6 Housing by people and work

This chapter is based on "Housing by people and work: design principles for favelas residents in economies of commerce and service" (2019)

"... to derive extraordinary theorization in the field of social housing from the ordinary everyday of unpriviledged people living in informal settlements…"
Cavalcanti, 2019

The article takes its roots from a participatory research accomplished by the corresponding author in Brazilian *favelas* between 2009 and 2017. Ethnographic research, combined with time series analysis and post occupation studies, revealed the everyday practices of residents of informal settlements in Brazil, both in informal settlements and formal housing where residents were eventually resettled. The research proved that labor is the social practice which most of all shapes, plans and governs space of informal settlements. (Cavalcanti, 2017a). The economic activities, which may depend also on the raw materials locally available, morphology of the territory and cultural traditions of the community, are found mainly related to the provision of commerce and service (Cavalcanti, 2017a). These activities take place mostly inside the house, which accommodates both labor and domestic life (Cavalcanti, 2017a; Cavalcanti, 2016). Moreover, also the space outside the house, as well as the design of streets and common spaces are determined by the working activities emplaced by the resident (Cavalcanti, 2017a; Cavalcanti, 2016). In the last years, fast-urbanization is 'involving mainly middle size cities' (UN Habitat, 2016). Addressing the spatial dynamics established by inhabitants in informal settlements is becoming of paramount interest for governments and international institutions. In fact, in the time-series analysis phase of the research, it was proved that these social practices are maintained or restored by the resident of informal settlements in the short term also after being transferred into formal social housing with pure domestic function (Cavalcanti, 2018). Inhabitants are moved by contingency to change and mischaracterize the original planning of the formal projects in order to restore the economic activities originally performed in the informal settlements. In fact, interviews in the field revealed that the possibility of performing working

activities overrides the right to possess a shelter designed according to principles of formal housing; right in turn paid through the source of income of the inhabitant (Cavalcanti, 2018). On the other hand, besides the legal issues of such a mischaracterization, these modifications often result in an early decay of the hygienic standards initially designed and also in severe structural safety issues, implying a "re-favelization"[16] of the social housing (Angelil and Hehl, 2011).

This research combines experimental data with the critical analysis of current theoretical and operative approaches in the field of informal settlements' re-location strategies and processes. This is the approach of the "extended case method," to "extract the general from the unique […] to connect the present to the past in anticipation of the future […] all building in preexisting theory." (Burawoy, 1998). The goal of the study is to derive extraordinary theorization in the field of social housing from the ordinary everyday of unprivileged people living in informal settlements.

This article presents a new approach of design of social housing for residents of *favelas* in Brazil based on the integration of space aimed for labor and domestic life. This integration derives from the depiction of social practices which are certainly not new nor limited to current *favelas*, but rather ancient and rooted in the history of mankind and cities around the world (Arendt, 1958). In many historic-economic contexts characterized by a vocation to commerce and service, the domestic space was still embedded with the production of work (Mumford, 1961). Productive system has also lately determined the development of modern social housing characterized by pure domestic function in industrialized societies (Le Corbusier, 1923; Kenneth Frampton, 1980). Thus, the simple transfer of models of social housing typical of industrialized countries within contexts of the so called "Global South"[17], with economy predominantly based on commerce and service, is neither effective nor beneficial for the people and their cities. The critique is not related to the cogent productive systems in the different areas of the world, but rather to the capability of the architect, meant as a political actor of the society, to understand the deep relationship that not only dwelling but rather the concept of space itself establishes with labor in the domain of the city. Thus, the proposal for a new conceptof social housing passes through the critique of the housing methods currently emplaced

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16   In Brazil it is common knowledge that social housing get transformed by residents soon after they are delivered to residents. The presented literature, mentions the transformation of the social housing 'Cidade de Deus', (located in the periphery of Rio de Janeiro, Brazil) into one 'Favela.'

17   Term that appeared in the historiography of urban scholarly post-colonial production to explain the socio-economic inequalities, the intertwined connections derived from colonialism and exploitation, sub-alternatives of countries before known as underdeveloped.

to relocate residents from informal settlements in the countries of the Global South, both when working activities are prohibited in the house as well as when, as an emerging trend, architects accept or even encourage the modifications emplaced by the future inhabitants to formal housing projects. (Turner, 1976). Both approaches are discussed in the following paragraphs. Instead, the series of operative suggestions proposed in this article for the design of social housing aimed to residents of informal settlements takes roots in the history of mankind meant as a social entity. They restore the integration between labor and domestic life with a triple purpose: an improvement of life condition of the resident; an advancement of his/her socio-economic status; a progress of the economy of the formal city. Thus, apart from the intellectual critique, the content of this article can be operatively beneficial within projects of slum rehabilitation or resettlements processes.

6.1 The "Industry" of Social Housing for Workers in the Context of Informal Settlements of Brazil

The lack of inclusion of social practices within the design of social housing in countries of the Global South has foremost an historic-economic reason. It is to be referred to the outdated and warped adoption in current projects of entire cannons of modern architecture (Tafuri, 1976; Wolfe, 1981). In turn, these have been developed and consolidated in the countries of Global North especially through the years coming after the end of the second world war (Benevolo, 1980). Until the industrial revolutions, the concept of home was still linked to working activities, which often lead to a mixed definition of space in the dwellings and an organic growth of the city (Arendt,1958). Instead, modern architecture emerged as a response to specific historic, economic and social demands of an era dominated by the principles and needs of a progressively mechanistic society after advent of industrialization (Madden & Marcuse, 2016). Architects often resulted influenced by the Tayloristic belief that progress is linked to the compartmentalisation and rationalization of the social functions of the human being (Le Corbusier, 1946). This often resulted into a complete planning strategy of the city (*tabula rasa*) based on zoning, that is the segmentation of areas of the city according to their functions: residential, commercial, industrial and leisure (Droste, 2015). Large, polluting and noisy fabrics were located where residents of central neighbourhoods could not be disturbed (Mumford, 1961, p.284). The largest portion of the city was

