New residences of Barrio 31

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Address 1 - street : c1001 BARRIO 31 - BUENOS AIRES , Argentina

Population : 40 000 hab
Starting year of the project : 2017
Delivery year of the project : 2019
Key words : HABITAT, AFFORDABLE HOUSING, INFORMAL SETTLEMENTS, INTEGRATION, SUSTAINABILITY, RESILIENCE, PUBLIC SERVICES, SOCIAL INFRASTRUCTURE, LOCAL GOVERNANCE, SOCIO-URBAN INTEGRATION, SUSTAINABLE CITIES

11 ha

78 327 040 €

ID CARD

For the first time in history, the City of Buenos Aires (Argentina) is going through anunprecedented social, economic and urban integration project. This is the case of Barrio 31, one of the main informal settlements in the city, which dates back to the 1920s and grew over the years to reach to 40,000 inhabitants. This makes it, by itself, a city within the city. To achieve its integration, the Government created in 2015 a specific body - the Secretariat of Social and Urban Integration - directly dependent on the Presidency of the Cabinet ofMinisters. This strategic and privileged position within the organization chartof the City is the clear evidence that, for the first time, the public policy of integration is hierarchized and is, in turn, the only way to carry out a project of such magnitude. To fulfil the mission of integrating Barrio 31 intothe formal city, a holistic approach project was created, which simultaneously addresses issues ranging from infrastructure and housing, to access to education, health and work. Working on this multiplicity of issues at the same time, on the same population, requires an intensive intervention that is onlypossible with a single specialized structure interacting in the territory andproviding the solutions in an integral way. As part of this integration project, a fundamental axis is to address the habitat issue in Barrio 31. In this sense, we work to ensure that every dwelling in the neighbourhood is safe, accessible and adequate. To do this, all the homes suitable for enhancement areimproved through different initiatives. However, certain homes cannot beimproved, since -among other problems - they are located below the Arturo Illia highway, an irregular and dangerous situation. That is why the Government of the City of Buenos Aires decided to take advantage of an unused boundary venue and, after purchasing it, build 1,044 new homes, commercial premises, offices and public spaces destined to relocate the families of the previously mentionedhomes.

This New Housing Project, in addition to specifically addressing the housing issues ofpart of Barrio 31, will support the goals of the integration project of the entire Barrio 31 and its neighbours, expanding accessibility, quality of life,access to public transportation and, in general terms, the connection of Barrio31 with the City.

Programme

- Housing
- Public facilities and infrastructure
- Public spaces

Method used to calculate CO2 impact

● Tons of CO2 saved: TIPOLOGY 1 (0,87 TonsCO2/unit year), TYPOLOGY 2 (1,19 TonsCO2 / year unit), TYPOLOGY 3 (1,28 TonsCO2 / year units), TYPOLOGY 4 (1,52 TonsCO2 / year

units). ● Method to calculate CO2: IFC – WORLD BANK

Project progress

- Delivery phase

Prescriptions and zoning

- Particular conventions

Key points

- Governance
- Quality of life

Approaches used

- Others

Certifications

- LEED-ND
- Autre

More info

http://edge-cert.org/

Data reliability

Self-declared

TERRITORY

Type of territory

Barrio 31 of the City of Buenos Aires is located in a strategic location a few blocks from the financial centre of Argentina and the Casa Rosada (Government House), surrounded by high-income neighbourhoods such as Recoleta and Retiro.

The neighbourhood was born as a small informal settlement in the mid-1920s and continued to grow over the years to reach its current extension of 72 hectares and a population of 40,000 inhabitants. However, despite its central location in the most important city in Argentina, and the fact that it would be located above the 65% of the country's cities in terms of population, Barrio 31 was doomed to marginalization and lack of public policies from the State. On more than one occasion, attempts were made to eradicate the settlement.

Nevertheless, as of 2015, the Government of the City of Buenos Aires, through the Secretariat of Social and Urban Integration, sought to reverse this reality and meet the demands of the Neighbourhood. The integration project works, through a comprehensive approach, so that all residents of Barrio 31 have the same conditions of possibility and obligations as the inhabitants of the City. Access to quality public education and health is guaranteed, efforts are being done to provide access to formal work, formalization and development of the Barrio's economy including its integration with the City's economy and, in addition, work is being done to guarantee access to basic services, through infrastructure works and to improve living conditions with safe and adequate housing.

