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THE RECENT HOUSING PRODUCTION BY BRAZILIAN GOVERNMENT PROGRAM IN FEDERAL DISTRICT

Novelty or Repetition?

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ABSTRACT

Starting in 2009, the Brazilian government implemented an enormous housing program known as “My Home, My Life” (Programa Minha Casa, Minha Vida – PMCMV). Part of its objective has been to promote access to adequate housing among low-income populations. Currently, the program is in its third phase and if its goals are met, in 2018, after nearly a decade of construction, it will have created 6.5 million homes throughout Brazil. It is the largest housing program since 1964 and its scope has changed Brazilian cities and the lives of millions. While researchers are making an effort to analyse its impact, in terms of housing policy, it is also important to join efforts to better understand its meaning as an architectural proposal for social housing. It is critical to understand the differences among spatial proposals, including the adaptations and appropriations undertaken by beneficiaries. Since PMCMV was first implemented, it has been the focus of several important studies. This research fits among these, adding an approach-to-space proposal as well as a take on socio-spatial practices within these homes. If having a home is the dream of Brazilian people, as the saying goes, it is important to know which dream, in terms of spatial configuration, is being effectively built. This research, still in progress, targets different administrative regions in the Federal District’s metropolitan area destined for families with the lowest levels of income. The scope of this paper is restricted to housing units in Bracket One of the PMCMV, comprised of those families that earn less than three times the minimum wage. The selected site, located in Block 8 of the West Sector of Cidade Estrutural, includes 289 units. Using Space Syntax methods, this study analyses not only built projects, but also adjustments and adaptations (in use or shape) made by beneficiaries. The goal is to evaluate the extent to which this program is contributing to a reframing of our housing culture and needs. Is there novelty at hand, or is it simply repeating historical modals?

KEYWORDS

Design Synthesis, Space Syntax, Morphology, Social Housing, PMCMV

1. INTRODUCTION

The Brazilian housing deficit has long been one of the largest social problems facing the country. Estimated at 8 million homes, 6 million of which are urban, this deficit has become one of the greatest challenges in the struggle for adequate housing (FJP, 2015). Although there were many attempts to improve the situation in the 20th Century, starting in 1930 with the Vargas administration and continuing with the National Housing Bank (BNH) between 1960 and 1980, none managed to resolve the problem. In the Federal District alone, the housing deficit stands at more than 260,000 homes (CODHAB, 2013). In recent years, one of the country's largest housing construction programs emerged, carrying in its name a dream held by many Brazilians: the My House My Life Program, Programa Minha Casa Minha Vida (PMCMV) in Portuguese, is aimed at promoting access to adequate housing for low-income families.

Despite its critics, the housing program is the largest of its type since 1964. In 2018, there will have been nearly 7 million homes constructed through this program in Brazil. Many researchers are making efforts to analyse what this means in terms of housing policy. The present study is included in this growing body of scholarship, contributing an approach-to-space proposal and analysing socio-spatial practices within these built homes. This study includes an analysis not only of the built projects but also of the adjustments and adaptations (shape) made by their beneficiaries. One of the objectives is to understand if habitants adopted the original proposal or if their modifications reveal another genotype, instead. For this, two levels of analysis were considered: the geometric and topological aspects. In the geometric analysis, residents were found to predominantly desire the following: to expand or create new spaces. To analyse configuration, Space Syntax methods were employed. The goal of this study is to identify whether or not this program is prompting a reflection on national housing culture and, in doing so, such a process has found novelty or, rather, simply a repetition of historical models (modern or pre-modern).

As a study in progress, for this paper we chose an area with single-family units in Vila Estrutural, an area located close to an old dumping grounds and approximately 15 kilometres from Brasília's Pilot Plan. In total, 28 homes were included in the analysis, 25 of which underwent physical alterations (modifications to expand or create new spaces).

This text is divided into four parts: i) a brief history of the PMCMV together with background on Vila Estrutural; ii) the second part describes the methodology used to define the sample and data collection, as well as the methods used for analysis; iii) the third part includes the analysis; and iv) the final part offers preliminary findings.

