4 A Pattern Language of Self Construction

This chapter is based on "The pattern language of self construction: a pedagogic tool to understand spaces and social practices of *favelas*" (2017).

"*Architects themselves build a very, very small part of the world.*
Most of the physical world is built by just all kinds of people.
It is built by it is built by do-it-yourselvers in Latin America(..)"
Cristopher Alexander, The origins of the Pattern Theory, 1999:74[i].
Alexander, 1999

Labor in *favelas* was not acknowledged by architects and planners because of the interpretation of the definition of the informal settlement and the slum. Also, by architectural practice and parochial theories, which affect the production of planners and architects. The definition of slums as spaces lacking sanitation and infrastructural components is deeply rooted in both theoretical and institutional definitions of the informal settlement. Nevertheless, the spaces of slums and informal settlements are much more complex and include social-economic aspects of everyday life of its inhabitants. Interpretative tools and intellectual frames are needed to open new perspectives and epistemologies in the field of architecture that are capable to address the needs of únderpriviledged people. This is the ethos of the methodology designed to study informal settlements in the present study.

The finding that work is a fundamental element shaping space dynamics of informal settlement is based on an ethnographic research. To investigate how the social actions of the inhabitants shape them, methodological tools of anthropology (such as ethnography, interviews, oral history) rooted in De Certeau (and participatory research) were combined to the methodology of the Pattern Language (and with methodological tools of architecture such as drawing) to highlight the importance

of social practices as shapers of space in in contexts in which the socio-spatial dynamics are not familiar to architects and planners, such as informal settlements.

This methodology is underpinned by architectural imagination and intellectual reflection. It is the architectural imagination that allow architects and planners to create instruments to understand and represent space and new interpretative frames to study space. As for example, the perspective, which was invented when architects such as Bruneleschi experimented to draw over a mirror in a Plaza, in order to represent proportion, focal points and drain lines in the Renaissance Period.

4.1 New Methodologies and Epistemologies needed to Understand,Teach and Approach the Space of Informal Settlements

New interpretative tools of traditional architecture are being inquired, especially in the context of informal settlements in the Global South, spaces that are unknown to architects and planners. Methods, reasoning, interpretations and tools, are not adequate in case of self-constructed environments. In fact, when architects plan in context of informal settlement, they think about environment, costs, site, people's needs, materials, ideas, time, space, ergonomics, organizational framework and the political realm solely based on the perspective of who does the planning within a technocratic domain and space determinism. Architects who work with the design of housing for the unprivileged often struggle to understand their "client" profile or are not concerned about their needs. Thus, it often happens that many projects aimed at requalifying the context of slums fail in their purpose and classical examples are new social housing reformed in short time into *favelas* again because of the lack of understanding of the practices of their users.

Also literature raises its concerns about how informal settlement are approached (Alsayyad & Roy, 2003; Roy, 2005, Gilbert 2007; Arabindoo, 2011) and hope for new epistemological frames for the studies of informal settlements. Hence it is fundamental to read both the informal settlements and the 'urban poor' in more imaginative terms (Arabinddoo, 2011: 640).

This research is built within these debates, starting from a radical reconsideration of the method and the target of investigation of traditional architecture, that is the episthemologies of knowledge in the domain of informal settlements. In fact, this decennial research on informal settlements is based on information collected during more than six years of field research and participant observations in some *favelas* in the northeast of Brazil in ten years of studies. This lets to overcome the dichotomy by which often, for example, the disciplines of sociology and anthropology are separated from the study of architecture.

From the elaboration of all the collected data (photo, video, drawings, interviews), it clearly appeared that social practices, notably, the labor practices, play a key role on the design of spatial attributes of *favelas*. There is an ecosystem composed by the circulation of objects, people, money, labor and knowledge that addresses the *milleu* of construction of the *favela* and the entire territories that they tackle. As an example, the self construction process requires the consultation and sharing objects, resources, money and skills among the inhabitants, and between the inhabitants of the *favela* and the *non-favela* city. For more details about the intellectual framework, be referred to recent publications (Cavalcanti 2016, Cavalcanti, 2017).

All in all, rather than focusing only on built components of *favelas,* the assessment of space in informal settlements should be concerned also with the numerous day to day runnings and social practices which are often unseen in academic literature focused on architecture. To plan and design for the poor and the unpriviledged It is important to understand the socio-economic aspects of spaces, instead of merely focusing on the aesthetic features of informality (AlSayyad and Roy 2003, p. 297).·Moreover, learning the architecture of informal settlements from the social practices is important because it may avoid parochial discourses in the education of architecture and also issues as the 'aesthetization of poverty' or the 'museification of squatter settlements' such as Ananya Roy states in her writings about her experience teaching at the University of Berkeley (AlSayyad and Roy, 2003, p.289). Etnography is fundamental to understand spaces in informal settlements, according to urban theorists, which urges the need for interpretative tools to study this topic from the perspective of residents (Simone, 2004 ; Chatterjee, 2012 ; Robinson & Roy, 2016). Ethnography is thus challenged to couple with design knowledge.

4.2 Design Knowledge and Etnography: A Pattern Language of Self Construction

The pattern language proposed by Christopher Alexander (Alexander et al, 1977) is an universal planning method based on humanism, and a crucial study in the field of architecture and urban design, that has been vastly applied in traditional architecture education. The patterns by Alexander are used both as project guidelines or as principles to design. They hinge upon a complex range of relevant aspects of the built environment, and have a fundamental role in the discussion of the project of architecture and human behavior.They describe all phenomena that happen over and over in space and time within the urban environment of a city, according to the detection, perception, interpretation and use of its physical elements by its inhabitants. Patterns of space are expressed via photos containing explicative descriptions. Indeed, according to Christopher Alexander, built components of the city were meant to be self explanatory and easily comunicated to all residents of the city, expressing the human character of Alexander. In this sense, the Pattern Language address the urban space and its components. 253 patterns were categorized according to spatial hierarchy into categories or groups, ranging from the scale of regional planning up to the ornaments and details of buildings (fig. 4.1).

Aside from being a method that provide principles of projects to architects, it also captures a complex range of relevant aspects of the built environment and has a fundamental role in the discussion of the project of architecture and human behavior. Hence it constitutes a fruitful source of mapping spaces and providing elements for the design of a determined spaces starting from the identification of elements in the built environment. Aside from proving guidelines for architects and planners. The method of alexander was used, because it allows to both capture social and spatial dimentsions but also to give answers to them according to the wish of the reader and their interpretation.
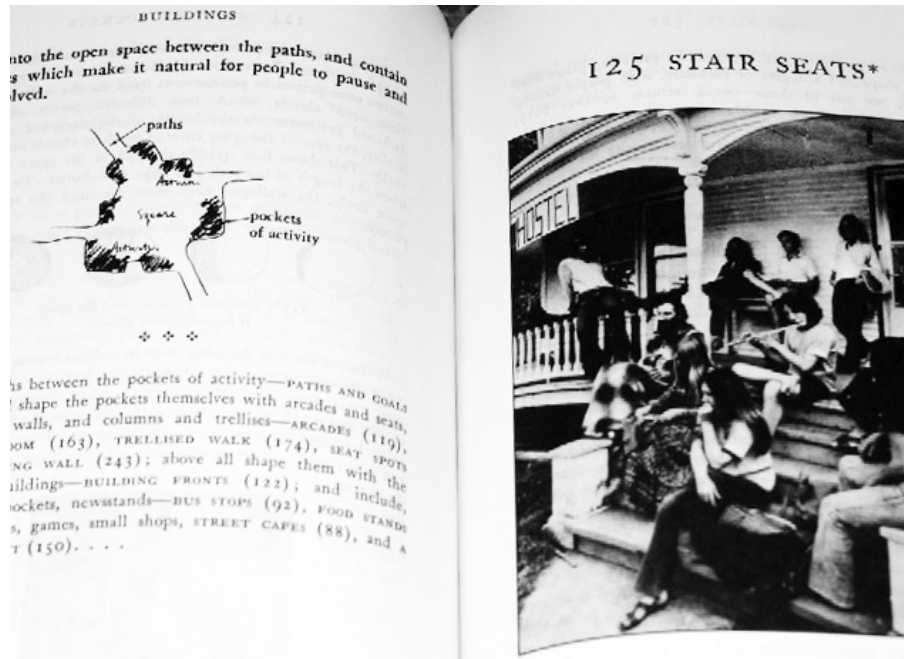
FIG. 4.1 Picture of pattern by Christopher Alexander in the Pattern Language book. Source: Book Pattern Laguage of Christopher Alexander, 1977.

