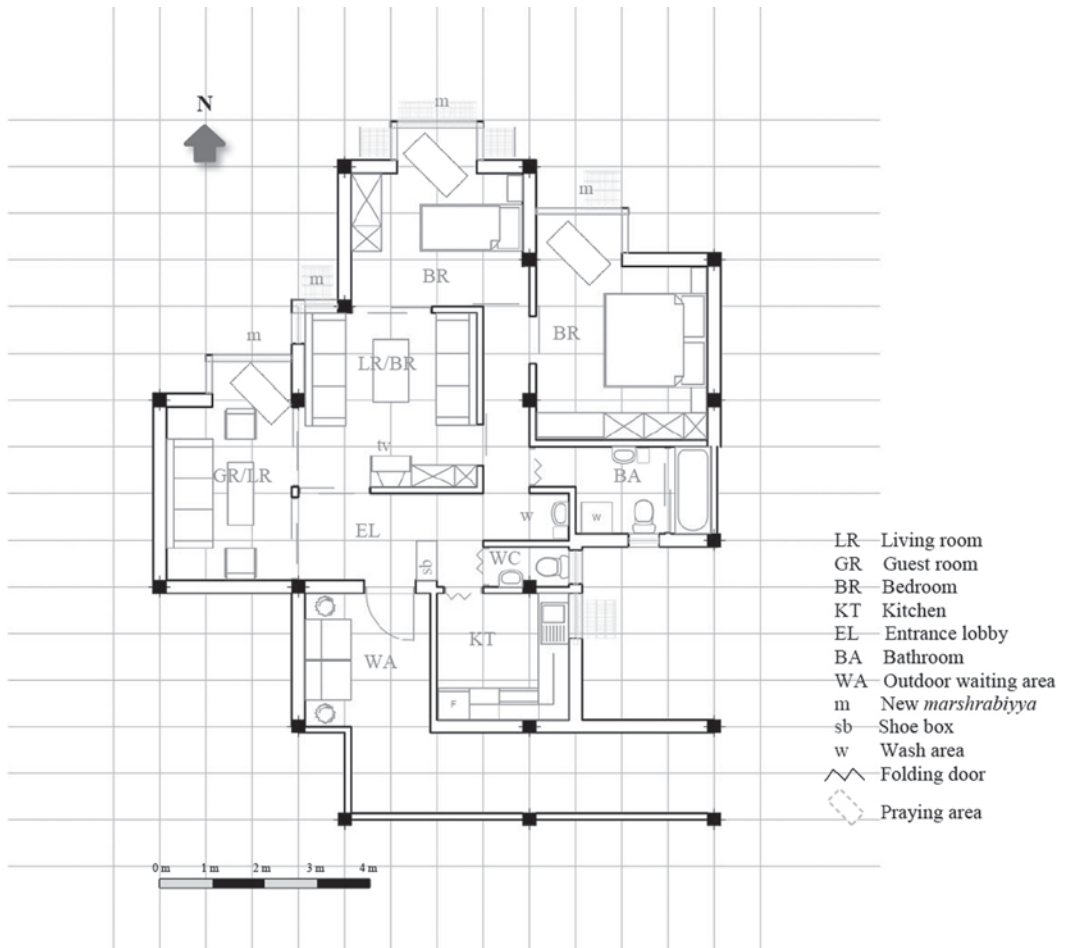
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Figure 9: Proposed 70 m² housing unit plan and mashrabiyyas.
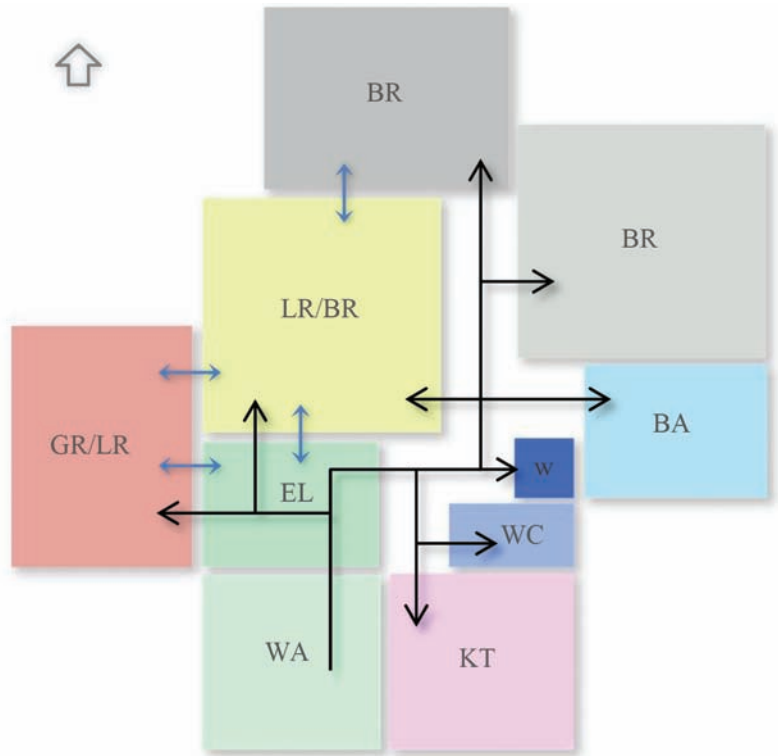
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Figure 10: Functional zoning and circulation.