The New Housing Project is located within the 72-hectare polygon corresponding to Barrio 31. Specifically, the project is carried out on what was previously a warehouse facility, mostly vacant, belonging to the YPF oil company, whose majority shareholder is the Argentine National State.

Climate zone

[Cfa] Humid Subtropical - Mild with no dry season, hot summer.

More info

www.buenosaires.gob.ar/integración

KEY FIGURES

Neighbourhood paved surfaces

Neighbourhood paved surfaces : 42 000 m²

Green areas, roofs included

Green areas, roofs included : 2 000 m²

Public spaces area

Public spaces area : 19 500 m²

Commercial floor area

Commercial floor area : 5 000 m²

Public facilities floor area

Public facilities floor area : 26 000 m²

Housing floor area

Housing floor area : 85 000 m²

Refurbished floor area

Refurbished floor area : 11,00 ha

Number of social housing units

Number of social housing units : 1 044

Green spaces /inhabitant

0.05

Public spaces/inhabitant

0.49

Total investment costs (before tax)

Total investment costs (before tax) : 78 327 040 € HT

GOVERNANCE

Project holder

Name : Secretariat of Social and Urban Integration, Presidency of Cabinet of Ministers,

Government of the City of Buenos Aires

Type : Para-public owner)

General description :

The New Housing Project is conducted 100% by the Government of the City of Buenos Aires, through the Secretariat of Social and Urban Integration, with the participation of private companies hired for the construction and the partial financing of the World Bank and the Inter-American Development Bank, which advises the Secretariat on the project.

Project management

Description :

The New Housing Project is part of the social and urban integration plan of Barrio 31 into the City of Buenos Aires.The objective of the integral project is to make of Barrio 31 another neighbourhood of the formal city, in all the senses: infrastructure, housing, health, education and possibilities of economic development. The Secretariat of Social and Urban Integration is in charge of developing all the aspects of the integration of the neighbourhood. For this, the legal basis for the work of the Secretariat was given, in its beginnings, by Law 3.343 of the City of Buenos Aires, enacted in 2009, which provided for the urbanization of the land corresponding to the informal settlements (slums) "villa 31" and "villa 31 bis".

After the initial work of the Secretariat, a new bill to regulate the previous one was promoted through the corresponding institutional mechanisms. This bill also contemplates the entire polygon of Barrio 31 -72 hectares and, specifically, it includes the venue where the New Housing Units are located today. since it was originally not taken into account. This project was promulgated by the Legislature of the City of Buenos Aires in 2018 as Law 6.129 and, among other points, it provides for the provision of a unique and definitive housing solution within the polygon specified by the Law for all residents registered in Barrio 31. With this objective in mind, Law 6.129 also provides the mechanisms to be followed for the relocation of those families living in areas of environmental risk, such as the inhabitants of the *Bajo Autopista*, beneficiaries of the new housing units.

For the development of the housing project, different actors from the public and private sectors specialized in the theme were invited to collaborate with different visions and disciplines, allowing for the consolidation of trust and cooperation ties. Among them, the *Facultad de Arquitectura y Urbanismo de la Universidad de Buenos Aires* (Faculty of Architecture and Urbanism of the University of Buenos Aires) was convened through the Institute of Human Spatiality and its team, led by the Architect Fernandez Castro, for the design of the housing units.

In addition, the recommendations of the Gehl Architecture Studio were taken into account. This study provided an advisory service for the urban design of the neighbourhood. They are specialists in the application of the concept of cities on a

human scale.Particularly in this project, their proposal introduced the concept of housing grouped into multifamily buildings, as well as the urban vision of the sector, contributing to the hierarchy of circulation, spaces of coexistence, sectorization and other points. For its part, Thays Studio, specialized in landscaping, collaborated for the design of public spaces.

In the public sphere, the Secretariat of Social and Urban Integration, under the Presidency of the Cabinet of Ministers of the Government of the City of Buenos Aires, as the enforcement authority of Law 6.129, worked together with the Ministries of Urban Development and Transport as well as with the Environment and Public Space, for the mobility plans of the sector and the hygiene and maintenance of the district, respectively.