constituted by neighbourhoods only for residential use. The design of dwellings must be inspired by a pure domestic use of the space (Le Corbusier, 1933). Working activities were supposed to be reached by the use of transport systems, especially cars, symbols of a modernity that in this original vision should have been possessed by everyone despite social conditions (Le Corbusier, 1923;1945). These principles and their development can be noticed cronologicaly in the projects and plans of Le Corbusier, which aimed for social reform. For example, projects and principles such as: '*Unité d'habitation'* (circa 1920), '*Ville Contemporaine des Trois Millions d'habitants'* (1922), '*Plan Voisin'* (1922-25), and the 'Functional city', which have particularly marked the 'Athens Charter' (1943) and the *Congrès Internationaux d'Architecture Moderne* (CIAM) in Athens (1930, CIAM IV) and Brussels (1933, CIAM V). (fig 6.1- 6.4). Both are seminal modernist projects that condensed both the ideals and planning principles of functionalism, technocracy and segmentation that have influenced and indoctrinated generations of architects and planners in the course of history. An iconic example is the scheme of *Ville Radieuse*, by Le Corbusier in 1924-1930 (fig. 6.5).

FIG. 6.1 Perspective from '*La Ville Contemporaine des Trois Millions d'Habitants*, ' unbuilt project by Le Corbusier, 1922. Source: Fondation Le Corbusier (taken from Le Corbusier et Pierre Jeanneret, *Oeuvre complète*, volume1, 1910-1929).

FIG. 6.2 Plan from '*La Ville Contemporaine des Trois Millions d'Habitants*', unbuilt project by Le Corbusier, 1922. Source: Fondation Le Corbusier (taken from Le Corbusier et Pierre Jeanneret, *Oeuvre complète*, volume1, 1910-1929).

FIG. 6.3 *Plan Voisin,* unbuilt project by Le Corbusier 1922-25. Source: Fondation Le Corbusier.
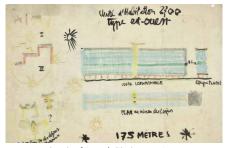

FIG. 6.4 Sketch of *'Unité d'habitation'* concept that was firstly developed by Le Corbusier between 1922-25. Drawing shows studies of Le Corbusier in 1944. Source: Fondation Le Corbusier.
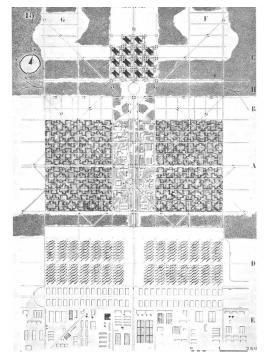
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FIG. 6.5 Plan of the *Ville Radieuse*, by Le Corbusier, 1924. There is a clear segmentation of the functions of the city: A/dwellings, R/Hotels and Embassies, C/Businesses, D/industries, E/Heavy Industries, F,G/Government and Institutions, H/Airport and Train Station .Source: Le Corbusier, 1924.
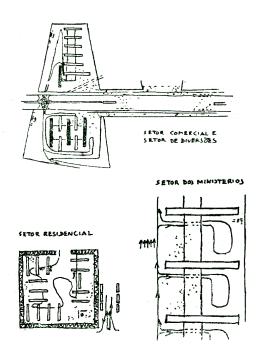
FIG. 6.6 Detail from the Pilot Plan of Brasília, *Superquadra* and *Corredores Residenciais*, (Lef). Source: *Plano Piloto de Brasilia* by Lúcio Costa, 1956.

It condenses an utopic vision of a city canonized according to the aesthetic and philosophical principles of modernity. Such a view has greatly influenced dwelling design and urban planning, not only in European and US countries but also in countries of the Global South such as Algeria, India, and also, Brazil. The planning of Brasília is its contemporary reflection. In the proposal by Lúcio Costa in 1956, the city was sectored in residential blocks (*superquadras*, containing houses designed with *pilotis* and *cobogós*), commercial areas (*entrequadras*) and industrial complexes connected by and industrial complexes connected by rail tracks and roads (Costa, 1956). Labor activities in residential neighborhoods were not contemplated in the planning of the project, and a few *superquadra*s were equipped with basic services such as schools, churches, and cinemas ("107," "108," "307" and "308"). Also, commercial activities were only allowed in *entrequadras (*fig.6.6). The project lied on the auspice of a fast industrialization and economic progress in Brazil. In the words of Lúcio Costa, this city was planned for an "ordered and efficient labor," at the same time being a "lively and appraisable city" (fig. 6.7) (Costa, 1956).

FIG. 6.7 Zoom of a *Superquadra* in the 1960s, composed by residential buildings with *pilotis* (stilts) and *cobogós*. Source: unknown.

FIG. 6.8 : Detail of comercial/services activities (dentist, grocery shops) in the self constructed houses of *Cidade Livre.* Source: Archive from Cronologia do Pensamento Urbanístico.

However, besides sophisticated city centers, in the suburbs of the city (cidades satélites) spread diffusions of informal settlements have soon started, further consolidated over time in some of the largest *favelas* in Brazil (*Favela do Sol Nascente*) [18]. These settlements were first inhabited by low class workers (manual laborers migrating from several regions of Brazil), who also contributed to the construction of the entire city (*candangos*) as it originally designed. In these settlements, working activities have been often emplaced inside the space of the dwelling (or in open markets illegally organized by residents in the streets of informal areas, as for the case of the iconic neighborhood *Cidade Livre* (fig.6.8).