show suggested structural and architectural modules for two combined units and a combination of four units (one floor).[46]

Entrance: Special attention was accorded to the entrance. First, Egyptian life-style necessitates dealing with guests, tradesmen, bill collectors, delivery boys and other unexpected visitors. Inspired from the idea of the traditional *magaz* and the Japanese *genkan* (Japanese-style entr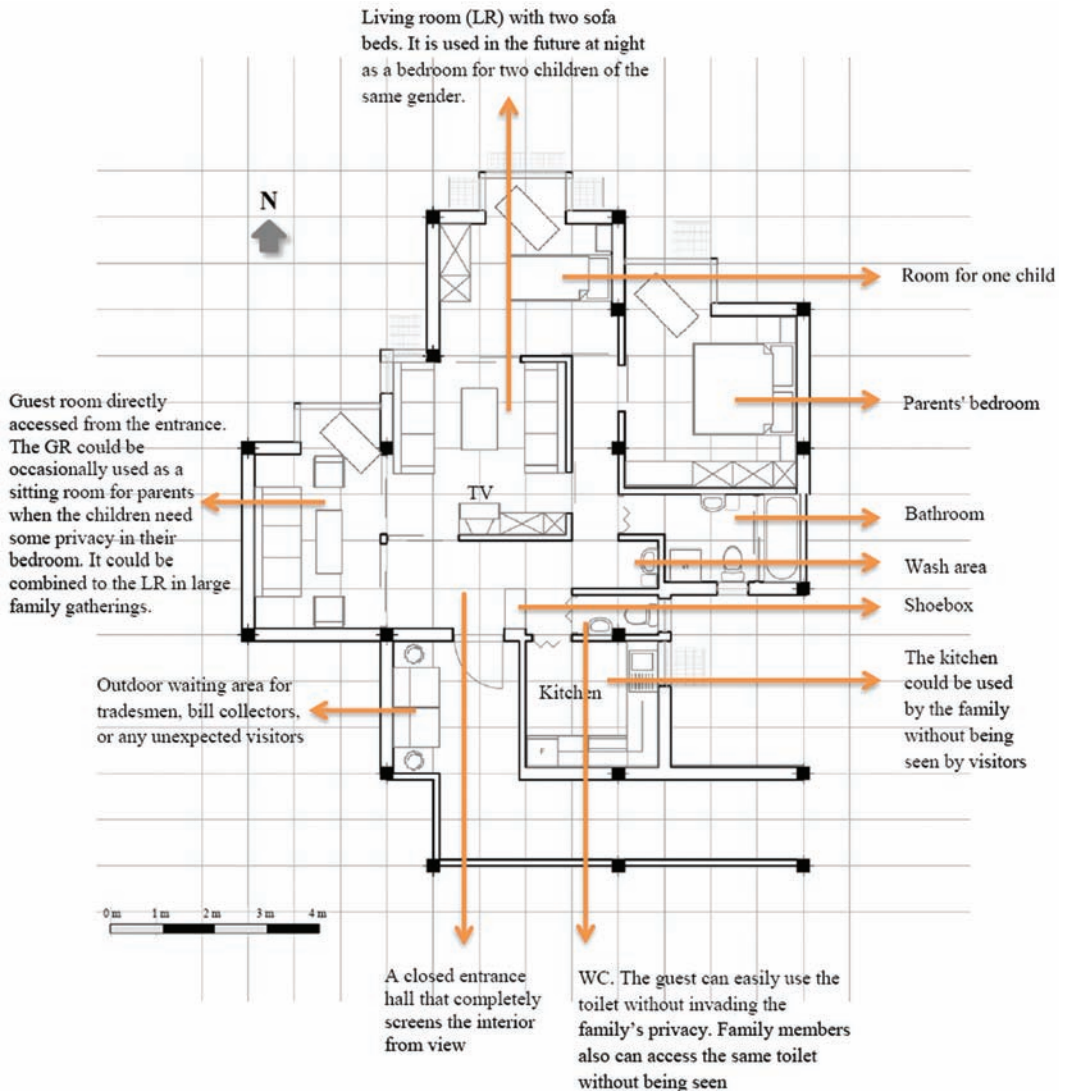yway),[47] the suggested entrance shields the unit's interior parts from view. A built-in standard bench, inspired by the *mastaba* (Pharanoic tomb structures),[48] may be installed outside the entrance door to each unit. The hall leading to the units on each floor should be designed with this possibility in mind. Second, accessibility to all other parts of the unit originates from this space. The proposed entrance solves many privacy issues by providing independent accesses to the guest room, family rooms, kitchen and guest toilet. The kitchen location allows the family to use it, unseen by visitors. Third, like the *geta-bako* (Japanese shoe cupboard) of the *genkan*,[49] the entrance may be furnished with shoe and slipper racks, to help keep the house clean. Traditionally, people used to sit on mats and cush-ions laid over the floor, and one of the customs of the *qa'a* (traditional Islamic house reception hall) was to remove shoes before proceeding from the *durqa'a* (central part, usually with fountain) to the *iwan* (elevated sitting wing).[50] Today, there is no fixed rule about this custom; some Egyptians immediately take off their shoes upon entering homes, others do not.[51]