As regards the financing of the project, it is implemented through two lines: own funds of the City Government and loans from multilateral organizations: World Bank and Inter-American Development Bank. Own funds were used to purchase the land from YPF, an energy and oil company controlled mainly by the National Government. The World Bank, for its part, contributed funds for housing and infrastructure works while the Inter-American Development Bank financed the works in the public space of the district and the Maria Elena Walsh Educational Hub, which includes the new headquarters of the Ministry of Education of the City, two schools and an adult education centre.

Last but not least, the New Housing Project has the fundamental participation of residents of Barrio 31 and specifically those from the *Bajo Autopista* sector (area under the highway), who will finally have safe, accessible and adequate housing.

Project stakeholders

Diego Fernández

Function : Other

Secretary of Social and Urban Integration, Government of the City of Buenos Aires, Argentina

fernandezd@buenosaires.gob.ar, institucionales.secisyu@buenosaires.gob.ar +54 9 11 6373-4903

Construction21 company page :

https://www.buenosaires.gob.ar/jefaturadegabinete/secretaria-de-integracion-social-y-urbana/viviendas-nuevas-en-ypf

QUALITY OF LIFE

Quality of life / density

The New Housing Project is, essentially, an initiative to improve the quality of life of the 1,000 families living below the Illia Highway which divides Barrio 31 into two parts. The houses in this sector do not have the minimum habitability conditions, given the lack of light and ventilation, the existence of sound and air pollution, as well as small dimensions and lack of divisions between environments. In turn, access to public services is deficient. For all these reasons, the new homes are a way to address these problems and substantially improve the quality of life of the residents of Barrio 31.

Moreover, the new public spaces of the new district will contribute to leisure and provide green space to the neighbourhood and the City of Buenos Aires.

With the creation of new streets and the opening of other streets, Barrio 31 will be connected at its two ends and with the same formal City.

Social diversity

Barrio 31 is a district of enormous sociocultural diversity. In this sense, 52% of the 40,000 inhabitants are of Argentine nationality, while the remaining fifty percent is divided into 25% of Paraguayans, 13% Bolivians and 10% Peruvians. This not only means that its inhabitants were born in different countries, but the neighbourhood, in addition, presents a great heterogeneity of cultures, traditions, gastronomy and even languages.

The challenge of the New Housing Project is precisely to preserve the diversity of Barrio 31 in the new district and, in addition, highlight these identities by integrating them into the formal city.

The City of Buenos Aires has historically stood out for its combination of styles and cultures, legacies of the different waves of immigration. For this reason, the integration of Barrio 31 and its cultures and identities is fundamental to continue with and deepen the diversity of the City.

Social inclusion and safety

As expressed in its name, social integration is one of the pillars of the Secretariat of Social and Urban Integration.

This is why, the path transited towards the new dwellings does not only include an infrastructure work, it is also a social construction. Months before the moving, we start working with the families through workshops where multiple topics are addressed: house materials, history of their block, coexistence within an association of owners, importance of security of tenure, payment, etc. We are convinced that this community work is what makes the good use of housing sustainable over time.

On the other hand, the New Housing Project will not only allow neighbours to have access to public services and quality housing, but it will also contemplate the expansion of public education for all ages (understanding that education is fundamental for human development and for the expansion of neighbours' possibilities).

How? Through the Maria Elena Walsh Educational Centre, which includes a kindergarten, a primary school and a school for adults, as well as the new headquarters of the Ministry of Education and Innovation of the City of Buenos Aires. This hub is located in the same district as the houses and consists of 26,000 m2 with independent access for each school level and for the Ministry of Education, it has more than 20 classrooms, rooms and workshops that, in total, allow to expand the educational offer to 520 new vacancies for public education.

The new Ministry will have more than 2,200 jobs positions, spaces for customer service, parking lots, halls and an auditorium. The confluence of this number of workers to the neighbourhood aims to generate new business and entrepreneurial opportunities for the neighbours.

This is possible, in part, because the new housing district is a much more accessible and free space for all residents, as well as for security forces and emergency teams. In this way, this project not only expands commercial and economic opportunities in general, but it also allows for a greater interconnection with the city and generates a space where the security of the district's neighbours can be better guaranteed, contributing to security of the entire Barrio 31.