2. DATASETS AND METHODS

2.1. HISTORICAL CONTEXT

2.1.1. THE MINHA CASA MINHA VIDA PROGRAMME (PMCMV)

Launched by the federal government in 2009 under the Lula administration (2003-2010), the PMCMV was created with the goal of reducing the housing deficit among low- and middle-income Brazilians, contributing to an improved quality of live among this population. The program targets families in three income brackets: i) Bracket One, which comprises 90% of those lacking housing in Brazil, includes families that earn less than three times the minimum wage (around U\$ 300 per month); ii) Bracket Two includes families that earn between three and six times the minimum wage, and iii) Bracket Three covers families with an income of up to ten times the minimum wage. The PMCMV is currently in its third phase.

The program's original goal was to build 1 million homes, a quantity that generated shock and disbelief when announced. By December 2010, the first phase of the program had met the stated goal and surpassed it by 5,000 units (PRESIDÊNCIA, 2011). In the same year, the second phase of the program was launched, proposing the construction of 2 million additional residences. By 2015, the first two phases accounted for 3.8 million individual contracts. The

third phase, launched in 2016, proposed an additional 3 million contracts through the end of 2018. According to the Ministry of Cities (PRESIDÊNCIA, 2011), 4.2 million units have already been contracted and 2.6 million have already been delivered. This third phase, once finished, should meet the goal of 6.75 million completed units, a larger number than was achieved by the National Housing Bank (BNH) program which, between 1964 and 1986, built 4 million homes (MARICATO, 2009).

Since its implementation, the PMCMV has been the target of criticism by specialists, among them those who have confused housing policy with a job creation policy for the construction industry (ROLNIK and NAKANO, 2009). In general, scholars studying the issue warn that the proposed program fails to consider conceptual advances on the subject of urbanism or those related to social housing concerns in the country (MARICATO, 2009; ROLNIK and NAKANO, 2009; CARDOSO and ARAGÃO, 2013). For Nascimento and Tostes (2011), the same BNH working logic, based on the increased consumption of housing and guaranteed work for contractors, remains intact nearly half a century later.

In the meanwhile, it is difficult to deny the importance of PMCMV, as more than 10 million people have already benefited from the program. The program has become a preponderant factor in the struggle to lower the Brazilian housing deficit, specifically among the lowest social classes (BONDUKI, 2009).

In 2012, in the Federal District (DF), the Live Well Program was created (Law nº 4.996/2012) with the stated objective of tending to low-income families. The primary financier of this program was the larger My House My Life Program, which served as a basis for the development of the local housing program. With the original goal of contracting the construction of 100,000 units by 2014 (CODHAB, 2013) and with a promise to prioritize the poorest families – those with an income less than three times the minimum wage – and over 14,000 completed homes to low-income families in the Federal District (PRESIDÊNCIA, 2011).

The Live Well Program underwent regional adaptations in its implementation, among them the instated requirement that any beneficiary be a resident in the Federal District for five uninterrupted years at the time of inscription. This limitation intended to prevent available housing from driving a migratory influx into the Federal District (GDF, 2012). In addition, given that the average Federal District income is higher than the national average, the cap for Bracket Three was lifted from 10 times, the limit in PMCMV, to 12 times the minimum wage for the Live Well Program (CODHAB, 2013). The program encompasses 17 areas of the Federal District, including the site of this study: Vila Estrutural.

2.2.2. THE HISTORY OF VILA ESTRUTURAL

Located 15 kilometres from Brasília's central Pilot Plan, Vila Estrutural was founded by an irregular occupation on the area surrounding dumping grounds in the 1960s. Known as the Lixão do Joquei or Jockey dumping grounds, and located next to the Brasília National Park, the dumping grounds attracted informal garbage collectors searching for a means of economic survival. Eventually, some of these collectors stayed on the grounds, founding one of the oldest occupations in the Federal District. In the 1970s, the DF-095 highway was opened. Known as the Estrada Parque Ceilândia (EPCL), it was connected to BR-070, the highway running from Brasília to Cuiabá, Mato Grosso. It was a structural route (via estrutural) and, as such, gave origin to the name of the settlement (COBRAPE, 2017).

In 1989, the relocation of the settlement to another site was considered, but never carried out. At the beginning of the 1990s, with the growth of the dumping grounds, there were a growing number of informal garbage collectors and huts, transforming the area into the so-called Invasão Estrutural (Structural Occupation). In 2004, the 15th Administrative Region of the Federal District was created, including Vila Estrutural as its urban centre (SCIA, 2017). At this point, the settlement became known as Cidade Estrutural, or Structural City.