Living room (LR) with two sofa beds. It is used in the future at night as a bedroom for two children of the same gender.

N

Room for one child

Parents' bedroom

Guest room directly accessed from the entrance. The GR could be occasionally used as a sitting room for parents when the children need some privacy in their bedroom. It could be combined to the LR in large family gatherings.

Bathroom

Wash area

TV

Shoebox

The kitchen could be used by the family without being seen by visitors

Outdoor waiting area for tradesmen, bill collectors, or any unexpected visitors

Kitchen

0 m   1 m   2 m   3 m   4 m

A closed entrance hall that completely screens the interior from view

WC. The guest can easily use the toilet without invading the family's privacy. Family members also can access the same toilet without being seen

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*Figure 11: Labelled plan showing merits of the new proposal.*

Guest Room: Residents of low-income housing in Egypt prefer reserving the outer part of the unit exclusively for guests. Egyptian society is guest-oriented and people are accustomed to use their homes for entertaining on countless social, religious and traditional occasions. Therefore, the proposed housing unit includes a separate, closed room, accessed directly from an entrance lobby and reserved exclusively for guests. The simple Japanese house architectural composition of entrance hall (*genkan*)/guest room was beneficially applied.[52] For larger family gatherings, it is possible to combine the guest room and living room (also used as a bedroom for children). The guest room can also be occasionally used as a family room when children need privacy in their bedroom (also the living room).

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Figure 12: Three-dimensional cutaway showing the unit's spaces and mashrabiyyas.

Living Room and Bedrooms: A survey administered to 100 households in the Youth Housing Project at Al Obour City reveals the need for separate sleeping quarters for grown boys and girls as a major concern.[53] Users indicated that the two-bedroom unit is only satisfactory for families with young children. Surveys administered to residents of older public housing units, with grown children, show that parents occupy the master bedroom, daughters use the second bedroom and sons sleep in the guest area, also used as a living room (triple function). Although this is an Islamic requirement,[54] many cultures set regulations for the sleeping practices of mixed gender siblings to prevent psychological and sexual disorders.[55] To
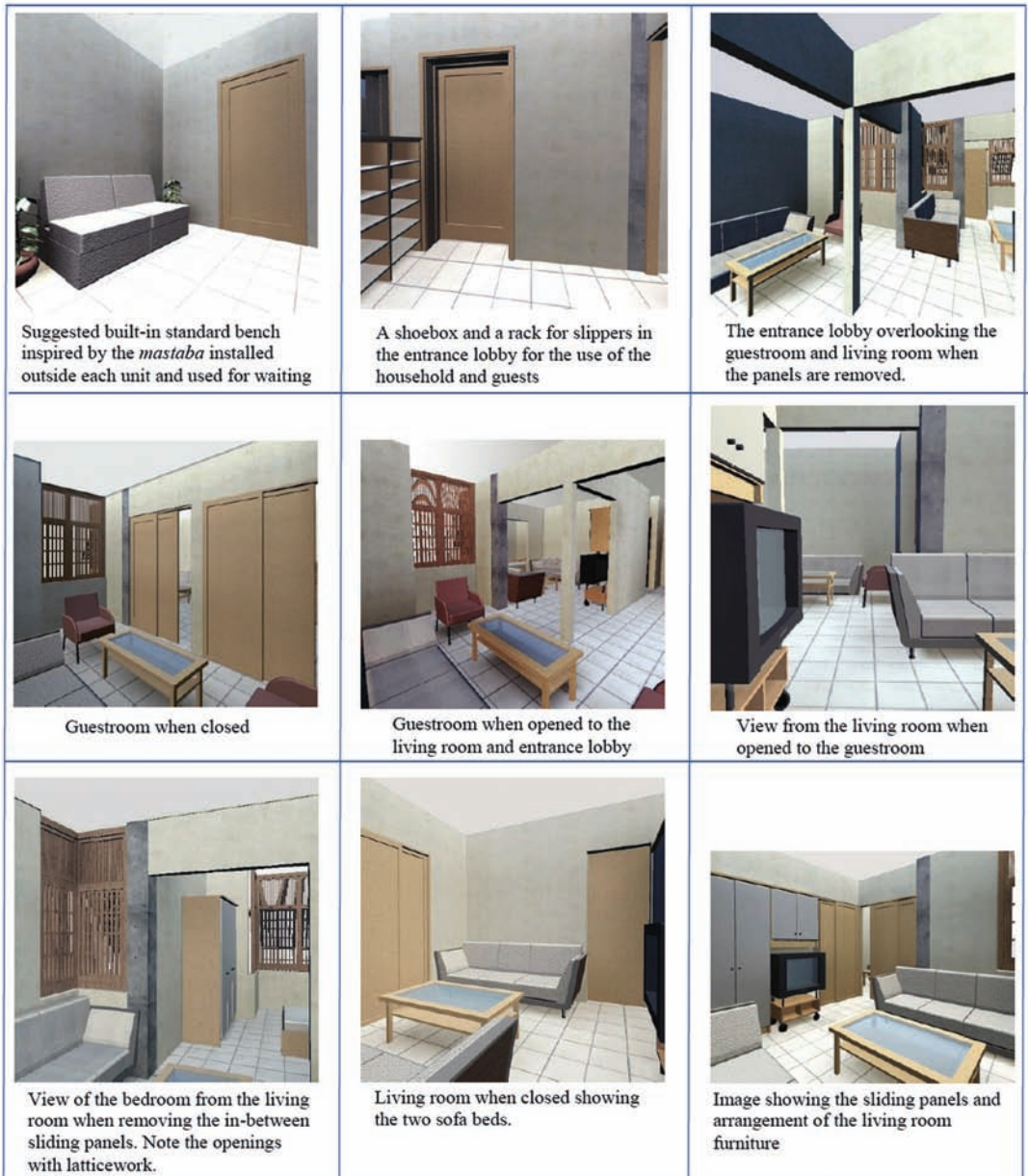
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Figure 13: Interior shots illustrating spatial relations between the rooms.