Ambient air quality and health

Sound and air pollution are, precisely, the two environmental issues that most afflict the neighbours of the *Bajo Autopista* (area below the Highway), given the circulation of thousands of vehicles on the Illia Highway and the noise levels generated by it, which rise above 80 dB. For this reason, the New Housing Project and the works corresponding to it, place special emphasis on controlling contamination related to these two aspects.

Prior to the start of the works, a Comprehensive Environmental and Social Impact Study (EIASC) corresponding to the New Housing project was carried out, according to Law 123 of "Environmental Impact Assessment", which is part of the comprehensive plan for Barrio 31. The EIA was presented on April 19, 2017 by the Secretariat of Social and Urban Integration before the Environmental Protection Agency, creating the file *2017-09113326-MGEYA-APRA.* In this way, as established by Law 123, that enforcement authority promoted the corresponding public hearing procedure on November 28, 2017.

Furthermore, with the objective of managing the environmental implications derived from the project, the Environmental and Social Management Plan (*PGAS* in Spanish) was developed

by the contractor company in order to comply with the compliance and control of the projected mitigation measures , the monitoring of environmental variables and the procedures against the occurrence of contingencies. The effective scope of the *PGAS* focuses on the commitment of conservation actions and improvement of environmental quality, in the preconstruction stages and in the construction of the project. Through the PGAS, two specific programs were established for the *management of gaseous emissions and noise*:

- G**aseous Emissions**: with respect to the emission of atmospheric gaseous pollutants, we will comply with the provisions of Law 1,356 of the City of Buenos Aires and Regulatory Decree 198/06. It provides for the reduction and control of air pollution, reducing any possible emission of pollutants, avoiding any type of leakage. Gaseous emissions from vehicles and equipment comply with the emission parameters allowed by regulations, including the general guidelines on environment, health and safety of the World Bank Group. The volatilized compounds (fuels, lubricants, etc.) are confined in containers that prevent the escape of vapours into the atmosphere and the burning of any excess fuel, used lubricants, plastic materials, tires, cameras, containers or any other waste is strictly prohibited. Vehicles, equipment and machinery undergo periodic maintenance to ensure the perfect state of operation. Additionally, they have the documentation related to the automotive, including the technical review performed by a qualified institution and required safety elements. Machines that are not covered by the traffic law that regulates gaseous emissions are checked periodically to verify if the corresponding maintenance is performed. Special emphasis is placed on minimizing the production of dust that can be generated in actions such as the installation of a workshop, cleaning of working areas, workshop activities, loading and unloading of materials, movement of machinery and transportation in general. The working areas, where the emission of particulate matter and soil collection are generated, are moistened and covered with regulatory material. During transport, the trucks have tarpaulin covers, thus avoiding the dispersion of dust.
- **Noise**: with respect to noise, we comply with the provisions of Law 1.540 and Regulatory Decree 740/07. Noise levels are reduced by the use of adequate silencers in motorized equipment, noise suppression or damping devices in generators, compressors, etc., moreover, low-noise and vibration equipment and machinery are used. Continuous monitoring is carried out on the operation and the possible calibration of the equipment and vehicles, periodically controlling filters and valves and keeping them in good tuning condition. In addition, the provision of the corresponding elements of safety and personal protection is ensured for operators with greater direct exposure to noise and particles generated by the mechanical action of the various machinery.

ECONOMIC DEVELOPMENT

Local development

Integrating the economic matrix of Barrio 31 with that of the City is a fundamental step for this project to be sustainable over time. The Secretariat of Social and Urban Integration is working on a comprehensive approach, both with the residents of Barrio 31 and with the neighbours of the City as well as with the private ones that can find great potential in the area

To this end, an Entrepreneurial and Labour Development Centre (CeDEL) was built in a building that was previously linked to drug trafficking and that, after being searched by Justice, was transformed into a space of opportunities. There, free training is offered in technological, cultural and traditional occupations, entrepreneurs are accompanied to improve and formalize their activities, and a work integration program is carried out that connects neighbours with job opportunities in companies. In terms of commercial integration, a strategy was put into practice to formalize and authorise shops already settled, resettle those that are necessary and select the projects of the companies that are going to settle.