By 2008, according to a deadline set by the federal government, all activity at the dumping grounds should have ceased; nearly 10 years later, however, the dumping grounds continues

in operation (SCIA, 2017). In 2010, nearly 2,000 informal garbage collectors continued to live from the trash they collected and 600 of them, in addition to collecting garbage, also lived in the community established adjacent to the dumping grounds. What began as an occupation that counted just over 100 huts is today a city with nearly 38,000 inhabitants over an area of approximately 29km². Figure 01 shows the location of the referenced area, in the Federal District, and Block 8 (Quadra 8) of the West Sector of the Cidade Estrutural.



Figure 1 – Location map and aerial view of Block 8

2.2 SAMPLE DEFINITION, DATA COLLECTION AND METHODS

2.2.1. SAMPLE DEFINITION AND DATA COLLECTION

The scope of this study is restricted to housing units offered to families in the Federal District that fall into PMCMV Bracket One. The selected site, in Block 8 of the West Sector of Cidade Estrutural, is comprised of 289 units.

The model house was 52.3m² in size, comprised of a living room conjoined to a kitchen in a proposal that diverges from the (modernist) laboratory kitchen and the Brazilian pre-modernist model. The dissolution of the kitchen exposes a less intimate or familiar space. The house includes two bedrooms and a bathroom on a plot measuring approximately 72m². It is a duplex unit in two senses – lateral and back – while front and side clearances create the only option for natural ventilation and illumination. The sole access point is on the side of the house, along a 1.5-meter wide corridor intended to ventilate the bedrooms, kitchen and bathroom, where the uncovered service area is located. This disconnected service area is typical of low-income Brazilian family houses, while the front clearance guarantees a space between house and street.

The front clearance ensures a space between the house and the street. This area was chosen for analysis due to its specific parameters: i) it is comprised of single-family units, in duplex houses laid out on an urban lot; ii) these houses were destined to families in Bracket One; iii) the site is inserted in a pre-existing social scenario and, as such, is not in a new area or distant from the urban centre, as is the case with other PMCMV developments; iv) it has existed long enough to demonstrate adaptations to the space as originally proposed. It is important to note that the informal garbage collectors are among project beneficiaries, residents of the old occupation settled next to the dumping grounds. Figure 02 shows the housing complex when it was completed, in 2010, and the settlement in 2017.



Figure 2 – Photo of original houses and a recent photo of the area
 Source: <https://maps.google.com.br> and by the authors

The sample in this study includes 28 units, approximately 10 per cent of the houses of the Block 8, resulting from the random approach taken with area residents. We randomly approached residents with a questionnaire, which included objective and subjective questions. The main goal was to collect data about the house and its occupation, including evaluating aspirations and interventions with relation to the inhabited space. In order to obtain data referencing spatial configuration, we also requested a rendering of the floor plan.

2.2.2. LEVELS OF ANALYSIS

According to Aguiar (2010), the concept of spatiality refers to the insertion of the body in space and includes the concept of physical space, referred to here as geometry, as well as topographical space, which refers to the interactions of the user with the voids. Physical changes to the space, with the goal of adjusting to the needs of its occupants, bring modifications to those voids, modifying its physical conception with the removal or addition of fences while creating or eliminating spaces. This alteration is, by nature, financially taxing, given the need to acquire construction materials and the deployment of a work force.

If we consider that the general cost of construction in Brasília is R\$1,073.01/m² (IBGE, 2017), that 73% of those interviewed had a family income of up to R\$1,800.00, and that the average area increase was 21m², the approximate cost incurred per family was R\$21,400. In addition, 75% of the residents lived in their homes for five years and 42% of reforms were done between 2014 and 2016, starting an average of two years after moving in. Additionally, consider that residents largely co-existed with these works, whether or not they undertake the task themselves (Figure 03). If a genotype that better fit the needs of future inhabitants could be identified, such a burden could be limited.



Figure 3 – The owners remodeling their houses
 Source: Photos by the authors

If the alteration of voids is the focus of the research, the methods used for analysis are two-fold: geometric and morphological analyses of the space. For the geometric analysis, data were synthesized in a quantitative analysis of geometric alterations. This quantification revealed the objective of alterations, both in spaces that were transformed and those that had been added.

