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Opening the gates to invite the passerby.

Rehabilitation of a residential building in the old city of Barcelona.

Type of intervention

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

Concerned elements on the intervention project

[ ] *1. Foundations and underground structures*
[ ] *2. Vertical structures*
[ ] *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	Carrer de Montcada 22, Barcelona, Catalunya, Spain
Objectives	Restoring the idea of an old passage of the cultural axis of Montcada Street in Barcelona, and restoring the interior of the 8 apartments of 150m^2 spread over 4 floors of the building.
Property	Private
Designer	AGORA Arquitectura: Archs. Joan Casals Pañella & Jose Luis Cisneros Bardolet
Date	Project date : 2014 Works: 2015-29 Phase 1 (2015): Building envelopes, prototype floor Phase 2 (2016-19): Rest of dwellings, accesses

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Background to the intervention

The present project, which is a result of a restricted competition, proposes an action undertaken in two parallel phases:

The first, more of urban character, was proposed to restore the idea of an old passage of the cultural axis of Montcada Street in Barcelona, which during the 19th century allowed the carriages of a part of the Catalan bourgeoisie to enter the interior of their estates, thus expanding the limits of the city. The disappearance of the horse carriages from the city, the insecurity of the streets and the transformation of the social classes, caused the closing of the doors of this passage, causing its abandonment and preventing any passer-by to continue enjoying the richness of this private space, until then belonging to the city's patrimony. The interest in installing a new vertical communication core that would solve the accessibility problems of the building, led to reflect on how to recover this blurred threshold to put it back at the service of the city.

Thus, the idea of open gates inviting any passerby to enter from the street was reconquered. The ceilings and walls were stripped of their added falsework, recovering valuable stucco that had been covered up. The unevenness of the floor was eliminated by crushing some old sidewalks to use them to control the capillarity of the walls and to conceal all the installations of the property. Advantage was taken of the existence of an emblematic bar located on the first floor, allowing the attractive use, transforming the private central courtyard into a new public square. A focus of attraction, which certainly put back in value the reuse of the lobby as an old passage. Today, following the intervention, after walking through the "new" passage, one arrives at a square, where the new inhabitant has the opportunity to comfortably ascend to his house, while the curious passerby has the opportunity to stop, enjoy the traces of history and finally climb to a terrace, which has been transformed into a fantastic viewpoint of Santa Maria del Mar. Through glass and its various reflections, the new elevator installed in the axis of the courtyard resolves the accessibility of the building. The mechanism is voluntarily transparent on the first floor. It dresses as a mirror on the upper floors. It disappears into the sky during the day, allowing the city to enter the project.

In a second phase of work, it was also proposed to restore the interior of the 8 apartments of 150m2 spread over 4 floors of the building, so that the intervention would allow to reactivate the use and rescue the particular buried atmospheres of this multi-family building, protected as a property of urban interest belonging to the City Heritage catalog.

At the beginning of this work, the project management found some vilely shaken floors that led to a meticulous archaeological work, in which, among other things, it was of interest to strip the space of all the added falsehoods to see which elements still enjoyed the privilege of enduring over time. With the space stripped bare, there appeared some grandiose stone lintels hidden under incongruous façade coverings; 14 splendid Nolla mosaics and 27 hydraulic pieces of great chromatic richness buried under inconsiderate pavements and a multitude of eloquent coffered ceilings enlivening a multitude of diverse stories of a magnificent past. Just at that moment, when the interest of the space seemed to have been put back into action, it was decided to carefully pose a kind of domestic infrastructure; thus, in the interior, and through wood, marble and glazed ceramics, in a certain balance, a housing program was introduced according to a new instant of time, in order to coexist, through multiple intersections, with some of the ghosts of its past.

Description of the building

This estate built in 1872 is located in the emblematic Montcada Street in the Ciutat Vella district of Barcelona; in the middle of a cultural axis in which stands out the existence of a typology between party walls of passing façades that has a large central courtyard that corresponds to the medieval structure characteristic of the residential palaces that shone during the Catalan civil Gothic.

The Diagnosis of the building (values and state)

VALUES OF THE PROPOSAL IN RELATION TO THE CHOSEN CATEGORY
Category: Award for Rehabilitation / V (1) Award for Heritage Rehabilitation

Elements to be protected: Architectural archaeology.

