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Towards more resilient and energy efficient social housing in Brazil

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Abstract

This paper aims to present a critical review to the Brazilian national housing program, known as “Minha Casa, Minha Vida” (“My House, My Life”). This critique has two main levels or scales and is presented through a design proposal. On one level, the urban scale, we have discussed the impacts of these housing projects in the city and public spaces. On the other level, the scale of the buildings, we have discussed the restrictions imposed by the government, particularly how they impact energy efficiency and the size of individual units.

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Keywords: “My house, My Life”; design proposal; affordable housing; urban scale; energy efficiency.

1. Introduction

“My House, My Life” is a Brazilian governmental program that aims to build, in a large scale, affordable housing. The program has already delivered more than 2,5 million residences, investing around 85 billion US dollars. [1] The housing units or apartments are built by contractors selected by the Caixa Econômica Federal (CEF), a Brazilian federal savings bank, that in partnership with the Federal Government offers attractive conditions for the financing of housing in urban areas for low-income families.

Since the program was launched, in 2009, much has been discussed about the environmental, urban and architectural impacts that such constructions have had on our society and urban areas. Most of the architectural typologies of “My house, my life” are based on standard solutions and defined from a general concept of predetermined user profiles. These restrictions leave little room for creativity and choice to contribute to the improvement of both urban and architectural spaces. Following the same minimum requirements for every house, regardless of the family profile, strips the freedom and comfort for some, while proving inefficient for others. Another factor, criticism of the Brazilian program is the energy efficiency and sustainability of the housing units.

This paper aims to present an architectural proposal, as an alternative solution with the same cost restrictions of the national housing program, targeting for significant quality, comfort and energy efficiency improvements. Several strategies have been

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designed to offer to each unit a much more spacious environment to live in. Adjustments to the layout can be implemented based on the personal preference and size of each family, while low-cost methods and building orientation manages the solar energy to guarantee affordable comfort to all dwellers.

In addition to that, the architectural proposal is designed for an area of great environmental and social fragility. The studied area is currently constituted by low income dwellings, built on flood plains with no protection when the river level is high. The principles of safe housing production and keeping the community where they are settled have been fundamental during the planning process.

Affordable housing is a challenging and frequently debated topic that concerns one of the most fragile portion of the population and how it is inserted in our society. One of the major challenges for architects and urban planners in today's cities is the social and transforming role they have in our society. Architecture is not only responsible for the materialization and construction of the space but also, and mainly, by the environmental and urban impacts as well as in the residents. The present study acknowledges these issues and presents the development of an affordable housing proposal that can contribute to improve the Brazilian affordable housing program “Minha Casa, Minha Vida” (“My House, My Life”).

2. Social housing scenario: “Minha Casa, Minha Vida” (“My House, My Life”)

The growth of Brazilian cities occurs in a scenario of socio-spatial segregation. Central urban areas are mostly equipped with sufficing infrastructure of built environment, factor that tends to raise the land value and results in the displacement of the low-income population. This dislocation usually leads to the occupation of distant and deteriorated neighborhoods, such as peripheries, risk and permanent preservation areas or locals deprived of urban infrastructure and services, which end up compromising even more the quality of life of these populations.

In 2009, a large scale habitation program – “Minha Casa, Minha Vida” (“My House, My Life”) - was established by the government aiming to stimulate the production and the acquisition of housing units for families with up to 10 national minimum wages. Brazilian minimum wage is calculated on a monthly basis and is updated every year. In early 2017, the monthly minimum wage updated to R\$937 [2] which is equivalent to US\$300. In order to apply for the MCMV program, the family income should be below 10 National Minimum Wages, approximately US\$3,000, and for the lowest income group, the total family income must be below 3 Minimum Wages or around US\$900. The lower income group, with up to three minimum wages, can be considered the one that needs the most urgency in the access to urban services and for housing construction. The focus of the program is the reduction of the habitation deficit of the country. An estimated number of around 7 billion people had sub-optimal living conditions when the program was launched.

Although a noteworthy number of housing units have been constructed under the governmental program, the urban and architectural quality of these new spaces should be reflected upon. Much has been discussed about the implementation of these projects, especially about the connection with the city and the architectural quality of these new Brazilian housing projects.

The architectural typology of “My house, my life” program can be classified in two distinguished categories, one-story houses or apartments. Required specifications are defined for room function, quantity and minimum area; floor and wall finishing; type of ceiling, roof and windows; rooms' dimensions and height; plumbing, electricity and solar heating systems. The program determines also the maximum cost for each residential unit for different regions of the country.

The typologies of My House, My Life present the minimum requirements established for each standard room, defined almost with a general concept of a predetermined user profile. These minimum dimensions are seldom increased by the construction companies. They are actually, biased to reduce to the minimum to prevent any additional cost. The units strictly meet the basic human needs, such as sleeping, eating and resting, in a generalist way of living. A family profile, constituted by a couple and two children, may suit the typology that is being produced, but more numerous families sometimes composed by several generations or people living alone may have different needs from those offered by the program. It is critical for a social housing proposal to consider the different profiles of residents to design a house adapted to their needs.

The overall housing cost differs depending on the region of the country and where it will be located. As a consequence of the urbanization process and the recurring social inequality in Brazil, much of the affordable housing settlements are designed and implemented in distant and poor locations. The implementation of a housing complex in precarious areas should guarantee residents' access to the basic services as well as promote social and spatial integration. Access to the city's public spaces is important for quality living, integrating this population and society. The feeling of being part of the city is a relevant form to empower the individual citizen. Large housing developments should stimulate this inviting space of different experiences through an architectural response that understands the public space as a welcoming of social diversity. This space should encourage integration, participation and provide different uses and connections with the city.

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