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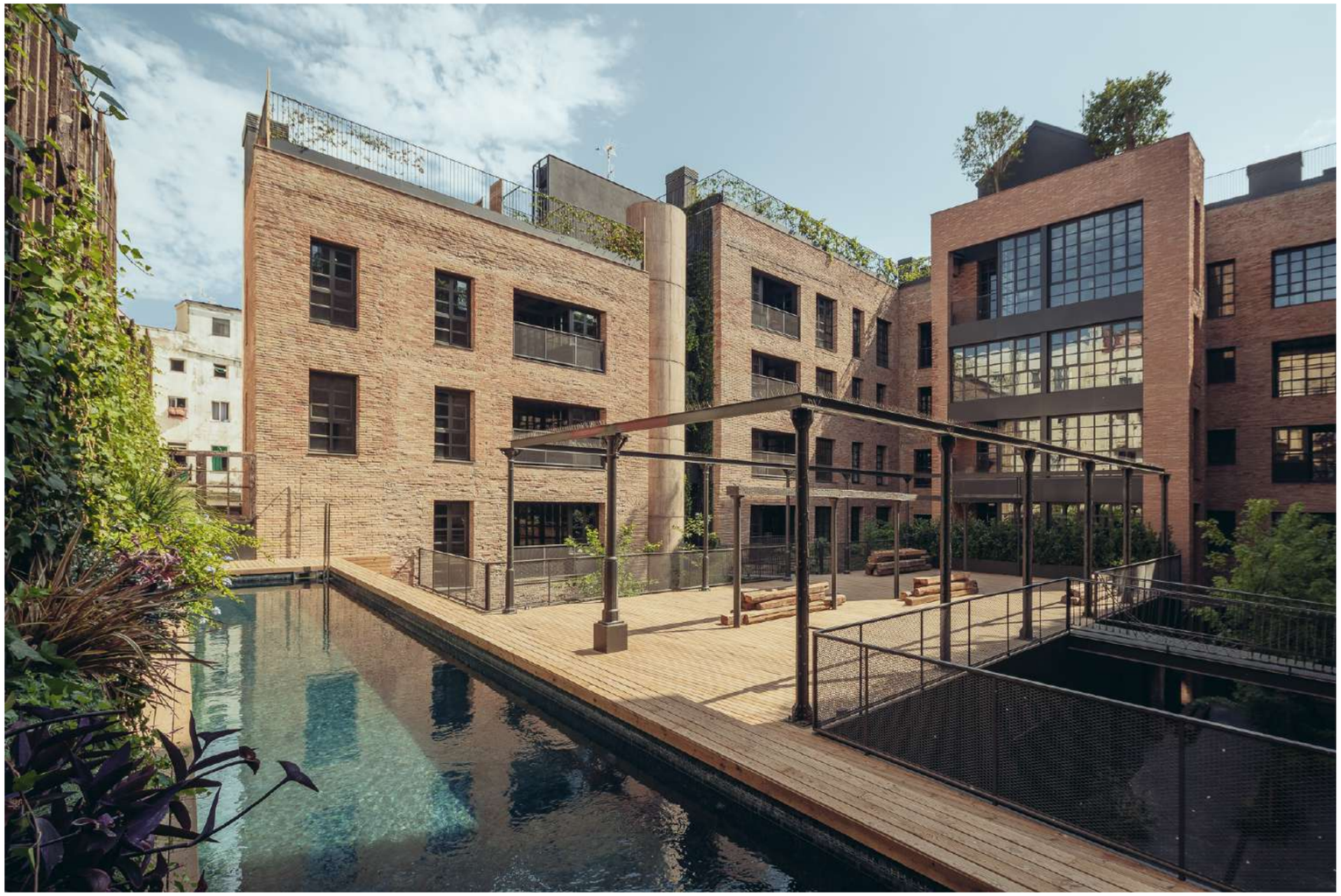
EcoLiving 1802.

A green community in the heart of the city.



Type of intervention

[ ] *Restoration* [X] *Rehabilitation / Renovation*

Concerned elements on the intervention project

- [X] *1. Foundations and underground structures*
- [X] *2. Vertical structures*
- [X] *3. Horizontal structures and vertical connections*
- [X] *4. Roof and terraces*
- [X] *5. Façade and building envelope*
- [X] *6. Finishes and completion elements*
- [X] *7. Integrate services*
- [X] *8. General strategies for building recovery*

Site	EcoLiving 1802, Carrer de la Riereta 35, Barcelona, Catalonia, Spain.
Objectives	Rehabilitation of a former textile factory, projecting a community to promote a healthier, sustainable, flexible use and an active social life.
Property	Private
Designer	Juli Pérez-Catalá Arquitectura
Date	2021

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Background to the intervention

The building is urbanistically regulated by the ***Special Plan for the Internal Reform of the Raval neighbourhood in Barcelona***, **which was finally approved on 5 April 1990. According to the Special Plan, the building is classified as Key 12b.**

The property is located in Riereta street, number 35 in Barcelona, in the district of Ciutat Vella. **The entire area of this district has a level "D" of protection and the buildings that form part of this complex (which are not listed with a higher level of protection) are considered to be "Assets of documentary interest".**

Based on this basic level of cataloguing, on **22 July 2015 a building permit application was submitted to the City Council, with number 01-2015LLL44517.** This classification legitimised the total demolition of the existing volumes, including the main body facing the street, to replace them with a new building with a ground floor plus four storeys and a buildable depth of 17.00 m, although the project submitted finally maintained the structure of the main building and extended the existing volume to the required 17 m depth.

Subsequently, **on 3 December 2015, the City Council issued an unfavourable report on** the same, alleging a series of technical deficiencies of a substantial nature, therefore, not rectifiable. Among them, **a report from the Department of Historical and Artistic Architectural Heritage, dated 17 November 2015, is referred to, in which an unfavourable report is issued on the total demolition of the building, with the possibility of conserving the parts of the building located inside the block if this department deems it appropriate**.

After **a study of the possible solutions for the intervention** of the existing building, based both on the **Historical Study, drafted by ACTIUM, and on meetings and visits with the Municipal Urban Planning and Heritage Technicians, it has been decided to conserve the existing main volume facing the street, the entire existing ground floor and the 2 lateral bodies located on either side of the interior space of the island**, since these architectural pre-existences have been agreed as suitable for conservation.