In fact, the vision of modernity is based on the hypothesis of a complete process of industrialization of society (Le Corbusier,1923; Frampton,1980; McLoyd, 1983). Nevertheless, the market logics early twisted the utopic vision of modern architecture, in favour of the exasperation of its profitable benefit according to principles of reproducibility, massification, and cheap construction methods. This happened mainly at the expenses of workers of the lowest social classes, often destined to live in small houses of standardized housing blocks built in areas of the city dislocated from the center, where the price for land is cheaper (Madden & Marcuse, 2016). If the approach proved not to unveil all its potential in presence of a not fully industrialized society, its application in contexts where different productive systems prevail is even less effective. Instead, in the last decades, these models of social housing have been often copied and transferred in many countries of the Global South, whose economy is mainly based

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18   For more information on this favela please refer to: Renata Mariz, Sol Nascente, a Favela de Brasília Que Caminha Para Se Tornar a Maior Do Brasil, Epoca, July 16, 2018, https://epoca.globo.com/sol-nascente-favela-de-brasilia-que-caminha-para-se-tornar-maior-do-brasil-22882335.

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on commerce and service. This is particularly the case of Brazil, where industrialization was lately exported from Europe and not really even planned, as observed by leading architects such as Lina Bo Bardi. (Bo Bardi, 1994).

In Brazil, 73% of the Gross Domestic Product (GDP) is related to the tertiary sector, while industry accounts only for 21%, and it absorbs more than 10% less of the national labor force with respect to commerce and service (CIA, 2017). Even if industry is only a little portion of the economic processes of the country, the first social housing prototypes in Brazil, the so called vila operárias, were aimed at sheltering industrial employees based on the model of worker dislocated from their working site (fig. 6.9, bottom) (Bonduki, 2014) .

The principles of this model are commonly applied in the country also when social housing are provided for residents of informal settlements of Brazil, namely *favelas.* Block-apartments for pure domestic use have been often designed to relocate residents from slums into formal dwellings.[19] An iconic example of the lack of effectiveness of these types of housing solutions is the case of the project *Vila São Pedro* for the resettlement of residents from the *Favela Sururu de Capote* (Ministry of Cities, 2010). (fig.6.9, top, left). This project by Brazilian government within the Program of Acceleration of Growth (PAC) contained 360 housing units for families living in the *favela.* The houses contained a living room, two bedrooms, one bathroom, one kitchen, and one small laundry area and gyms; playgrounds and piazza were designed as well in the social housing project. Delivered in 2009, the space of the social housing formally designed experienced early and heavy modifications operated by the new residents, finally resulting into a process of space mischaracterization modifications operated by the new residents, finally resulting into a process of space mischaracterization (Cavalcanti, 2018). According to the results of the participative observation research by the author covering the pre and post phases inherent residents' relocation process in '*Vila São Pedro*', almost 90% of the space modifications performed by residents in the social housing were ascribable to the emplacement of working activities within the domestic space of the dwellings (Cavalcanti, 2018). They happened both inside the new apartments and within the common spaces of the social housing. Working activities were mainly devoted to the provision of commerce and service (fig. 6.9, top, right) (Cavalcanti, 2018).

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[19] Many authors in the field of sociology and anthropology explain the process of resettlement from *favela* to social housing, unveiling the views from residents about the relocation. For more on this subject please refer to Janice Perlman, Favela: Four Decades of Living on the Edge of Rio de Janeiro (Oxford, UK: Oxford University Press, 2010), 93—146.

FIG. 6.9 Top: Comparison between an official image of the original project delivered in *Vila São Pedro* in Maceió and photo of the delivered houses including modifications three months after relocation. Bottom: *Vila Operária Luis Tarquínio*. Source: image from Agência Alagoas, 2009 (top left) and adaptation by author, 2015 (top right).. Ewald Hackler, approximately 1907-1908 (bottom).

They range from retailers, resellers, carriers, masons, iron workers, carpenters to receptionists, entrepreneurs, nurseries, hair dressers and much more. Table 6.1 lists all the possible activities performed by the residents observed in the favela. In fact, research revealed that the same types of working activities performed in the original favela are often transferred by residents in the new social housing, restored in order to guarantee the persistence of the source of income necessary to pay the monthly rent of the social housing (Cavalcanti, 2018). The number and typologies of services being performedwithin Brazilian favelas have been increasing in the very recent years: restaurants, grocery shops, internet shops, laundries, repair shops are spreading in many informal settlements, solicited also by an increase of the demand of low cost goods and services from formal city.

TABLE 6.1 List of economic activities run by residents in informal settlements in Brazil. Source: Ana Rosa Chagas Cavalcanti, 2017.