CeDEL works together with the economically active population and this is already showing visible results. More than 10,900 neighbours approached in search of new opportunities, 2,738 neighbours were trained in different occupations, more than 690 neighbours got a formal job thanks to the Labour Integration Service, 926 entrepreneurs were accompanied in their projects and 928 neighbours were registered in the tax system.

Thanks to these results it was decided to open, at the end of 2018, a new centre at the other end of Barrio 31 to reach more neighbours and, fundamentally, a third CeDEL will be opened in the new district to bring all its neighbours closer to more and better possibilities of economic development, as part of the New Housing Project.

In addition, specifically for the development and economic integration of the new district, it was decided to move the offices of the Ministry of Education and Innovation of the City of Buenos Aires to the same venue. This will not only mark a strong change for the City, but it will also result in great commercial growth for the entire area surrounding the building, all within Barrio 31. It will be a great opportunity to generate new ventures and boost the growth of the existing ones thanks to the more than 2,200 employees of the ministry who will work there and will become potential consumers for businesses in the area.

Finally, it should be noted that 72 stores will be strategically located in the ground floor of the 26 buildings within the new district. Groceries, restaurants, clothes shops and general stores that will go through a process of moving from the *Bajo Autopista* to the new housing district, with an accompaniment led by the team of the Entrepreneurial and Labour Development Centre.

% of public spaces

18

% of commercial area

5

Mobility strategy

The new homes and the public space provided by the Project, in addition to addressing a specific problem of habitat and infrastructure, aim to continue the integration and interconnection between Barrio 31 and the City of Buenos Aires.

Currently the neighbourhood is isolated from the formal city by barriers such as the railroad tracks and the Illia highway, while, on the north side, where the new housing district is located, the port area is also perceived as a limit.

Therefore, this project seeks to connect the internal streets of the district with the formal layout of the City, allow the circulation of passenger public transport inside Barrio 31 -with a more accessible exit to *Retiro* area, where many lines of Buenos Aires buses converge-, significantly improve the connection of the neighbourhood to the network of bike paths and bikeways of the City and, furthermore, ensure accessibility to the *Rondín*, a public transport system of electric buses that will circulate in a loop through the neighbourhood, connecting it with the Ramos Mejía and Libertador Avenues, two important arteries of the City of Buenos Aires.

In this sense, the venue on which this project is built was, for many years, a barrier between Barrio 31 and the port area of the City. Nowadays, thanks to the opening of streets and the infrastructure works and public space, the so-called "YPF venue" -for its former owner- becomes a central node for the connection between Barrio 31 and the City. How is it possible to achieve this change?

First, through the access to public transport. Currently two bus lines, which link *Ciudad Universitaria* with the town Remedios de Escalada in the Province of Buenos Aires through different routes (lines 33 and 45) are in the process of changing their route so that they cross the new streets generated by this project. Thus, for the first time in history, formal public transportation of passengers will enter Barrio 31. This generates a new connection between the Barrio and *Retiro* area, Argentina's main bus and train terminal, as well as with *Constitución area* -another important railway, subway and bus terminal- and all adjoining areas, in addition to serving as a new link between Barrio 31 and the Province of Buenos Aires.

However, much of the focus of this project is on sustainability. To serve these objectives, the transportation axis is also fundamental. Therefore, as a second point it is essential to highlight that through the access to the network of protected bikeways and new stations of EcoBici -the free bicycle rental service of the City- the neighbours of the New Homes and all of Barrio 31 will have access to a new way of moving, in an environment-friendly way throughout the City of Buenos Aires.

Moreover, all homes and businesses built within the framework of this project will have access - less than 200 meters away - to the new public electric transport system that will connect

Barrio 31 with the bus and rail terminals of Retiro, Liberator Av. and almost all sectors of the neighbourhood. The *"Rondín"* will have a loop route and part of it will be through the *Parque en Altura (Elevated Park) – a* project that will transform part of the Illia highway into a large linear park. In this way, and using electric buses instead of the traditional pollutant ones, a new transportation route will be opened through Barrio 31 and the new dwellings.