With the present study, the method of Alexander is expanded to include the social practices that shape the space of informal settlements. These patterns are described in graphical form, via visual etnography that depicts of the social practices that happen in the space of the informal settlements. As said, all the practices were identified through participant observation: the tools used were photographic registers, drawings, graphics, videos and interviews. The use of graphical tools allows to understand space with ease and is relevant to explain space to planners and architects, by yet focusing exclusively on the role, relationships and interactions of the inhabitant and its actions in the surrounding environment and community. Graphical representation sheds light on the daily dynamics and feeling of habitation and the symbolic meaning of certain spaces (fig 25).

The patterns are organised in groups depending on their characteristics, in such a way that the groups are essentially describing the categories of the pattern language. These categories reflect the inhabitants' expertise, their capacities and their resources. There are four main categories, (Intimacy, Dwelling, Commonalty and Labor). These centre around all aspects of the inhabitants' lives and their

productions, starting from residents' activities, passing through their Homes, to rules of Commonalty, until the work they do: Labor. In other words, the first category deals with the people themselves, into the scale of the dwelling, onto the scale of coexistence between people until the last scale which refers to the scale of the city and transitions. The *Favela Pattern Language* was presented for the first time to graduate students in architecture and urban planning of Delft University of technology in the Netherlands.

These are some examples of the patterns from the in-field research (fig. 4.2):

FIG. 4.2 Picture shows graphics (left) and photos taken by the author in the *Grota do Antigo Telégrafo* (right). Source: Ana Rosa Chagas Cavalcanti 2015 (left) and Ana Rosa Chagas Cavalcanti 2018 (right).

Intimacy

This category is concerned with the daily practices of the residents of the *favelas* and includes the choices, aesthetics and calculations made by local inhabitants that shapes space. They range from the material that inhabitants chose to add quality to their houses, their resources, their capacities and their organization that shape the space of their living environments.

Religion and Faith
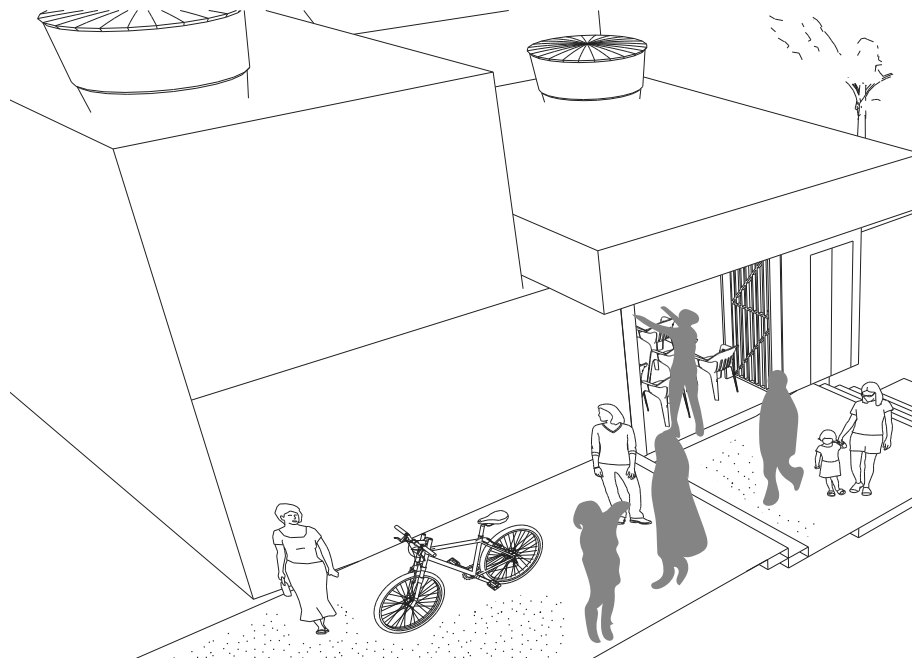
Some dwellings are set as Churches. Mass is leaded by pastors living in *favelas*. Religion is important for the self-esteem and the perseverance of the community.

Social relationships and Solidarity
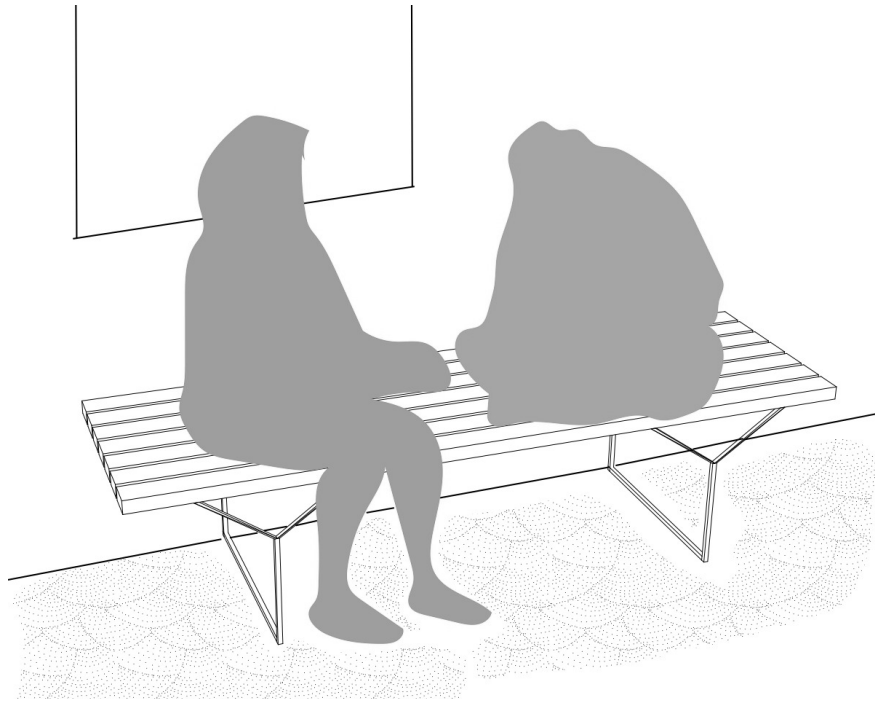
Neighbours, friends and family members, often gather together on benches or set chairs in the front part of the house, mostly at the end of the day. These moments are important opportunities to share information on new jobs, opportunities, news or also to find help. In the favela, solidarity ties are important. Livelihood and social life depend on the social network.

Ornaments
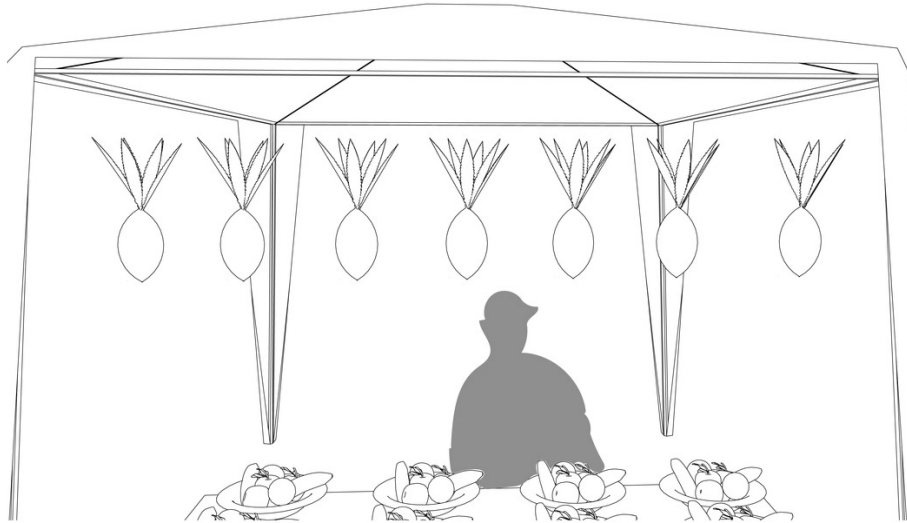
In houses hosting economic activities run by residents, ornaments may embellish the interior spaces according to available resources. Usually residents place also items on the roof of shops or make compositions with the products they sell.