Therefore, and in order to preserve the typological heritage value of the building, **it has been agreed with the Municipal Urban Planning and Heritage Technicians** in various meetings held to date, the **desirability of demolishing the first, second and third floors of the central building of the inner courtyard.** This was precisely t**he purpose of the partial demolition project** presented to the Town Hall on 3 May 2016, with **file number 01-2016LLL19949,** and whose licence is considered imminent, according to information from the technical services of the Town Hall Licensing Department. This partial demolition project has already been **reported favourably by Patrimonio, with file number IN-2016-PP-13570**.

In this sense, the decision agreed with the Municipal Urban Planning and Heritage Technicians to conserve the main volume with street façade, the entire ground floor and the two side blocks attached to the lateral party walls of the interior space of the block, entails the non-compliance of certain articles of the urban planning regulations and the building by-laws applicable to the project. This decision concluded the cataloguing of the whole of this final volume with a level of protection "D". Discussions held during the design process of the final project with the Heritage and Licensing departments of Barcelona City Council have ended with agreements that have imposed project determinations that will make the final solution compatible, as far as possible, with the applicable urban planning regulations and building by-laws. In any case, the City Council, specifically the Licensing Department, is aware that certain points in the articles of the regulations cannot be complied with by the project, and its application will have to be suspended for the benefit of the municipal architectural heritage. For example, one of these is article 9 of the ***PERI del Raval regulations***, which refers to repair, rehabilitation, reconversion, and extension works. "Habitability" states that the dwellings must have free views with a depth of 6.00m, an aspect that the ground floor dwellings do not comply with.

Therefore, the present project specifies the determinations agreed with the Municipal Town Planning and Heritage Technicians and in accordance with the historical study presented, on the building that it is in the interest of the heritage to conserve. The following is an outline of the occupation and historical evolution of the property, including the final situation contemplated in this project.

Description of the building

The property is located in the municipality of Barcelona, at sea level. The plot is located in the old part of the city in a consolidated urban land. The surface area of the plot is approximately 1,493.00 m², with a rectangular geometric floor plan and a total built surface area, prior to the partial demolition, of 4,910 m², of which 4,020.89 m² will be maintained for the purposes of maximum buildable surface area, the rest being demolished as it is of no heritage interest.

The property consists of a ground floor and 4 upper floors, with a small basement floor located under one of the ramps. It has a façade frontage of 31.79m and a S-W orientation.

The adjoining buildings are similar in height and geometric

characteristics to the buildings that are the subject of the project:

Number 33 is a residential building with an approximate buildable depth of 22m.

Number 37 is typologically similar to number 35 and originally formed a single building. Their façades are continuous, of the same height and composition.

The diagnosis of the building (values and state)

Volumetric and typological description

As reflected in the historical study carried out, the initial building consisted of a rectangular body next to the street, which, in later years, was extended towards the interior of the block, through the creation of three naves situated perpendicularly to this main body, which after a century ended up occupying almost the entire plot, with only two side courtyards separating the existing naves remaining as unbuilt area.

Therefore, the current building has a comb shape; a large built-up body located on the strip of land facing the street, to which 3 perpendicular bodies (one next to each party wall and the third in the centre) are given, forming two existing interior courtyards, in which ramps for vehicles are located.

The property has two stairwells. One of these staircases is closed off, with no access on either floor, and starts on the first floor. We assume that it was complemented by an external staircase located in one of the courtyards. The second core is the one currently in use and serves all floors. From the third floor onwards, there are two interior courtyards for lighting.

Fig.1-2: Views of the existing conditions of the courtyards façades. © *Juli Pérez-Catalá Arquitectura*

Basement Floor:

It is located under the ramp and is accessed via a staircase located at the back of the plot on the corner with the adjoining property no. 33. It is a basement with three low-ceilinged rooms on two levels, in which there are indications of the existence of some kind of electrical installation.

Ground floor:

The ground floor occupies the entire surface of the plot. There are finishes and fittings typical of a standard car parking garage. It can be considered to be a free floor, with access for vehicular traffic and the start of a ramp for vehicles that connects with the first floor located on the side of property no. 33. This ramp is exterior, in an open courtyard. In the central area there is a vestibule with independent access from the street and which contains the stairwell. The start of the staircase is located 8 metres from the façade while the ramp is 20 metres away.

Fig.3: View of the existing parking garage.
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This lobby and access core have the dimensions and finishes of a staircase in a multi-family building, which indicates that the building was formerly used as a dwelling.

There is a secondary staircase located in the courtyard of the ramp that connects directly to the first floor, without a previous vestibule, which we assume complemented the old stairwell, which starts on the first floor and which we cannot access.

Fig.4: View of the existing entrance hall. © *Juli Pérez-Catalá Arquitectura*

First Floor:
It continues with a more or less free layout and with the parking spaces in stacked against the side walls, leaving a central circulation lane. On this floor is the arrival of the ramp to the ground floor in the courtyard on the side of property no. 33, and the start of the ramp to the second floor in the courtyard on the opposite side.

In terms of accessibility in the vertical circulations, the position of the external staircase in the courtyard indicates that the users of the parking area used it to access the first floor and changed to the second staircase core to access the rest of the staircase.

Second Floor:
The second floor is similar in typology to the lower floor, except that it only has the arrival of the ramp from the first floor and the courtyard open to the ramp from the ground floor to the first floor. This floor is only accessible for pedestrians through the second staircase core.

Third Floor:
This floor is used for storage of the parking garage, which still conserves the partition walls of the former use of the building as a dwelling. Within this distribution, the two interior lighting courtyards, to which the former interior rooms supposedly gave on to, start out.

In addition, this floor is crossed by the two staircases.

Fourth Floor:
Floor used for parking garage storage. With a two-slope roof on the façade block and wooden beams and pillars. The floor plan is completely free, crossed by the old stairwell, the new stairwell and the two interior courtyards that start from the lower floor.

The central body has metal beams and a light roof, also pitched.

Description of existing structure.

Structure
The load-bearing system is mixed, with load-bearing walls and columns. The main beams are arranged longitudinally, from façade to façade, and the joists run transversally, from party wall to party wall. There are some areas where the joists change direction and composition. There are metal pillars.

Floor Slabs:
Metal and timber joists with ceramic vault.
50 cm spacing in wooden joists.
70 cm spacing in metal joists.
Total thicknesses vary from 25 to 35 cm depending on the floor plan.

Walls:
Ceramics with variable thicknesses.

Columns:
Of riveted cast-iron on the ground floor and of wood on the lower floor.
There are concrete capitals that support the meeting of beams and pillars.

Beams:
IPN profiles on the ground floor and wooden profiles on the lower deck.

Foundations:
Traditional, with ceramic or masonry benches.

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Roofs:
Two-slope finished with ceramic tile and walkable.
Lightweight two-slope roofs.
Flat, finished with ceramic and walkable (Catalan style).