RESOURCES

% Paved surfaces

38

Water management

As for the common facilities, each of the buildings of the New Housing Project includes columns of discharge and ventilation by plenums for all the sanitary devices of each level, with different points of access for unblocking and cleaning the pipes. The pluvial drains of the roofs and balconies will reach the ground floor through polypropylene plastic pipes. In semi-covered circulation sectors, independent drains are planned. All the pluvial water will concur to storm-water sewer or sidewalk gutter according to the trace of external networks.

The project considers rainwater gutter collectors in the longitudinal sense of the buildings, two in coincidence with the building lines that will drain to a pluvial network of the neighbourhood, and a third central one, that drains to the tanks of reuse of rain water, which will be used for irrigation and cleaning of common spaces.

Hot-water tanks of the buildings, according to the number of homes to be supplied in each core. The pumps are Rison pumps model SQB3.0 / 50-D48 / 450 (for flows less than or equal to 6400 litres of water / day), Grundfos pumps model CRF 1-4 (for flows between 6000 and 8000 litres per day) and Grundfos pumps model CRF 3-4 (for flow rates greater than 10,000 litres per day).

Furthermore, each of the functional units has efficient accessories, such as taps with aerators and toilets with double discharge button, both with the aim of saving water.

Soil management

Prior to the start of the works, the corresponding site investigation studies were conducted in order to determine the potential contamination of the soil, as well as the corresponding RBCA (Risk-Based Corrective Actions), human health risk study.

This was fundamental since it must be considered that the venue where the project is carried out belonged to the oil company YPF (*Yacimientos Petrolíferos Fiscales*). This is why it did not surprise the presence of pre-existing Underground Storage of Hydrocarbon (SASH in

Spanish) in the venue. Due to this situation, an eradication plan for the identified SASH and environmental sanitation was carried out with the intervention of the Operational Sub-Management of Potentially Contaminated Sites of the *APrA*. Within this framework, the Secretariat of Social and Urban Integration presented on September 7, 2017 to APrA, the closure report of the land sanitation plan, which included the eradication of the four SASH identified during the surveys conducted on the venue, as well as the treatment of soil and hazardous waste identified during the works. The works were carried out by the company Lihue Ingeniería S.A., operator hired by the Ministry of Social and Urban Integration and authorized by the enforcement authority to carry out this type of works.

According to the results of soil and groundwater sampling carried out after the sanitation work, the study determined that the objective values required by the authority were satisfactorily achieved. From the conclusions of the study, it can be concluded that, "... none of the concentrations of Compounds of Interest (CDI) present on the premises exceeds the specific target levels for each site", so that it can be ensured that the venue does not present risks for human health in the future. In this way, the "*Conforme de Recomposición Ambiental"* (Environmental Recovery Approval) was obtained

Waste management

Waste collection in Barrio 31 is conducted in a different way from the formal city. It is carried out door to door by work cooperatives of Barrio 31. Then, waste bags are removed by the waste company awarded to the area by tender bidding of the Government of the City.

Regarding recycling in the neighbourhood, a pilot project -ATR (*A Todo Reciclaje*) - is currently being implemented, where the different door to door collection is carried out in 3 streams: organic waste, waste and dry waste and garbage. The waste stream is removed by the official company of the City Government, the dry stream is classified in a plant for it, within the neighbourhood, and the organic waste is sent to the organic waste treatment plant of the City. This recycling programme is more exhaustive than the formal city's programme, since it currently recycles only dry and other streams.

That is why Barrio 31 stands out in the waste management process, and we bet on the differentiated collection of organic waste since we understand that at least 40% of a waste bag is composed of organic waste.

In this sense, the collection of waste in the new housing district poses a challenge for the local government. Our goal is to manage waste from the new dwellings as similar as possible to the formal city process. Therefore, for the first time in the neighbourhood, the collection will no longer be door to door. We propose the disposal of containers, with waste streams and the correct disposal of them.

The buildings also have rainwater collection systems, which are used for non-sanitary uses: mainly for cleaning the sidewalks and for irrigation. On the other hand, in cases where there are flowerbeds in the front of the house or space with soil and vegetation, irrigation is done by automatic drip system, to save even more water.

BIODIVERSITY

Biodiversity and natural areas

As part of the New Housing Project, 19,500 m2 of public space are incorporated into Barrio 31 and different initiatives are carried out to take advantage of them.