Economic activities in the Self-Constructed Neighborhoods in Maceió	Economic Activities outside of the Self-Constructed Neighborhoods in Maceió
Sururu de Capote e Antigo Telégrafo	Sururu de Capote e Antigo Telégrafo
Fisherman	Hawker
Mollusk Cleaner	Carter
Mollusk cleaner assistant	Garbage recycler
Mollusk Vendor	Taxi driver
Owner of Grocery Shop	Maid
Car Washing Services	Vendor
Car Repair Services	Selling Mollusks
Prayer Services	Masons
Carpenter	Carpenters
Nurseries	Assistant of Commercial Activities
Help with pedagogical activities (Professor Particular)	Policemen
Tattoo chops	Taxi driver
Groceries	Firefighter
Cake shops	Plumber
Restaurants	Mason
Bars	Receptionist at Hotel
Construction material	Professor at primary school
Carpenters Clothes repair	Shopping Mall Vendor
Market Vendors	Maid
Hairdressers and Manicures	House painter
Several Repair Services	Car seller
Work at home	Business Assistant
Vendors of international companies	Motorcycle Courier Services (motoboy)
Craftsman (Wood, Glass, Iron, Furniture)	Assistant at the "Secretary of Maceió"
Internet Shop	Esthetician at Beauty Salon
	Telephone operator
	Commercial activity assistant
	Assistant at Tre Al
	Confectioner
	Assistant at storeroom
	Handcrafts seller
	General services assistant
	Employee at Plotter
	Support for dentist assistant,
	Machine operator at industry

TABLE 6.1 List of economic activities run by residents in informal settlements in Brazil. Source: Ana Rosa Chagas Cavalcanti, 2017.

Economic activities in the Self-Constructed Neighborhoods in Maceió	Economic Activities outside of the Self-Constructed Neighborhoods in Maceió
Sururu de Capote e Antigo Telégrafo	Sururu de Capote e Antigo Telégrafo
	Glasses vendor
	Clothes shop vendor
	Telemarketing
	Vendor of health security
	Cook at chain of food,
	Vendor of meals* (marmitas)
	Cashier in Supermarkets
	Assistant in handling materials
	Make-up professional
	Manicure and pedicure
	Hairdresser
	Assistant of Pizza Chef (Pizzaiolo)
	Cook
	Waiter
	Seller boutique
	Cashiers
	Charter
	Garbage recycler

6.2 A Phenomenological Approach for the Desing of Social Housing in the Context of Informal settlements

A different approach for the design of social housing for unprivileged groups has been progressed starting from 1970's (Charles Abrams, 1964; Turner, 1976). In opposition to the principle of *tabula rasa*, in this case the intervention of the architect when designing social housing is reduced to the minimum. Instead, this is oriented to pursue and encourage the processes of creation and adaptation of spaces that are naturally emplaced by residents in the original informal settlements. Quinta Monroy, a social housing designed by Alejandro Aravena in Iquique (Chile), constitutes an example of this approach (Aravena, & Iacobelli, 2009). This social housing, located in Iquique, is constituted by 125 half-built houses. Each house is a two-storey concrete masonry box which contains a bathroom, a kitchen and two rooms. Aside the house, a further empty block of concrete one storey high is provided by the firm (fig.6.10 top). This was designed in respect of budgetary constraints to allow the residents to modify the housing system according to their needs, culture and traditions. This strategy of design was based on the knowledge that the construction of houses in informal settlements occurs gradually, namely according to processes of "incremental growth," based on the resources of the residents or due their social practices, such as for example the usual tradition to build extra rooms for new members of the family [20].

The authors define this approach for social housing as a phenomenological approach, in opposition to the canon of the tabula rasa. Its meaning is tied to scientific interpretation of models which address empirical phenomena and mutual relationships in a way consistent with theory but not founded on any pre-defined theoretical framework and interpretation of reality.

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[20] "When you create an open system, it customises itself, it corrects itself, it is more adapted to the reality - not just to the family but also for cultural diversity.", As Arevena said in interview by Winston.
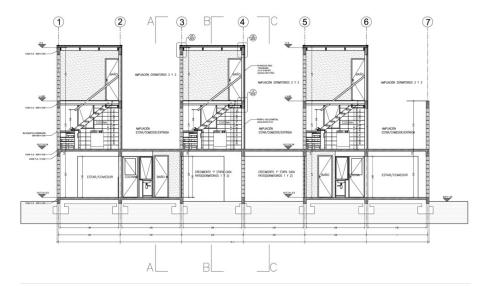
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FIG. 6.10 Top, section of *Quinta Monroy*. Source: Image by elemental, 2003.; Bottom, residents dwelling and working in the field of construction of housing in the "*Conjunto Virgem dos Pobres*", social housing located in Maceió, Alagoas, built by the future residents in 1989, as an example of self-help social housing (*Mutirão*). Source: Pictures from the Newspaper Gazeta de Alagoas in 14/0/1989.

This category includes a wide range of solutions emerging in the last years, from "sites and services" to "self-help housing" and "core housing" (Abrams, 1964, p. 164-178). They are usually promoted by governmental organization or private housing construction companies. Examples of these types of social housings are present also in Brazil (Bonduki, 2012, p. 79-81). [21](fig. 6.10 bottom).

Such a general approach has the positive attribute that it acknowledges the importance of social practices of inhabitants when dealing with social housing for unprivileged groups. Furthermore, it often allows a more central location of social housing in the city employing minimization of building material costs with respect to limited funds. However, also this approach is prone to suffer from significant contradictions and distortions with respect to the goals of a social architectural project. On the one hand, it "formally" confers the resident the role of "informal" architect of the house, even if this implies to emplace practices, habits and strategies which are performed in informal settlements due to pure contingency, which in the medium and long term may determine a decay of the initial attributes of the project, health and hygienic conditions up to structural safety issues. hand, the role of the architect is deprived of its socio-political function of investigator of reality as promoter of wellbeing. And the primary needs of the poor do not find formal assessment in the expert's analysis use and planning of space as it happens instead for residents of the city moved by secondary needs. Instead, a drift of this approach may lead architecture firms and institutions to maximize profit or to accept heavy budgetary constraints through ex-ante design of cheap houses with incomplete design or lack of comfort, as coherent with the practices emplaced by the recipient residents, even if determined by conditions of poverty or lack of space (Boano & Perucich, 2016, p. 37-46).

