

THE CITY OF PORTO AND THE PUBLIC HOUSING: LEARNING WITH DESIGN PRACTICE

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ABSTRACT

In the late twentieth century, the housing stock of Porto showed signs of social and urban imbalance. This characteristic is mostly due to the successive construction of large suburbs since the second half of the twentieth century, related to the '*Plano de Melhoramentos*' (Plan of Improvements). These barrios concentrated thousands of families, economically disadvantaged, through a high concern for the amount of dwellings and a tiny concern for the environmental quality of these residential areas. Nevertheless, most of these large housing estates barrios were absorbed by the expansion of the city and, as a result, there was a significant improvement of access net, transports and service network, minimizing the isolation of these neighborhoods. In the nineties, social and economic problems of these populations were sharpened. Such problems are also related to the stigmatization phenomenon, compounded by a generalized process of degradation of the public space and built space, which results from the lack of conservation and rehabilitation programs. The Municipality of Porto starts in 2004, together with the '*Instituto Nacional da Habitação*' (INH) a program for the rehabilitation of 5000 dwellings in municipal social housing and for the construction of 300 new dwellings under controlled costs. The article presents the study we have been developing concerning the best procedures that professionals and politicians should have when facing the renewal of the social housing barrios. These

operations are very important for the social and urban balance, since about 20% of local people live in municipal dwellings. This financial effort aimed at the rehabilitation of the residential park underlines the policies of strengthening the social cohesion. Social actions at an educational, training, employment and social assistance levels should complement this effort. To illustrate this study we will present de ex-ante and post analytic scenarios of the '*Bairro de Contumil*', in Porto.

Key words: Social housing; housing rehabilitation; social cohesion; architecture and urban design; Porto stock housing

Introduction

The City of Porto and the Social Housing

The city of Porto has assumed a very important role in the history of Portuguese social housing, continuing until nowadays its promotion. This activity began in the late nineteenth century, due to humanitarian, hygienists and public health concerns, in an attempt to curb the massive construction of "the islands", with the original Portuguese designation: *as ilhas*¹, (Figure 1).



Figure 1 : Typical image of Porto "islands".

¹ The "islands" are small houses, usually one floor house, distributed in rows along the backside of the plots of middle-class homeowners. The access was assured through a narrow central (or aside) corridor that made the direct connection to the street. These housing units were highly precarious. Sanitary infrastructures were missing in its interior – the inhabitants had to use public baths to their hygiene and daily care.

At the beginning of the twentieth century, the “islands” contributed to balance the housing shortage that had resulted from the massive migration of rural population to the city. In the late nineteenth century, the islands have harboured about 30% of the city population. While this type of housing grew significantly in the early twentieth century, thousands of buildings in the city of Porto were overbooked by families with poor financial resources.

The first municipal neighbourhoods (*barrios*) were built between 1899 and 1905 – ex. *Monte Pedral*, *Ramalde* and *Bonfim* neighbourhoods, thanks to the initiative of a Portuguese Company: *O Comércio do Porto*, in partnership with the Municipality of Porto.

The following table (Table 1) shows the evolution of the public housing in Porto since the first decade of the XX century.

Table 1 : Evolution of the public housing construction phases in Porto.

Phase	Date	Action	Objectives Districts/Barrios
1st Portuguese Republic	1915-1919	The construction of the first social housing neighbourhoods, named: Antero de Quental Barrio; Estêvão de Vasconcelos Barrio; Viterbo de Campos; Dr. Manuel Laranjeira Barrio; Bairro do Mercado (Market Barrio in Foz do Douro parish).	These districts accounted for about 300 new dwellings housing.
	1918 – First Law (1º Decreto-Lei)	The regulation of the construction of housing for workers	“Bairro Social da Arrábida” (old name: Sidónio Pais district) - an important example of early habitation supported by the Portuguese State (Baptista Coelho, 2006: 46), consisting of 100 dwellings distributed by in single-family houses, residential buildings and twin houses.
	1910-1926		To reduce social inequalities in terms of housing
(New) Dictatorship regime - “Estado Novo Regime”	The new Regime was established in 1926 and institutionalized in 1933	Over four decades, an ideologically central and aggregative politic for the economic houses model.	Almost covering the entire regime period, this form of State intervention in the housing sector never has lost a huge ideological value in the dominant discourse “(V. Baptista, 1999: 47).

