URBAN PROJECT BELÉM TOWER TO JAMOR RIVER
Tejo Residential Centre

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Abstract

This report aims to reflect on the work of Final Project in Architecture II, accomplished in the Masters in Architecture of the Instituto Superior Técnico, justifying the options taken in its development.

The project, promoted by the Municipalities of Lisbon and Oeiras and by the Administration of the Port of Lisbon, refers to the requalification of the riverfront located between the Jamor river and the Tower of Belém.

In this project the modelling of this riverbank margin is re-shaped. This proposes the location of an Urban Park and a Nautical area. In order to accommodate these new contents, new crossing points are created to overcome the barrier that is the railway line. A new solution is also proposed for the road structure and the rehabilitation of the urban fronts of Dafundo, Algés and Pedrouços, as well as the area of the Fishing Dock with the introduction of the Nautical area.

With these new values it is proposed that this new riverside area be the new "Atlantic port" of Europe, giving way to new events.

With the introduction of the Tejo Residential Centre, located in the urban park, it is expected that the area will gain a day to day use, that did not exist before. This area consists of a park, the Tejo Residences and the Riverside Restaurant.

Key Words: waterfront I requalification I urban park I housing
Introduction

This report is prepared within the scope of the Final Project in Architecture II course, integrated in the last semester of the Integrated Master in Architecture of Instituto Superior Técnico. This report aims to reflect on the project carried out during the 2015/16 school year and justify the options taken, in the first half of the year on an urban scale and in the second on the building scale.

The study area of the project, marked by the Tower of Belém and the river Jamor, was selected in conjunction with the Municipalities of Lisbon and Oeiras.

The project aims to address issues of relevance in the current dynamics of the city of Lisbon and the municipality of Oeiras, arriving at different results that can be presented to the municipal councils referred to. The themes to be addressed are: regeneration of riparian areas, design of riparian fronts, design of new public spaces on the river front that are in accordance with the new dynamics of relation with the river, and the design of facilities to support water sports.

The limit, constituted by the road railroad, prevented the use of the existing spaces to the south of this line. With the proposed project, it is hoped to bring new experiences to this area, previously forgotten. Through the regeneration of the riverside area, with the introduction of new experiences for this area, such as the headquarters of the Volvo Ocean Race and spaces for cultural activities such as the festival In the Alive, it is expected that this will become the new "Atlantic port" of Europe.

The program established for the Architecture Project to be developed in the second semester is housing. The riverside zone does not have this use and it is considered fundamental to develop it in this area. In this way it is hoped, with this use, to promote a permanent dynamization of the space.

The installation of the Tejo Residential Center is planned to be integrated into the Urban Park and with this program, the new riverside area of Oeiras / Lisbon, becomes an area that people will want to inhabit, making it an area of everyday use.
Theoretical Framework

Urban Concepts
In the 21st century, cities are confronted with the deterioration of many "consolidated urban spaces". In order to keep up with the economic development of the cities and with the exponential increase of the population, nowadays urban requalification is a "very current theme in the field of urban politics and planning, constituting itself as a strategic instrument especially directed to urban areas in decadence." (Moreira, 2007, pp.117)

Urban requalification "covers the changes ... of the characteristics of an urban area that is in transition due to a process of declination. It includes economic, social and environmental aspects ..." In economic terms, requalification aims to "create the conditions necessary to maintain a profitable economic activity ", thus providing employment to the inhabitants of the area. The objective of social requalification is to cut the cycle of poverty to which certain urban areas seem destined, altering the social perception that one has of them."(Moreira, 2007, pp. 120)

Urban parks are green spaces located in public urban areas. They aim to offer spaces for recreation, leisure, cultural services, such as museums and sports activities, such as fields and bike paths. The State Government of São Paulo defines that the advantage of these parks is to offer the residents of the urban areas green spaces and natural areas, an escape from the city, "without the need to travel great distances." It is in urban parks that much of the urban population comes into contact with nature, which makes urban parks crucial in environmental awareness.¹

Study cases
Reference projects are a fundamental part in the formulation of the program and design of a project, since they allow to acquire bases for the resolution of similar problems or only as influence of design decisions.