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21 . The capacity of self-construction of unprivileged communities in Brazil has inspired many housing projects. One of these examples, typical of Brazil, is the 'mutirão' (a process in which groups of residents self-manage and -build houses). Projects of this type can be found in the Southeast and northeast of Brazil, dating especially from the 1980s.

6.3　Work in House: from Bottegas to Favelas

In the previous sections, two opposite strategies currently adopted for the design of social housing for people living in informal settlements were described: a tabula rasa principle that follows the "one size fits all" and a phenomenological one, closer to a laissez faire approach. They do not include directly working activities within the boundaries of the home. Nevertheless, examples in which social practices, including labor, constitute a space-shaping variable within the planning of social housing can be encountered also in the last century (Choay, 1969, p. 29-31). However, founding theories often based on utopic visions imbued with Platonian ideals of a society governed only by a full and spontaneous harmonization of human needs and desires (Choay, 1965), often failed operative applications, besides few prototypes of self-contained communities for workers of industry separated from the rest of the town (Fourrier, 1849) (fig. 6.11).

FIG. 6.11 Perspective view of *Le Familistère,* project realized by Godin (in Guise, France) in 1882 based on theory of *Phalanstère* by Charles Fourier. Source: Collection Familistère de Guise, 1871. Right: "Life as it was in Pompei", painting by Luigi Bazzani, 1836-1927.

FIG. 6.12 *"Life as it was in Pompei",* painting by Luigi Bazzani, 1836-1927.

Instead, practical examples in which the integration of working activities in the domestic life is inserted with harmony within the urban fabric of the city are clearly visible along all the history of pre-industrial societies (Mumford, 1961, p. 281-287). Actually, work was found inherent to the physical space of dwellings since the early emergence of groups of humans at the event of the discovery of agriculture (Jacobs, 1969). Ancient age also provides evidence of the bond between working and living activities with the first studios, *bottegas* or taverns, inserted on the ground floor of insulae of the Roman Empire (Figure 6.12) (Vitruvio Pollione, around 27BC). The conception of house also as a workshop continued in the European villages of middle age, where domestic and working spaces resulted progressively embedded (Mumford, 1961, p. 281). The loosening of the proximity of domesticity and labor proceeded only over centuries later after industrial revolutions (Madden & Marcuse, 2016).

The link between realities so far away in the line of history and space such as Latin antiquity and informal settlements of contemporary cities in Brazil takes its roots in the logics of special distribution of urban environments of societies with productive systems of commerce and service vocation. In the following sections, a comparative analysis is shown of some social practices which influence and shape space in Brazilian informal settlements (studied between 2009 and 2018) with respect to traditions and practices commonly emplaced in the typical Italian bottega-houses from the Middle Age (later on simply referred to as *bottega*). Spread in Europe, social dynamics and vernacular practices of this type of dwellings remained broadly emplaced especially in Italy still in the modern age.[22] The *bottega* was a typical dwelling-productive unit which integrated working activities inside specific portions of the house. The ground floor hosted the economic activities, from the learning on the job process to the production of goods and service, to advertisement, distribution and selling functions. Residents of bottega used to live and work in textile shops, bakeries, pharmacies, iron laboratories, flower shops, perfume shops, clothes shops, butcheries, jewelry shops, metals workers, fabric shops, fur shops, etc (Pini, 1986) . The cycle of production was typically held by a master, which not only produced goods according to his expertise but also used to dispense knowledge to his helpers through practice and observation. Internal space could also have deposit and/ or laboratory function. Products were usually sold in the front part of the house, which had an access to the public street. This was often filtered by arcades, structural elements with mainly comfort purposes with the aim of favoring the trade of goods. (Pini, 1986).

In turn, products were exposed on banks and tables in order to let people buy trade. The residential function of the dwelling occurred on the upper floor(s). The house had a mainly longitudinal development, with a narrow front facing the street, and it used to end on the other side of the entrance with a courtyard for domestic or commercial destination. Animals were also often raised in fenced backyards. Despite typically mono-familiar units, the bottega were often attached one another, constituting concentrations of houses often with similar productive vocation.

This brief introduction already suggests resemblances with respect to the findings of recent experimental campaigns performed in contemporary informal settlements (Chagas Cavalcanti, 2017a, 2017b In the following paragraphs, analysis is solely meant to reveal the most relevant practices emplaced in Brazilian favelas, showing their connections with their sources of income generation and inherent productive systems.

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22 Educalingo Online, s.v. "Bottega," accessed November 10, 2016, https://educalingo.com/en/dic-it/bottega.

The analysis is distinguished in four categories: morphology of houses; nature of economic activities; influence on labor on the outside space; learning, developing and defending working skills.

6.3.1 Morphology of houses (House and workspace)

In favelas, domestic and labor activities take place within the space of the house. Working activities may take place on the ground floor, whereas domestic functions can be hosted on the upper floor(fig 6.13). It also frequently happens that the familiar domain takes place at the same level of the working activities. This actually constitutes the most frequent spatial relationship observed between working and domestic spaces (fig. 6.14). In this case, space destined to working activities can be separated from the domestic domain by means of walls or curtains. Craftsmanship activities (i.e. carpentry, glass or ironworking activities), laundry services, recycling activities and small agricultural activities usually take place in the back. Instead, services such as hairdressers, nurseries, bars, grocery stores, food services, pharmacies, car repair services, clothes repair services and numerous commercial activities take place in the front portion of the house (fig. 6.15-6.16).

In both cases, advertisement and selling functions are integrated within the boundaries of the domestic space also in favelas. Residents perform a number of modifications in the house to allow visibility of the performed activities, often advertised also using letter-boards. A typical example of this practice is the window-shop, windows located in the front side of the house, equipped by steel grids or protected by glass, which are used during the day by its resident to trade goods and sell finished products to clients walking on the front street of the favela; whereas food preparation for commerce purpose takes place in the kitchen of the house (fig. 6.17- 6.18).