Birthday Party
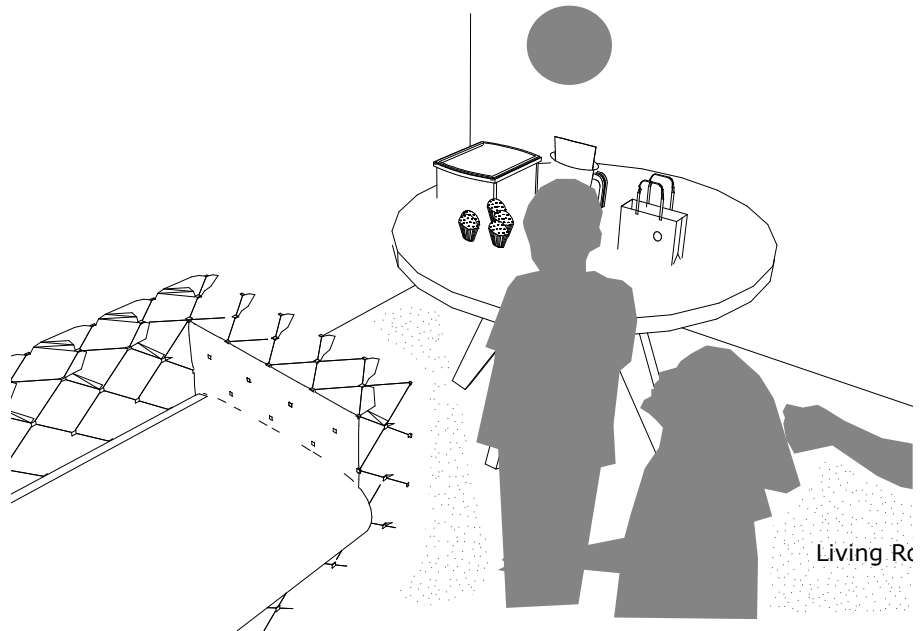
Birthday parties are important venues for the community of the favelas, especially sweet fifteen parties.

Roof Tops
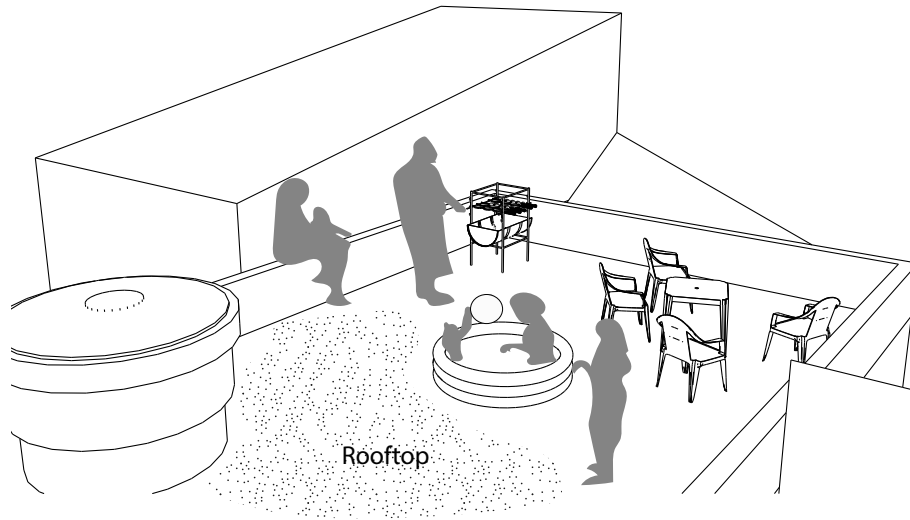
Rooftop

Roof tops are often used for convivial activities, such as for celebrations, barbecues, sun bath

Dwelling

This category tackles the dwelling practices, family life, domestic life and other activities that happen inside the house that are not included within income generation processes, but still shape the ecosystem of houses.

Internal Roof

Many one-storey houses' roofs do not have a slab in between walls and roof. Materials used for roof vary from aluminium up to ceramic. If the owner desires to add a second floor to the house, placing a slab is the first step to perform.

Ceramic tiles
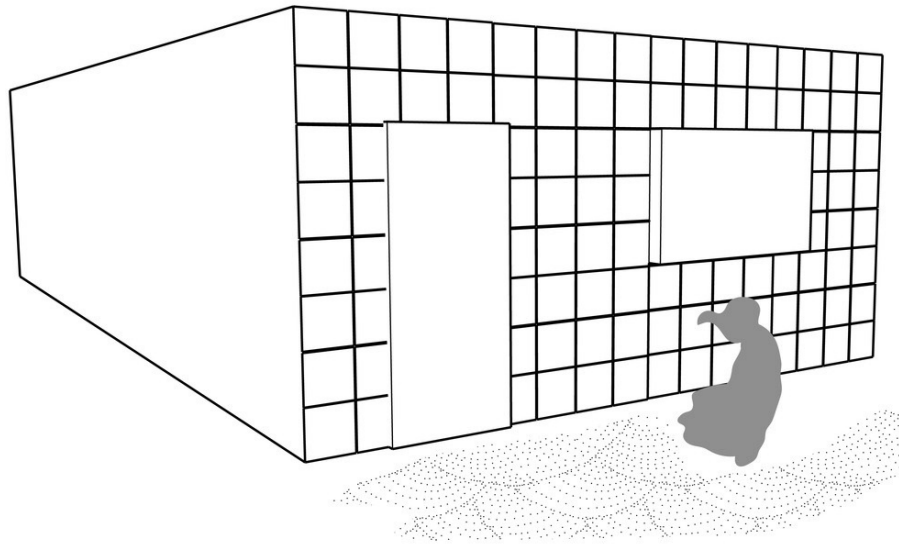
Ceramic tiles represent a valuable strategy used by inhabitants to protect and coat their houses from humidity and rain. Inhabitants often proudly refer that their house is entirely coated by ceramics '*toda na ceramica*'.

Awnings Animals
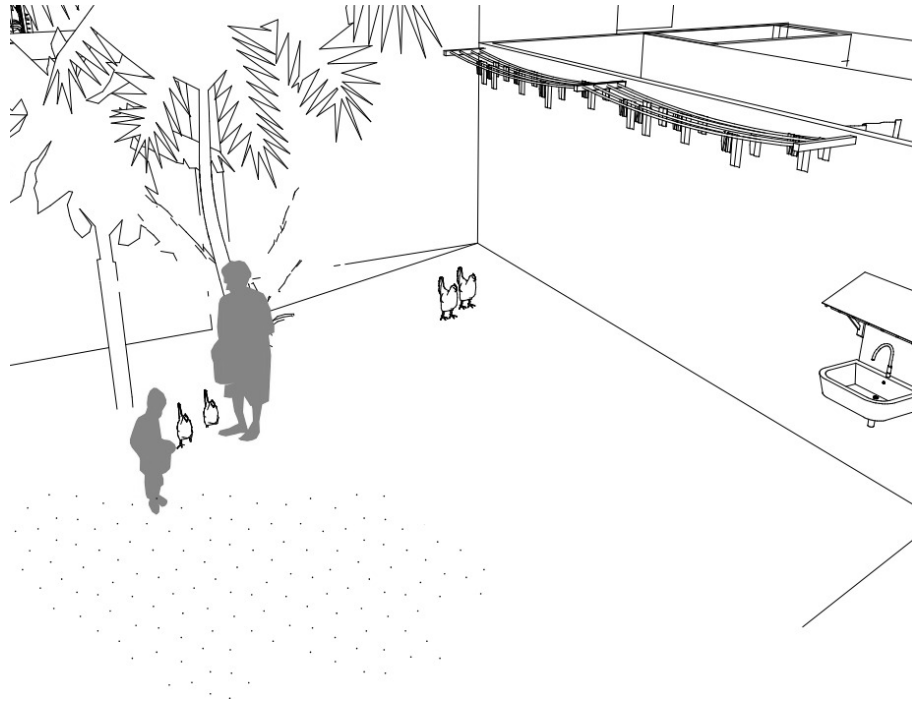
Some inhabitants raise farm animals in the backyard of houses. Pigs, chickens are raised for feeding purposes while horses are valuable resources for carters and waste collectors.

Ventilation

The need for ventilation systems inside home is a serious issue in the favela. The unpredictable growth of new houses attached can obstruct air flow into the house. Juxtaposition of houses, lack of green areas and lack of shading structures represents a treat for residents' well-being, especially considering the temperature and humidity levels of tropical area. Most inhabitants use more than one fixed or mobile ventilators inside; alternatively they may decide to "open" a new windows through a bearing wall.