address this important issue, the proposed design offers four rooms: 1) a parent's bedroom; 2) a bedroom for one child; 3) a room with two sofa-beds used as a living room in daytime and as a bedroom for two children of the same gender; and 4) a guest room that can be used as a family sitting room, should children need privacy or quiet in their bedroom (living room).

Prayer Area: Since prayer is the central component of Islam, two things are needed: a clear physical indication of the *qibla* direction (indicating the orientation toward Mecca), and a prayer space (*musalla*). Omer suggests that the former requirement be met by a simple indication on the ceiling or the relevant walls. A more elaborate solution, commonly used in mosque construction, would be a niche (*mihrab*), or an ornamental wall carving. This would require changing the orientation of the wall, or part of it, to point towards the *qibla* and would increase construction costs. Another strategy is to start with the orientation of the buildings themselves. In Islamic eras, the *qibla* direction was taken into account during the street planning and urban tissue phases.[56] The *qibla* direction is 136 degrees (from north) south-east, but the direction of the prevailing wind and the absence of direct sunrays in the northern direction make north-west the preferred orientation for living areas in Egypt.[57] Service rooms (kitchen and bathrooms) would face south as is usual in Egyptian homes. However, one must bear in mind that Muslims are instructed not to face the *qibla*, nor to turn their backs to it, when relieving themselves.[58] Further research is needed to study this strategy and its urban and architectural impact on the proposed unit design.

A prayer area is not only needed for performing daily prayers, but also for individuals or families to study the Qu'ran, meditate, discuss, etc. Nevertheless, limited space makes devoting a separate room for the *musalla* unrealistic. According to Omer, any designated corner or space in the home can serve as a *musalla*.[59] I propose using extended *mashrabiyyas* to transform a space into a *musalla* as needed. Combined with orienting the building towards the *qibla*, this would provide a practical solution to the prayer area issue.

Washing and Ablution Area: Related to prayer is ablution. In all modern bathrooms, the sink, toilet and bathtub are located in one space. This presents at least two problems. First, Muslims pray at least five times daily; and they have to wash before praying, so each family member needs to use the sink several times a day. Second, many Muslims, at least in Egypt, are sceptical about mentioning Allah's name in the bathroom, and thus believe they must not pronounce any *zikr* (holy words) related to ablution.[60] Some scholars, however, are of the opinion that mentioning Allah's name is obligatory during ablution, unless the worshipper unintentionally forgets to do so.[61] According to *fatwas*, the prohibition of mentioning Allah's name in a place where people relieve themselves is essentially a prohibition against doing so in a place where impurity accumulates, which is generally not the case in modern bathrooms that use plumbing to remove waste.[62] As a practical solution that would overcome any problems with this issue, it would be preferable to provide a washing area outside the toilet zone. According to Maureen Mitton and Courtney Nystuen, this is practical and convenient for any family, regardless of its culture.[63] In traditional Cairene residences, the toilet and washing spaces were always separate.[64] In Japan, the sink, toilet and bathtub were traditionally located in separate spaces, a practical solution that continues to the present day.[65] The toilet zone is equipped with a small sink for hygienic reasons.[66]