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FIG. 6.13 Photo of a grocery shop on the ground floor of a two-storey informal house in Alagoas, with domestic space hosted on the first floor. Source: Ana Rosa Chagas Cavalcanti, 2018.

FIG. 6.14 Photo of a barber shop on the ground floor of a one storey informal house in Alagoas, with domestic space hosted next on the ground floor.Source: Ana Rosa Chagas Cavalcanti, 2018.

FIG. 6.15 Front view of an ancient *bottega* selling spices. Source: Tacuinum sanitatis, Codex 2644 by unknown master (XIV Century, Wien-Osterreichische National Bibliothek, Austria.

FIG. 6.16 Activities of commerce and service (pharmacy and bakery) run in an informal settlement of Recife (right). Source: Ana Rosa Chagas Cavalcanti, 2018.

FIG. 6.17 Grocery shop in a *bottega*. Source: "*Aspetti di vita quotidiana*", Tacuinum sanitatis, unkown master, XIV Century)

FIG. 6.18 "Window shop" in an informal house of a *favela* in Brazil. Source: Ana Rosa Chagas Cavalcanti, 2008;

FIG. 6.19 *Bottega del Sarto* (Tacuino Sanitatis, unknown master, XIV century)

FIG. 6.20 Example of traditional craft activitiy developed inside informal settlements. Source: Alagoas Feita a Mão

FIG. 6.21 Animal farming for production of food and milk. Source: "*Alimenti, Latte*", Tacuinum sanitatis, XIV Century, unknown master.

FIG. 6.22 Pig and chickens grazing in the common space of a favela in Brazil. Source: Ana Rosa Chagas Cavalcanti, 2008.

FIG. 6.23 Fishing in antiquity. Source: Tacuinum sanitatis, XIV century, unknown master.

FIG. 6.24 Fishing in the *Favela Sururu de Capote* .Source:Ana Rosa Chagas Cavalcanti, 2008.

FIG. 6.25 Fish selling in a *bottega*. Source: Tacuinum sanitatis, XIV Century, unknown master.

FIG. 6.26 Sururu selling at the borders of the *favela*. Source: Ana Rosa Chagas Cavalcanti, 2008.

6.3.2 ## Nature of economic activities

Working activities commonly emplaced in favelas have been already listed in the previous sections. In general, labor activities taking place within the domestic space of dwellings in favelas are mainly related to production of commerce and service. Manufacture activities are also largely spread. Many residents are craftsmen: they work with wood (*carpinteiro*), iron (*serralheiro*), glass (*vidraceiro*), building materials and all possible resources locally available (Governo do Estado de Alagoas, 2017) (Figure 6.19-6.20). Manufacture activities in favelas usually take place in specific areas of the house. Craftsmen, as the most of working residents, usually absorb their job skills in the *favela*, which are though lately offered both in the context of informal settlement and in the formal city (Cavalcanti, 2017a; Cavalcanti, 2017b, Cavalcanti, 2017c).

Also agricultural activities, such as cultivation of fruits, vegetables and herbs (manioc, guava, papaya, banana) or farming of chickens and pigs happen in the proximity of the domestic space. Animals such as horses and mules are also raised for transportation of goods, especially by carters. Animals are often kept in fenced backyards at the rear back of the house but they can also be left to graze in the common spaces of favelas (fig. 6.21-6.22).

Aside commerce and services, the dominant economic activities emplaced in the informal settlement often depend on the natural vocation of the area. For instance, in *Sururu de Capote*, a favela in the north-east of Brazil close to the *Mundaú* Lagoon, the activities of production, fishing and manufacture of *sururu* (a little mussel declared as immaterial heritage of Alagoas by Culture State council of Alagoas (O Globo, 2014) constitutes the main source of income for the large majority of the residents. It is sold at the margins of the favela every day mainly to residents of formal neighbourhoods (fig. 6.23-6.26).

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6.3.3 Influence of labor outside of the domestic space

The activity run inside the house influences the assessment of the exterior space, starting from its surrounding environment. In case of restaurants or bars in favelas, space in front of house is often used for the provision of inherent services by means of tables or chairs; hawkers' cars are placed in front of houses as well. Furniture is put by residents on the street and sidewalks during the opening hours of the activity and they are pulled back at closure. (Cavalcanti, 2017a).