Clothes Line
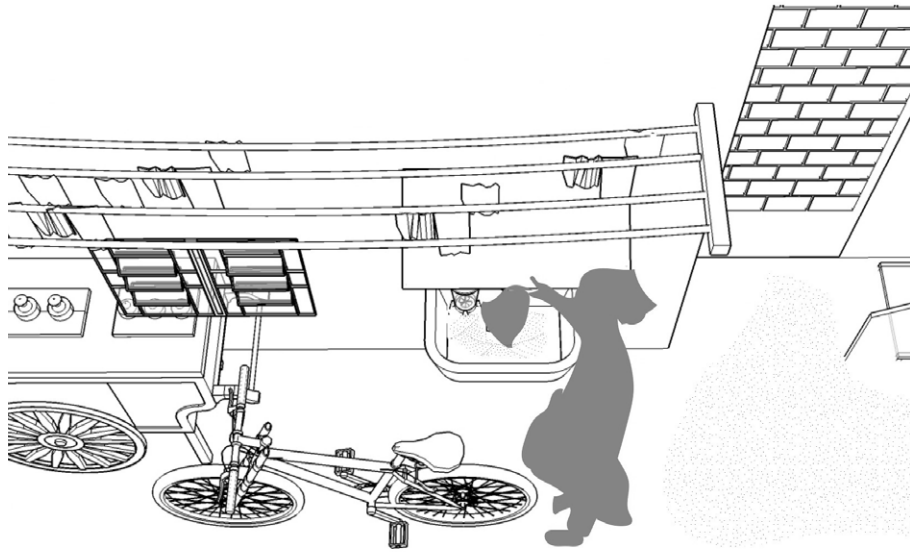
Residents place clothes, often washed in the kitchen or bathroom of the house, outside of their houses for drying purpose.

Cesspools
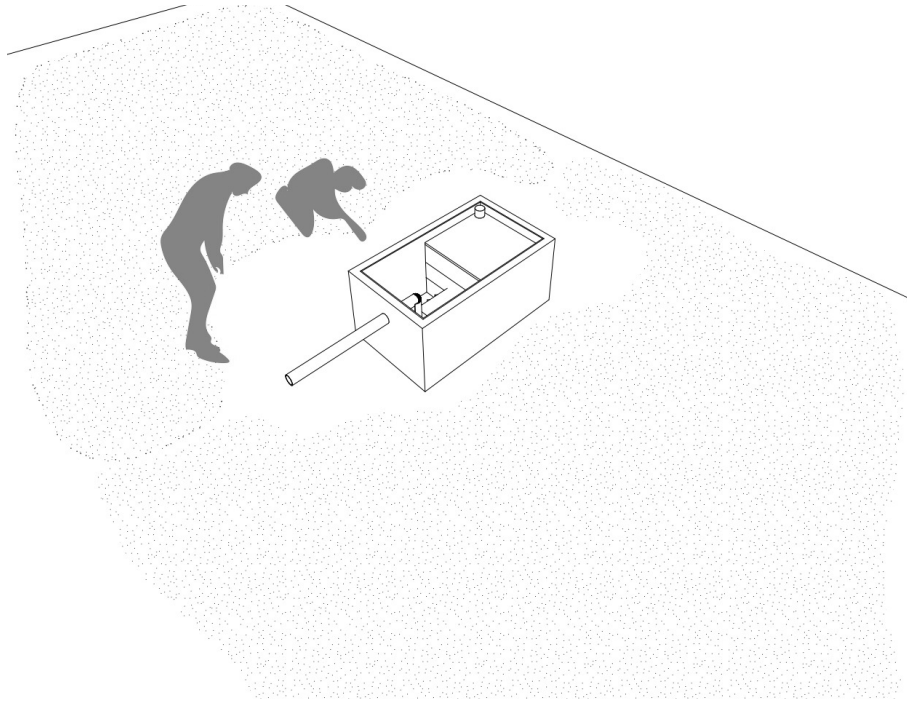
Many houses built in Maceió (both in formal and informal settlements) are not connected to the public sewage system. In the favelas, residents improvise cesspools for the houses of the community. The activity is supervised by experienced masons who live in the favela.

Two colours or two textures
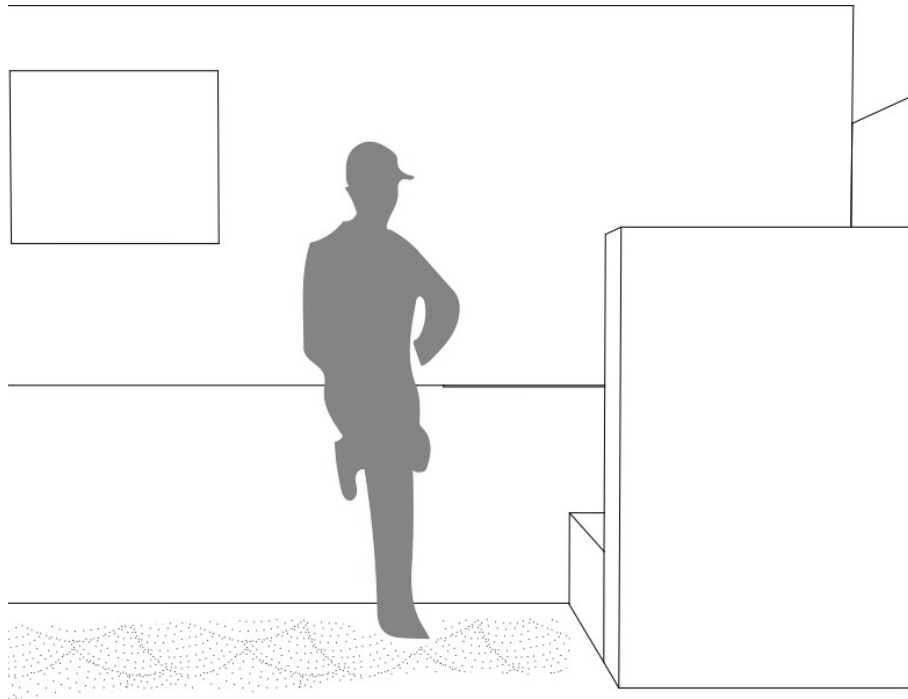
Two different colours or either two textures can be applied on the external surfaces of wall. The lowest part of the wall is coloured with darker nuances, in order to prevent the wall from showing possible early shadows, for instance produced by footprints of inhabitants.

Garages
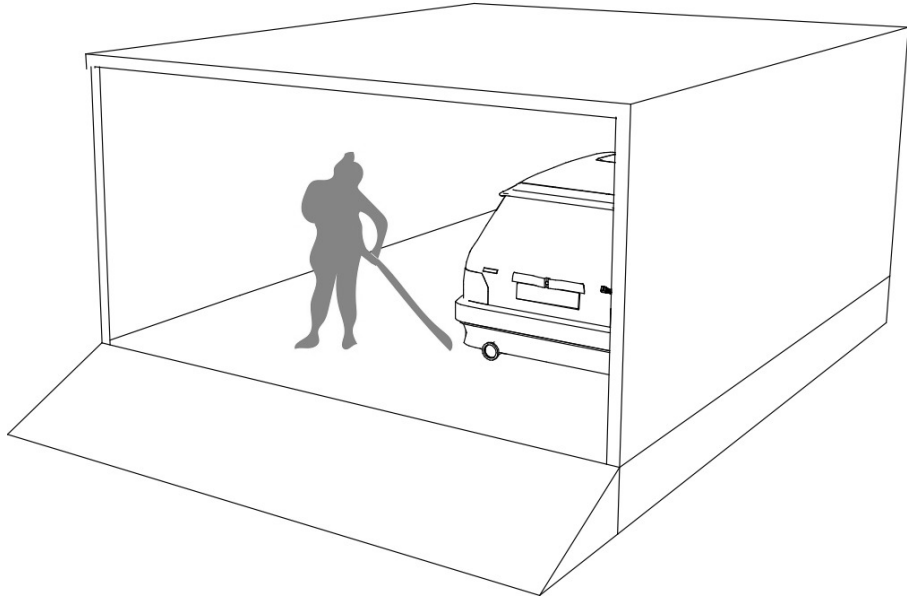
Residents may decide to adapt part of the space of a house accessing the alley as storage room, deposit of walking carts or (in the unlikely event of car purchase) even as box-at.