To understand the relationship between rooms, and their relationship to the rest of the complex, we turned to a morphological study. It is not possible to do a morphological study using geometric aspects. Geometric order comes as a direct description, such as floor plans, cutaways, and façades, while the topological order, used in morphological analysis, comes “from the perspective of the body in motion, more effective than the geometric order.” In this sense, the methodological tool used was Space Syntax¹, which focuses on the corporal relationship with space. The decomposition into convex spaces, as well as analytic categories for depth², distributivity³, and integration⁴ were used in the analysis.

In the sample, the service area – according to the original project – would not be considered a convex space a priori, given that it is not defined by walls or a roof and, as such, is originally part of the terrain. For its use/activity effect, the terrain will be considered a convex space when it is essential to access the inside of the home. In this study, the exterior is considered to be the street, the point from which our depth analysis departs.

3. RESULTS

3.1. GEOMETRIC CHANGES

Analysis revealed that 77.8% of the studied units underwent some kind of geometric changes. On average, the size increased by 21m², pushing the units from an overall area of 52.3m² to 73m². The high rate of alterations in the residences reveals the true desires of occupations. Among alterations that resulted in an increase to the area, two kinds of alterations stand out: 46.42% increased the size of their kitchen by an average of 7.8m² and, 42.85% of the studied units showed an increase to the total lateral covered area, resulting in a gain of 7m² to the house. One of the most common modifications was the demarcation of this space using walls and a roof, creating a permanent space within the house structure.

Growth to the front covered area was another novelty reported in more than 60 per cent of the sampled houses, used in different ways: i) as a room and porch in 14.2 per cent of the sample, with an average size of 9.7m²; ii) as a garage in 35.7 per cent of houses, with an average area of 13.43m²; and iii) as a work space or commercial establishment in 10.7 per cent of sampled units, with an average area of 8.85m².

Table 1 synthesizes actions taken by residents, altering the space to fit their needs. Most modifications to the space were made in the living room/kitchen, which represents 85.7% of alterations. This shift is directly related to the addition of two rooms – the living room and kitchen as separate spaces. Efforts made by residents reflect a desire for a larger kitchen, a characteristic family space in Brazilian culture, on the one hand. On the other, the action demonstrates the rejection of the single kitchen-living room proposal and a return to a Brazilian colonial or pre-modernist pattern. According to Lemos (1993), the larger kitchen, separate from the dining room, is a predominant feature in Brazilian homes from early constructions. In

- 1 The emphasis on Space Syntax is due to the spatial configuration, which includes basic relationships between visibility and permeability between spatial units (for greater detail, see Hillier, 1999; Hillier and Hanson, 1984). Relationships of permeability represent the possibility of a user to move from one spatial unit to another and relationships of visibility represent the possibility for a space or part of a space to be seen from another space.
- 2 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. All syntactic measurements and the graphics were generated by JASS software (Justified Analysis of Spatial Systems, version 1.0).
- 3 Distributivity is the tendency of the system to present a “ring” or a “tree” configuration. A system of rings is more distributive, as it presents different options of connections between spaces (different routes). The “tree” system is less distributive, as it does not have rings, and thus offers only one possible route between spaces
- 4 The Integration measure is an index that defines the degree of inter-relation between the different spaces of the system.

Brazilian colonial (pre-modernist) houses, the kitchen was commonly used as an intimate space for family members – even distant relatives were kept out of space. Even in urban areas, houses were predominantly divided into two areas: a reception area for visitors and another that was strictly intimate⁵.

Relationship of Alteration, in %			
Room	Incidence of modification in existing sapce	Room	Incidence of addition of new rooms
Living Room/Kitchen	85.71%	Living Room	46.42%
Circulation	7.10%	Kitchen	46.42%
Bedroom 01	7.10%	Bedroom 03	10.70%
Bedroom 02	7.10%	Lateral Covered Area/ Service Area	42.85%
Bathroom	0.00%	Garage/Front Covered Area	35.7%
Service Area	42.85%	Bathroom 02	7.40%
-	-	Commercial Spaces	10.70%
-	-	Front Covered Area	14.2%

Table 1 - A synthesis of the modifications

From the geometric analysis, it is important to note that solutions found by residents – the addition of new spaces or the expansion of existing spaces – created a model of occupation that filled the entire terrain and even extended into public space (sidewalks). An important aspect of this pattern is the rescue of the relationship between house and street that is so characteristic of the Brazilian home. For DaMatta, “The house is a category that only defines itself and allows itself to be ideologically captured accurately when in contrast or in opposition to other spaces and domains. (...) It only makes sense when placed in opposition to the outside world: the street universe.” (1991: 13) The house and the street are sociological categories fundamental to the understanding of Brazilian society, as they “speak” of society through social codes, representing public-private relations.