The shape of the streets itself is often decided according to the most significant working needs of inhabitants. This happens for instance in the favela *Sururu de Capote*, where straight streets must connect the lagoon where fishermen work to the borders of the formal city where *sururu* is sold. In fact, relative location of streets, especially with respect to the formal city, may come to a fundamental role for the resident to decide and plan the vocation of the working activity run by the boundaries of the dwelling. Commercial and services activities are largely abundant around the main avenues located at the margins of the favelas, because residents from central neighbourhoods of the city are attracted by cheap prices (fig. 6.27). The toponymical distribution of the economic activities inside the favelas often recalls peculiar features of ancient bottega. In antiquity, from spatial concentrations of bottega with the same economic vocation, streets may have resulted progressively named accordingly to the typology of economic activities hereby emplaced. Many squares or streets in Italy still recall this peculiarity: *Piazza Degli Orefici, Via dei Calzolai, Via dei Falegnami* [Goldsmiths Square, Shoemakers Street, Carpenters Street - ed.], etc (…) (Cricco &Theodoro, 2002). This feature can be "informally'' encountered also in favelas. In the Favela *Sururu de Capote* for example, some specific alleys are named by residents as Alley (*Beco*) of *Sururu*. This happens because working practices inherent processing of *sururu* are usually emplaced in those alleys. This approach corresponds to an effective strategy to recognize streets in informal settlements based on visible working activities (beco da mercearia, beco do maceneiro). In addition, other alleys can be named according to the name of a well-known resident of the area.
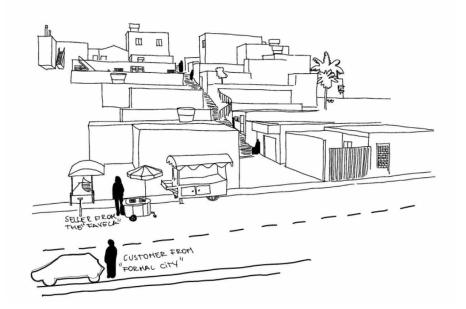
FIG. 6.27 Top: Streets and bottegas in the city of middle age (Source: "*Allegoria ed Effetti del Buono e del Cattivo Governo*", by Ambrogio Lorenzetti, 1339, Public Palace, Siena, Italy); Bottom: Graphic by author of the street "*R. Manoel Fontes Fontan*", at the margins of the *Favela do Telegrafo* in Brazil. Source: Ana Rosa Chagas Cavalcanti, 2018.

6.3.4   Learning, developing and defending working skills

The resident of a favela is proud and committed with respect to the working activity performed. This nurtures the feeling of self-esteem but it also determines the role and social position held in the informal society of the favela. Notably, having a job represents a status of citizenship (and a key factor for success in life) in the informal settlement, while not having a job represents a lack of dignity (Perlman, 2010, 230).

As for bottega, in favelas, houses are spaces in which residents can also learn, practice and perfect their working skills. Residents learn their future labor by observing and reproducing the work of masters, family members or piers in their houses. This is common practice for young craftsmen of favela, such as future masons, iron makers, bread makers, as well as maids and hairdressers. After this process, the resident can open his/her own studio in the favela or be employed in the formal city. There is a strong sense of acknowledgement on the capacities and responsibilities of the masters also in the favela.

Expertise in building materials and construction processes are highly acknowledged in favelas. They address the primary need of having an as decent as possible shelter for the family of the resident. In fact, in favelas the single owner can construct his/her own house (mutirão, fig. 6.28). To this end, they can be also helped by neighbours, returning the favour in money, goods or help in future manual activities. In some cases, they can also hire professional masons (fig. 6.29) (Cavalcanti, 2017c). They often form an elite working class highly acknowledged in the favela. In fact, masons live in the favelas where they have also learnt the job at first but they are often employed in construction companies in the city. Therefore, they possess crucial competences for the inhabitants in need for a house, having to deal with its entire construction process, from the operation of initial design to the procurement and emplacement of building materials, from the decision of the building technique to the interior design. It then happens that the "informal" architect of the favelas plans, designs and builds the house, resulting still embedded in field work like architects of antiquity.

There are rather spontaneous forms of mutual help and collaborations in the favela. For example, working tools and devices are commonly shared among residents dealing with similar activities. This happens especially for the most costly devices, such as those pertaining to the construction sector: drillers, iron, cutters, cake tabs for bakeries, etc. Actually, also in antiquity this used to happen in a similar way: tools were often available for rent in determined *bottega* located in specific areas of the city (Morello, 2016).

FIG. 6.28 *Mutirão* construction in the *Favela Sururu de Capote*. Source: Ana Rosa Chagas Cavalcanti, 2008

FIG. 6.29 Houses of bricks in the *Favela do Telégrafo*. Source: Ana Rosa Chagas Cavalcanti, 2015

6.4 The Social Function of Space in the Formal Design of Houses for the Unprivileged

Residents of informal settlements in Brazil address space primarily to allow the conducting of economic activities mainly related to the commerce and service sector. These activities influence the space of both inside and outside the boundaries of the house. This happens similarly to what used to happen in many other historical contexts with similar economic vocations. Residents maintain these economic activities even after being resettled into social housing with pure domestic vocation. Current municipal and national codes of building and urban planning in Brazil do not formally prohibit the design and construction of mixed used buildings, given limitations on its location in the city and its internal distribution and layout (in order to limit noise, pollution or health threats and promote adequate accessibility to the different functions taking place in the building) (SEPLAN, 2008). Because of this, offices may be allowed to be designed on the ground floor of buildings where residential use also happens. A possibility that represents an option for the resident of the "formal" city constitutes the cogent priority to be addressed for the residents of the informal city, who find in the activity performed the only source of survival, including the obligation to pay a monthly rent when living in a social housing, in a society where welfare of the poorest is often neglected. (Cavalcanti, 2018). Thus, conceiving labor as spatial variable in the domain of the city allows architecture to promote personal and societal welfare. The nature of economic activities emplaced to survive implies solutions aimed at restoring the proximity between labor and domestic functions in the design and urban planning practice. Within the design of formal social housing for unprivileged people in economic contexts with commerce and service vocation, this is translated into the direct inclusion of the variable of labor in the housing space domain, by means of its rapprochement and integration with the domestic function of the house. This integration should not being passively "accepted" nor slavishly canonized, but carefully thought and planned by the architect, with the well-being of the recipient in mind. In fact, Richard Sennett already emphasized the miserable life conditions, the inhuman rhythms of work, the noise pollution and the low hygienic standards, not to mention the scarce human and family relationships, experienced by residents living in the bottega of the Middle Age. (Sennett, 2009). This happens in whatever situation the working activity is the only chance for the physical survival of the human being in societies where social protection does not exist. Therefore, the formal translation of labor within the design of social housing for residents of favelas must be intended to dignify permanently work meant

as a housing right, to increase hygienic and health standards, safety requirements, while improving social and family relationships (Cavalcanti, 2018).