External Stairways
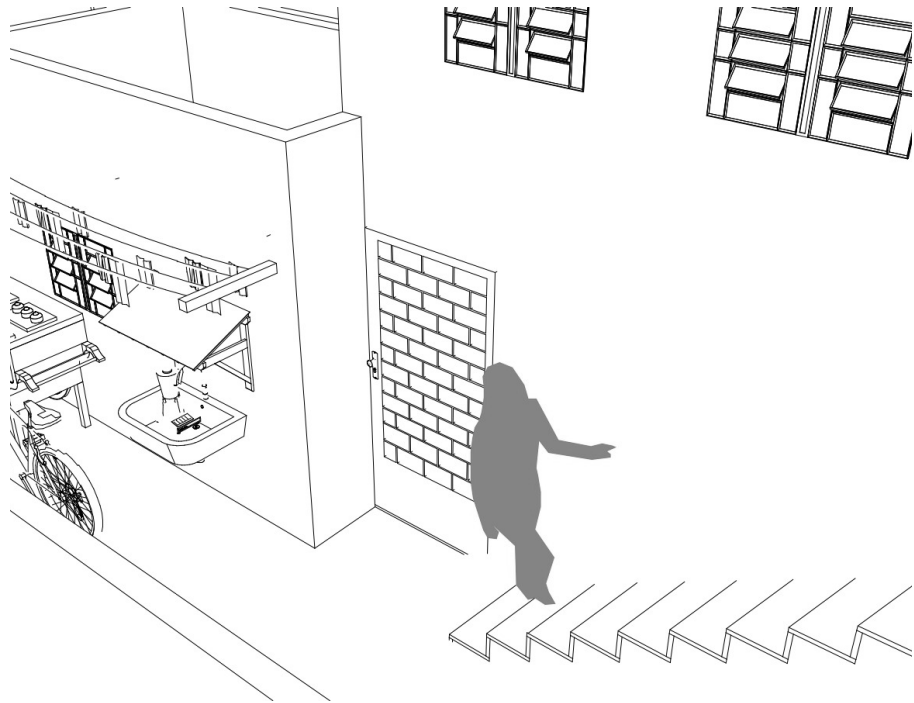
External stairways are recurring elements of many houses. It can happen that the owner decide to split the space of a former house into two new separated domestic spaces, for istance for renting purposes or in the event of family growth; the access to the new house is then often achieved through the erection of external stairways.

Bathroom and tiles
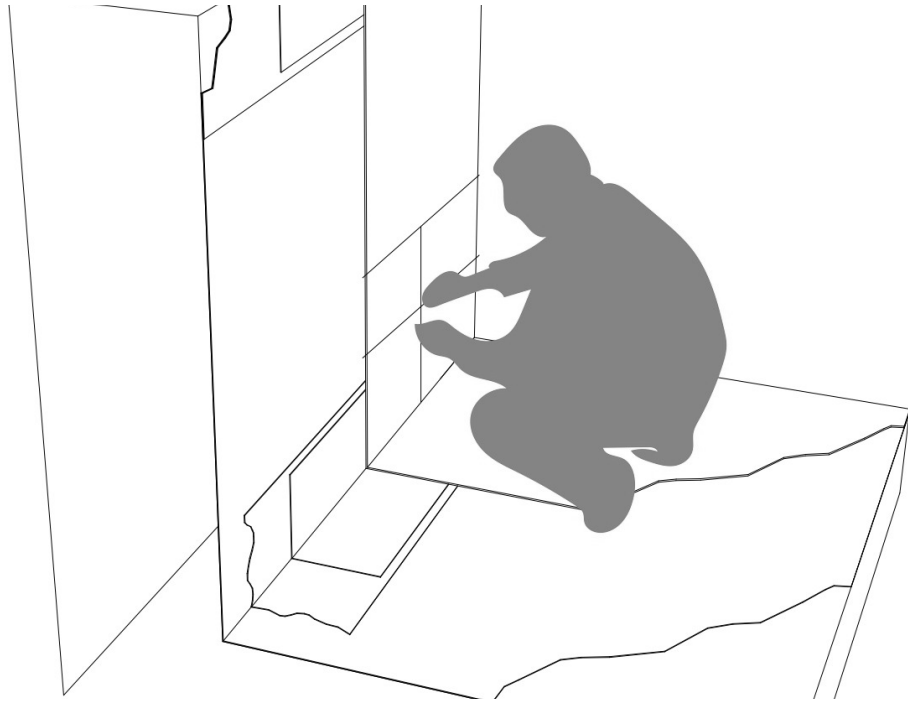
The availability of resources of the resident can be judged according to the quality of the bathroom. Covering tiles on bathroom's walls represents a major achievement for the resident. Windows in a bathroom is a privilege for even fewer houses.

Commonality

Communal issues are remarkable in the favela, relations between private, shared and public spaces (usually not not defined by an architectural program but through specific spatial attributions and human activities). Negotiations and compromises with neighbours that shapes spaces in the favela.
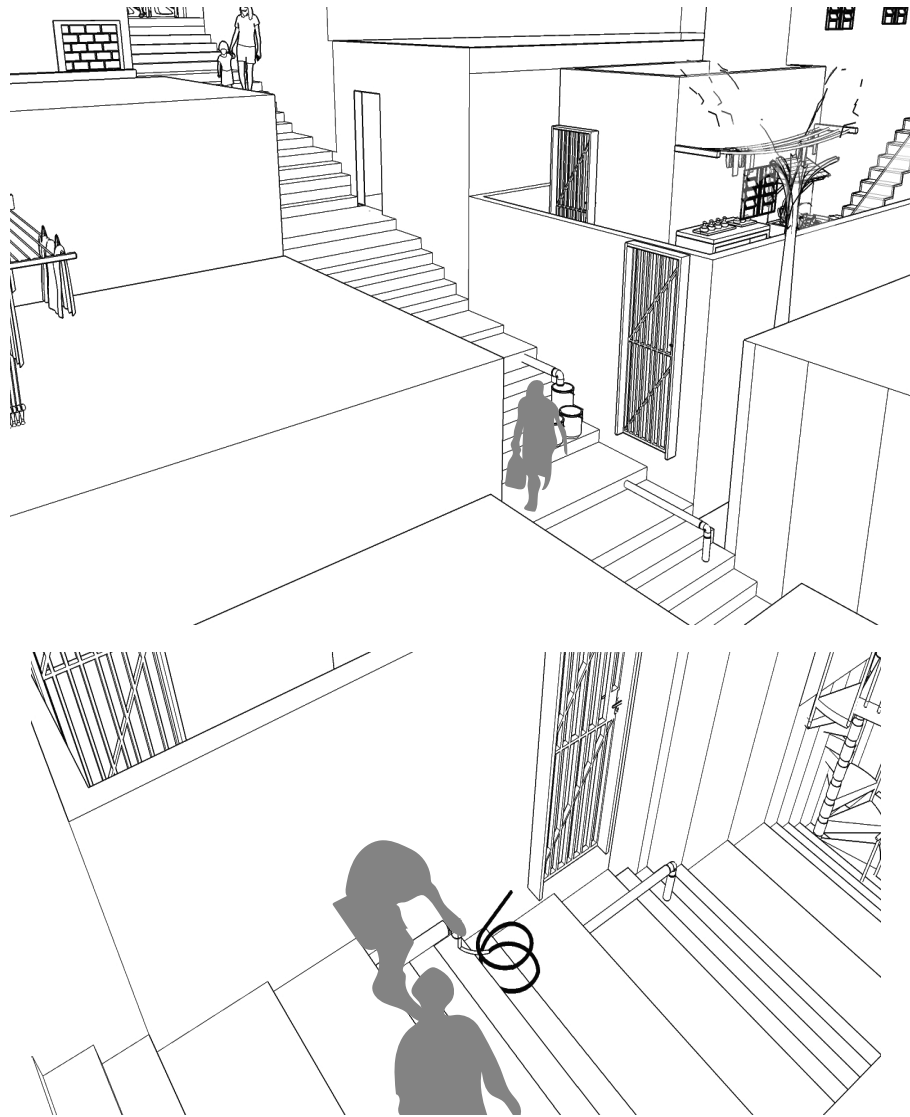
Stairways
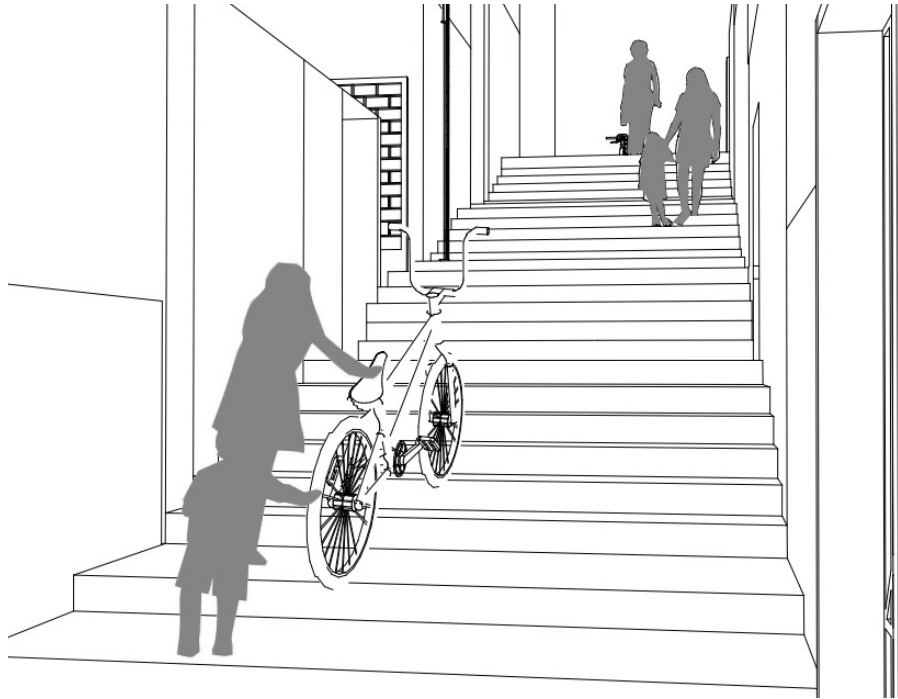
After school, children want to play outside home. This often happens in some spots of the common stairways of the favela. They are gathering spaces for adults too, especially mothers playing with children.

