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## Quilombo Mesquita

### Space of Freedom

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### ABSTRACT

Brazil was the last country in the American continent to abolish slavery, but the historical resistance of the enslaved peoples is not well-known and recognized. The creation of quilombos – communities of former slaves and their descendants – shows that there was resistance against slavery from the very beginning. Quilombola communities became the antithesis of slavery, as they are places of freedom and cultural resistance, with their own social organization and building systems. Quilombo Mesquita is one of these communities, with its origins dated back to the 18th Century. Founded by three female former slaves, the quilombo has been fighting for their rights and recognition ever since. Existing for nearly three centuries, it is located around 50 km from the Pilot Plan of Brasília, the Federal Capital's urban core. Community and freedom are inherent to quilombos, and they inspire this work on architecture. It is also a design exercise, in which space syntax is used to study the plot and the building configuration for a community building in Quilombo Mesquita. The Community House is designed in this perspective of a multi-get-together space, which rescuing cultural traditions and social activities such as training and encountering spaces that mixes various generational audiences. The configurational results are a shallow place with a frank relation to the outside public space and among the internal sectors; with high integration measure, as we believe the community house should be. The idea was to create a building that would reflect and strengthen the ethnocultural identity of this quilombola community, as a counterpoint to the social structures that indicate spatial control and social segregation.

### KEYWORDS

Space Syntax, community house, quilombo Mesquita, configuration, space of freedom



## 1 INTRODUCTION

Brazil was the last country in the Americas to abolish slavery. For centuries, African people were enslaved in inhumane conditions and their origins, culture and traditions were despised. Yet the resistance of the enslaved people is a chapter of Brazilian history that is little known or recognised. The constitution of the quilombos shows that there was resistance to the slave system from the beginning. The first records of these groups are found in a Portuguese document from 1559. The Quilombo dos Palmares, which came to knowledge in 1630, became known as the largest manifestation of rebellion against slavery in Latin America, housing about 11 thousand black people.

Quilombola communities became the antithesis of the slave regime because they were places of freedom, cultural resistance, and their own social organisation. They are more than a reference to the past but are understood as places of resistance and preservation of black culture in the present time. There are over three thousand recognised quilombola communities in Brazil. The number could be even higher if the Brazilian Government decides to actually map and recognise the quilombos scattered throughout the country. The Quilombo Mesquita is one of these communities. Founded in the 18th century by three female slaves, it is located in the state of Goiás, only about 50 km from the centre of Brasília, Federal District. It has existed for almost three centuries and represents this part of Brazil's history.

The sense of community and freedom is one of the characteristics of the Quilombos and inspired this study. From this point of view, the Casa Comunitária (Community House) was created, a space composed of several elements, where the location and cultural references served as guidelines for the project. The definition of the architectural parti took into account, among other things: i) the permeability and low hierarchy between sectors, as a clear allusion to the sense of freedom that the enslaved black people so desired and that their direct descendants so much preserve; ii) the search for the aggregative character reinforced the idea of a common space accessible to all.

The goal was to create a rather shallow place which would establish a relationship with the outside and across sectors; that hosts different activities such as training and encountering spaces; a diverse audience: children, youth, and adults. It is therefore a reflection on space as a means to strengthen the ethnocultural identity of this quilombola community using Space Syntax theory as support.

In this design exercise, space syntax was used to study the terrain and the configuration of a community space in Quilombo Mesquita. Syntactic measures such as depth, connectivity, integration, and isovists were generated from the JASS and DephtmapX 0.8.0 software, showing the process and outcome of finding the configuration that conforms to the project guidelines.



The research is broken down into three parts in addition to the Introduction and Conclusion. The first part provides a brief historical overview of slavery resistance in Brazil, the establishment of Quilombos and the rise of Quilombo Mesquita, the community selected for the project (items 2). The second part features the studies conducted until the completion of the project and methodology (item 3). The final part deals with analysis and results of the draft proposals and the final project (items 4).

## 2 FROM RESISTANCE TO SLAVERY TO QUILOMBO MESQUITA

### 2.1 Quilombo: synonymous with freedom

European colonisation in America is shaped by slave labour. Masses of kidnapped individuals in Africa to be enslaved, mistreated, and serve only as a driving force in the exploitation of extensive areas of land in the Americas, were spread from the United States to Brazil. This process, which began in the mid-sixteenth century, relied on an organised trade that lasted more than 350 (three hundred and fifty) years (Palmares, 2000).

The number of black people who came to Brazil was much higher than any other country in the Americas (Palmares, 2000). According to the Getúlio Vargas Foundation (FGV), about 45% of all enslaved blacks were sent to Brazil, almost six million people. Estimates suggest that this number may be much higher, reaching eight million people, given that many records have been lost or destroyed (Fgv, 2016). The slave trade became one of the most important businesses in Portuguese America (Freyre, Rocha, Motta, 2004). This trade was based on slave routes along the entire African Atlantic coast, which extended to the Pacific coast (Ribeiro, 2005).

However, as Beatriz Nascimento<sup>1</sup> notes, it is necessary to change the historical and sociological analysis of the black question in Brazil, replacing the central role of slavery with the history of the quilombo. The focus is thus less on the action of the European colonisers and more on the reaction of enslaved black people. This view is detrimental to understanding black history from social, political, environmental, territorial, and economic perspectives (Conaq, Terra, 2018). According to her,

Quilombo became synonymous with black people, synonymous with black behaviour and the hope for a better society. It became the inner and outer centre of all forms of cultural resistance. Everything, be it an attitude or an association, would be quilombo (Nascimento, 1985, p.47)

The slavery is only rescued to contextualise the emergence and necessary response to the slavery system. In rescuing the process of slavery that thousands of hundreds of people from the African

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<sup>1</sup> Beatriz Nascimento (1942-1995) was a historian, teacher, scriptwriter, poet and activist for black and women's human rights. She is considered one of the most prominent researchers and theorists of black history in Brazil. She was one of the first historians to challenge the academic approach to black issues in Brazilian society.



continent have gone through, it is important to show that black resistance begins with the moment of capture and removal from their homeland and continues to the present.

The resistance of the enslaved peoples and the establishment of the quilombos show that there has been resistance to the slave system from the beginning. The first records of quilombola groups are found in a Portuguese document from 1559. In the 17th century, there were common groups and ethnic groups living in the same area and cultivating the same mode of production. (Nascimento, 1985). An example of this is the Quilombo dos Palmares, which arose in 1630 and became known as the largest manifestation of rebellion against slavery in Latin America (Palmares, 2000, p.10). The word Quilombo dates back to the 16th and 17th centuries. It comes from West Africa, from the region where the Portuguese and Dutch started the slave trade.

The term was used to refer to the captive Africans who were held in the open while waiting to board slave ships. This gathering of captive people was called quilombo (Palmares, 2000). In 1740, the Conselho Ultramarino, an institution controlled by the Portuguese Crown, defined quilombo as "all dwellings of black fugitives that contain more than five persons, even if they have not built shelters nor have pestles" (Aguiar, 2015, p.23).