Stripping the existing paintings from the walls of the interior passage uncovered some splendid fire stuccoes which were recovered and restored. By removing some carpets from the floor, eliminating some porcelain floors and tearing out some laminates, parquets and floorboards in the interior of the 8 floors, 14 Nolla mosaics and 27 hydraulic pieces of great chromatic richness that had been buried under unconsidered floors were discovered. In the same direction, the removal of some plasterboard panels, some plaster plates and some tongue-and-groove joints in the ceilings revealed eloquent coffered ceilings and cornices that were preserved. The rest of the ceilings formed by reeds were eliminated, leaving the horizontal support exposed: iron beams and ceramic tile vaults. Some existing partition walls were also removed in order to implement the new residential program. When this happened, a T-profile was used to shore up the partition,

drawing a cornice that dialogues with the existing sections. The windows and doors were also retained almost in their entirety. When this was not possible due to excessive wear and tear, they were totally or partially replaced by new pine wood frames that show their new temporary nature. During the removal of the falsework, it was also decided to preserve in the proposal some of the "ghosts" that remain in the building, allowing us to recognize in them the memory of the place: this is the case of the blue room, the green textures or some of the first paintings of fabulous chromatic richness that also appeared by stripping some walls. Stuccoes, floors, ceilings and interior and exterior carpentry were drawn one by one in different plans, building in the first years of this intervention an extensive monograph of the building that was included in the library of the Architectural Heritage Catalog of the Barcelona City Council by Fernando Iglesias (former head of the Heritage Department).

Fig.1: View of the entrance from the inside of the building, before the intervention.

Fig.2: View of the main entrance door, before the intervention.

Fig.3: View of courtyard, before the intervention.

Rehabilitation works

External building envelopes:

In general, a non-aggressive cleaning of the vertical facing of the façades is carried out by means of manual soft brushing and cold water jet at pressure of up to 2 bar, mechanical removal of efflorescence on stone facing by application of cellulose dressings with successive applications of inert cellulose dressings and subsequent brushing with non-aggressive

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manual means and elimination of black crusts by applying deconsolidating potassium silicate AB57 and when it is not possible to conserve the vertical support, it is proposed to repoint and remove the existing coating to leave it completely clean and then apply a lime mortar coating, applied manually according to the traditional three-layer system, applying mass pigments in the last layer to recover the original color of the façade. Regarding the exterior carpentry, it was decided to restore the sections and adjust the opening mechanisms damaged by the passage of time and replace the single glazing with a double glazing with chamber through a new glazing bead fixed on the front of the windowpane that allows the new section to be incorporated.

Fig.4-5: Process of the restoration and cleaning of the balconies.

Interior envelopes:

In the interior passage all the existing paintings are stripped, all the areas where the fire stuccoes have been destroyed by the passage of time are reconstructed and the ceiling is cleaned by means of spatulas and steam strippers to try to discover the existing drawings and pieces to later proceed to repair and paint all the ceiling moldings and to wax all the vertical surfaces. Also here the main access door to the property is restored by removing an iron plate adhered to it and stripping the paints superimposed on the wood. In the same action, the intervention is used to create a crack in a small access door that allows the neighbors to enter in a more comfortable way when, for example, the big doors are closed at night. The fissure involves adding a new frame to the system, which is solved by hiding the panel in it. Finally, and given that it is planned to leave the doors open to the city during the day, it is proposed to place a new door in front of the old neighborhood access staircase, forcing even more the idea of reproducing inside the idea of street or passage of the environment. The door is resolved by means of a 15mm thick iron perimeter frame and industrial pivots that allow a span of 160cm to be bridged. The 10+10 glass and the gaps/joints on the perimeter allow this fragile element to act as a load-bearing element. Thus, for example, any deformation in the system is avoided.

On the other hand, an old vestige of what was the old sidewalk is preserved as part of the memory of what we find in this place. It also helps to bridge the existing gap between the first floor level and the staircase reception area. In fact, it was decided to eliminate some interior stone sidewalks in order to channel under them all the installations superimposed on the walls of the lobby (water, electricity and gas). Once the sidewalks had been re-routed, they were crushed and the gravel generated was used to cover their tracks. This achieves several goals: that the installations do not invade the noble space of the entrance, that the entrance hall is all flat and that the meeting of the stucco with the floor is protected from capillarity, taking advantage of the resources of the work itself.

Fig.6: Restoration of the stuccoes of the interior passage.

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Fig.7: New sidewalks with some parts restored and others recycled to be used as gravel for the new installations channel.