Such construction ended up defining the building as a single massive block. The houses no longer share a wall with the other half of the duplex, but share walls on both sides. The original plan and an example of a modified plan, respectively, can be seen in Figure 04.

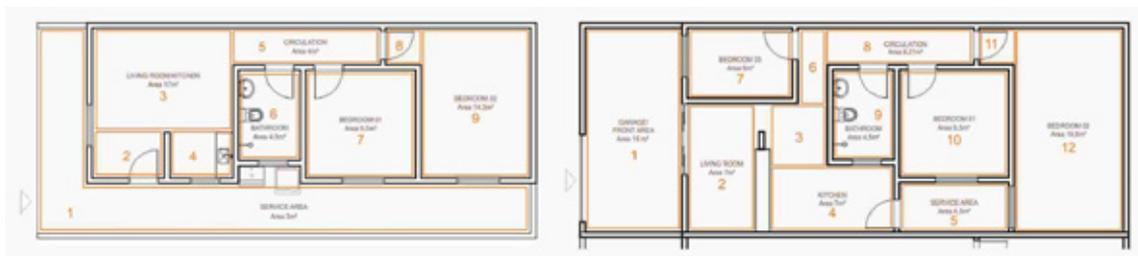


Figure 4 - Decomposed floor plan in convex spaces (original and modified)

5 The tripartite model (social, intimate, and service sector) would only appear in the nineteenth century among the coffee-producing elite. (LEMOS, 1999).

4.2. CHANGES TO CONFIGURATION

The architectural proposal of the duplex, with free space in the front and on one of the sides of the house, together with the limited size of the terrain, imposes a limit to growth of the home. The terrain was occupied by the building, impeding various access points from outside or within the terrain. Geometric modifications, as described earlier, show that the systems underwent modifications with the addition of new spaces, thus increasing the number of convex spaces from 9 to 13.

The occupation of the entire terrain by a single building, hindered the creation of new access points and resulted in the configuration of deeper systems with a tree structure in most houses. Following these alterations, 22 houses, which represent more than 80 per cent of the modified homes, displayed a tree structure. Only three houses displayed structures with a single ring. This predominance of the tree structure favoured an increase to system depth, with relation to the exterior (street).

The complex that was analysed presented variations between four and seven levels of depth, while the original structure presents six. The tree structures within systems with seven levels of depth (see Figure 05), given their significant topological distance from the exterior, represented 22 per cent of the sample. This occurred due to the creation of one or more spaces in the front part of the houses, such as a garage, small business, living room, or kitchen.

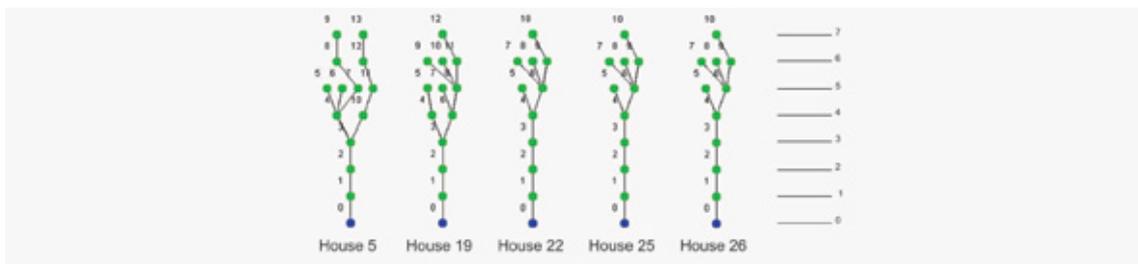


Figure 5 – Graphs with Seven Levels of Depth

Systems with six levels of depth (Houses 1, 2, 12, 15, 16 and 17) basically maintained the same number of convex spaces as the model house, with a system including nine or 10 convex spaces. These systems, which largely repeat the tree structure of the original house, represent 35 per cent of the sample. In House 1, there is a novel ring formed by the double access from the terrain and garage, one of the few alterations that breaks with the logic of the single access point characteristic of the sample.