In the first place, to increase the green space and the biodiversity of Barrio 31, trees were incorporated. They include native species such as "*Bosques en galería*", of the Paraná and Uruguay rivers (flora from the Río de la Plata) and "*Talares Ribereños*", for their obvious environmental merits, in addition to their striking flowering. In its environmental dimension, the native flora ensures a correct adaptation to the environment and a sustainable behaviour. In addition, it was sought a correct development of the native flora without requiring phytosanitary treatments, just minimal pruning and shaping tasks and low water requirements supplementary to rain-water. As for the non-native and fruit species, they were included with the purpose of generating a domestic sense in the public space. For this, species of proven good behaviour in the City of Buenos Aires were chosen.

Regarding the trees for sidewalks, second magnitude species (up to 10 meters) and third magnitude (up to 5 meters) were chosen to maintain an adequate relationship with the height of the facades and the empty space resulting from the proposed buildings. Species of deciduous foliage to allow sunlight during the autumn-winter period; and, in time, refresh the environment thanks to the shade produced during the warm spring-summer months. They are species with finely divided leaves (Jacaranda, Timbo, Ibira-Tipa), with the objective of reducing the accumulation of leaf litter in the felling period and thus avoiding possible conflicts with the storm drains.

In turn, in the coexistence spaces, due to the intense program of uses, the scarce available space must be made compatible with the presence of trees. In these spaces, the relationship between deciduous and persistent leaf species is paired with the intention of maintaining green foliage to compensate for the dominance of what was built throughout the year. In addition, small- size perennial foliage species (third magnitude) are taken into account to avoid excessive shading during the winter.

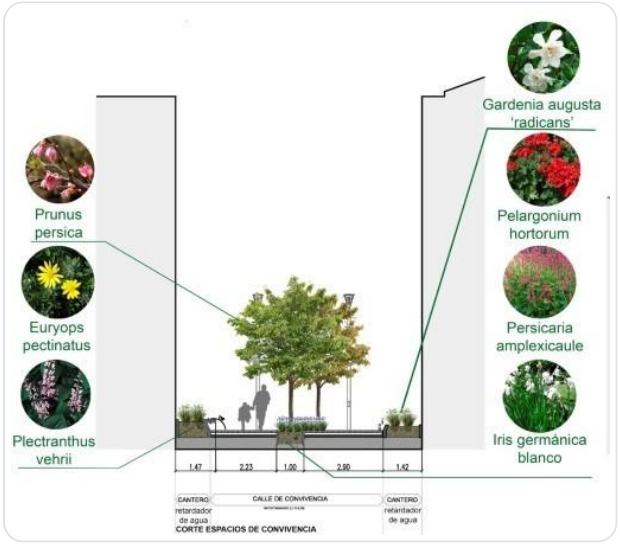
SOLUTIONS

Arbolado y Distribución de Vegetación

Description : - Below are the different species of trees, shrubs and other plants that will contribute to the district's biodiversity.

Species of trees: *Acacia Visco, Albizia julibrissin, Bauhinia candicans, Blepharocalyx salicifolius, Jacarandá mimosifolia, Ceibo, Timbó, Lapacho amarillo, Peltophorum dubium, Catalpa, Tabebuia avellanedae, Senna spectabilis, Robinia pseudoacacia frisia, Syagrus romanzoffiana.*

Species of fruit trees: *Citrus punica granatum, prunus persica, Prunus domestica.*



Species of Shrubs and herbaceous plants: *Agapanthus africanus, Abelia grandiflora compacta, Bulbine frutescens, Asclepia curassavica, Erica cuphea, Gardenia augusta "radicans", Euryops pectinatus, Buxus sempervirens, Dianella tasmanica, Dietes grandiflora, Iris germánica azul, Iris germánica blanca, Salvia procurrens, Salvia guaranítica, Liriope muscari, Plectranthus vehrii, Liriope muscari, Plectranthus neochilus, Pennisetum villosum, Pennisetum gracillimus, Lantana montevidensis, Lantana camara, Pelargonium hortorum, Pentas lanceolata, Hydrangea macrophylla, Persicaria amplexicaule, Westringia fruticosa, Sisyrinchium, Macrocephalum, Wedelia glauca, Spiraea bumalda, Verbena hybrida.*

Species of vines: *Antigonon leptopus, Pandorea jasminoides, jasminum azoricum, Passiflora edulis, Macfadyena unguis cati, Pyrostegia venusta, Jasminum officinalis*

- Other

ENERGY/CLIMATE

Climate adaptation, resources conservation, GHG emissions

The objective of the New Housing Project is to build a green space of social cohesion, gathering and community union that, in addition, contributes to revalue the territory and integrate the urban fabric of the city with Barrio 31, assuming a central role of oxygenation and relationship.