Hoda Madkour, an Egyptian interior designer and academic, pointed out in an interview that clients repeatedly voice their desire for a washing area outside the bathroom, adding that some elderly clients asked for a lower sink to wash their feet during ablution.[67] Two solutions were proposed for this
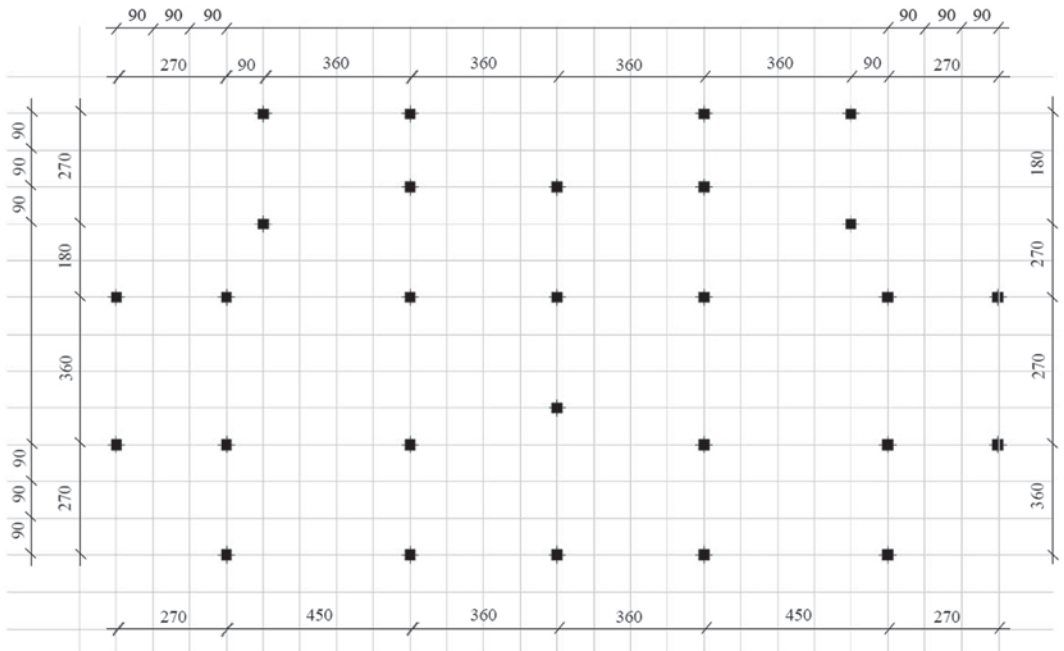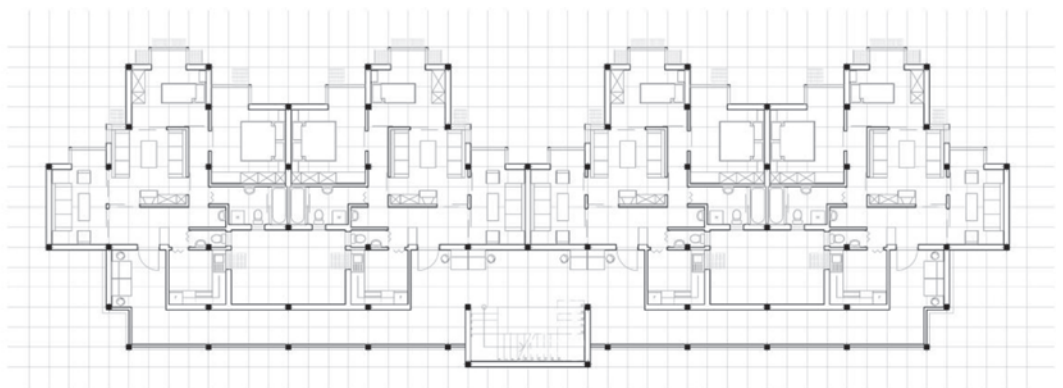
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Figure 14: Suggested structural and architectural modules of two combined units.

latter request: a small sink imbedded in the floor with a low tap to prevent water splashing and a high handle to facilitate use (the solution incorporated in the proposed wash area); or, more expensive, a similar sink equipped with a sensor and no handle.