The meaning of Quilombo is broader. According to Júlio Tavares (2005), the quilombo represented a concrete alternative to slave society, both in terms of lifestyle, production and social organisation. For Pinto (2015), life in the quilombo was not the reproduction of colonial society in the non-slave condition, but a place where "the slaves could be a little of what they were in Africa" with their beliefs, music, traditions, spaces of survival and socio-cultural resistance. In other words, the quilombo stands for freedom and belonging to a place.

Economically, the quilombos were self-sufficient, producing food and trading with surrounding towns (Aguiar, 2015). In contrast to the slave regime and as a place of resistance, they developed a sense of community that grew in strength and brought out their own social organisation. From 1549, when the first Africans arrived, until the abolition of slavery in Brazil in 1888, there were several struggles and resistances by the black population. These communities were continued by their descendants and kept their traditions, beliefs, and lifestyle.

However, from 1888 until 1988, a century after abolition, they remained without recognition of their rights, such as the titling of their territories. It was not until the 1988 Federal Constitution, specifically in Article 68 of the Law on Temporary Constitutional Dispositions (ADCT), which provides for the obligation of the Brazilian state to issue titles to the territories they traditionally occupied, that the value and legal protection of the cultural manifestations of the Quilombola communities were recognised.



It is important to note that the idea that Quilombo are only territories in rural areas no longer applies to the Brazilian reality. These territories, which were far from urban centres in the 18th and 19th centuries, are now close to cities, a result of urban growth in Brazil. This is the case of Quilombo Mesquita, a peri-urban quilombo close to the city and the federal capital.

## 2.2 Mesquita: History, Territory and Configuration

During the 17th and 18th centuries, Brazil's economy was centred on mining. By the end of the 17th century, news of the discovery of gold in Minas Gerais triggered a rush of people from other parts of the country. Later, in the 18th century, the search for precious metals also reached the Goiás government district (Silva, 2017). At the time when gold mining began its decline in Minas Gerais, the exploitation of the ore was at its peak in the state of Goiás, located in the central west of the country. In the state of Goiás, mining was the main reason for the use of slave labour.

The history of the Quilombo Mesquita is directly related to the cycle of mining in the central-western region. Gold mining flourished until 1775 and with the decline of mining in Goiás, many families moved to other regions, leaving their property behind (Neres, 2015).

Studies show that a large part of the white population, the owners of the land, left the Goiás government district after the end of mineral production, which devalued the land (Neres, 2015; Aguiar, 2015). This favoured the retention of black people in the remaining areas of mineral extraction. That is, if the land no longer had value for whites, for blacks it meant housing, work and was associated with freedom (Aguiar, 2015).

According to Neres (2015), with the end of the gold cycle and the promulgation of the Golden Law in 1888, freed blacks began to live on Fazenda Mesquita. During this period, José Corrêa de Mesquita granted land from his estate to three freed slaves (Neres, 2015; Incra, 2011). According to Anjos (2006), the foundation of the Quilombo Mesquita "is marked by the three black foundresses of the community who bequeathed the preservation of the cultural traditions of the African matrix". This women-led community was formed through kinship and began to welcome freed slaves from different regions in search of refuge.

Four families emerged from the merger of pioneer inhabitants with new inhabitants: Pereira Braga, Pereira Dutra, Teixeira Magalhães and Lisboa da Costa (Neres, 2016). But the identity of the Quilombo Mesquita is very rich. It is made up of different groups that, although they have different characteristics, share "a common ancestry, their own political organisational structure, a unique production system (including the specific forms of exploitation and relationship with the land) and common linguistic and religious elements" (Anjos, 2006).



It is important to stress that the Mesquitas's Quilombolas were present from the search for gold in the Midwest to the construction of Brasília. They were not only in the region but also actively participated in the construction processes that took place over centuries. Part of their territory was ceded for the construction of Brasília and their development was linked to the expansion of the federal capital (Anjos, 2006).

The Mesquita's Quilombolas had a direct part in the construction of Brasília, but they rarely appear in history as main characters (Neres, 2018). They welcomed the first workers, helped build the cafeterias, shelters and dining halls, and supplied fruit, vegetables, meat and sweets from their own production, which were brought to the capital's construction sites in waggons and oxcarts (Fellet, 2018). In 1956, Quilombolas helped build Juscelino Kubitschek's first residence in the Federal District, the Catetinho, a major project by architect Oscar Niemeyer. In addition, women from the community worked in the residence as cooks, like the quilombola Onélia Pereira Braga, who comes from one of the families originating from the quilombo (Fellet, 2018).

After the inauguration of the federal capital, the daily life of the quilombos changed considerably and now the area is being threatened by real estate speculation and there has been a constant and current threat of losing their land, as land ownership has not yet been settled (Fellet, 2018; Neres, 2015).

The Quilombola Mesquita Community is located in the municipality of Cidade Ocidental, Goiás, about 50 kilometres from Plano Piloto, in the southern area of the Federal District (Figure 1). Besides the urban core of the Cidade Ocidental, the Quilombo Mesquita is located near luxury condominiums and other cities around Brasília. The area currently occupied by the Quilombo is about 761,257 hectares, but according to the Technical Report of Identification and Delimitation (RTID) of the National Institute of Colonisation and Agrarian Reform (Incra), the Quilombo has an area of 4,292.93 hectares. In 2006, the Quilombo Mesquita was certified by the Palmares Cultural Foundation, the federal government body responsible for this certification. About 800 families live there and the Quilombo has a history of almost three hundred years (Incra, 2011).

The Quilombo Mesquita area does not present a regular subdivision, the lots have different sizes, and are identified by the name of the owners (Incra, 2011). The area chosen for study belongs to the Pereira Braga family, one of the founding families of the quilombo and at the forefront of the struggle for recognition and land titling. The land chosen has approximately 1,600m<sup>2</sup>, where the Post Office, the Association of Quilombo Mesquita and the community seedling nursery are located.