In the interior of the floors and after eliminating all the added false floors, we proceed to restore the uncovered pavements that we decide to preserve by cleaning, polishing and brightening. In this matter, in some cases it is necessary to add some deteriorated pieces, in others it is necessary to remove all the paving to later level the floor and in some cases it is decided to store the paving found to relocate it in some place of the work that due to the preserved surface and the new program foreseen could better fit. Thus, for example, the old installations are also removed and replaced by simple new conduits. The horizontal electricity conduits were almost entirely exposed by means of galvanized pipes painted white. The water pipes, also practically in their entirety, are traced on the floor, taking advantage, to a large extent, of the perimeters of the carpets formed by hydraulic floors or the old traces of the eliminated partitions. On these traces, monochromatic hydraulic pieces that have been recovered from the demolition of other nearby works through a local company are added. Practically all of the interior woodwork has been restored, requiring only minor adjustments, sanding and subsequent applications of paint.

Fig.8: Recovery process of the original interior pavement.

In cases where it is not possible to preserve the carpentry or in cases where the carpentry has lost some of its elements, these are added using fine woods protected with transparent varnishes. With the floors, ceilings and walls brought back into action, the intervention is completed by carefully positioning a series of fixtures. For the kitchens, local marble was chosen for the countertop, 15×15 glazed tile for the hood and wood for the cabinets, establishing connections with the unique past of these rooms. In the bathrooms, this desire is continued: marble for the sink, glazed tile for the walls and three-layer fir wood for the cabinets.

Communications:

For the installation of the elevator, it is first necessary to redirect the manhole that is installed in the courtyard, lift all the stone slabs to also redirect the slopes of the courtyard and build the pit. It was decided to build the pit by means of concrete walls crowned with an embedded steel plate. On this plate the only two pillars that support the weight of the elevator are welded; 2 HEB 100 that are located away from the entrance and free the corners. On these columns, concentric rings formed by a T 100 profile brace the system on each slab, coinciding with the cornices of the courtyard. The structure is clad with 4+4 laminated glass on the ground floor and mezzanine. The rest with 4+4 laminated mirror. The idea is that on the first floor the system disappears, giving depth to the courtyard, and that on the upper floors the elevator blends in with its immediate surroundings. To access each landing it is necessary to make some shoring in the courtyard wall. This is done by means of a 10mm thick steel perimeter frame that hides a T-profile to reinforce the lintel. The rings are welded to the floor of this frame. The frame is screwed transversely to the façade wall. An internal tubular structure temporarily serves as scaffolding during the installation work. Once the elevator structure is anchored to the load-bearing walls, the tubular structure is removed and used for the installation of other elevators.

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Fig.9: Installation of the elevator's steel frame, and enlargement and reinforcement of the openings to improve accessibility.

Assessment of the results

This is a job that started in 2014 and finished in 2019. The idea of our client was to repair minimally his property to be able to rent it since it was in a state of semi-abandonment. Two requirements of the City Council of Barcelona made the client propose to give urgency to all work related to the envelopes and take advantage of the start of these works to overlap a proposal of "prototype" intervention in one of their apartments. The idea was to elucidate on the complexity that the work was going to face in isolation, so as to be aware of and anticipate any difficulties. This made it possible to foresee possible solutions to concrete problems such as how best to recover the buried pavements, how the carpentry could be restored to improve their thermal conductivity, or how all the new installations could be carried out without affecting the magnificence of the space. Undoubtedly, the decision to build this pilot apartment facilitated the commissioning of the rest of the houses, helping to a better time planning that resulted in a time saving and a real control of real costs since the items that were going to be executed in the rest of the apartments had already been previously tested. This approach made it possible to practically know the final cost of the intervention in 2015 (4 years before the end of the works). But, in addition, this approach allowed the project management to focus more specifically on activating the particularities of each site. In the last year of the intervention, with the apartments practically completed, the accesses were restored, and the accessibility problems of the building were solved by installing an elevator in the central courtyard axis.

<u>Quality of the materials used:</u>
A thorough archaeological process has allowed to recover the lost dignity of this beautiful building built in the nineteenth century in Ciutat Vella (Old City), giving value to a set of valuable findings. However, a "new" material has also been added to the place that reflects on the possible concordance with the past of the existing space. Hence the appearance of a set of noble materials such as marble or enameled tiles in the wet areas -which undoubtedly recall the configuration of these old spaces-, wood for the formalization of the carpentry or iron to build the vertical communications -a nod to the forging of the railings, stairs and balconies of the building- or the mirror -actually an invisible material that through its reflections allows the project to enter the city and the city into the project-.

References

http://www.agoraarquitectura.com/

**Note: All the pictures, plans and drawings were provided by Agora Arquitectura.

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Images of the existing conditions and intervention works

Fig.9: Existing conditions of the building envelopes.

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Fig.10: Existing conditions of the dwellings.

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Fig.11: Exploratory test-holes to discover the original elements hidden underneath later interventions.

Fig.12: Removal of the modern interventions that cover the historical elements.

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Fig.13: Restoration / recovering of the pavements.