Fig.5-6: Views of the existing conditions of both roof systems.
© *Juli Pérez-Catalá Arquitectura*

Façades:
Solid ceramic wall 50-60 cm thick on ground, first and second floors.
Solid ceramic wall 35 cm thick on third and fourth floors.

Existing conditions
All the floors are in a good state of conservation. Preliminary inspections and reworking of all construction elements that conceal structural elements are planned in order to verify their condition and dimensions.

On the ground floor, a detailed examination of the effective state of each of the roof beams at the point where they meet the façade walls, where there is a high risk of water seepage and consequently the possibility of the presence of damp in the recesses, is foreseen.

<u>Resilient adaptation</u>
The current dimensioning of the structural elements supports the loads that correspond to a parking use with vehicular traffic, therefore the building would adapt perfectly to the load and overload needs of the proposed new use.

In order to carry out the executive project, an exhaustive survey of the structure will be carried out in order to accurately assess its resistance and response to possible subsequent modifications for its optimal adaptation to the new programme requirements.

<u>Background information on structural actions</u>
The complex shows signs of subsequent alterations to the original structure, such as changes in the composition and/or direction of the beams of the same floor in different areas, the overlapping or bending of profiles, the presence of mullioned beams or tubular metal reinforcements in the recesses of the wooden beams of the roof.

Fig.7-8: Views of the existing conditions in the courtyards.
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Fig.9-10: Views of the existing conditions in the courtyards.
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Rehabilitation works

Foreseeing technical aspects.

The technical aspects foreseen for the intervention are mainly based on:

Demolition and debris removal phase.
Access shall be provided for the demolition and subsequent removal of debris. The best execution option shall be detailed and planned to ensure the safety of personnel and neighbouring properties during the execution of the demolition. These operations shall be carried out in such a way as to minimise disturbance to the neighbourhood.

Adaptation (if necessary) of existing structural solutions to the proposed new use.
The dwellings will be adapted as far as possible to the current layout of the structural elements to ensure compliance with the relevant regulations.

Project Description

General description of the demolition including auxiliary means.

The purpose of the project, as explained above, is to demolish those elements, whether they are slabs, pillars, walls or ramps, that do not favour the subsequent typological rehabilitation that is intended to be carried out on the property. These elements and volumes have been previously agreed with the Urban Planning and Heritage services in various meetings held for this purpose.

Aware that this is a building that is in a technical situation of "out of planning", and therefore everything that is demolished now cannot be rebuilt later, this first selective emptying of the volumes and elements that clearly should not be conserved is carried out. This does not prevent other areas from being considered as unsuitable for conservation at a later date, once the technical rehabilitation project has been presented, and therefore they will be demolished at a later date, but not at this time.

This area of action is reflected in the attached graphic documentation, which only affects the aforementioned floors of the building located in the central rear part of the main building facing Riereta street. According to the historical study carried out, this building was built in 2 phases, on the one hand the ground and first floors, and subsequently the second and third floors.

It is important to note that its structure is made up of one-way slabs with a mixed structure of metal joists and concrete slabs, while the vertical support is provided by metal pillars, most of which are formed by coupling pillars and mixed steel plates. It also has some reinforcement-repairs made of wood, albeit very occasionally.

The roof is made of fibre cement, supported on wooden battens which in turn rest on a structure formed by wooden beams. The presence of fibre cement in the roof of the area to be demolished will condition the procedure in accordance with current regulations, and will be carried out by an authorised inertisation and recycling company, and there is no other material or element that can be specifically eliminated.

The building, in general, is clean of junk and rubbish, due to its previous use, which was no other than to house a parking garage. For the action, except for the removal of the fibre cement roof, we will proceed selectively so that its demolition does not undermine the resistant capacity of the adjacent building that remains. Therefore, repairs will be made to the external enclosure walls and cuts or manual demolition at

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those points where the construction borders the adjacent building that remains.

Systematic watering will also be carried out during demolition operations and loading of the resulting products, in order to eliminate the presence of dust in the environment as far as possible. The collective and individual protection measures stipulated by law will be complied with at all times, as will be seen in the Basic Safety Study.

The limits of the scope of the intervention, as detailed in the attached graphic documentation, are always within the same property of the object of this project, thus minimising the possible direct nuisance caused to the occupants of the adjoining properties. This, together with the type of construction present in the building, will condition the demolition methodology to be used.

Due to the type of construction and its configuration within the plot, mechanical demolition will generally be carried out, either by means of normal backhoe excavators or by means of special demolition machines at height, equipped with hydraulic demolition equipment, as stated in the technical solution adopted, except in those areas where, in the opinion of the project management, manual demolition is necessary to ensure the stability and safety of the rest of the building that is to be preserved, or because of possible indirect repercussions on neighbouring buildings. safety of the rest of the building to be preserved, or to possible indirect repercussions on neighbouring buildings.

The demolition will be carried out with all the necessary safety measures and signage, which are included in the specifications and specifications. The building of the central body will be perfectly free of debris and flush with the ground floor level.

Special care will be taken in the collection of rubble, not allowing delays in the occupation of those spaces destined for the collection of rubble, which will be produced mainly inside the property to minimise the possible occupation of the public highway. The transport of rubble to the landfill or recycling plant will be carried out in lorries suitably protected by nets, in order to avoid detachments from the lorry or dust on the journey, in accordance with the applicable by-laws and regulations in force. Materials containing asbestos, once packaged or palletised, will be dumped in the manner set out in the regulations at authorised landfill sites in the national territory.

Area of the building where the action is being carried out.
The areas and volumes to be demolished are detailed below.

Ground Floor
Selective demolition of the slab of the ramp going up to the first floor. Its surface area is 75m3 and its volume is 22.50m2.

First Floor
The roof of the first floor is demolished, as well as the enclosure walls that form it, but it is considered interesting to preserve the existing pillars and beams at this level in order to be able to act in the future proposal as a possible pergola. The pillars to be kept will be, due to their historical and artistic interest, one of the future historical traces of the character of the building that we intend to preserve. They are pillars made up of round bars typical of the construction technology used at the time. These side walls occupy 6.40m2 and a total volume of 24m3.

The existing ramp to the second floor and the area occupied by the projection of the ramp on the floor of the first floor are also demolished at this level. The surface area of this area is 249 m2 and its volume is 37.35m3.

Second Floor
The entire central area of the body floor between the 2 side courtyards is demolished, with a surface area of 175m2 and a volume of 547.50m3. The 2 walls shown on the plan that support the second-floor ceiling are also demolished. The surface area of these walls is 12.51m2 and their volume is 41.28m3.