Therefore, in the 30s and 40s, the New State departs from the building multifamily housing (also known as collective housing) solutions, mainly built in Lisbon, and privileges “Portuguese house” (perhaps referring to the Portuguese “Raul Lino’s

house models” in 1929 and the Portuguese Houses 1933), on behalf of social and moral order. The neighbourhoods of Economics Houses developed into townhouses or band, with a markedly “traditionalist” and rural architectural characterization, designed according to studies by minimum sizing.

The Economic Houses of Porto

The neighbourhoods of Economic Houses (*Casas Económicas*) in Porto, constructed between 1935 and 1965 in distant areas of the city, represented about 2000 dwellings. In the 50s, more examples of construction of multifamily housing appeared, primarily through direct state intervention in social housing: “What we see is a spatially monetization of land available and the need for more comprehensive solutions to problems of ordering of metropolitan life” [1].

The neighbourhood of *Ramalde*, built in the western part of the city on the initiative of the Federation of Provident Funds (*Fundo da Caixa de Previdência*), designed by architect Fernando Távora constitutes an experience of the adoption of affordable housing in the modernist principles enunciated in the Charter of Athens (1931) excellent multifamily blocks the object of an extremely well-detailed design, “(...) in intimate relationship with the urban green, (...) with a very strong human scale” [2].

In 1956, enters into force the Plan for Salubrity of Porto Islands (*Plano de Salubridade das Ilhas do Porto*), which gives rise to the Plan of Improvements for the City of Porto (1956-1966) in response to the worsening of the housing needs of the city. In the first phase (1956-1966), are built thirteen municipal districts, for a total of 6072 dwellings for relocation of families living on islands. It is under this Plan that is built in 1977 in the Municipal District study: *Contumil* Quarter.

The Porto Plan of Improvements

The Plan of Improvements (*Plano de Melhoramentos*) [3] is responsible for the emergence of a new urban typology in Porto through new housing estates. This typology has developed in other European countries, “dissolves the street as an essential urban element, turning it into a mere passageway and freeing a building direct relationship with it” [4].

With the Revolution of April 1974, are promoted other initiatives with the same goal of fighting the shortage of housing for people of lower social classes. Noteworthy is the SAAL - Outpatient Services Local Support (1974-1976), created as the Housing Development Fund (FFH) Specialized Technical Corps.

This service advocated “a radical model of the city and planning: a city where the poor are also entitled to the historic centre” [5]. With this goal, operations of rehousing families, that inhabited islands, are conducted, locating them in the same area of residence. The inhabitants themselves participated in the resettlement process,

first in the design phase of the neighbourhoods and in the later stages of construction. Good examples of this period are the neighbourhood of Antas, designed by Pedro Ramalho, the neighbourhood of St. Victor and the neighbourhood of Bouça, both designed by Álvaro Siza Vieira.

In the late twentieth century, the housing stock of Porto showed signs of social and urban imbalance. This characteristic is due in large measure to the successive construction of large townships since the second half of the twentieth century, related to the Plan of Improvements. These projects concentrated thousands of economically disadvantaged families, through a high concern for the amount of dwellings and a tiny concern on environmental quality of these residential areas [6].

The Rehabilitation Housing Process

In partnership with the National Housing Institute (INH), the Municipality of Porto starts in 2004, a program for the rehabilitation of 5,000 dwellings in social neighbourhoods and even the construction of 300 new housing cost controlled. This operation began rehabilitation in more degraded neighbourhoods built before the decade of 1980. The interventions were aimed, on the one hand, improving significantly the conditions of comfort and liveability of residential buildings, on the other hand, the qualification of the urban image of the neighbourhoods. Accordingly, rehabilitation operations focus mainly on the building surroundings, roofing and facades (frames), infrastructure for water and electricity and even the common areas (stairwells) of buildings.

Currently underway is the second phase of a new agreement between Porto's City Hall and IHRU for the rehabilitation of more than 5,000 social housing dwellings - about 20% of Porto citizens reside in council housing.

This rehabilitation policy is framed in Urban II (2000-2006) Community Initiative Programme, globally funded by the European Union, whose goal is the revitalization and redevelopment of urban areas in social, economic and urban bankruptcy, under which developed the redevelopment projects in the public space of *Contumil* and Pius XII neighbourhoods.