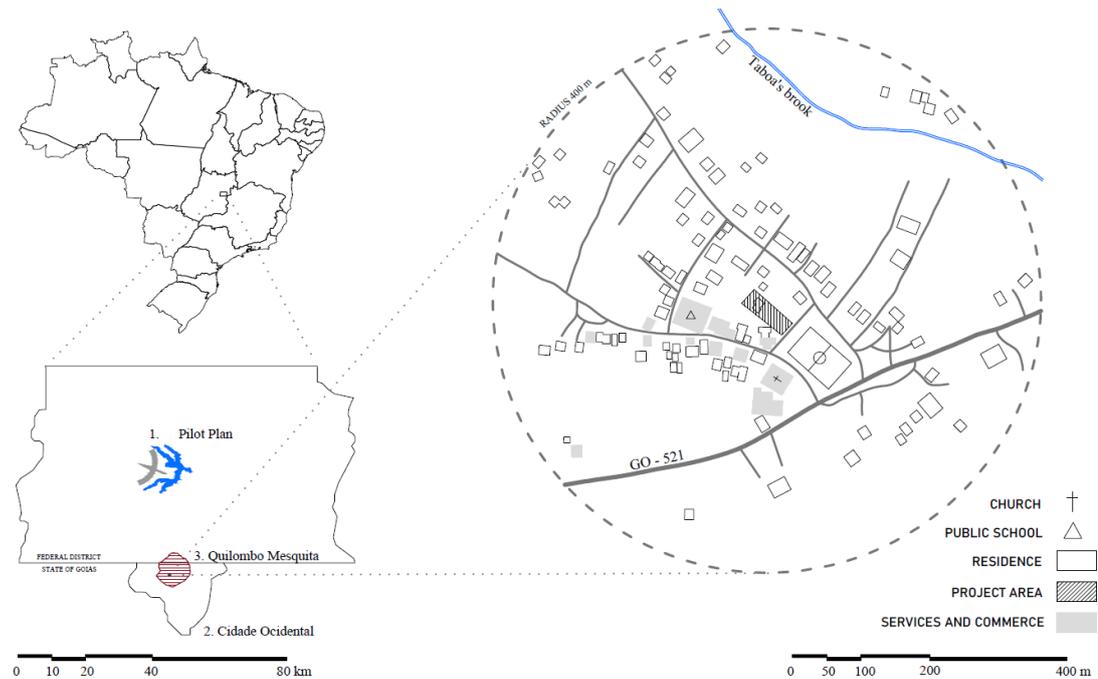


Figure 1. Localization. Source: Google Earth Pro. By: the authors, 2021

Figure 1 shows that the land lies between the main street, with shops, a school and a church on the right, and the predominantly residential area on the left. The predominance is of unpaved streets with a more organic layout. There is no public transport within the community, only the State Highway GO 521, and school buses pass through Rua do Comércio and Rua do Viveiro, in front of the land.

The land chosen has strong symbolic appeal, besides belonging to one of the most active families in the community and is among the major points of interest in the community. But it was important to analyse it from the morphological constraints. Even though it is a small system, the global integration axial map was generated for a 400m radius (Figure 2).

The axial map shows that the land is located in one of the most integrated areas of this part of the Mesquita territory. According to the Space Syntax, the "most integrated axes are those that are more permeable and accessible in the urban space and from which the other areas are easier to reach" (Medeiros, 2012). The measurements confirmed the suitability of the site for the chosen architectural typology.

The study of the site in conjunction with the historical survey of the Mesquita Community was essential to determine the importance of the land in the context of the community. At the same time, it was inserted into the symbolic context of the territory and easy accessibility according to the axial map, which is significant as a community space and cultural identification.

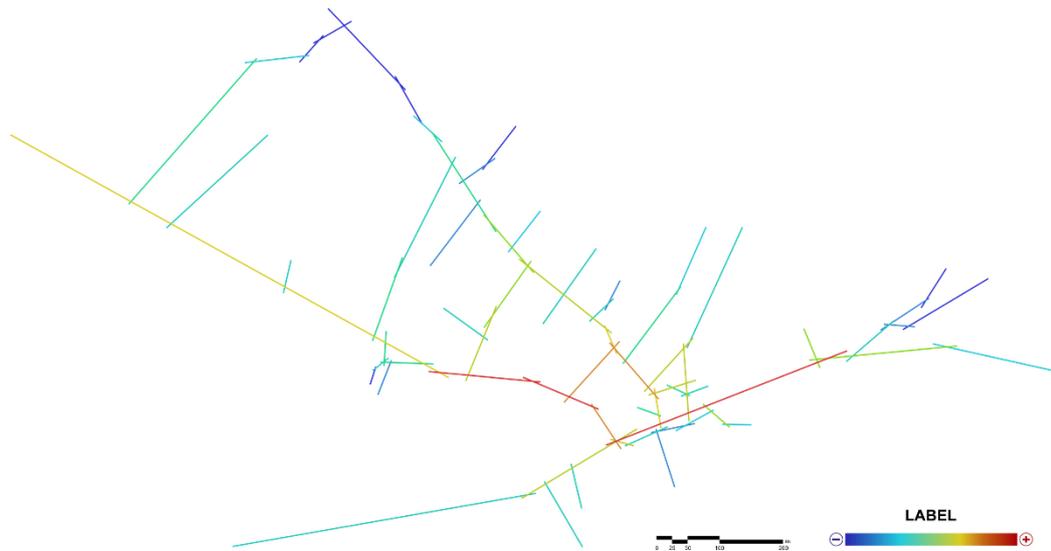


Figure 2. a) Axial Map – Global Integration. Source: DepthmapX 0.8.0. By: the authors, 2021

### 3 PRESENTATION OF PROPOSALS AND ANALYSIS METHODOLOGY

#### 3.1 Community House: studies and final proposal

Although some manifestations of African origin have been lost over time through the process of 'deculturation', such as the mother tongue, the fact that many cultural manifestations still exist in the community has attracted attention (Santos, 2014). Among the cultural manifestations of African origin, the Festa do N'golo, a drink based on Hibiscus sabdariffa, originally from Angola, stands out. These manifestations are part of the traditions still maintained by Mesquita today, as is the cultivation of medicinal plants, festivals, quince cultivation and the production of quince jam, which is considered the trademark of the Quilombo.

According to Anjos (2006), daily life is a kind of "guardian of traditions". As guardians of traditions, the Mesquitenses take care of various Midwestern cultural references (festivals, celebrations, dances, and food cultivation). As Certeau (2002) noted, such practices reveal the richness of this community's connection to the territory and the land. In this sense, territories are crucial for these practices to take place.

Among the spaces called for, the Som de Quilombo Project, the Arca das Letras library and spaces for events, meetings and gatherings stand out. Som de Quilombo is a cultural project that seeks to work not only with music but also with African ancestors. The same goes for the Arca das Letras project, which aims to set up a library with books about Africa, Brazil, and the African diaspora.



Following Augé (1992), Bachelard (1992) and Certeau (2002), if we look at places of identity and everyday practices thinking of a space that can CONNECT people, histories, and traditions, then the practices of a place lead us to spaces like HOUSE, a place that gathers different activities, ages, traditions and culture: a COMMUNITY HOUSE.

With this in mind, the following guidelines were established for the project. The first one that the concept provided was the creation of a MULTI-GET-TOGETHER<sup>2</sup> space in the Quilombo Mesquita: a place that welcomes children, youth and adults, a space for diverse activities, knowledge sharing and strengthening the Quilombola identity. This community house should have the following characteristics: i) a large space for different uses (gatherings; cultural presentations and celebrations) that offers dynamism and allows the participation of different age groups; ii) areas or spaces for projects related to culture (exhibitions about the Quilombo Mesquita: Photos, videos; the "Som de Quilombo" project and the "Ponto de Leitura"); iii) a space to market the products of the Quilombo Mesquita (sweets, fruits, handicrafts); iv) spaces with local constructive references that offer a reinterpretation of popular solutions, thus strengthening the local identity; v) concerning configuration, spaces that are not very hierarchical, thus avoiding segregation and strong spatial control, characteristics of communal and free places, such as the quilombos. In this sense, the planned space did not want to evoke associations with spaces such as farms or colonial mansions, which in Brazil are associated with the rulers of the slaves and therefore represent a space of oppression rather than freedom.