Third Floor
It corresponds to the entire horizontal slab of this level up to the rear courtyard of the plot that adjoins the neighbouring property. This floor area is 281m2 and its volume is 927.30m3.

On the other hand, the side walls of the central nave will be demolished at this level, with a surface area of 7.50m2 and a volume of 31.90m3.

Roof of the Central Nave
The presence of fibre cement on the roof of the area to be demolished will condition the procedure in accordance with current regulations and will be carried out by an authorised inertisation and recycling company, as there is no other material or element that can be eliminated in a specific way.

Its surface area is 156m2 and its volume is 46.8m3.

TABLE OF AREAS AND VOLUMES OF DEMOLITION

FLOOR AREA (m2)		VOLUME (m3)
GROUND	75.00	22.50
FIRST	255.40	98.70
SECOND	187.51	588.78
THIRD	288.50	959.20
CUBIERTA	156,00	46,80
TOTAL	**962,41m2**	**1.715,98m3**

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Assessment of the results

The project maximises the **social relations of the community**. On the ground floor, with the construction of a **Social Club** for meetings and various activities; on the first floor, with the setting around a swimming pool, and on the upper rooftop, where recessed tables and seating areas and **outdoor promenade around the orchards** are designed.

Particularly relevant is the care taken in the historical recovery and conservation of our industrial heritage. The **housing-workshop** typologies are highlighted, episodes of the war are documented, pre-existing construction **materials** are reused, and the **compositions** of the original building are respected, adapting it to the new needs and showing the **scars** of this process of change.

Old materials such as bricks, railings, carpentry, wooden beams, and ironwork are reused for new uses.

The activity of the old factory serves as a reference for the graphic design and signage of the new building.

The idea is to show the traces of history, coexisting with the advantages and comfort of modern architecture, and at the same time, making interior spaces more flexible, to create in the Old Town of the city new mutant dwellings in a green, sunny, and social environment. **History recovered for a green future of everchanging dwellings.**

References

https://ecoliving1802.com/en/apartments/

https://www.juliperezcatala.com/proyectos/rehabilitacion-edificios-riereta.php

https://www.juliperezcatala.com/

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Photos and drawings of the completed intervention

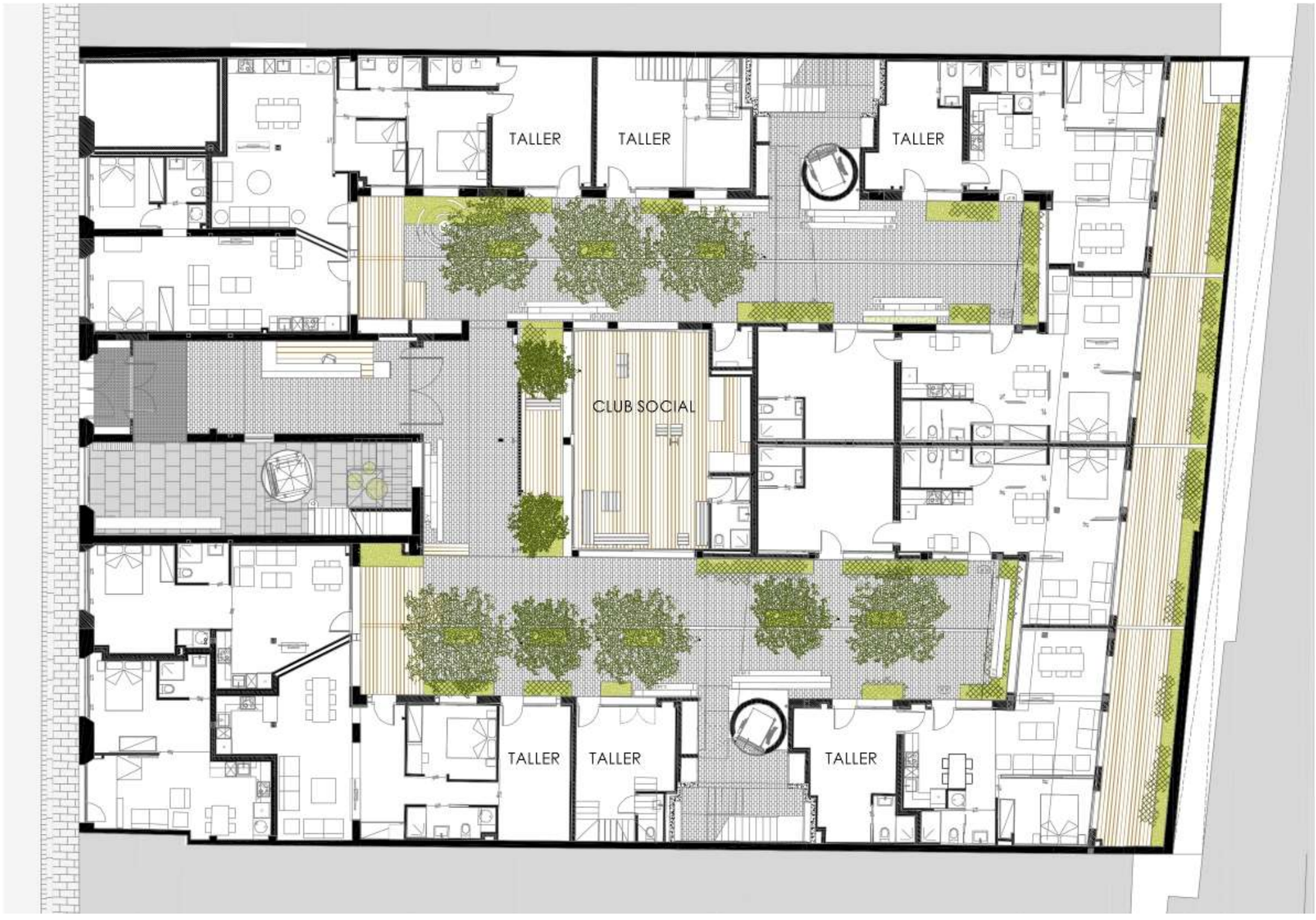

Fig.11: Ground floor plan of the proposed intervention. © *Juli Pérez-Catalá Arquitectura*