Parque das Nações and the Expo '98
One of the projects that triggered the return of Lisbon to the river was the intervention carried out for the Expo '98, currently the Parque das Nações. This zone, like the intervention zone, housed an industrial platform, deactivated upon its relocation. As Ferreiro et al. say (1998: 49) this project, at the beginning, was accomplished with an ephemeral purpose, the execution of the Expo '98, but it had an urban impact in the city of Lisbon that went beyond expectations, becoming a new "metropolitan centrality". (Ferreira et al, 1998, pp.49)

¹ http://www.ambiente.sp.gov.br/parque-urbano/ (23/04/2017)
Characterization of the study area

Historical evolution of the site

Lisbon is characterized as a riverside city since its inception. Its strong suit has always been the riverfront area. From the century XII a.C that the good conditions for the navigability allowed the creation of the commercial port in the margin of Lisbon. With the growth of the city, the margin was being altered by successive landfills that modified its subtle design. (France, 1996)

During the government of Salazar, new urban plans are unleashed by Engineer Duarte Pacheco. The margin of Lisbon is redesigned, from Cabo Ruivo to the Tower of Belém. The previous corrugated line is replaced by new docks, advancing on the river Tejo. Following these changes, many of the riverfront beaches disappear, with a significant retreat from the fronts built. (France, 1996)

Only years later, in the end of the 20th century, with the urban renewal, is that some of the lost identity of the river-city relationship has been recovered, with new urban complexes on the riverfront, such as the Parque das Nações.
**Territory analysis**

**Ecological and hydraulic structure**

The area under study develops along 3,260 meters, and is comprised between the Jamor river and the tower of Belém. In this zone there are three large green areas, derived from forest areas of considerable impact in the city of Lisbon and its landscape, these are: the extension of the Monsanto Forest Park (Alto do Duque), the Park of the valley of the Jamor river and the gardens and public spaces of the monumental area of Belém.

This part of the city of Lisbon presents three main water lines that will converge in the estuary of the river Tagus: the river Jamor, the river of Algés and the water line of Restelo. Since it is a riverside area with several piped water lines, the risk of floods and floods (figure 4) is greater than in other areas of the city.

**Built structure and urban fabric**

The built structure of the zone under study follows three types of meshes (figure 2), resulting from the terrain slopes and topographic lines. In the area of Cruz Quebrada and Dafundo there is an organic mesh resulting from the high slopes. The northwest area of Algés has an organic layout that dissipates, with the approach of the city of Lisbon, giving way to a planned and orthogonal urban tissue, resulting from the attenuation of the slopes. When it exceeds the limit imposed by the road rail line, in the embankment, the urban network is eradicated due to the scarcity of buildings.

**Mobility**

The intervention area is equipped, at the road level, by the IC17 - CRIL 1st level road, by 2nd level road Brasília Avenue and the 3rd level roads Índia and Marginal Avenues. These roads have a negative impact on their surroundings, both in public spaces and in built spaces, making it difficult to cross. This situation makes the riverfront areas even more isolated. In this area the automobile use is privileged and not the quality of life of the people who live there in their day to day life.

**Land Use**

Nowadays the riverside area of Dafundo, Algés and Pedrouços, has gained a new direction, being characterized as an area where predominates housing, commerce, tourism and nautical sports. With the construction of the railway line, this margin was separated resulting in two types of uses occurring in the north side of the railway line and the ones occurring south of it.

In the areas north of the line occur the day-to-day activities such as housing and commerce. The market of Algés, the urban park of Jamor, are some of the activities that stand out. South of the railway line, the riverside is used for large-scale international events such as Nos Alive, Meo Outjazz and the Volvo Ocean Race, which occur disconnected from the rest of the city. The following buildings stand out in this riverfront, the Champalimaud foundation, the Torre de Belém and the VTS Tower.
Project

The project for the regeneration of the area located between the Jamor river and Tower of Belém covers the urban and the building scales. Considering the lack of programmatic content, one of the major objectives of this project is the creation of an urban park. The scale of the building will focus on the Tejo Residential Center, extending the uses south of the train line.

The major interventions aimed at regenerating the area are the Urban Park and a Nautical Pole, which will occupy the entire riverbank.

Resolution of the railway "Barrier"

The barrier effect was attenuated with the passage of the routes of upper hierarchy to the south of the railway line and also with its elevation in the node of Algés. With the passage of the tracks to the south of the train, it is allowed to create a promenade next to the built front of Dafundo and also the extension of the Algés garden to the Vasco da Gama Aquarium, bringing back the former "Alameda de Algés". With the softening of the barrier, it is possible to better access the abandoned landfill, through the wide access zone originated by the space released with the elevation of the roads in the Algés node.

Road and pedestrian accesses

The strategy for mobility was to establish links where they did not exist, such as the bike path and the continuation of the Oeiras sidewalk along the riverside. It was through the definition of nodes that would articulate the different levels of the road network, that the problematic road connections were solved. The railway remained unaltered from economic reasons.

Rehabilitation and consolidation

In an urban project new interventions are carried out to complete the image of the city and to fill its gaps, but it is crucial to look at the urban space already built and understand what are its flaws and to remedy them with the use of tools like the concepts of rehabilitation and consolidation.
In the project, the rehabilitation and consolidation changes take place in the surrounding area of the Algés node and in front of the urban front of Pedrouços, where buildings are rehabilitated, new uses are assigned to underutilized buildings, or new buildings are constructed, consolidating the urban network. These buildings now offer housing, commerce and services.