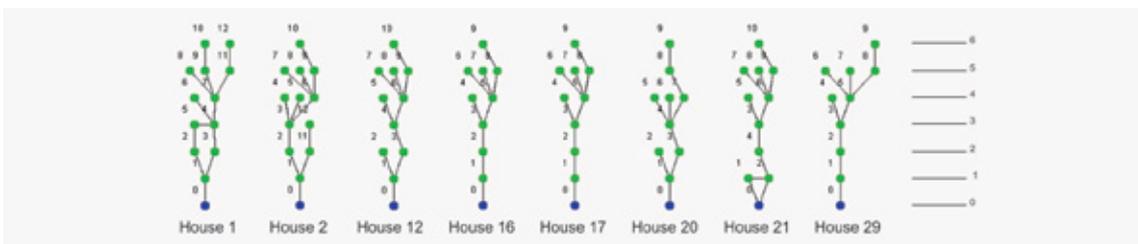


Figure 6 – Graphs with Seven Levels of Depth

One important aspect to consider is the reduction of system depth. Following modifications, 43 per cent of systems had their depth reduced to four or five levels. Those with five levels of depth were predominant and modifications had largely aimed to enlarge or undo the proposed living room/kitchen, which included three convex spaces that, following the remodel, became a single space.

The majority of modifications were done to remove a wall that defined the cooking area, creating instead a single open space, whether defined as a kitchen. These modifications were

seeking to separate living and cooking spaces, revealing a rejection of the original proposal and confirming a more cultural characteristic of the pre-modern Brazilian household, which had separate living and cooking spaces.

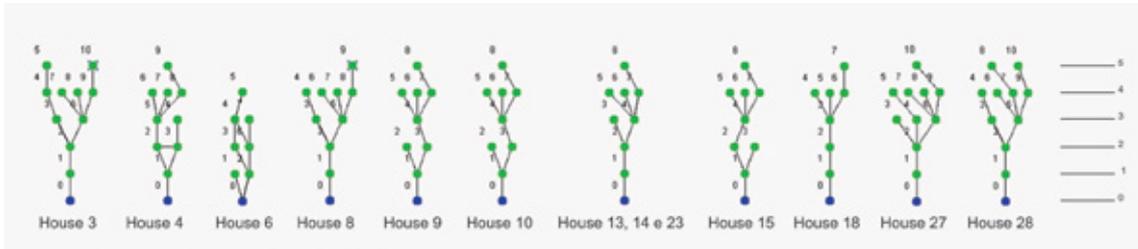
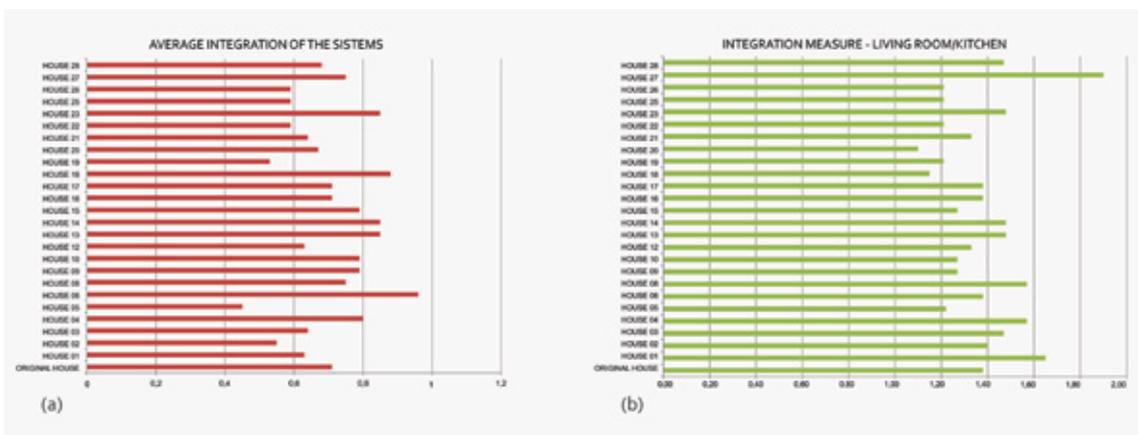


Figure 7 - Graphic with Five levels of depth

The addition of a garage/front covered area appeared in 35.7 per cent of the houses and, morphologically, responded to the desire of residents to have a space to receive visitors. This confirms the importance of this space as social in nature. Testimony from some of the residents explained this: "...It's an area with a sofa and a TV." Or, "...This space is the most external of the house because the visitor is very curious."