As in a house, the programme of needs is organised in sectors, but in contrast to the tripartite logic of domestic space, which divides housing into social, intimate, and service sectors, with a clear reference to the legacy of slavery (Tramontano, 1998; França, 2008), in the Quilombo the space dedicated to servants is abolished, giving way to a structure characterised by social and cultural interaction and an economy of solidarity. The following spaces were defined: a) Encountering spaces for gatherings, parties and presentations, with storage for tables and chairs; b) Community kitchen with dressing room and pantry; c) Reading room for the Arca das Letras projects; d) Music room for the Som de Quilombo Project, with storage for instruments; e) Shop for sales of community products, with storage; f) Multiuse room for meetings; g) Administration; h) Restrooms.

The process of defining the architectural parti went through several phases, taking into account: i) the permeability and low hierarchy across sectors, in a clear allusion to the sense of freedom which was so longed for by the enslaved black people, and which their direct descendants preserve so much; ii) the search for the aggregative character that reinforces the idea of a central space.

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<sup>2</sup> MULTI-GET-TOGETHER was a term coined by Sandra Pereira Braga, a quilombola leader, during a conversation with the author in March 2021.

The following studies show the path that led to the final proposal. The proposals are briefly presented below, and Figure 3 shows the floor plans divided into convex spaces, data that will be used in the analysis ahead.



Figure 3. Floor Plans: (a) Study 01, (b) Study 02; (c) Study 03 e (d) Final Proposal. By: the authors, 2021

In Study 1, the morphology of the land was the determining factor for a linear design. The blocks correspond to the sectors as defined in the programme of needs. The great hall (in red) would function as the living room of a house and form an inner patio together with the other volumes. The CENTRAL space would be the main reference point and the place for gatherings.

In Study 02, the central space continues to serve as a reference, but the difference is that the large meeting room itself would be the central space. Finally, one of the guidelines of the work is to create multifunctional spaces, so it did not make sense to have the patio and still have the great hall. Another aspect of this proposal is the building's approach to the street. Approaching the street is a strategy so that the system is either shallow or not so deep in relation to the public space, which in spatial syntax is called shallow system depth (França, 2008).

Studies 01 and 02 were important to identify which elements of the history and tradition Mesquita community were still missing to be considered, i.e., architectural relevance (Mahfuz, 2004). For this reason, other elements were selected, using LAND as a starting point. For the quilombola communities in general and for the Quilombo Mesquita in particular, the struggle for recognition and land titling is crucial. The quilombola land represents freedom and connection to the land, the place of life and source of sustenance for these communities.



Study 03, inspired by a focal point, has the following features: i) the CENTRAL space as a reference to the copper pot through a convex dome; ii) approximation of the building with the street and permeability, with direct access to the central space. But the sectors were not yet in contact with the central element, so the hierarchy of one sector over the other remained. Although the building had already achieved considerable lightness in relation to Study 02.

The Final Proposal is the result of the three previous designs and can be described as the search for a space with symbolic centrality. The central space is characterised by the circular opening that establishes a direct connection with the sky, the rain and the earth. A place of life where everyone is under a circle and at the same time inserted into it. Under the projection of the opening in the roof, this encountering space is lowered, as you can see below. At the entrance, the Jardim dos Marmelos represents the three female slaves who gave rise to the Quilombo Mesquita.

The idea was to create a communal house where there is no hierarchy between the other spaces. This is an important element for the project, as hierarchy is removed in the quilombo and the sense of community is emphasised. The analyses of permeability and visibility show the advantages and disadvantages of each configuration and justify the choices that determined the final proposal.

### 3.2 Methods

The methodological tool used was Space Syntax, which focuses on spatial configuration involving basic relationships between visibility and permeability between spatial entities (Hiller and Hanson, 1984; Hanson, 1998). Relations of permeability stand for the possibility of a user to move from one spatial unit to another, and relations of visibility stand for the possibility that a space or part of a space can be seen from another space.

For this study, the decomposition into convex spaces and analytical categories for depth<sup>3</sup> and integration<sup>4</sup>, and the graphs of permeability and isovists were used for the analysis. We used the permeability and visibility graphs created with the software JASS and DephtmapX 0.8.0. In order to create the base maps for the syntactic analyses, it was necessary to define what would be classified as a barrier and what would not; for visibility, only the walls were classified as barriers. However, in terms of permeability, walls and abrupt changes of level, such as the lowered central space of the final proposal, were considered barriers.

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<sup>3</sup> The Depth is the topological distance, measured by the number of convex spaces that separate the spaces within the system and these spaces in relation to the outside (França, 2008).

<sup>4</sup> The Integration measure is an index that defines the degree of inter-relation between the different spaces of the system (França, 2008).



For the analysis of permeability, the systems were broken down into convex spaces and, in addition to circulation spaces and gardens, the following categories of spaces were defined: (a) encountering space, which is the main space of the community centre, as it is intended for activities of great collective importance to the community (lowered central space); (b) usual spaces that constitute the actual programme and aim to meet the needs of projects and activities of the quilombo, such as e.g. the shop, the reading space, the community kitchen and the rehearsal room for Som de Quilombo; (c) support spaces, which include the restrooms and the other spaces to support other functions, such as storage rooms. For the analysis of the depth of the systems, two points were considered, the outdoor area and the encountering space.

The same categories of spaces helped in the analysis of visibility graphs and isovists. Visibility graphs calculate metrics related to visual fields and produce measures such as connectivity, visual integration and the visual fields of isovists (Turner et al., 2001). This representation is important for answering questions related to spatial cognition. That is, visual perception of the built environment helps to understand or predict the configuration of space and can generate movement potentials (Castro, 2017). Isovists were generated from two points of interest, the outdoor area and the encountering point. The importance of the visual field from the outside and the central point is similar to the work of Holanda (2021), who analyses a house with an atrium.

#### 4 RESULTS

For the permeability analysis, the systems were broken down into convex spaces and permeability graphs were generated. To better understand the proposals, the spaces were divided into the following groups: a) encountering space (the main space of the community centre); b) common spaces (the shop, the reading space, the community kitchen, and the rehearsal space for the Sound of Quilombo); c) support spaces (bathrooms and storage). Isovists of two points of interest (entrance and encountering room) and the maps of connectivity and visual integration were created for analysis in the visibility graphs. Table 01 shows a synthesis of the main syntactic measures used in the analysis. Table 01 shows a synthesis of the main syntactic measures used in the analysis.