**Urban park**

The urban park, originated through the connection of the three green corridors in this area: the extension of the Monsanto Forest Park, the Park of the valley of the Jamor river and the gardens and public spaces of the monumental area of Belém. The urban park aims to give a new identity to this riverfront. To create this continuity of green spaces, it is built in a new landfill, located in front of the urban area of Dafundo, making the connection with the existing landfill.

In the urban park the following equipment and facilities are inserted: new transport interface, car parking structure, housing, new embankment, hotels, commercial spaces and multipurpose pavilion.

**Nautical area**

On the east side of the river the Nautical Pole is located that results from the rehabilitation of the warehouses of the fishing dock, at the request of the CML and APL and the construction of a new hotel. This rehabilitation operation aims to build the image of the new "Atlantic port". This is an important image to promote recreational water sports and the installation of the Volvo Ocean Race, which foresees for Lisbon the next starting point of the race in 2017/18 after the successful stopover in 2011/12 and 2014/15. In this Nautical Pole you will find, a Nautical Center, Hotel Tejo, gymnasium and municipal swimming pools.

**Tejo Residential Centre**

This project is made up of three distinct entities, the Tejo Residences, the Park and the Riverside Restaurant, all of which are inserted according to the radial orientation of the bay that enters the Urban Park generating the Tejo Residential Center.

The Tejo Residential Center with a construction area of 13300 square meters, provides five residential buildings, a restaurant and three commercial spaces, with a deployment area of 2,733 m2.

This project is part of the urban park. It has with a green structure of 17,855 m2, differentiating itself with a different language from its surroundings, making the transition from the housing area to the Urban Park.
Squares
The various squares, City Square, Park Square and River Square, are generated through the negatives generated by the buildings and surrounding green spaces. The Water Square is the element that generates the Riverside Restaurant.

Tejo Residences
The Tejo residences, located in the Urban Park, are composed of six buildings with twenty two duplex apartments ranging from T3 to T5.

The buildings 3, 4, and 5 have commercial spaces to host programs such as: gym, cafe or space for events. Buildings 1 and 2 have the ground floors on the side of the park leaked to allow greater permeability in the square, and therefore without programmatic content, but the same with a public character.

The functions of each duplex are divided by floors. On the lower floor are the common spaces, office, kitchen, laundry, social bathroom, dining room and living room with double foot. On the upper floor are the bedrooms with bathroom and the master bedroom with dressing room and bathroom. On the roof of each building there is a swimming pool with deck space for sunbeds, jacuzzi and two bathrooms.
All apartments have their own storage room located on the underground level of the Tejo Residential Centre parking lot. It is through this floor that the access is made to the private marinas of each building.

**Riverside Restaurant**

The Riverside Restaurant, with 420 square meters, is part of the Tejo Residential Centre. This building is embedded in an elevation of the land, with the purpose not having great impact in the sights.

The spaces of the restaurant are generated by the circular shape of the area where its located, in particular by the radial directions originated from the circular square, the Plaza de Agua, which precedes it. This modeling of spaces is equal to that of the residential buildings and the park, which are generated through the radial direction of the great bay.

The Riverside Restaurant is divided into three zones. The restaurant / bar area which is divided into reception, bar and restaurant area, and at the end of the room an outside deck. The service area, equipped with a cafeteria, locker rooms for the workers, kitchen, fridge room and pantry. The other area is where the bar, the storage room, the bathrooms (men's, women's and reduced mobility), and the restaurants administration office.
Conclusions

The project presented intends to meet the requests of the Municipalities of Lisbon and Oeiras and the Administration of the Port of Lisbon, in order to return the city to the riverfront.

The proposed project consists of a set of consistent and interconnected solutions, responding to the requests of the public entities, through interventions in infrastructures and buildings that ensure dynamism to this area that was demarcated from the city.

The urban proposal aims to give new life to the area between the Jamor river and the Tower of Belém, causing a break in the limit imposed by the barrier built by road infrastructures, ensuring a connection and giving new uses.

The road network is redesigned, reducing its impact, improving the housing fronts of Dafundo, Algés and Pedrouços.

Several buildings throughout the study area are rehabilitated and awarded new programs.

The river bank is reformulated with the creation of a large Urban Park and a Nautical Pole, where the Volvo Ocean Race headquarters is set up.

With the construction of the Tejo Residential Centre, which includes commerce, catering, housing and parking lots, the urban park is expected to earn a life that lasts throughout the year, contrary to the former seasonal use of this margin. This area becomes an integral part of the daily life of the inhabitants of Dafundo, Algés and Pedrouços and to be a new tourist center in the great city of Lisbon.

The urban and architectural solutions cannot be considered as a finished project, since it will require much more interventions to encompass a complete solution for a project of this magnitude. The project can be considered a good starting point that intends to offer a range of environments and functionalities to this previously abandoned area.
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