The Case Study Analysis

Morphological Characterization of Public Space Before the Renewal

Circulation spaces

Like other neighbourhoods, verified it a great dependence between road and pedestrian networks. The pedestrian network is developed, on one hand, parallel to

the road network in the form of walks and pathways adjacent to the other and on the other hand, for areas not covered by means of motor traffic.

There is, in a sense, a preponderance of the pedestrian network in the road network, latter materialized almost exclusively on two axes, the Professor Bonfim Barreiros street and Engenheiro Pedro Inácio Lopes street. These two main thoroughfares crossing the west end - the central and northern area of the neighbourhood, respectively - most of the accesses to spaces of residence and entry area for residential buildings made through the pedestrian network. The road network supports a direct contact with four main axes regarding the local distribution of its urban grid network: *Contumil* street at south; *Ajuda* street at west; *Joaquim Alves Teixeira* street and *Santo António* street at *Contumil* north. These are the links that establish the degree of formal and functional integration of housing development in the wider urban area. Thus, there is an imbalance at the level of penetration by the surrounding highways along the perimeter of the neighbourhood.



Figure 2 : View of a façade of *Contumil* Barrio before renewal.

This impermeability of the urban fabric to road accessibility, particularly the most inland areas will be a key factor in the morphology of the spaces of permanence and reading of the urban image of the entire residential complex. Already in functional terms, the low permeability of the road network is a conditioning accessibility to blocks of housing, not only for its residents but also for the use of urban services or even emergency. There are 213 parking spaces, less than half the number of dwellings in the neighbourhood. Nowadays, the lack of parking meant one of the defects with greater visibility in urban areas of the district. We may conclude by the photo archives that there was a riotous use of parking in the neighbourhood. For example, the rules induced by the morphology of parking is often disregarded, particularly in areas where parking is longitudinal to the carriageway, are used in perpendicular thereto. On the other hand, there is an indiscriminate occupancy of vehicles in pedestrian areas and spaces remaining, not only contributing to inhibiting its use by people but also for the degradation of existing vegetation and floors.

Moreover, the pedestrian network is structured by a network of pathways that develops in accordance with the accessibility to the various buildings and spaces of permanence. The mesh pedestrian circulation often separates the road infrastructure to ensure access to areas where motor traffic is not enough. The pedestrian network opens seven innings in the neighbourhood, four of which adjacent to the access road. The remaining 3 are transverse to *Contumil* Street and help break the physical barrier that limits the district conforming to the local urban fabric. Therefore, the network of pedestrian circuits is physically articulated with the engaging in a more balanced way than the road network. Most walkways are flat. Although we may see some stairs in some of the residential building's entries. Therefore, there is no concern for disable residents.

Conversely, ownership of rear ground floor spaces adjacent to buildings by the majority of homes in Ground floor, significantly reduces the useful areas of pedestrian space adjacent to public roads.

Finally, it is emphasized that one factor that potentiates the misuse of public space is that there is a slight difference in the coatings used for the parking and pedestrian circulation and road surfaces. Traffic lanes, parking spaces and sidewalks have the same bituminous pavement, and the separation of space for vehicles and pedestrian can be seen only by the snapping of the curbs. These three distinct spaces, therefore, present the same visual reading.

Spaces of permanence

The exterior spaces of permanence of *Contumil* neighbourhood correspond, in general, the project approach in neighbourhoods built by the Plan of Improvements. The urban fabric mostly defined by the built mass and the road circulation spaces, with public space to the rest, the negative, the areas left available by the conformation of this mass built and road infrastructure. Public spaces with significant level of physical contention are more adequate for the success of spaces of permanence [7].