Bica

During the hot summers days, people may dismantle water pipes available on many stairways of the favela, in order to do a "bica" (a shower in the open space), or to fill inflatable pool with water.

Shared Services

Many common services are shared by the members of the community according to their needs. Water pipes are apparent in the stairways without being fixed, in order to possibly allow new residents to connect them to their houses.

Common tools and techniques
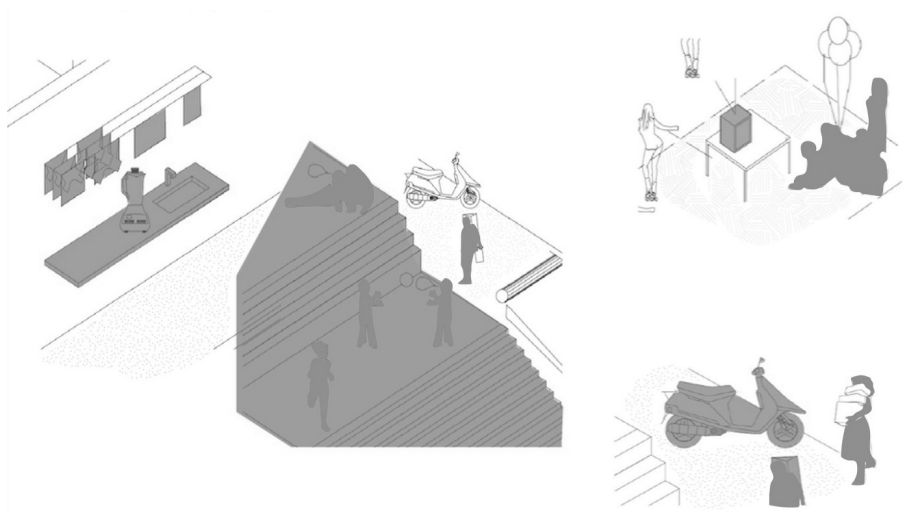
Plugs, devices, alleys, rooftops, stairways and empty terrains are common spaces used by all members of the community for various purposes, from leisure to work.

Compromises
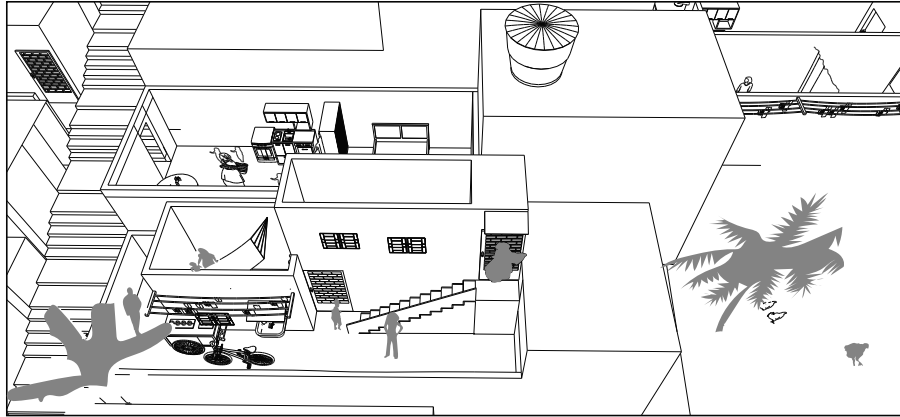
When more residents live in multi-family houses (villas), water tanks must be shared. This implies a compromise in the use of the common resource between the involved residents, according to the mutual needs and priorities, which need to be addressed and respected through unwritten agreements.

Waste
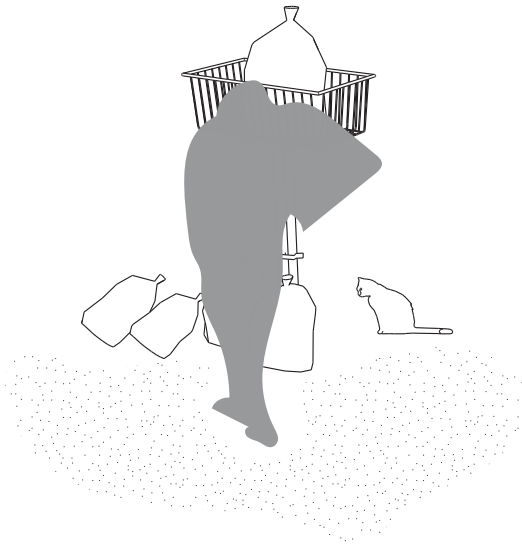
Public waste collection happens only at the borders of the favela. Service is not frequently performed, and usually waste gets accumulated on the streets for days before it is collected. Inside the favela, waste collection is left to the will of the residents. Many residents have to travel long distances from home to deposit their waste at the collecting points.
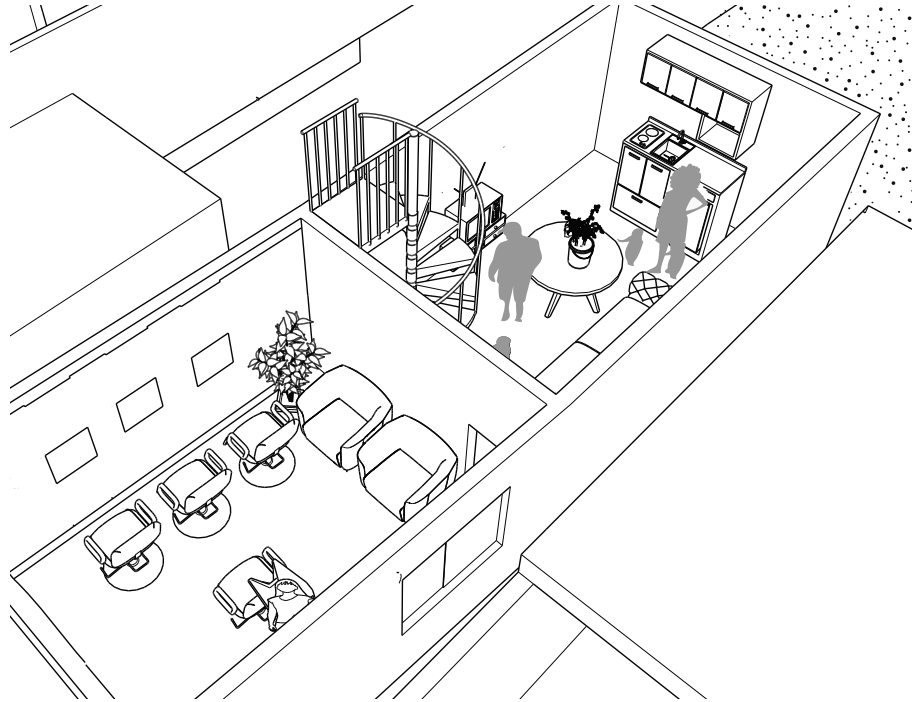
Soccer field
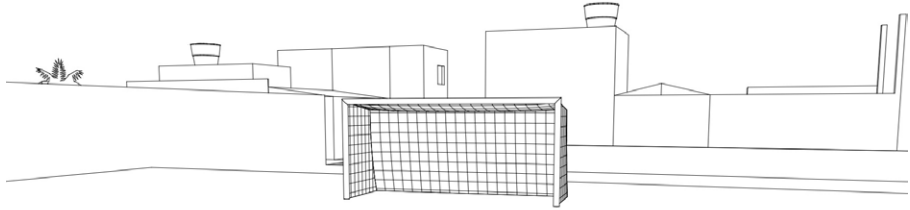
Inhabitants state that the football yard is the most important common space of the slum.