Table 1 - Syntactic Measures					
	Measures	Study 01	Study 02	Study 03	Final Proposal
Permeability Graphs (Jass)	Convex Spaces	26	26	28	31
	Depth (entrance)	6	5	7	4
	Depth (encountering space)	4	3	4	4
	Integration Average (1/RRA)	1,140	1,221	1,080	1,225
	Integration (Entrance) (1/RRA)	0,701	0,704	0,831	1,644
Visibility Graphs And Isovist (DepthmapX)		1088,880	1249,090	735,730	1174,400
	Connectivity				
	Visual Integration [HH]	7,801	8,103	5,461	11,145
	Isovist (01) (entrance) – m <sup>2</sup>	287,165	257,244	168,211	177,045
	Isovist (02) (encountering space) m <sup>2</sup>	312,326	479,744	382,049	588,029

### 4.1 Permeability graphs

In order to achieve the goal of creating a multi-get-together and non-hierarchical space, it is not only necessary that the usual spaces are flat in relation to the street, but also in relation to the meeting space. The analysis of the convex spaces of the three preliminary proposals and the final project aims to observe the fulfilment of these guidelines in terms of spatial organisation. The connection with the outdoors is one of the objectives of the project; the proximity to the street establishes the connection with the environment that is so desired, one of the characteristics of the community house. In this sense, the permeability graphs (Figure 4) show that studies 01 and 03 did not achieve this objective, being the deepest systems of the sample in relation to the outdoors, with 6 and 7 levels of depth.

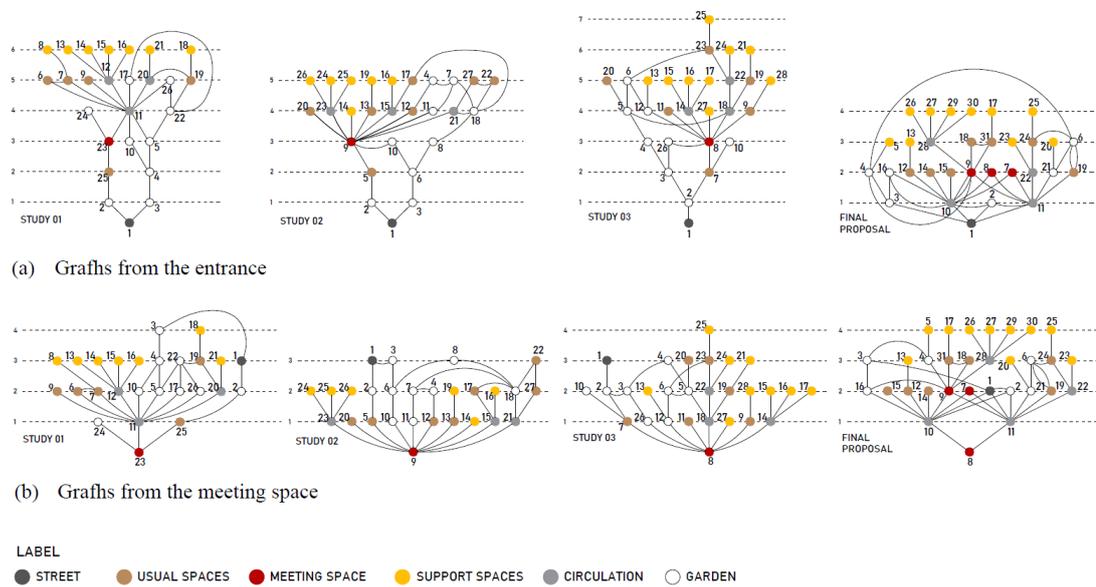


Figure 4. Permeability Graphs. Source: JASS. By: the authors, 2021

Proposal 01 shows a clear hierarchy in its relationship to the street. Although it has rings, it is a deep system where all common spaces are at least five topological levels away from the main access. The shop, for example, is at level 5 of depth. Given its function, the shop should be a shallow space in relation to the outside world and the configuration should not hinder access to it. Although Proposal 02, with 5 levels of depth, is a shallower system than Proposal 01, a more hierarchical structure can be seen in both, which is not consistent with the project's objective. The central space in Proposal 02 (node 9) shows great strength in spatial organisation and is three topological levels from all other spaces. However, the low permeability, the form of which occupies the central element with strong ceremonial appeal, was a negative point of the proposal. It is noticeable the segregation of the usual spaces destined for the Som de Quilombo Project and the kitchen (nodes 22, 27 and 17), located on the last level.

In this proposal, the kitchen and the spaces of the Som de Quilombo were more segregated than the others and the support spaces, such as the storage room (node 14), were shallower than these



usual spaces. The separation of the kitchen (node 17) was not among the objectives to be achieved and spaces of the cultural area (nodes 22 and 27) should be more accessible to the public. Therefore, this study did not meet the project guidelines.

Study 03 is the deepest and presents the usual spaces at different levels, creating a hierarchy between them: i) the main meeting space is the shallowest in relation to the outside (level 3); ii) followed by the reading room, administration, and shop at level 4 (nodes 11, 27 and 9); iii) the Som de Quilombo at level 5 (nodes 20 and 19); iv) and the deepest is the kitchen at level 6 (node 23). In this proposal, segregation is accentuated, with the usual space of the multiuse room significantly displaced from the areas of greater use. This proposal also has the greatest depth in relation to the street, with the pantry seven topological steps away from the street. Neither this spatial hierarchy nor the segregation of important spaces in the proposal, such as the kitchen, are project objectives, therefore this proposal has not met the project objectives.

On the contrary, the final proposal presented the shallowest system in relation to the exterior, with only 4 levels. The main activity spaces (reading space, shop, administration, and multiuse rooms) were on level 2 (nodes 20, 12, 14 and 15). Whereas the kitchen and the spaces of the Som de Quilombo were on level 03 (nodes 24, 18 and 31). Therefore, the access to these everyday spaces proved to be more direct, from the outside, consistent with the objectives of the proposal. In relation to the street, the configuration of the internal spaces of the final project proved to be shallower than that of the analysed set, all spaces accessible with, at most, four topological steps. The meeting space is also shallower in this proposal, being only two topological steps away from the street (node 8). In the other proposals, this distance was always three steps.

Another aspect analysed by the graphs is how the systems behave from the main meeting space as a starting point. The permeability graphs, from this space (Figure 4), show that the systems 01 and 03 remain the deepest, both with 4 levels, while system 02 is shallower (with 3 levels), and the final project remains with 4 levels, keeping the main activity spaces at level 2 and 3, the shallowest of the sample.

Regarding integration, it is worth noting that the outdoors is the most integrated space of the sample in the final proposal, with 1.644, while the deeper systems (Study 01 and 03) present integration of 0.701 and 0.704, respectively, and Study 02 with 0.831. Regarding the average integration of the systems, Studies 01 and 03 are the least integrated systems in the sample, with 1.140 and 1.080. Study 02 presents an integration of 1.220, and the final project is the most integrated one with 1.225 of average integration of the systems, possessing the largest number of convex spaces, there are 31 convex spaces, 4 more than study 02.

Therefore, the permeability graphs and the average integration measures of the systems show that the final proposal is the one that best meets the objectives of the project, by proposing an

integrated, permeable space, closer to a space whose spatial segregation and hierarchisation is attenuated by the configuration.