Thus, the outside space for staying is delimited by a set of blocks scattered throughout the territory and a little road network by branched urban space in the neighbourhood and in many places little conversational with built fronts. There is generally a strong irrigation of the urban fabric along the pedestrian network. However, the formal expression of this structure is somewhat pronounced given the magnitude of the spaces that it travels, and it is not considered as a relevant element in the morphology of the spaces of permanence. This must be, by far, the excessive size of the areas not crossed by roads, major axes in the direction of reading the urban fabric, and the lack of references in the geometric relationship between roads, buildings and spaces of permanence. The mesh spaces of permanence of *Contumil* neighbourhood present three main centres, a playground, a square and a landscaped enclosure, which correspond to areas of residence with greater potential to attract users to the scale of

the residential complex. There are no side poles that allow to complement the role of the main poles form a network of articulated spaces. This reality exposes a small hierarchy between the different areas of residence in the neighbourhood, in terms of functionality, usage and type of most frequent users. This differentiation between areas of residence enhances the abundance of residual spaces in the urban fabric of the neighbourhood, constituting elements that weaken the physical continuity between urban levels of residential housing.



Figure 3 : General view of the public space in *Contumil Barrio* before renewal.

Analysing the different types of spaces of permanence existing and their location and distribution in the urban fabric of the neighbourhood, we conclude that these spaces of permanence give no indication on the use or ownership that you must comply with the obvious exception of the playground. So, prevalent spaces of permanence without prepositional capacity, in other words, without formal characteristics or without street furniture that motivate your spontaneous enjoyment. These allocations reflect an inability of urban space in highlighting the zones of territorial influence, increasing the ambiguity in perception between public and private domains.

In all blocks of housing in the neighbourhood, without exception, it manifests a phenomenon of privatization of residual spaces adjacent to ground floors parks.

As a means to compensate for the smallness of the interior spaces of the housing with minimum dimensions, the most common grounds are suitable for storey dwellings. Despite the appropriation of these spaces bring benefits to most residents of single-storey dwellings, their relatively random formalization in terms of materials used, promotes unqualified image of urban space. The spaces of permanence in *Contumil* neighbourhood, do not integrate, in general, urban furniture that invites its use by the residents of the neighbourhood. Moreover, most garden areas do not receive the necessary care for proper maintenance and operation [8].

Morphological Characterization of Public Space after the Renewal

Circulation spaces

The requalification of circulation spaces in Contumil neighbourhood introduced the opening of new road sections, starting from the *Pedro Inácio Lopes* street and will intersect with the *Bonfim Barreiros* street at North, and with the *Contumil* street at south. Thus, there is a significant increase in the penetration assigned to motor traffic in the urban fabric of the neighbourhood, along the pedestrian pathways axes. Axes which are thus secure both types of accessibility.

This requalification provides benefits in terms of greater road accessibility to spaces of permanence and entry zones for residential buildings. Additionally it allows greater proximity of pedestrians to parking spaces. This new permeability of the urban fabric to the road network allows the inclusion of parking in the direct surrounding of all blocks, always adjacent to a roadway spaces. Increased accessibility to road blocks housing and the redesign of the traces of roads resolved part of a major problem in urban areas of the neighbourhood: Insufficient parking capacity. With the intervention, 455 new parking spaces were obtained- more than the double of the previous existing places, reaching almost the number of dwellings (502).

The proposed pedestrian network ensures the links above, both the urban environment as the totality of apartment buildings and spaces of permanence. The new routes are located in the boundary areas of the neighbourhood, intending to reverse the character of the residual space befitting it. Similar to what happens with the roads, the footpaths are reformulated by the orthogonal plotted in formal consistency with the other new elements of urban space: buildings, spaces of movement, permanence and parking. This new condition favouring firstly, immediate interpretation of the structure of accessibility in housing development and secondly, the pedestrian network assigning an important role in the formal delimitation of the urban fabric.

A characteristic element of this intervention on public space arises: the creation of urban furniture for staying. In this case, the new furniture marks the transition between the space frame of Building 12 and the adjoining footpath. This piece of precast concrete in the shape of an "L", which in this case comes in the form of a bench, part of the systematization provided by the formal vocabulary of the proposed solutions, representing that module adopted by architects.

The choice of flooring material meets requirements of robustness, low cost and ease of maintenance aspects considered very important in the competition program. This solution provides an easy implementation and adaptation to complex situations of slope and different levels of threshold. Despite these constraints make this option acceptable, bituminous floor is not the most suitable for paving outdoor spaces in residential areas, especially in this way so extensive and widespread. The visual

mischaracterization that this finishing induces in the urban landscape is high.