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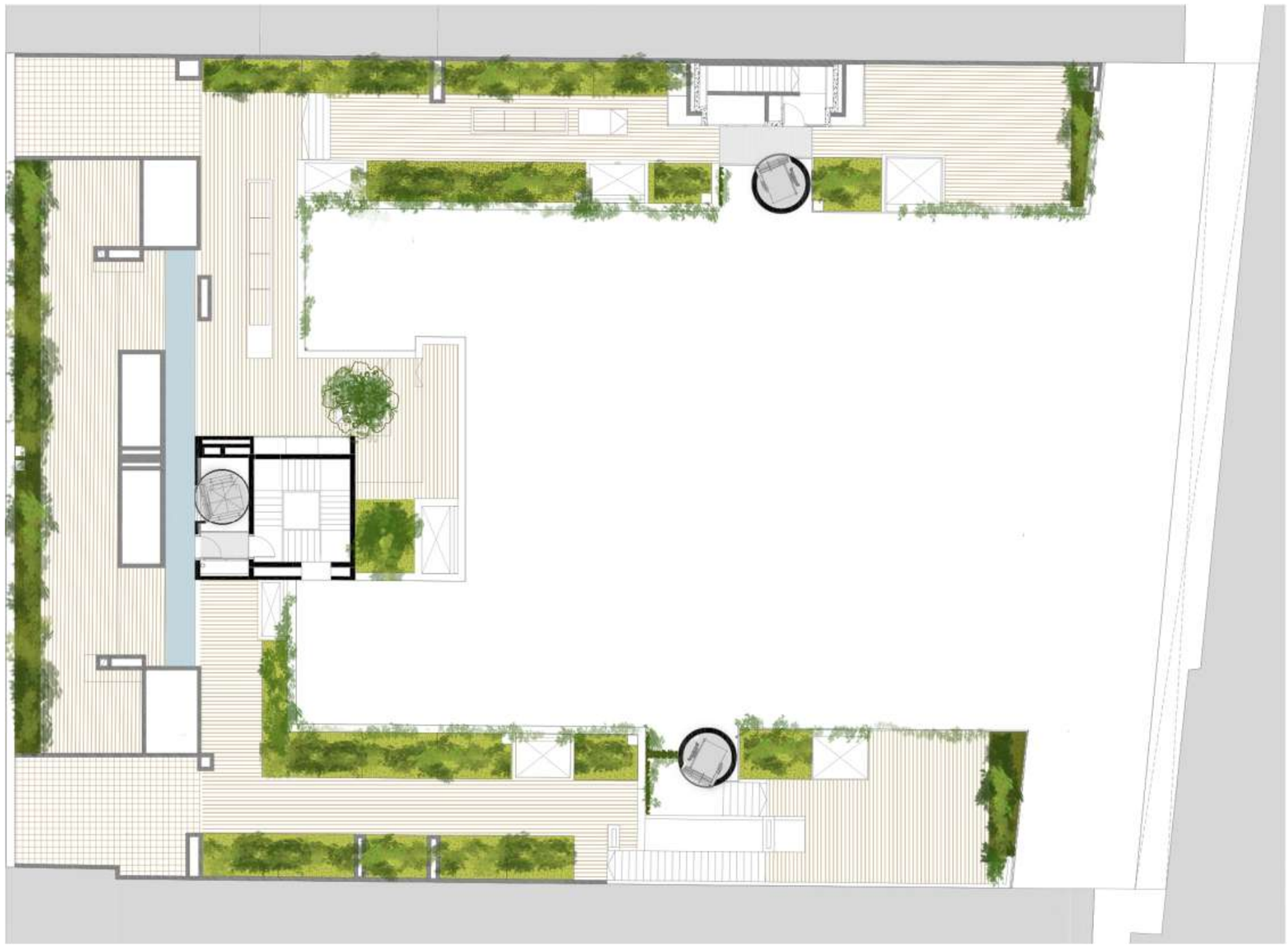

Fig.12: Rooftop plan of the proposed intervention. © *Juli Pérez-Catalá Arquitectura*

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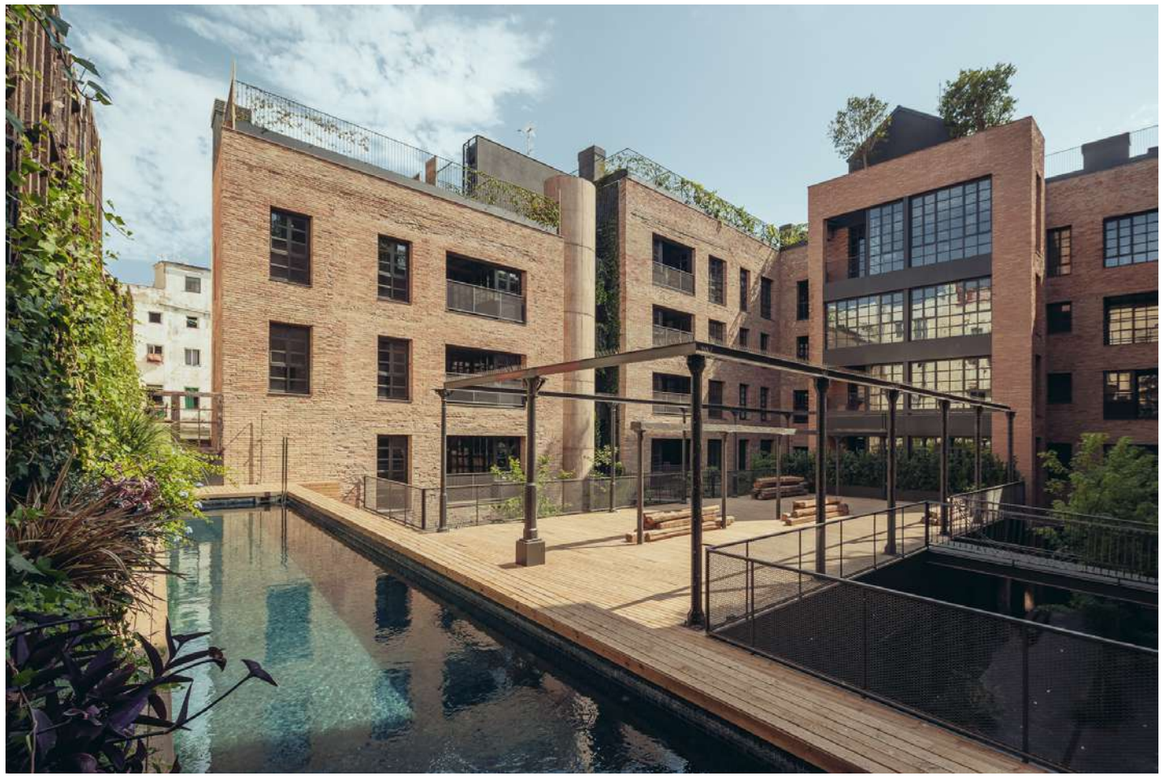