Kitchen, Bathroom and Guest Toilet: The idea is to achieve a compromise between guest and family circulation patterns. Unseen by visitors, the family can directly access and use the kitchen. In addition, moving from the kitchen,

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Figure 15: Combination of four units (one floor).

bathroom or wash area to the bedrooms or living room and vice versa is easy and maintains privacy during the presence of guests. The guest too can easily access the guest toilet and wash area without intruding upon the family's privacy. If needed, family members can use the guest toilet without being seen. The kitchen, bathroom and guest toilet are large enough to hold the necessary equipment and appliances.

Doors and Partitions: The proposed design allows for internal flexibility. The housing unit allows for the reception of large numbers of guests, in keeping with Egyptian customs. While the entrance, guest room and living room (also bedroom) should be enclosed, the use of partitions similar to the sliding removable Japanese panels (*fusuma*)[68] was proposed, making it possible to turn these rooms into an open space for large gatherings. Privacy will not be an issue because women today receive guests, usually wearing veils (*hijab*) in the presence of non-relative males, thus fulfilling their role as hosts without concern.[69] Moreover, for a maximum and efficient use of space, folding and sliding doors replace conventional hinged doors.

Conclusion

This article provided illustrated solutions as contributions to social and spatial problems of low-income housing units in Egypt. First, it briefly explored the history of the apartment and housing-unit typology. Second, it reviewed some attempts of small-scale units inspired by and incorporating traditional patterns and elements. Third, it proposed a 70m^2 plan integrating ideas both from traditional Cairene homes and traditional small-scale urban Japanese residences, in the light of surveys conducted among housing-unit residents. The proposal presented architectural and structural modules, a suggested combination of four units and proposed spatial organizations and architectural solutions for unit interiors. In addition, the unit's threshold, i.e. relation to the outdoors, was resolved with a latticework device inspired by the traditional *mashrabiyya* while incorporating ideas from the traditional Japanese lattices *kōshi;* its design and functions have been discussed in detail in my previous research work. Further research is needed to develop all elements and components of the proposed design, to evaluate alterations in case of unit size change, and to study the device on the urban level.

Suggested Citation

Contributor Details

Dr Nermine Abdel Gelil lectures at MSA University (October University for Modern Sciences and Arts) in Egypt. She received her Ph.D. from Japan and is interested in low-income housing units in Egypt, traditional Cairene houses, and traditional Japanese houses. Her research involves examining the phenomenon of uncontrolled modifications made by Egyptian lower-income households on their housing units, and finding ways to offer them more flexible models, capable of adapting to the dynamics of living circumstances

and future changes. Dr Nermine Abdel Gelil believes that Japanese houses encompass simple, practical and organic design patterns that could significantly contribute to resolving issues in Egyptian housing units.

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Endnotes

1. On women's veiling during this period, see Margot Badran, 'The Feminist Vision in the Writings of Three Turn-of-the-Century Egyptian Women', *Bulletin (British Society of Middle Eastern Studies)* 15.1 (1988): 11–20; Joseph Chelhod, 'Hidjab', in *The Encyclopaedia of Islam* second edition, ed. Clifford E. Bosworth, Emeri Van Donzel, Bernard Lewis and Charles Pellat (Leiden: E.J. Brill, 1990), 359–61; Fadwa El Guindi, *Veil: Modesty, Privacy, and Resistance* (Oxford: Berg, 1999); Judith E. Tucker, 'Problems in the Historiography of Women in the Middle East: The Case of Nineteenth-Century Egypt', *International Journal of Middle East Studies* 15.3 (1983): 321–36; Sherifa Zuhur, *Revealing Reveiling: Islamic Gender Ideology in Contemporary Egypt* (New York: State University of New York Press, 1992).

2. Traditional latticework was applied to the windows of residences in Cairo between the sixteenth and nineteenth centuries to shelter women from the gaze of men and to ameliorate the region's hot climate. On traditional Cairene houses during this period see Bernard Maury, André Raymond, Jacques Revault and Mona Zakariya, *Palais et maisons du Caire: Epoque ottomane* (Paris: Centre National de la Recherche Scientifique, 1983), vol. 2; Jacques Revault, 'L'architecture domestique au Caire a l'époque ottomane', in *L'habitat traditionnel dans les pays musulmans autour de la Mediterranee*, Vol.1 (Cairo: Institut Francais d'Archeologie Orientale, 1988), 43–60; Doris Behrens-Abouseif, *Islamic Architecture in Cairo: An Introduction* (Leiden and New York: E.J. Brill, 1989); Doris Behrens-Abouseif, 'Note sur la fonction de la cour dans la maison moyenne du Caire Ottoman', in *L'habitat traditionnel dans les pays musulmans autour de la Mediterranee*, Vol.2 (Cairo: Institut Francais d'Archeologie Orientale, 1990), 411–18.