Permeability graphs reveal that, after modifications, the systems displayed a bi-partite structure in the domestic space. In other words, according to geometric analysis and an analysis of the spatial configuration of these rooms, a strong investment in space expansion within social areas reveals a template that reinforces the division of domestic space into two sectors: the social area, with a separation between the living room and kitchen and the creation of a large frontal space used as a room or garage where gatherings could take place, and the intimate space (bedrooms and bathrooms). In its circulation, the tree structure has a space that acts as a connector between these two sectors, actor as a protector of what many residents expressed: "...I don't like anyone to be in my bedroom" or "...The bedrooms are intimate."

Another important aspect of the sample is that the systems, post-modification, express certain homogeneity with respect to the measure of integration. The original system had an average integration measured at 0.71. After modifications, average integration ranged between 0.63 and 0.96, fitting into two groups: more than 40 per cent of the systems had integration higher than 0.71. Specifically, consider Houses 1 and 27, with six and five levels of depth, respectively, and with an integration level of 0.96. It is worth noting that House 1, with six levels of depth, is one of few that shows the presence of an internal ring. The systems as a whole, however, were less integrated following the reforms, with 60 per cent reporting average integration levels equal to or less than those in the original house (Figure 08a).



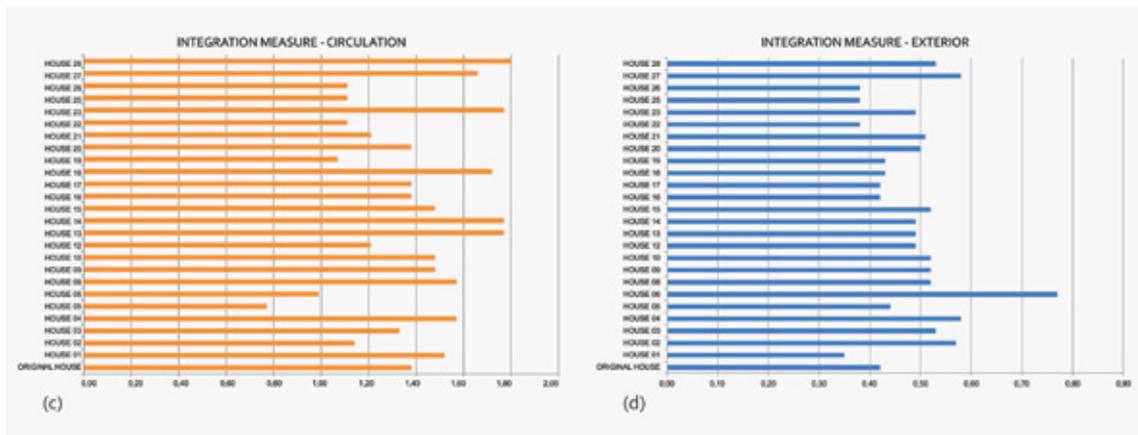


Figure 8 – Graphics of the Integration Measure

The deepest systems, with seven levels, are the least integrated of those in the analysed complex with an average integration below 0.71, reaching 0.63 in the case of House 5. The predominant modification in these cases was the creation of one or more spaces in the front and side parts of the house, expanding the topological distance from the body of the home with relation to the exterior.

The measure of integration also revealed that the most integrated spaces continue to be the living room and kitchen, as spaces defined by activity and circulation while acting as a connector between social and intimate spaces. In the original floor plan, the most integrated activity space is the living room/kitchen, at a measure of 1.38. After modifications, these spaces had integration levels of 1.90, even when they were maintained as in the original proposal (House 27), characterizing the space as the most integrated social space (see Figure 08b).

The kitchen and living room stood out as the most integrated active spaces in the system in more than 70 per cent of the sample. Still, the kitchen was used to receive guests in only 14.8 of the cases and in 15.4 per cent, visitors did not have access, revealing that its social importance is intrafamilial in nature.

The circulation area was the most integrated space in all the systems, acting as a defining element of one of the most important characteristics of the sample configuration: the fact that the domestic space is bipartite, or defined by two sectors: the intimate and the social (Figure 8c). It is a characteristic that differentiates the sample from the Brazilian middle-class model, which defines domestic space as having a tripartite structure composed of an intimate and social sector, as well as a service sector, including the service area and a room for the service worker.