Fig.13-14: View of the interior façades and pool deck area. © *Juli Pérez-Catalá Arquitectura*

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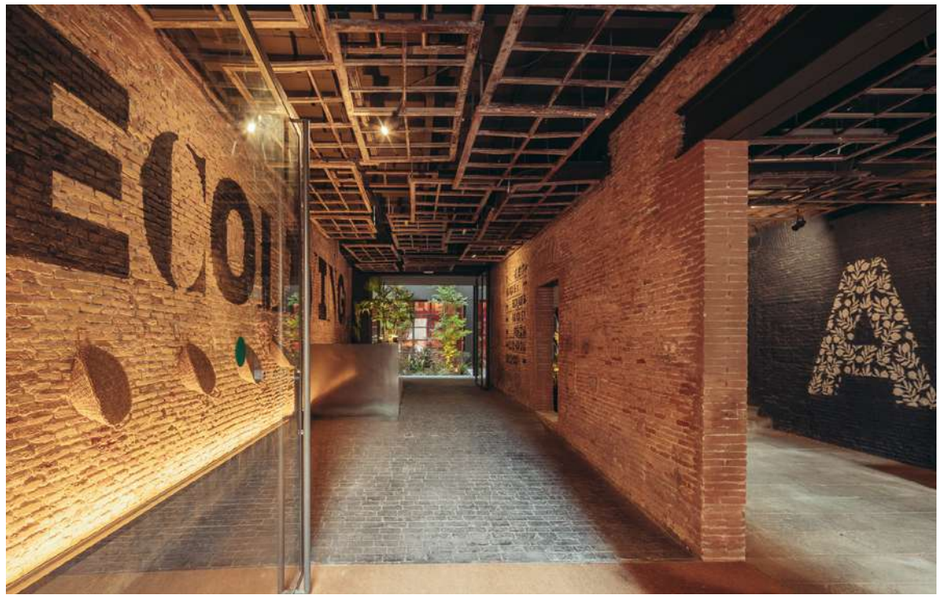

Fig.15-17: Views of the main entrance hall and lobby. © *Juli Pérez-Catalá Arquitectura*

Fig.18-20: Views of the Social Club. © *Juli Pérez-Catalá Arquitectura*

Fig.21-23: Views of the Courtyards and rooftop garden. © *Juli Pérez-Catalá Arquitectura*

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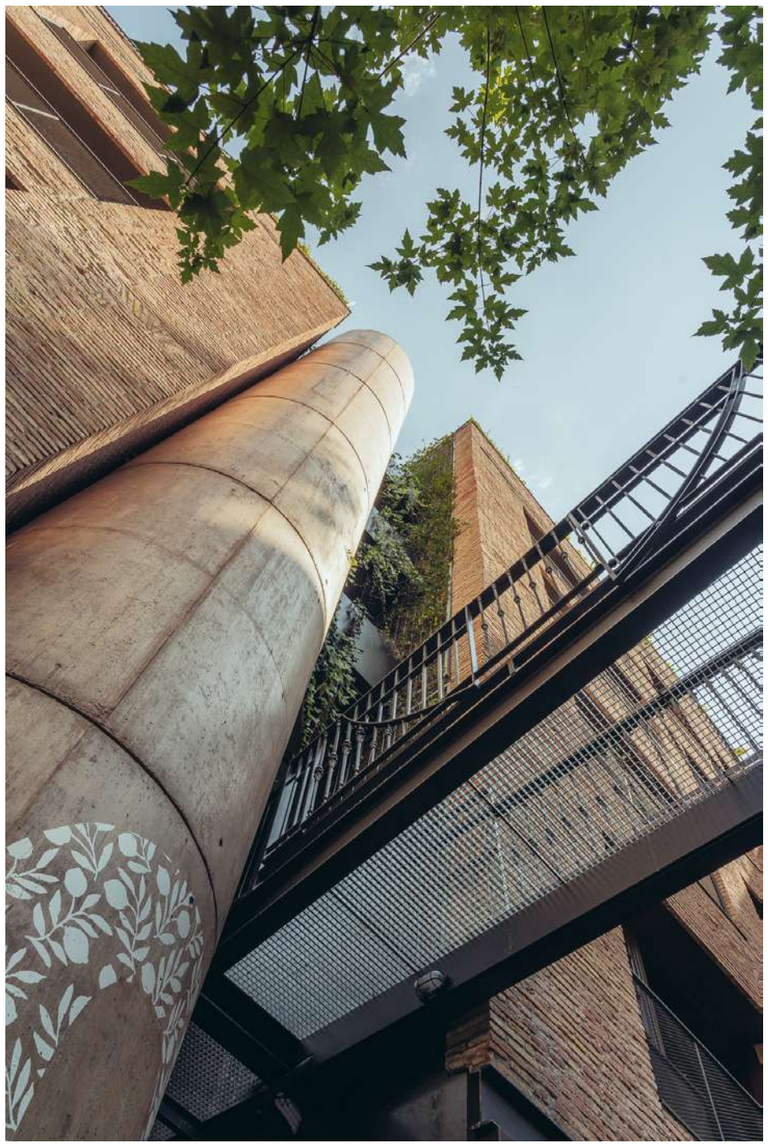