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28. See note 24, and Anaheed Maher, 'Human Considerations as an Approach to Designing Appropriate Homes' (Ph.D. diss., Cairo University, 2007).

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31. This issue is discussed in detail in Nermine Abdel Gelil M., 'Less Space, More Spatiality for Low-Income Housing Units in Egypt: Ideas from Japan', *Archnet-IJAR* 5.2 (2011): 24–48.

32. For a detailed study on threshold problems in contemporary urban contexts in Egypt, issues associated with the revival of traditional *mashrabiyyas* and a proposed latticework device for these issues see Nermine Abdel Gelil M., 'A New *Mashrabiyya* for Contemporary Cairo: Integrating Traditional Latticework from Islamic and Japanese Cultures', *JAABE* 5.1 (2006): 37–44 and Nermine Abdel Gelil M., 'A New *Mashrabiyya* for Contemporary Cairo: Integrating Traditional Latticework from Islamic and Japanese Cultures' (Ph.D. diss., Hosei University, 2006). The later study offers a more developed and elaborate design for the proposed latticework.

33. On these residences refer to Alexandra Black, *The Japanese House: Architecture and Interiors* (Boston; Rutland, VT and Tokyo: Tuttle Publishing, 2000); Heinrich Engel, *The Japanese House: A Tradition for Contemporary Architecture* (Tokyo: Charles E. Tuttle Co., 1964); Kazuya Inaba and Shigenobu Nakayama, *Japanese Homes and Lifestyles: An Illustrated Journey through History*, trans. J. Bester (Tokyo; New York and London: Kodansha International, 2000); Kiyoyuki Nishihara, *Japanese Houses: Patterns for*

Living, trans. Richard Gage (Tokyo: Japan Publications, Inc., 1968); Uzo Nishiyama, *Nihon No Sumai* (Tokyo: Keisō shobō, 1975), vol. 1; Jordan Sand, *House and Home in Modern Japan: Architecture, Domestic Space, and Bourgeois Culture, 1880–1930* (Cambridge, MA: Harvard University Asia Center, 2005); Atsushi Ueda, *The Inner Harmony of the Japanese House*, trans. Stephen Suloway (Tokyo; New York and London: Kodansha International, 1990); Tetsuro Yoshida, *The Japanese House and Garden* (London: Pall Mall Press, 1969); David Young and Michiko Young, *The Art of Japanese Architecture* (Rutland, VT and Tokyo: Tuttle Publishing, 2007).

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37. *The World Factbook 2013–14* (Washington, DC: Central Intelligence Agency, 2013), accessed May 2013, https://www.cia.gov/library/publications/the-world-factbook/index.html.

38. See notes 32 and 36.

39. James Steele, *An Architecture for People: The Complete Works of Hassan Fathy* (New York: Whitney Library of Design, 1997), 195.

40. See Washing and Ablution Area.

41. Steele, *An Architecture for People*, 91.

42. Ibid., 114.

43. On the *rab'* design see note 3.

44. Steele, *An Architecture for People*, 198.

45. Khaled Galal Ahmed, 'Reinitiating the Debate About Neighborhood Design: A Multi-Dimensional Approach for (Family Housing Project) in Egypt', in *Proceedings of the Symposium of Housing III: Neighborhoods Are More Than Houses* (Riyadh: High Commission for the Development of Arriyadh), 45–57.

46. For a detailed discussion on the proposed ideas (rather than architectural drawings), see Abdel Gelil M., 'Less Space More Spatiality'.

47. For a detailed study on the *magaz* and *genkan* refer to Abdel Gelil M. and Ali, 'Towards New Entrances'.

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50. On the custom of removing one's shoes, refer to Stefano Bianca, 'Housing and Living Traditions in the Arab-Islamic World: Underlying Philosophy, Social Patterns and Spatial Structures', in *Living under the Crescent Moon: Domestic Culture in the Arab World*, ed. Mateo Kries (Weil am Rhein, Germany: Vitra Design Museum, 2003), 168–217, 137, 197, 202; Juan E. Campo, 'Orientalist Representations of Muslim Domestic Space in Egypt', *Traditional Dwellings and Settlements Review* 111.1 (1991): 37.

51. No statistics were found on this custom. This is based on my own observations through daily life.

52. Engel, *The Japanese House*; Yoshida, *The Japanese House*.

53. This is one of the national housing projects. The survey is conducted by Anaheed Maher. See Maher, 'Human Considerations'.

54. See Soliman Abu-Dawud, '*Sunan abu-dawud*: Prayer (*kitab al-salat*)', ed. Center for Muslim-Jewish Engagement (Los Angeles: University for Southern California, n.d.), accessed May 2012, http://www.usc.edu/org/cmje/religious-texts/hadith/abudawud/002-sat.php, *hadith* (saying of Prophet Muhammad) n. 495.