The project will modify the physiognomy of Barrio 31 and its surroundings and will make an important contribution to public space both quantitatively and qualitatively, contributing to water regulation and reducing the impact on the environment, offering an appropriate urban ecosystem for conservation of biodiversity.

Additionally, through the spaces with wide environmental offer of flora, species of trees, shrubs or herbaceous of different sizes which allow for the recreation of scenarios of remarkable biological diversity and enable enjoyment and education around nature while favouring environmental quality and ordering the public space.

From the social aspect, the execution of new homes generates a high impact on residents of Barrio 31 and the City, integrating the urban fabric of their surroundings into a space of coexistence and recreation and also functioning as a connector of biodiversity with all the socio-environmental benefits that this implies.

In all cases, the new homes are located in 2-or-3-storey buildings (plus the ground floor) designed and built following a high standard of sustainability. They are built predominantly with lightweight, dry construction materials (such as the use of Steel Frame technology for enclosures). These materials guarantee an excellent thermal insulation and a low carbon footprint embedded in the construction.

In addition, the new buildings have windows with hermetic double-glazing laminated glass and PVC frames (which greatly increases their thermal efficiency, by avoiding the thermal bridge characteristic of metal frames). They have, in general, several energy efficiency measures, such as LED lights, as well as water saving measures, such as dual flush toilets and aerators / flow limiters in all the taps

Energy sobriety

To achieve buildings and a district that, in general, are efficient in the use of energy, LED lights of warm light, 7 Watts, were placed in the new homes with the aim of contributing to the energy efficiency of homes. Moreover, the entire luminaire of the public space of the YPF sector will use LED lighting.

Likewise, through the use of technological materials in housing buildings, such as the energy-efficient envelope of Steel Frame, with high thermal insulation (the coefficient of thermal transmittance is almost one seventh of the conventional), a saving of 100 kWh / bimester in heating. In this same sense, the interior walls - divisions between each house - were built with concrete blocks to improve the thermal inertia.

In addition, the new homes have solar water heating, which implies a saving of 60-75% of the energy consumption for heating, equivalent to 100 kWh / bimester. Finally, the solar pumping system allows for the saving of three quarters of the regular consumption, corresponding to other 30 kWh / bimester.

Energy mix

Regarding the energy mix, the New Homes Project is connected to the formal -conventional network- of the City of Buenos Aires but, in turn, uses the roofs of all housing buildings for the installation of photovoltaic systems.

These 1,044 homes have 3,400 photovoltaic modules, for a total power of 1,12 MW photovoltaic (1,07 kW per functional unit). This power, distributed on the roofs of all the buildings, is more than that possessed by several photovoltaic power plants in the country; i.e., buildings act as a small solar power plant. It is suggested that these buildings generate 1670 MW / h per year, which means that each home has, on average, a generation of 1635 kW / h per year, approximately equivalent to 25% of the consumption of a typical dwelling,

totally electrical.

Likewise, compact hot water tanks were installed in a dispersed manner, they work by thermosiphon effect and by gravity: once elevated to the reserve tanks, the water falls and circulates by gravity and by the action of the sun, without the need of electric pumping.

Total electricity needs of the project area /year

Total electricity needs of the project area /year : 5 066,00 kWh

SOLUTIONS

Use of Renewable Energies

- Renewable energies

Contest

Reasons for participating in the competition(s)

- The project presented is part of a holistic iniciative to integrate Barrion 31 un all its aspects: urban, social, economic and cultural.
- The new dwellings were built taking into consideration sustainability, enegy efficiency and renewable energy.
- They provide green spaces to an area of the city of Buenos Aires with a lack of them.

Building candidate in the category

Green Solutions AWARDS powered by Construction21.org

Sustainable City Grand Prize

Users' Choice

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