Labor

All actions and practices of favela inhabitants that come from the residents' working actions which shapes spaces in the favelas.

Work at Home

Work at home is a common practice in the favela. Businesses and domestic life often occur under the same roof. Space destined to working activities is separated by the domestic space through the use of curtains, walls and doors. An infinity of activities are run inside the house: from clothes or cars repair to hair dresser, manicure, day care, internet shop, bars, workshops,grocery shop, internet shop, hairdresser, manicure, sewing, laundry, child care, grocery shop, bars, junkyard, recycling, carpenter office. The landscape of the favela results being mixed, with businesses and domestic life sharing proximity in space.

Repair culture
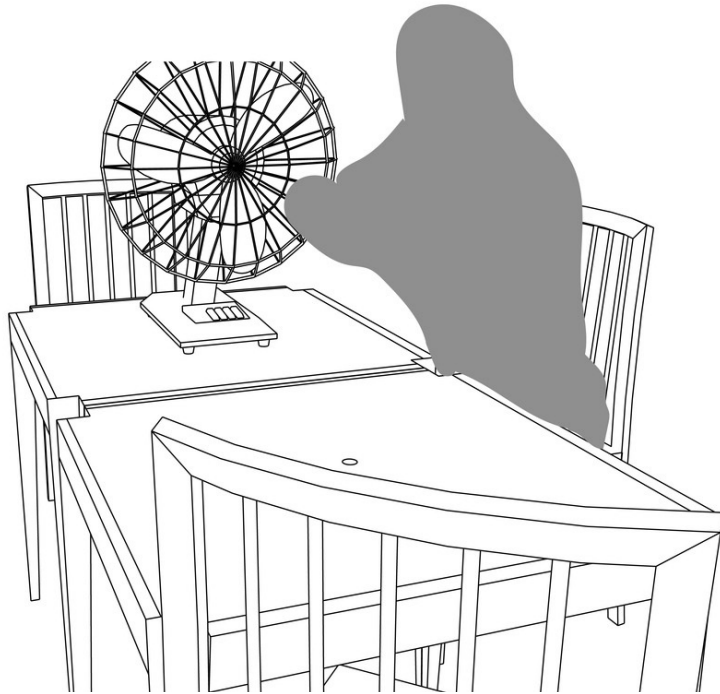
The are many repair shops in the favela (electronic devices, electric devices, tools, infrastructures, clothes and others). Used or broken objects are recycled, re-assembled and sold again.

Window Shop

Windows overlooking alleys of the favela are fundamental spatial attributes which allow people to trade their goods and services directly from their home.

Investing in labor and then, in homes
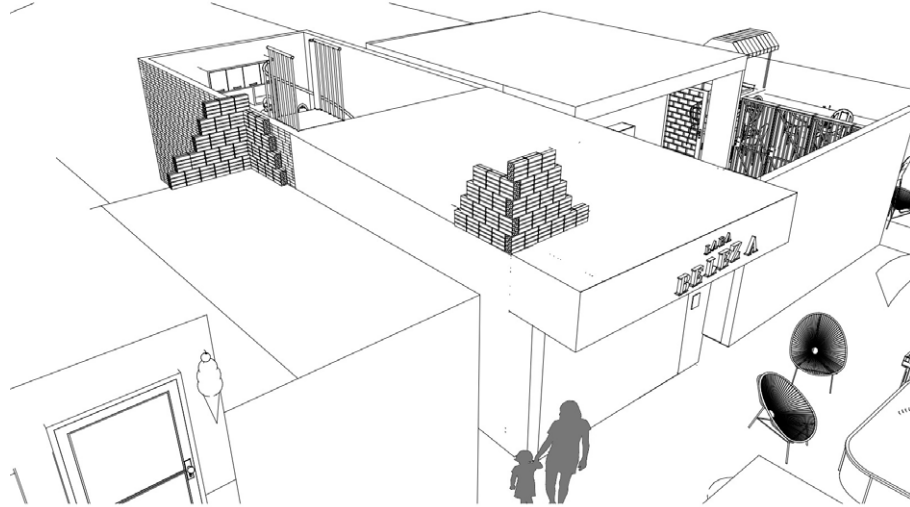
Most residents of the favela prefer to invest in their income generation activities, instead of in the extension or purchase of physical attributes of their domestic space. Location choice, construction process and space management of the house depend more on the working activity performed rather than on domestic needs.

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Self-construction related to Work

Self-construction is not just a strategy to build a house but it can be also related to the decision of the resident to set or extend a new economic activity.
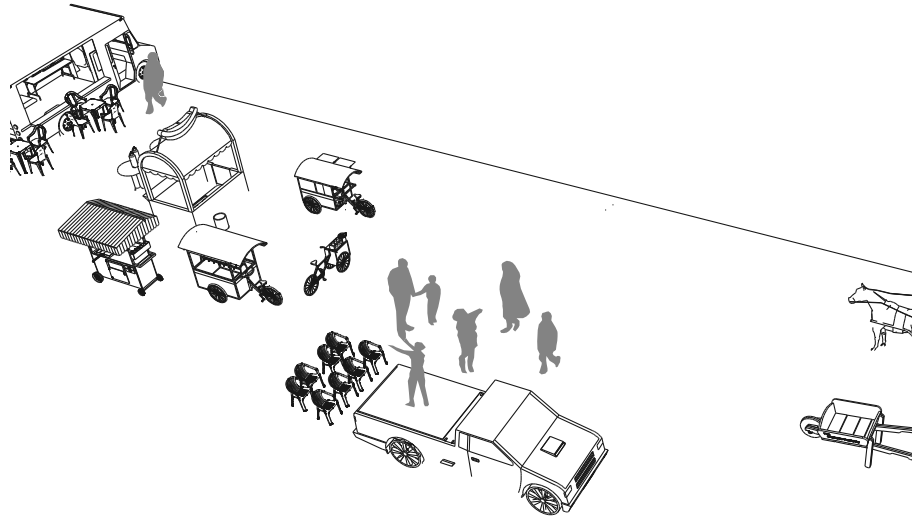
Carts of Hawkers
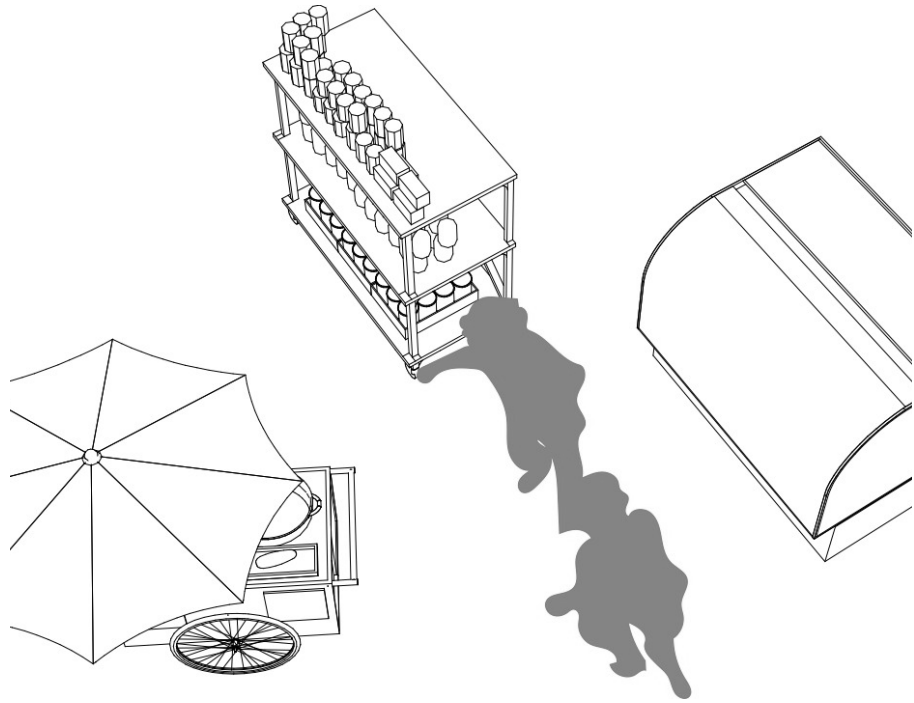
Many inhabitants of favelas use walking carts to sell products and foods. They are carried by the resident on the alleys and stairways of the favelas every day.