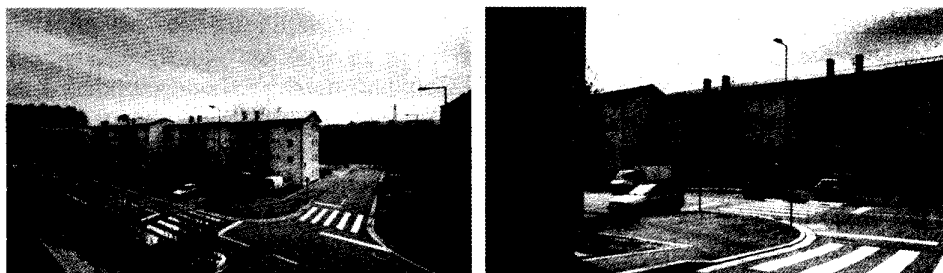


Figure 4 : General views of *Contumil Barrio* after requalification.

Spaces of permanence

The network of spaces of staying, resulting from the proposed redevelopment is formally directly linked with the implementation of housing blocks, made possible by the consistency of the new road layouts with the built mass. Since the deployment of the buildings has not changed, there is a subordination of the layout of the outdoor spaces to guiding axes of built masses. The new lattice stroke that takes to the road network allows the structuring of the urban fabric in a complementary fashion to buildings and in this way the conformation of space of permanence the regular and clearly discernible contours. The opening of new routes in the road network was relevant for the characterization of mesh spaces of permanence in sets with more functional and controlled areas in its form.

Thus, the greater penetration of the road network and the geometric regularization of its layout consolidates and organizes the limits with the different neighbourhoods constituting an essential element in the overall structuring of the urban fabric, which is important given the considerable size of this neighbourhood. The pedestrian network also gains a new clearer readability in the redesign of the urban fabric with its laid parallel to the road network layout and buildings, also contributing to the formal delimitation of areas of residence in the neighbourhood. Spaces of permanence have been submitted to a geometric redefinition which also included the integration of urban furniture. The landscaped grounds next to the playground won a space character of permanence that it hadn't. For this reason, the significant size and its central position in the neighbourhood, acquired an attractive potential for enjoyment by the majority of the neighbourhood's population.

The design of secondary and complementary poles in many areas in the proximate of neighbourhood was one of the most important transformations in the neighbourhood. The creation of these spaces of permanence comes to assign specific spaces before requalification represented neither established any relationship with potential users. Thus, the intervention has the ability to superimpose different capacities of use,

providing a more widespread use of outdoor spaces.

There was also an intention to assign each housing block, own areas of residence and socializing, helping to qualify the footpaths in the residence. There is thus a redefinition of the meaning of collective space in their public and semi-public dimensions, which returns this zone district to the public domain. The trees that were planted at the intervention will be crucial, with larger size, its shadow will be an asset to appropriate areas of residence and also the surrounding footpaths. This project clearly demonstrates that one of the major objectives in this intervention is achieving environmental comfort to outdoor spaces. In these spaces, the trees were respected and new trees were planted to ensure their shade. The redesign of the road network has resulted in the global restructuring of the urban fabric of the neighbourhood. The unifying elements of the intervention contribute decisively to a continuous reading of identity and public space in the neighbourhood. The reticulated mesh itself and fragmented into smaller pieces, allowing for a more immediate perception of the relative position in space of each set.

The systematization of the formal vocabulary of the proposed concrete element in the shape of an "L" gives coherence to the intervention which involves the urban image of the set. This prefabricated elements adopted by designers in different situations gives a decent look at the housing complex and warrant characteristics of functionality, durability and resistance to different elements: benches, stairs, handrails, ramps, retaining walls, etc.

The entry zones in blocks of housing were designed to convey a hint of stay of residents by promoting good neighbourliness, complemented by the provision of benches near the accesses to buildings. This implementation of urban furniture stay is complemented by patches of vegetation or landscaped slopes well-defined boundary, making those areas more attractive. The versatility of precast element "L" is suitable for more than one function simultaneously, and also works as a bank or a containment wall delimiting distinct zones, clarifying the organization of spaces.