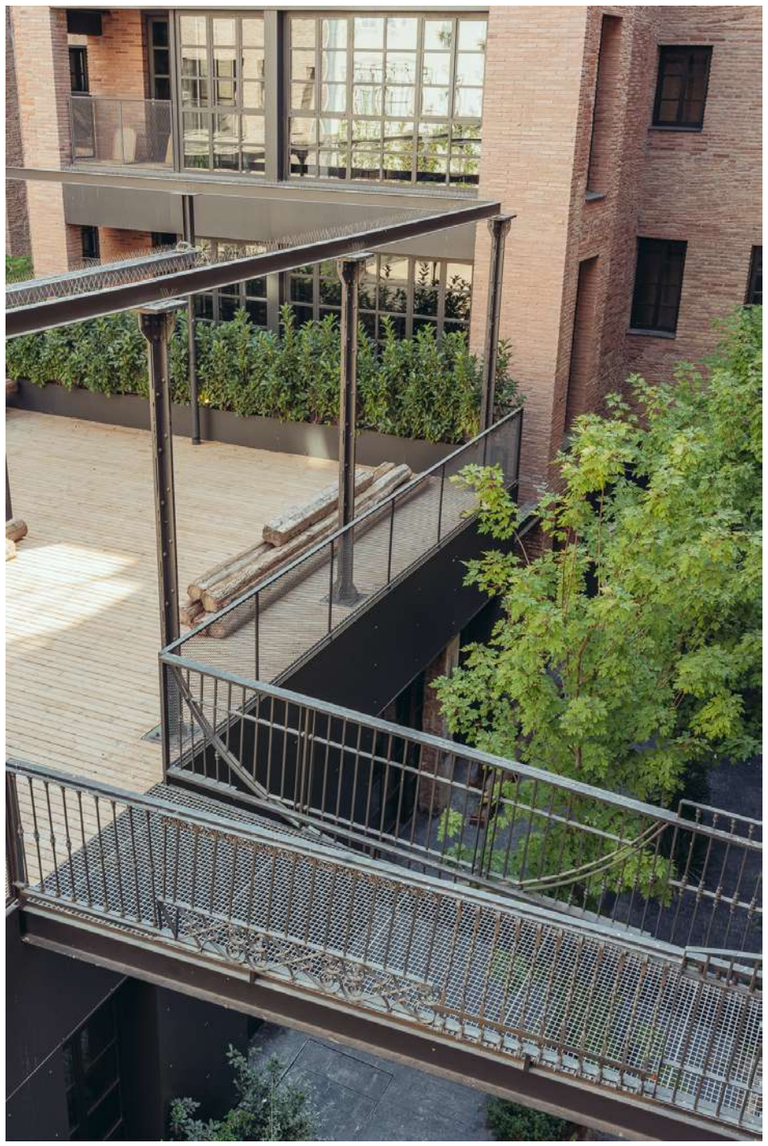

Fig.24-26: Views of the vertical circulation cores, with elevators, the steel bridge connecting the wings to the pool deck, and the foyer in front of the apartment entrances. © *Juli Pérez-Catalá Arquitectura*

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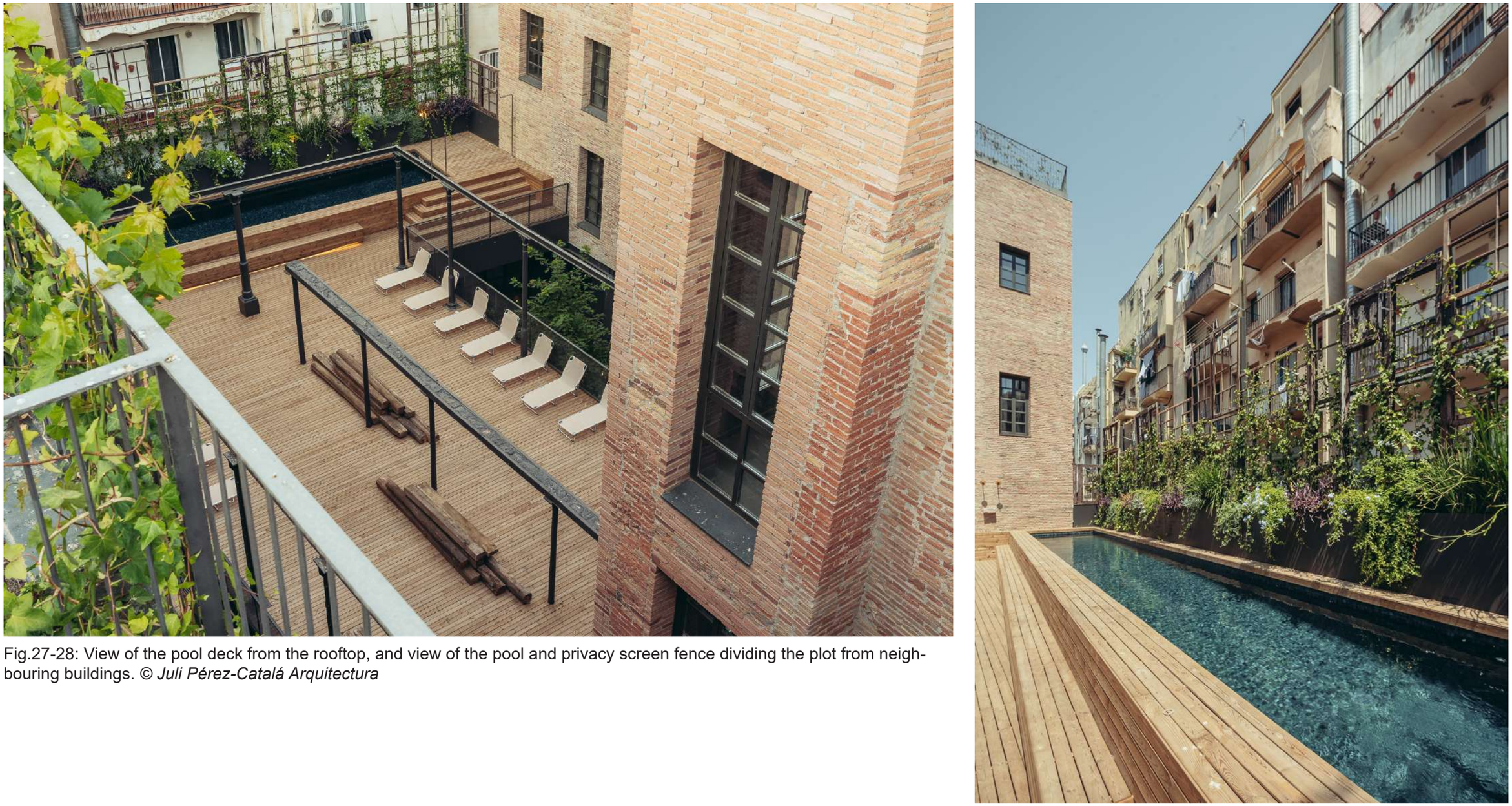

Fig.27-28: View of the pool deck from the rooftop, and view of the pool and privacy screen fence dividing the plot from neighbouring buildings. © *Juli Pérez-Catalá Arquitectura*

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Fig.29-30: Various views of the completed project.. © *Juli Pérez-Catalá Arquitectura*