Another element that characterizes the configuration of this sample well is the high levels of integration in a space that was the target of geometric changes: the multifunctional area created in the front part of the property. Many people described this space as being used to receive visitors, due to its larger size. The configuration reveals that, this space was more integrated in approximately 60 per cent of the houses, compared with the original house. This was the preferred space for receiving guests in 95.6 per cent of the cases. This new space creates a transitory link between the house and the street and, for some residents, "...The porch (front door closed) is the largest" space for receiving visitor. The same happened with the exterior, following modifications, the exterior was more integrated in approximately 70 per cent of the houses, compared with the original house (Figure 7d).

4. CONCLUSIONS

The two levels of analysis (geometric and configurative) were essential to study the experience of PMCMV in Cidade Estrutural. The analysis revealed a diversity of geometric solutions, on one hand, with 25 different modifications to a sample of 28 homes. The solution found by residents – to add new spaces or expand existing ones – created an occupational template in which 100 per cent of the property was occupied (original house, front and lateral areas, in addition to advances into a public space – the sidewalk). Such a solution was seen in nearly the entire sample, indicating that part of the studied complex could form a large, dense block of houses. Instead of a duplex sharing one wall, as in the original project, the houses would share walls on both sides. Even when it inhibited natural illumination or ventilation (since living room, kitchen, and bedroom windows were inside the home), this was the pattern that was adopted, even if it was compromising to the quality of these internal spaces.

Such a solution ended up defining a single entrance to the home, from the street, which reinforced the low permeability of the system and the predominant tree structure. With the creation of the front covered area as a gathering space, the possibility to create different access points from the exterior was eliminated. Internal alternative routes were not possible, either, which made for a sample formed by largely non-distributive systems. Even shallow systems (with four or five levels) present the same configuration.

The sample reveals that the majority of changes or adaptations took place in social gathering rooms, whether it was the reassigning of the kitchen or living room, or the creation of a larger area in front of the house. With different characteristics, however, the first space was the most occupied by the families (affirmed by 70 per cent of residents), while the second was more commonly used to receive visitors. As such, it was confirmed that the great driving force capable of driving modifications is a social force, executed with different goals.

The final result was a complex with particular characteristics: i) the exterior was more integrated in approximately 70 per cent of the houses, compared with the original house; ii) the more integrated rooms continue to be the living room and kitchen, even with new proposals of separate, single-use spaces; and iii) the circulation area is the most integrated in most of the sample, confirming its role as a connecting element that defines the domestic space in two sectors: intimate and social.

These characteristics confirm a rejection of the original proposal and an attempted rescue of pre-modernist patterns. The occupation of the entire terrain (lateral, back, and front) creates a pattern of occupation that references the so-called row occupation (an arrangement appearing as a continuous *façade*) found in Brazilian cities from the colonial period. Of course, they do not have the generous amounts of land present at colonial houses. The important element in this pattern is the revival of the relationship between the house and the street. In fact, the intense use of the street was proven in an on-site visit, reinforcing the home-street model characteristic of Brazilian traditional urban centres (DA MATTA, 1991).

While it is ongoing, this study indicates two important findings. The first is the diversity of geometric solutions, revealing that a singular architectonic proposal, standardized and repetitive, is not adequate for a community with varying needs. On the other hand, the configuration analysis indicated a level of homogeneity in the systems. The systems, which resulted from physical limitations of the property, are i) relatively non-distributive; ii) non-integrated and hierarchical systems; iii) shallow but hierarchical systems. This confirms a genotype in which the house is divided into two nuclei: intimate (including the kitchen) and social, where the exterior remains integrated, confirming the intense relationship between the house and the street.

There is no doubt, especially in the face of the Brazilian reality, with a financial recession and an ongoing crisis among political institutions, that having a large-scale program that attempts to confront one of the largest social problems in the country is not only important but also necessary. The satisfaction of residents who have a home, including the old garbage collectors, who did not have (71.5 per cent say the house is good or very good) the real possibility of better

living conditions in an urbanized area (water, sewage, paved streets), confirms the importance of the PMCMV. "It is better to be here than at the dumping grounds in some wood hut," one of the residents confided.

However, with respect to internal spaces of the home and, therefore, architectural solutions, the research indicates it is necessary to improve these in a way that changes the logic of simple repetitive solutions and creates novelty that responds to the needs and desires of the low-income Brazilian family, taking cultural aspects of the Brazilian house into consideration. These, however, represent only preliminary observations of an ongoing research project.

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