There is also an attempt to humanize the spaces of principal residence, either by the presence of street furniture as the careful differentiation of floors in the green areas. The materials used in the intervention of public space were bituminous pavement and pedestrian areas of road traffic and in spaces of permanence of blocks of housing together. This lack of differentiation does not contribute to the characterization of the residential neighbourhood. The urban landscape of the enterprise appears with a certain "hard look" for its extensive smooth surfaces and uniform dark colour. There is thus imposing visual effects that acquire circulation spaces in some areas and, on the other hand, the positive visual impact caused by simply changing colour and texture of the parking spaces. The use of concrete in all elements of street furniture and in the delineation of areas emphasized in many situations such hardness of the assembly.

Finally, the external appearance of buildings significantly affects the attractiveness of the urban image of the residential complex.

Entries in buildings were closed by installing frames, making the building much more secure for its residents. The architectural treatment of the input zones in the blocks was the subject of great care in the design of roofs guard and protection of the entrance door and access to mailboxes that are now accessible from the outside. The intervention in housing blocks contributed significantly to the enhancement of the urban image of the whole neighbourhood.



Figure 1 : General views of the public space in *Contumil Barrio* after requalification.

General Conclusions from the Analysis of the Case Study – Contumil Neighbourhood

The analysis of morphological characteristics of public space in the *Contumil* neighbourhood before and after the intervention of physical rehabilitation allowed to study the factors that compromised the urban integration and architectural quality of the neighbourhood. By the other hand, it also allowed to examine the degree of satisfaction of the neighbourhood's residential population and the extent to which this intervention redevelopment responded to these conditions.

The reformulation of accessibility plays an important role in this regard. The restructuring of the road network has been redesigned with orthogonal layout and new links that regulate the mesh spaces of permanence while solving gaps in accessibility and parking proximity.

Regarding the strengthening of the urban continuity of residence halls, there is care to differentiate the spaces of movement and residence, depending on their physical level. Regarding the first, there is concern hierarchy of road sections on approach to housing

blocks, blurring up your physical and visual impact on this transition. The elimination of many of the physical barriers that conditioned pedestrian accessibility for people with reduced mobility has facilitated the use of outdoor spaces by most residents. Intervention on spaces of movement and residence, clarifies the areas of territorial influence in the urban space of the neighbourhood, contradicting the ambiguity in the perception of the public and private domains, and function of each type of space. The boundary of the neighbourhood areas are inserted in the network accessibility, running up the demolition of illegal attachments that occupied it; the lack of parking that they led to his seeking out the very sites are met, in places marked and differentiated from other circulation spaces; illegal buildings in public parks are removed and give rise to areas of residence that frame residential buildings that support the habits of conviviality that were occurring there, manning the long walking routes in the neighbourhood stay with furniture and change the visual effect that all chaotic these appropriations of public parks gave the urban image of the neighbourhood. Intervention in *Contumil* neighbourhood brings together a whole host of features that interact in the redevelopment of public space as architectural space, combining functional objectives and emotional, the latter related to the aesthetic quality of the residential environment. Thereby promotes the effective use of external, primary spaces in the consolidation of the habits of sociability among residents and feelings of self-esteem with the place of residence. This fact, allied with the consolidation of the integration of the neighbourhood in the city through urban continuity ensured from the surrounding areas to the limit of the collective / individual space. All these factors act as functional contributions to the residential satisfaction of the inhabitants. Physical rehabilitation is also an asset to the city in the sense that values its residential heritage and promotes urban balance of this part of town. Moreover, all these factors minimize the neighbourhood phenomena of stigma as perceived by its residents as well as the eyes of the city, one of the objectives of urban renewal.

The project-oriented strategy and how it was reflected in the proposal should be interpreted in the context of the intervention of *Contumil* neighbourhood in its urban insertion and urban conditions of pre-existing situation but also from the impositions of the tender program and financial constraints the intervention. We consider that this redevelopment in *Contumil* neighbourhood gathers important information for study within the subject area of architecture, an example of references for future interventions in public space redevelopment of Economic Housing Neighbourhoods. It would be desirable to allow a greater effort to associate the asset management to a constant monitoring of issues involving social tension and eventually creating initiatives in the areas of social work and education. The reversal of negative social dynamics as occur sometimes in *Contumil* neighbourhood will be possible only with a performance in the medium / long term. Not fighting this sense, the scenario of urban insecurity in the neighbourhood may worsen, isolating a significant part of the population in their homes.

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