## 4.2 Visibility graphs and Isovists

The visibility graphs and isovists help to understand the configuration of each system in terms of the potential to generate movement and explain why some of them have not been successful concerning the project's objectives and guidelines. Visual perception of the environment is one of the mechanisms for assessing the extent to which space can "stimulate (rather than determine) behaviours, facilitate or hinder certain types of interaction or contact, reveal different points of view, convey values, etc." (Saboya et al, 2014).

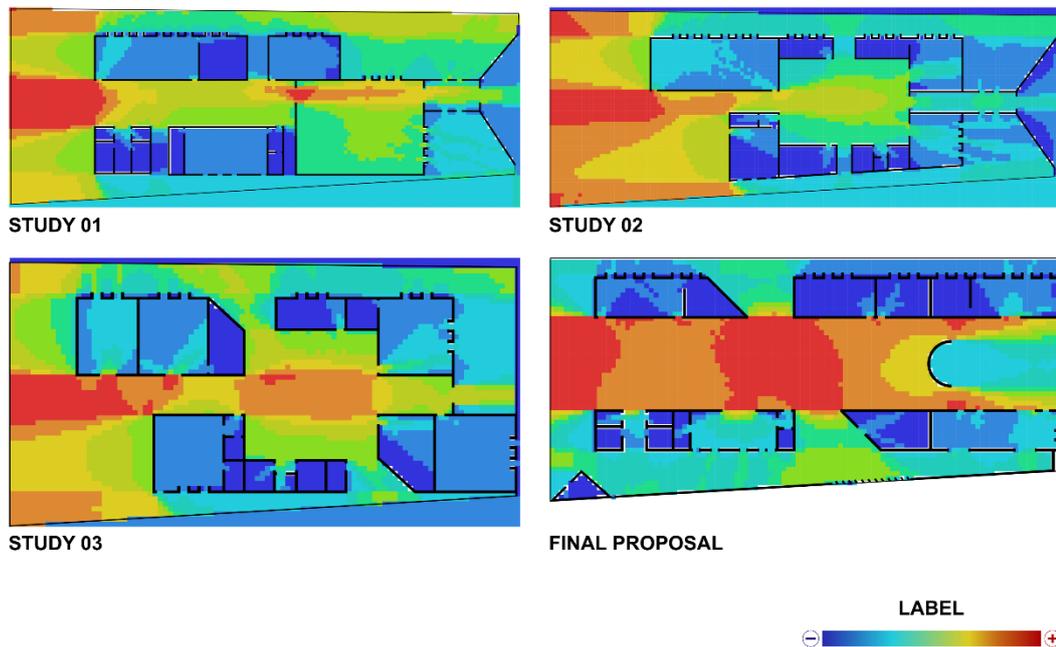


Figure 5. Conectivity. Source: DepthmapX 0.8.0. By: the authors, 2021

In Proposals 01 and 02, the areas of greater connectivity are predominantly outdoors, on the opposite side of the street (vivarium area), which is more evident in Proposal 02 (Figure 5). Both the main access and the usual spaces are cold zones in both proposals. The meeting spaces have medium connectivity, with a more favourable situation in Proposal 01, but still, low connectivity when compared to Proposal 03 and the final proposal. Although proposal 02 has the highest average connectivity data, it is noticeable that the kitchen is one of the lowest connectivity rooms in the sample. Proposal 03, on the other hand, shows an increase in connectivity in the meeting space and also an improvement in connectivity in the usual spaces, but the global connectivity in this proposal is the worst in the analysed set (Table 01).

In general, the sample shows a displacement of the area with greater connectivity from the outdoors (vivarium) to the inside of the systems, resulting in a better performance in the final project, especially in the meeting space. In the final project, the main meeting space becomes the

space with the greatest visual connectivity among the systems. There is also strong connectivity in the vivarium area. Although the usual spaces present little connectivity, the kitchen and reading space have higher measures in the final proposal than in the previous proposals.

In terms of visual integration [HH], proposal 03 has the worst overall score in the analysed set. Although it has a more balanced distribution of intermediate integrations, it is the only proposal that does not show significantly integrated spaces (there is no red region as in the other systems). On the other hand, proposals 01 and 02 have a more pronounced longitudinal axis that contributes to greater integration and coexists with the areas of greater connectivity. In both proposals, the encountering spaces are not very integrated when compared to external spaces such as the vivarium. Moreover, in proposal 01, the kitchen is the most segregated common space of the systems (Figure 6).

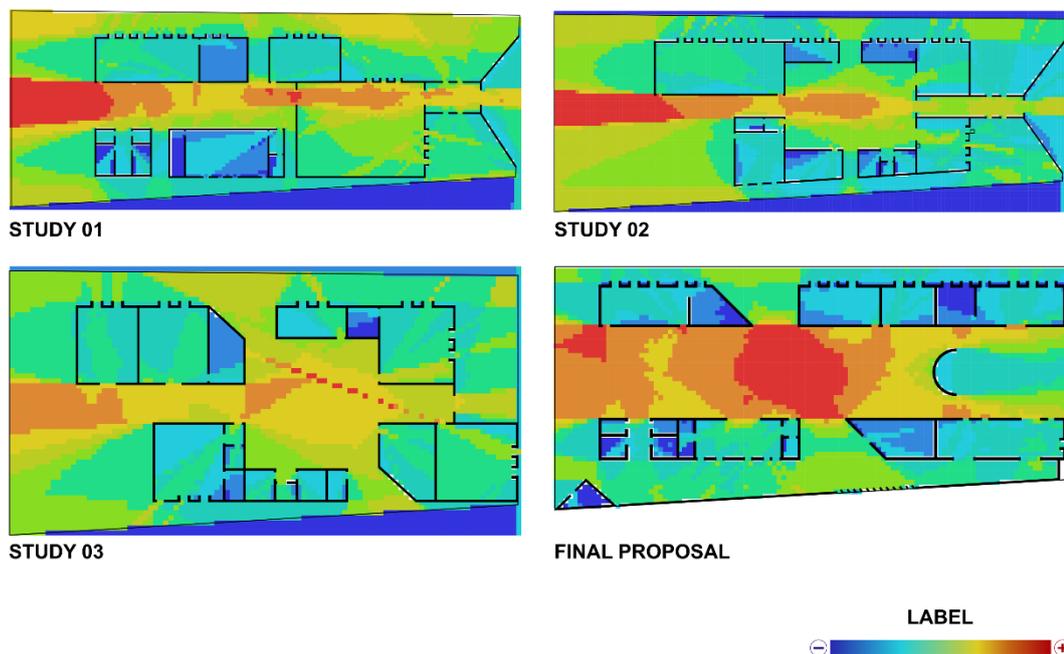


Figure 6. Visual integration [HH]. Source: DepthmapX 0.8.0. By: the authors, 2021

In contrast to the other systems, the final proposal has large areas of warmer tones, including the encountering space with the greatest integration within and among the systems. In other words, the greatest visual integration is now inside the building rather than outside as in proposals 01 and 02. It is worth noting that the coolest spaces in the final proposal are the support spaces: storage and restrooms and not the usual spaces such as the kitchen, the reading room, the shop, and the Som de Quilombo. Thus, the usual spaces are not segregated. Even the kitchen is the most integrated system. Apart from the kitchen being the most integrated system in the example, the most integrated spaces in the system are the spaces that are relevant in the proposal, such as the encountering space.