55. Toni Cavanagh Johnson, Bevan Emma Huang and Pippa M. Simpson, 'Sibling Family Practices: Guidelines for Healthy Boundaries', *Journal of Child Sexual Abuse* 18 (2009): 351.

56. Michael E. Bonine, 'The Sacred Direction and City Structure: A Preliminary Analysis of the Islamic Cities of Morocco', *Muqarnas* 7 (1990): 50–72; David A. King, 'Astronomy and Islamic Society: *Qibla*, Gnomonics and

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57. For further information on the climate of Cairo see 'Cairo', *Encyclopaedia Britannica Online* (2006), accessed March 2013, http://www.britannica.com/EBchecked/topic/88520/Cairo#toc275558; Temperatures and Precipitation – Selected International Cities Table 1331 in US National Oceanic and Atmospheric Administration, 'Comparative International Statistics', in *Statistical Abstract of the United States: 2001*, ed. US Census Bureau (Washington DC: US GPO, 2001), 837; ASHRAE, *International Weather for Energy Calculations (Iwec Weather Files) User's Manual and CD-Rom* (Atlanta: ASHRAE, 2001).

58. Al-Bukhari, *Sahih al-Bukhari*, '*Kitab al-Salah*', *hadith* n. 380 as cited in Omer.

59. Ibid.

60. This is based on my observations on and involvement in daily life in Egypt.

61. According to the *fatwa* of Sheikh Sami al-Majid, professor at al-Imâm Islamic University, Riyadh. Sami al-Majid, '*Wudu'* in Bathrooms & Invoking Allah's Name', *Islam Today, Fatwa Archive* (2011), accessed May 2013, http://en.islamtoday.net/node/1479.

62. A *fatwa* is a technical term for the legal judgment or learned interpretation that a qualified jurist (*mufti*) can give on issues pertaining to the *shari'a* (Islamic law), see Wael B. Hallaq, 'Fatwa', in *Encyclopedia of the Modern Middle East and North Africa* (Encyclopedia.com, 2004), accessed June 2013, http://www.encyclopedia.com/doc/1G2-3424600948.html; for mentioning Allah's name in bathrooms, refer to *fatwa* n. 9332 and n. 17909 in General Authority of Islamic Affairs and Endowments, (*Fatawa* Archives, 2012), accessed May 2013, http://www.awqaf.ae/Fatawa.aspx?SectionID=9.

63. See Maureen Mitton and Courtney Nystuen, *Residential Interior Design: A Guide to Planning Spaces*, 2nd ed. (Hoboken, NJ: John Wiley & Sons, 2011), 167.

64. See the plans of several Cairene homes in Maury et al., *Palais et maisons du Caire: Epoque ottomane.*

65. See references in note 33.

66. This was observed in all kinds of modern mansions, apartments and homes in Greater Tokyo, where I lived and conducted field trips for four years.

67. Interview with Hoda Madkour, June 21, 2013.

68. See Engel, *The Japanese House*, 35–36 and 144–50; Yoshida, *The Japanese House*, 140–55; references in note 33.

69. For veiling and the varying degrees of modesty and concerns about privacy among contemporary Egyptian women across, and within, households see Leila Ahmed, *Women and Gender in Islam: Historical Roots of a Modern Debate* (New Haven: Yale University Press, 1992); Richard T. Antoun, 'On the Modesty of Women in Arab Muslim Villages', *American Anthropologist, New Series,* 70.4 (1968): 671–97; Badran, 'The Feminist Vision'; Chelhod, 'Hidjab'; El Guindi, *Veil: Modesty*; Farha Ghannam, *Remaking the Modern: Space, Relocation and the Politics of Identity in a Global Cairo* (Berkeley: University of California Press, 2002); Hoffman-Ladd, 'Polemics in Modesty'; Sandra López-Rocha, 'Women in Islamic Egypt: Perceptions and Observed Behavior among a Group of Egyptians', *LLC Review* 1 (Fall 2001): 26–44; Macleod, *Accommodating Protest*; Pat Mule and Diane Barthel, 'The Return to the Veil: Individual Autonomy vs. Social Esteem', *Sociological Forum* 7.2 (1992): 323–32; Mervat Nasser, 'The New Veiling Phenomenon – Is it an Anorexic Equivalent? A Polemic', *Journal of Community & Applied Social Psychology* 9 (1999): 407–12; Alisa Perkins, 'Review Article: Veil of Tradition, Veil of Resistance, Islamic Dress in Contemporary Egypt', *Text, Practice, Performance* 4 (2002): 65–84; Lyn Reese, *The Burqa, Chador, Veil and Hijab!* (Berkeley: Women in World History Curriculum, 1998), accessed January 11, 2005, http://www.womeninworldhistory.com/sample-13.html; Tucker, 'Problems in the Historiography of Women'; Zuhur, *Revealing Reveiling*.