To this end, inclusion of space destined for working activities in the space of a house must be harmonized through the planning and design of structural and non-structural elements of the building and the house, aimed at assuring planned standards and requirements along all the entire cycle of life of the building while promoting comfort and wellbeing for the resident family (fig. 6.30).
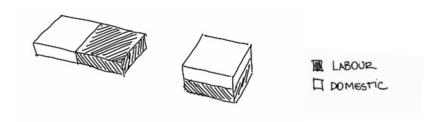

FIG. 6.30 Labor and domestic space in a house: horizontal (left) and vertical (right) possible spatial relationships. Source: Ana Rosa Chagas Cavalcanti, 2018.

The building aimed at resettling unprivileged people from informal settlements should have a mixed productive-domestic vocation. Promotion of the economy produced by the residents can be fostered using spatial solutions such as arcades, galleries, patios, pilotis, terraces, corridors, porches used outside the domain of the house (fig. 6.31).
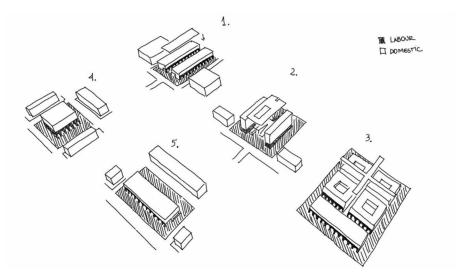
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FIG. 6.31 Design of social housing with mixed domestic-labor vocation: use of arcades/*pilotis* for different building shapes and spatial configurations. Source: Ana Rosa Chagas Cavalcanti, 2018.

The design of social housing and the relative location of its inherent architectural elements must promote the trade of goods and service and they should be integrated as much as possible in the urban fabric of the formal city. Location of social housing itself should be strategically emplaced with respect to the main streets of the city. Planning of streets which enhance connections with city center by means of pedestrian circulation or other forms of mobility such as bicycles and motor vehicles is encouraged (fig. 6.32).
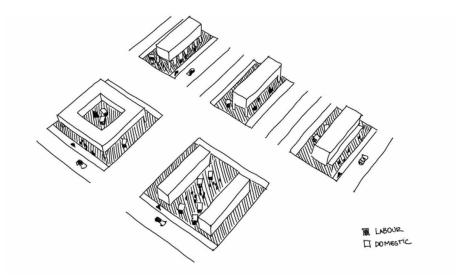
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FIG. 6.32 Integration of social housing in the urban fabric of formal city: proximity to principal streets for different building shapes and spatial configurations. Source: Graphic by Ana Rosa Chagas Cavalcanti , 2018.

An approach of design of social housing for the unprivileged that also plans economic activities has the further merit to allow the emersion of informal economies, promoting the conversion of underpaid informal jobs into sustainable formal sources of enrichment for both the resident of the social housing and the formal city. The development of economic activities should be promoted through the design of social housing. To this end, spaces designed for the valorization, perfection and teaching of activities of craftsmanship are encouraged. Spaces with social functions such as libraries and schools should be promoted as well. The spatial integration with the formal city should happen also at a social level. This could be for instance fostered through forms of barters of complementary competences and knowledge between professionals of formal society and craftsmen living in the social housing (fig. 6.33). The author has already proposed possible forms of collaborations (Cavalcanti, 2015).
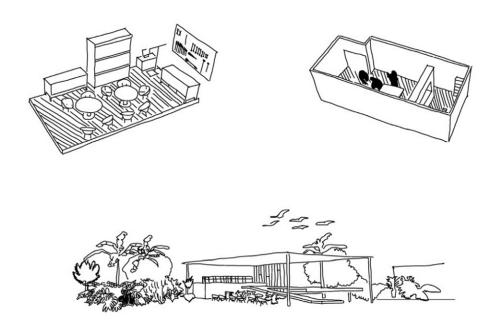
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FIG. 6.33 (Shared) Laboratory of craftsmanship (top, left), library and laboratory (top, right) and "The School of Favelas", prototype of a school of Architecture planned by author for the *Favela do Telégrafo* (bottom).Source: Ana Rosa Chagas Cavalcanti.2018.

6.5 Conclusions

Throughout this article, an approach is proposed that aims at fully recovering the social function of the variable of space for the planning and design of houses and built environments. Within the design of social housing destined to residents living in informal settlements with vocation to commerce and service, this is operatively accomplished through the integration of the labor and domestic functions. This need vividly emerged from the observations in the field on the use of space made by residents of favelas inside and outside home boundaries. In informal contexts, where nothing is prescribed by formal laws, rules and standards, space has an entirely social function, which is mainly aimed at assuring a source of income for residents to accomplish primary needs of survival. In economies of commerce and services, families survive from production and trade of goods and service which for their nature are easily implemented in the proximity of the house. The optimal assessment of space depends and is determined by the productive system, meant as the needs and habits to work established by the given productive activity. Those needs and habits change over time and space, resulting from traditions and history, nature and technological development.

Understanding, interpreting and addressing the needs of every inhabitant of the city is duty of the Architect, both in the case of the wealthy family living in the central neighborhood or also in the case of an ex resident of the informal settlement. The sophistication of the secondary needs that must be addressed through design must not disperse the primary dimension of living spaces by the human being, that is the social function of space. Nowadays, often tangled by mechanistic and technocratic approaches, which also happen to crystalize policies and standards, the architect must recover the role of a political actor of society as Leon Battista Alberti once advocated, meaning to unveil the adapting needs of persons living in the society of the presentor.

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