In the isovist analysis, two points were used in all the proposals, the entrance, and the meeting space. The fields of view emanating from point 01 (entrance) show that Studies 01 and 02 have

the largest fields of view, with an area of over 250 m<sup>2</sup>, while systems 03 and 04 are the smallest, with an area of about 170 m<sup>2</sup>.

However, reading from the main entrance, we find that although proposals 01 and 02 have the largest isovist areas, the visibility essentially marks the main traffic axis. From the street, little of the usual spaces can be seen. Study 03, the smallest field of view from this point, exhibits the same behaviour as the previous systems but is modestly visually penetrable into the space for everyday use (Shop).

In the final proposal, the view from the entrance explodes in multiple directions and there is visual integration with the shop and reading space. This field of vision is only interrupted by the gabion wall that separates the entrance from the meeting space. This means that only in the final proposal are the everyday spaces visually permeable. Although the field of vision is smaller, the final proposal presents an area of the built environment that is directly visible from this point and establishes the clear connection of the building with the street (Figure 7).

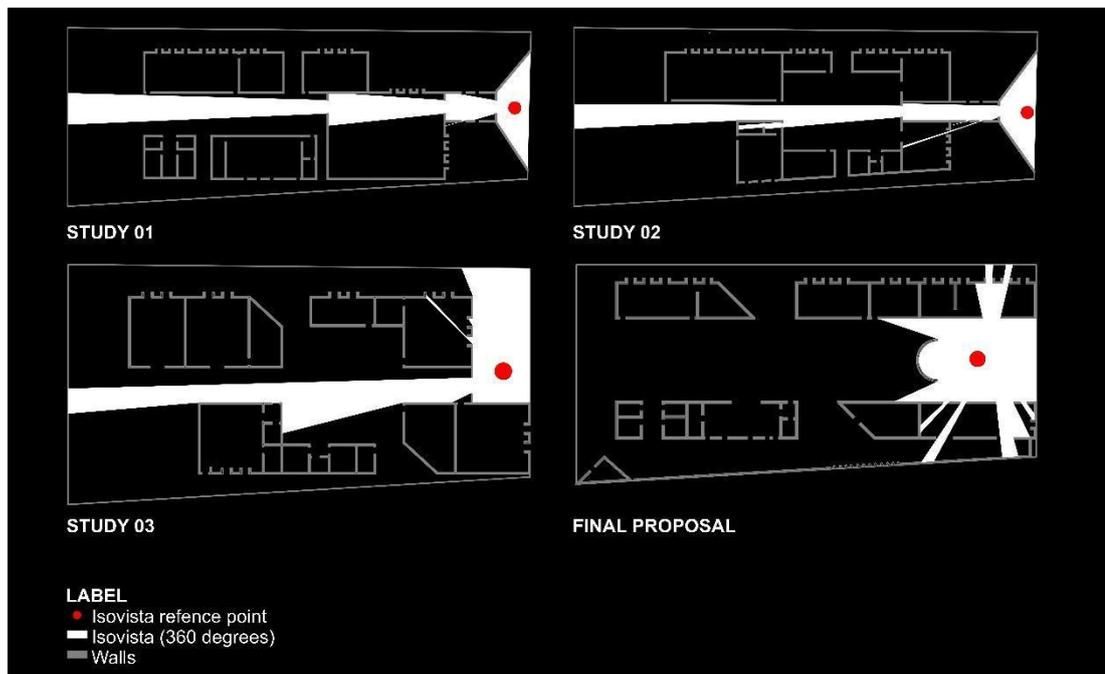


Figure 7. Isovists 01. Source: DepthmapX 0.8.0. By: the authors, 2021

The fields of view from the meeting space reveal another important aspect of the analysed systems. Systems 01, 02 and 03 have much smaller fields of view compared to the final proposal, with Study 01's area almost double that of Studies 02 and 03 (Figure 8).

It is worth noting that in all proposals, the Isovist analysis from the meeting space shows an explosion of visibility in all directions. And although the fields of view in Studies 01, 02 and 03 cover spaces such as the shop and the reading space, they do not cover important everyday spaces

such as the kitchen. In these systems, the kitchen is practically invisible from the encountering space, only in the final proposal is the kitchen visible from this point.

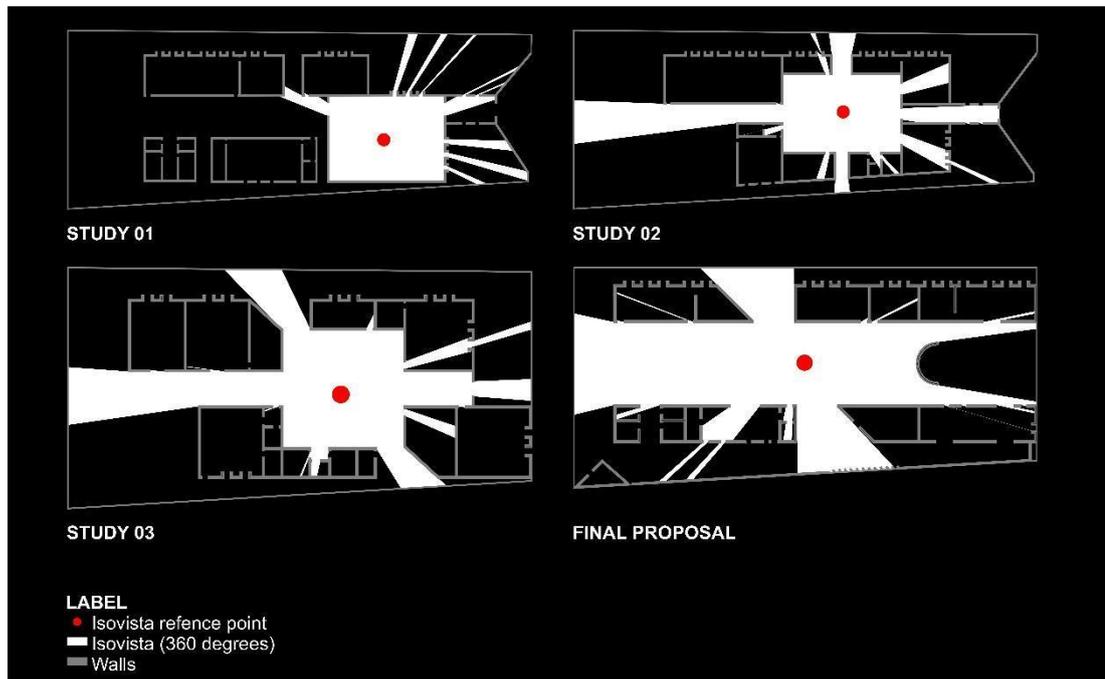


Figure 8. Isovists 02. Source: DepthmapX 0.8.0. By: the authors, 2021

Apart from the fact that the final project has the largest isovist area, the direct visual connection with the kitchen (a usual space that is 'invisible' in all other proposals) is significant to the project. The visibility of the kitchen is one of the objectives of the proposal, as it is historically linked to the family's living space.