Bars restaurants and services:

bar
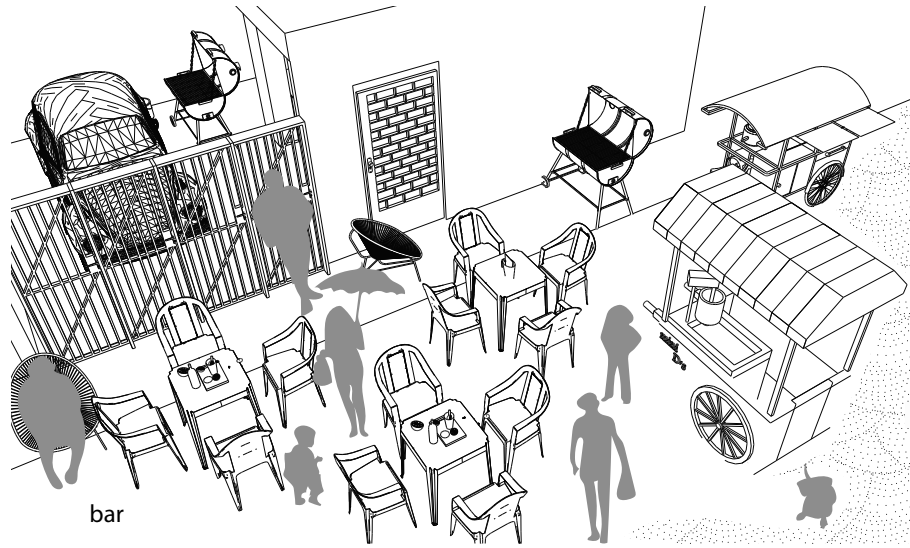
Bars, restaurants and many other services are usually located at the boundaries of the favela with the formal city.

Mobile Structures

Mobile, foldable and assembled structures are often used as working equipment or as spatial components of services and businesses offered by residents both inside and especially outside the boundaries of the favela. Chairs and tables are set in front of bars or on the alleys and streets of the favelas and then taken back at the end of the work every day.

Alleys shaped by Labor
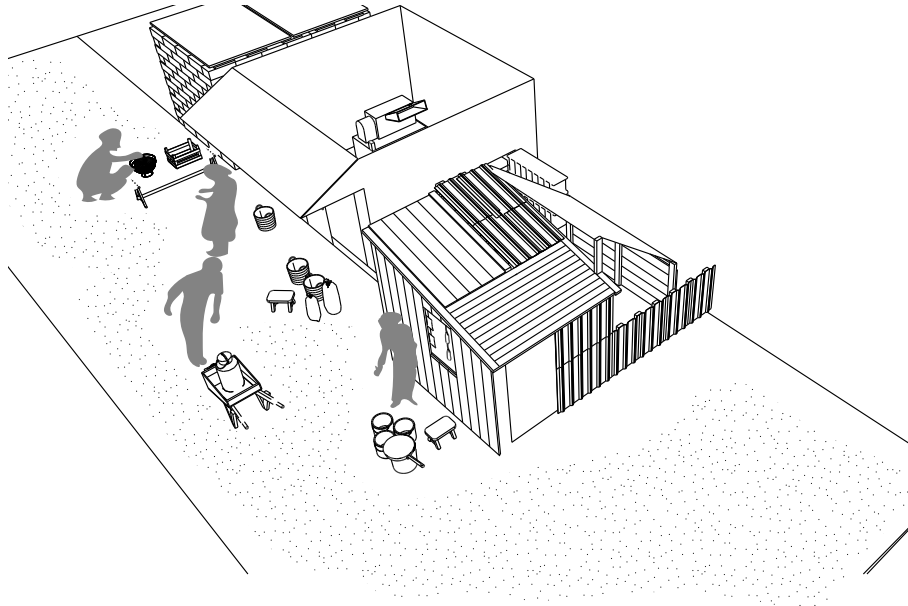
If a working activity inside the favela implies the use of an alley or a common area, forms and directions can be shaped or modified according to income priority by inhabitants involved in the activity.

External Alleys

Repair Services
Borracharia

street/rua
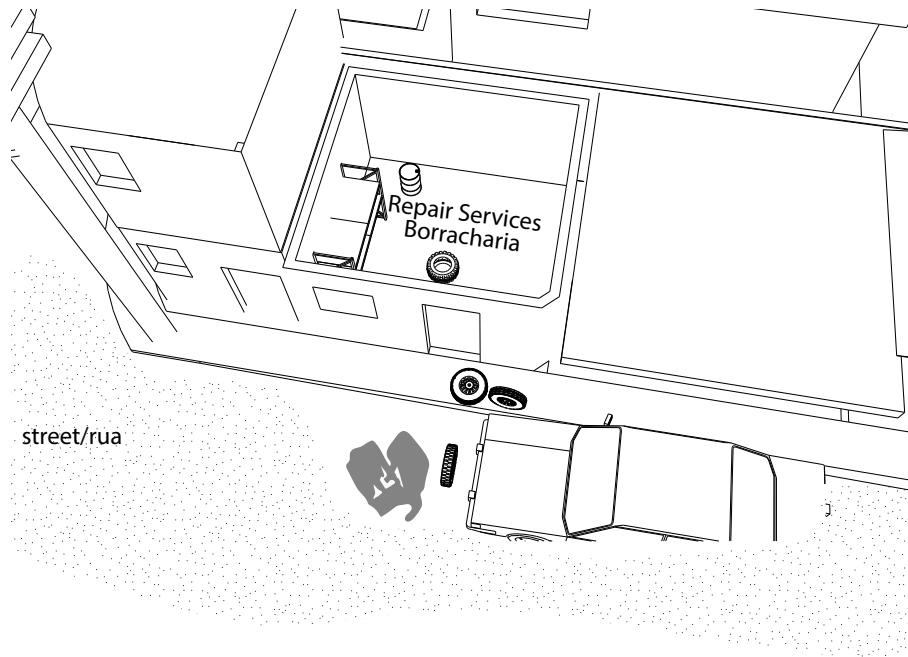
Street and alleys in front of houses premises are strategic features for the success of the business run by the resident of the house, due to the higher chance of attract people's attention.

Double work

Inhabitants have often more than one job. In case of employment in the formal city, this implies double journeys every day.

Work economies of slums

Both the goods and services that are produced by the working practices of residents can have an impact on the economy of borader lands and other countries too. Goods and services produced by favela work force can "travel" long distances around the globe through exportion expeditions. This is the case for instance of food and beauty products.

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4.3 Conclusions

Some of the patterns in this article may be used as a reference for planning, while others demonstrate issues that need to be addressed in the slums, such as the emergent issues. All in all, this pedagogic tool aims to unveil details the design challenges architects have to face when they deal with these scenarios.In fact, it does not aim to be an instrument of normalizing or establishing rules to the design of self constructed spaces, but is actually an instrument of encounter between the academic architect and the inhabitant. In doing so, it aims to reverse the logics of traditional architectural education and propose and reflect upon architecture. Hopefully, this pedagogic tool can be used in different contexts in order to stimulate the learning of social practices, ethnographic and economic data for the education of architecture learners. This is a pedagogic tool for architects and academics dealing with informal settlement and the spatial loaceheir residrder to better address the processes of resettlement of residents and redevelotexts. It is a tool to learn the landscape and the cartographies of people, an outline and a vocabulary of the landscape and space that merges sociology, anthropology, geography and spatial analysis and familiarize planners and architects with the settings of the informal settlement.

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