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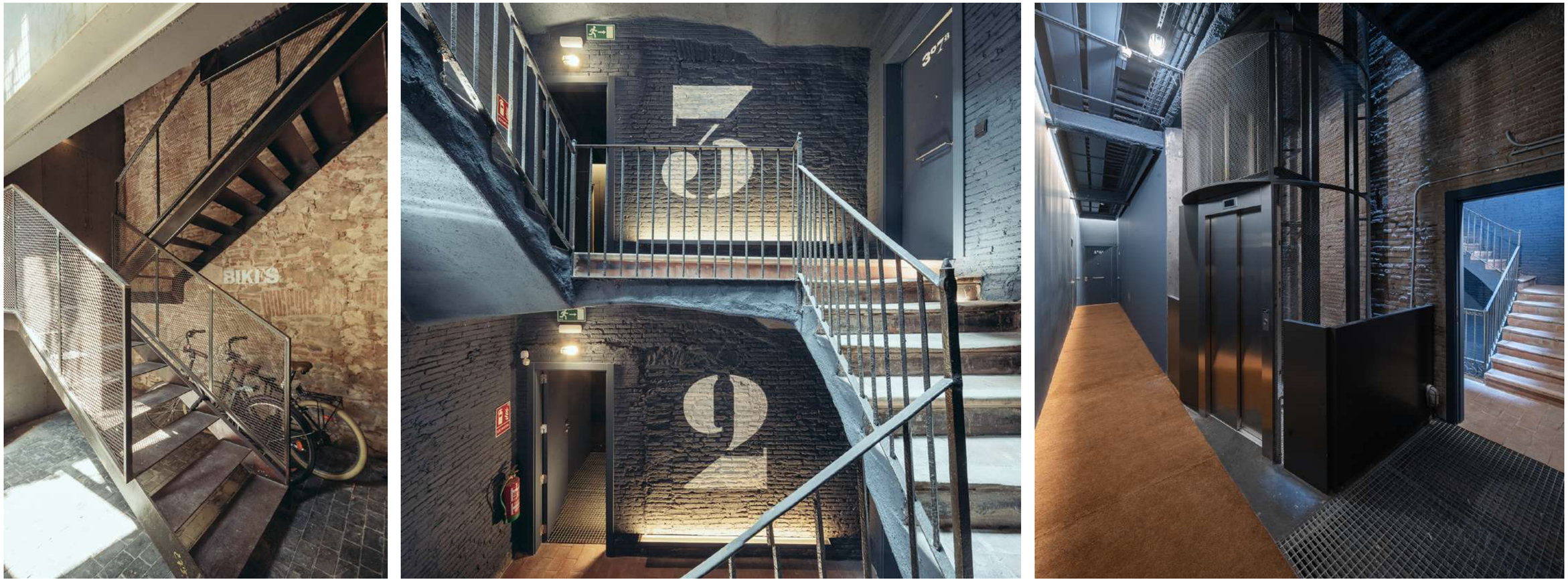

Fig.31-33: Views of the diferent types of staircases in the completed project. © *Juli Pérez-Catalá Arquitectura*

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Fig.34-35: Views of the apartment's interiors. © *Juli Pérez-Catalá Arquitectura*

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Fig.36-37: Views of the apartment's interiors. © *Juli Pérez-Catalá Arquitectura*

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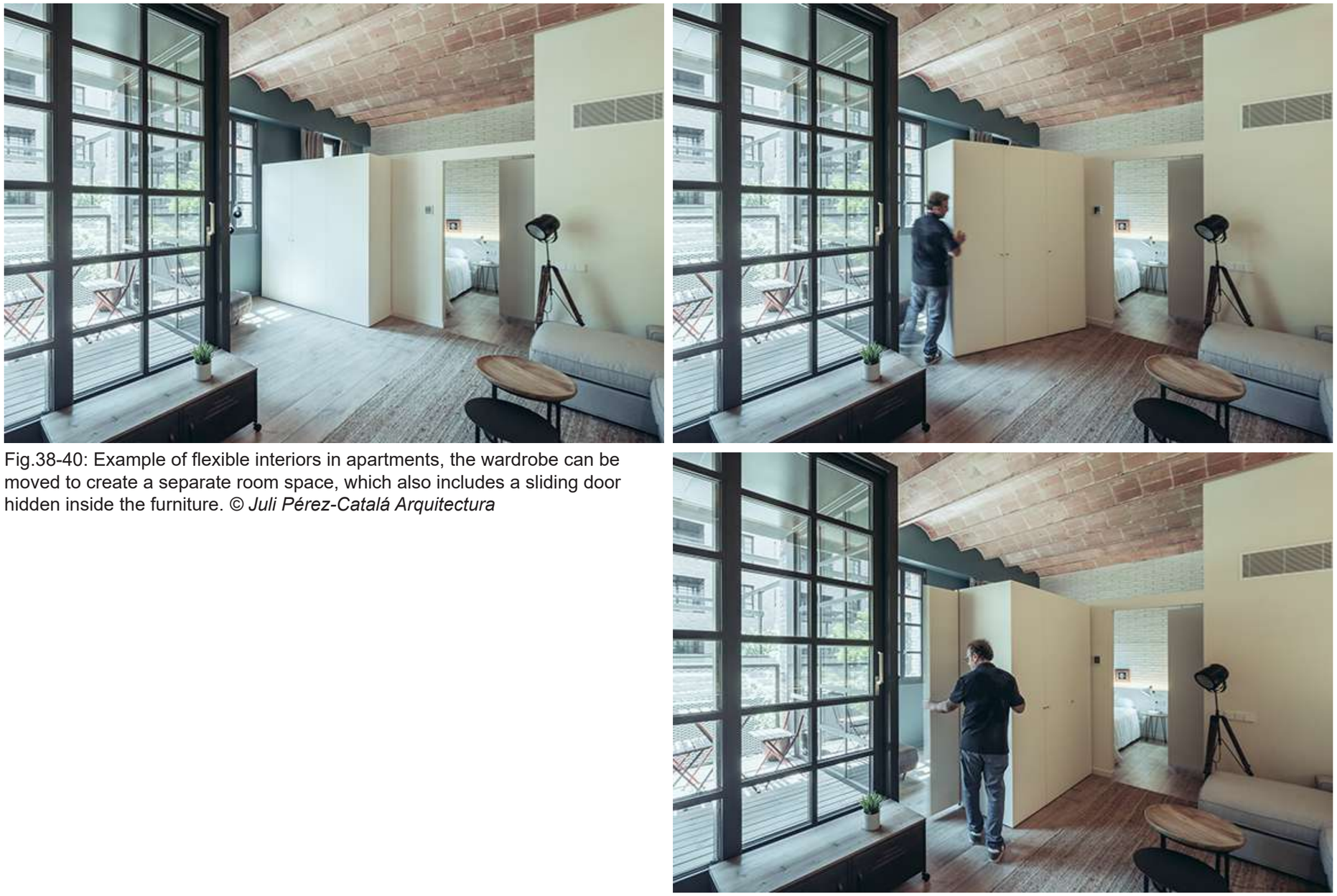

Fig.38-40: Example of flexible interiors in apartments, the wardrobe can be moved to create a separate room space, which also includes a sliding door hidden inside the furniture. © *Juli Pérez-Catalá Arquitectura*