According to Saboya et al (2014) "spaces with high visibility are usually chosen to house architectural elements to which one wishes to attribute special importance." This is the case with the proposal's gathering space, a space with strong visual and functional appeal, characterised by the emptiness of the circle, which has high visibility and high accessibility and can therefore be seen as an enabler for gatherings and the community's main festivities.

## 5 CONCLUSIONS

The analysis of the studies from the theoretical and instrumental apparatus of Space Syntax has revealed the potential and weaknesses of each proposal. It is important to highlight that throughout the design process, the principles of Space Syntax such as permeability, depth and spatial segregation were present, but the results presented with the syntactic analysis highlighted the path taken to reach a configuration that met the design guidelines for the Community House and confirmed the final proposal as the most consistent with the project guidelines.

In summary, the analyses using Space Syntax show that the final project meets the guidelines with a shallow and highly integrated and connected configuration. The isovist from the entrance



acts as an invitation to the community to enter the spaces and feel at home. Everyday spaces such as the kitchen, a space with strong symbolism in the Brazilian house, establish a clear connection with the encountering space, the living room of the community house. Some aspects are fundamental to understand the role of spaces in the history of the Brazilian house. In this sense, the kitchen is one of the keys to understanding social relations in the domestic space in Brazil, due to its slaveholding past. The kitchen has always been separated from the domestic structure for social reasons (Lemos, 1972). This is evidenced by Trigueiro (1994, 2012) in her analysis of colonial *sobrados* using the theory of spatial syntax. Trigueiro demonstrated that the kitchen, together with the servants' quarters, are the most segregated areas of the domestic structure.

Even though she concludes that the spatial structures of colonial *sobrados* are not one and the same (Trigueiro, 1994, 2012), contradicting statements in the literature (Vauthier, 1981), the study is fundamental to understanding this space. The author writes: "[...] The kitchen, however, is highly segregated, like all spaces that were used by slaves or servants. [...] The kitchen and pantry are the last cells to be reached" (Trigueiro, 2012:206).

Therefore, the spatial configuration in the communal house project is characterised by breaking with the logic of segregation historically found in the Brazilian house, as Trigueiro shows by placing the kitchen as an integrated and flat space in the system. In the proposal, the kitchen is only a few syntactic steps away from the outside world, it is one of the most integrated spaces and has a permeable relationship with the main social space of the building. This was one of the aims of the proposal, as a counterpoint to spatial arrangements that are spaces of oppression rather than freedom.

The centrality and visual integration between the meeting space and the kitchen space in the final project convey the appreciation of this fundamental space to the dynamics of the community house. The measurements of connectivity and visual integration again show that throughout the process there was a displacement of the most connected and integrated areas of the *vivarium* (on the outside opposite the street) to the meeting space at the centre of the composition.

The final proposal revealed a system with high visibility and accessibility, as we believe a community house should be. The central point is the encountering space, the space to which all others open and where everything takes place. The centrality is represented by a circle, an allusion to the copper pot that has sustained the community for centuries. This space is where the community gathers, and it is the most integrated space in the system.

In this solution, the proximity of the building to the street was achieved through a direct dialogue that reinforces the permeability to this community space. In the final proposal, the meeting space is shallowest in relation to the street, but it is also, only in this proposal, invisible from this point.

The gesture of not allowing the space to be seen directly from the street is primarily an act of respect for the struggle and self-management of the Quilombola community.

The semi-circular gabion wall serves a dual purpose: it provides a background for the three quince trees that pay homage to the quilombo's founders, and it provides the necessary time to finally unveil the encountering space. The quinces act as sentinels, inviting people to enter through the always-open door and visually protecting the plenary space. Figure 9 shows the final result, and the cut shows the lowered element.

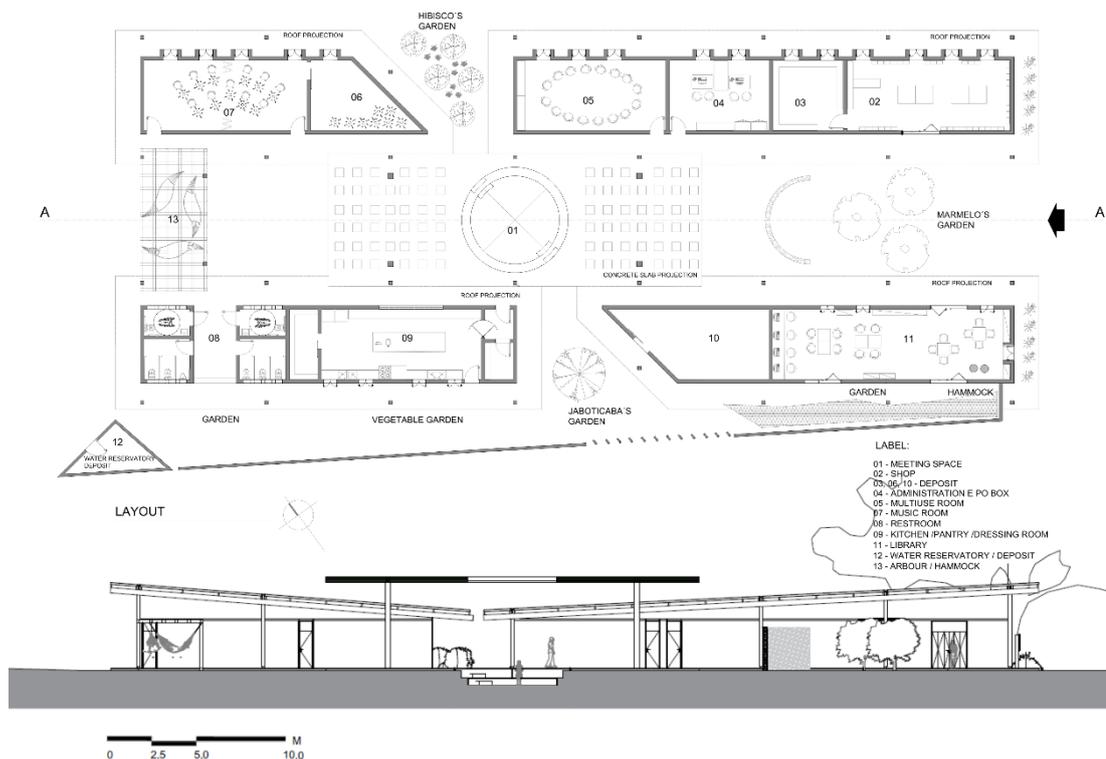


Figure 9. Final Proposal. By: the authors, 2021

Architecture creates a field of possibilities and restrictions, as Holanda (2006) would say, of encounters and avoidances. The community house ILÉ WA - which in Yoruba, a language of African origin, means OUR HOME - creates possibilities of encounters and sharing, affection, art, and freedom for the Quilombola people.

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