Fig.14: Stripping and pickling of surfaces.

Fig.15: Joints between pavement.

Fig.16: Sidewalks transformation.

Fig.17: Recovery of stuccoes.

Fig.18: Introduction of external infrastructures.

Fig.19: Introduction of internal infrastructures.

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Images of the completed intervention

Fig.20: View of the main entrance.

Fig.21: View of the passage and courtyard.

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Fig.22: View of the main entrance and passage as seen from the courtyard.

Fig.23: View of the courtyard and new elevator structure.

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Fig.24: View of the new elevator as it "vanishes" through its surroundings.

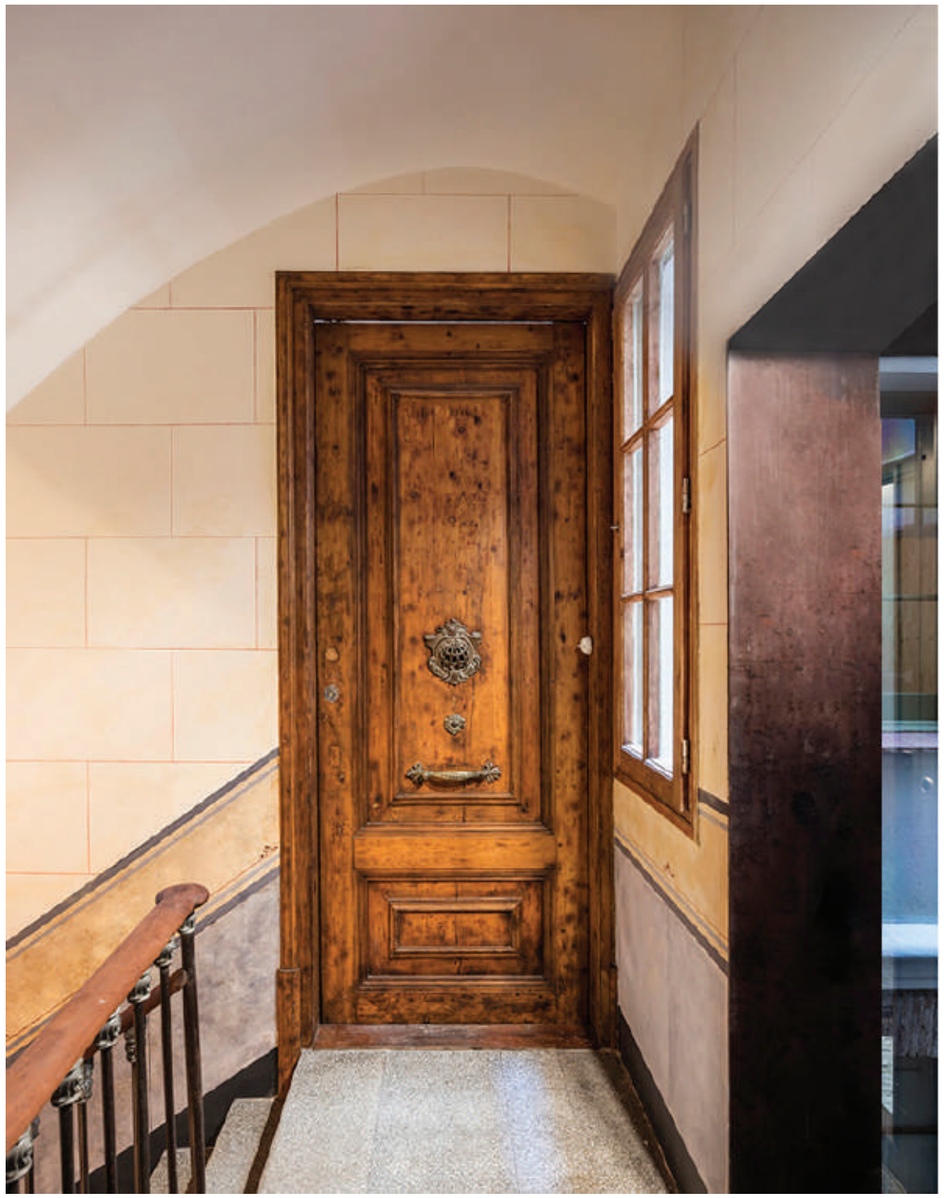

Fig.25: Typical entrance door to the dwellings.

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Fig.25-27: Views of the dwellings' interiors.

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Fig.28-31: Views of the dwellings' interiors.

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Fig.32-34: Views of the dwellings' interiors.

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Fig.35-37: Views of the dwellings' interiors.

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Plans & Drawings

Fig.38: Location plan.

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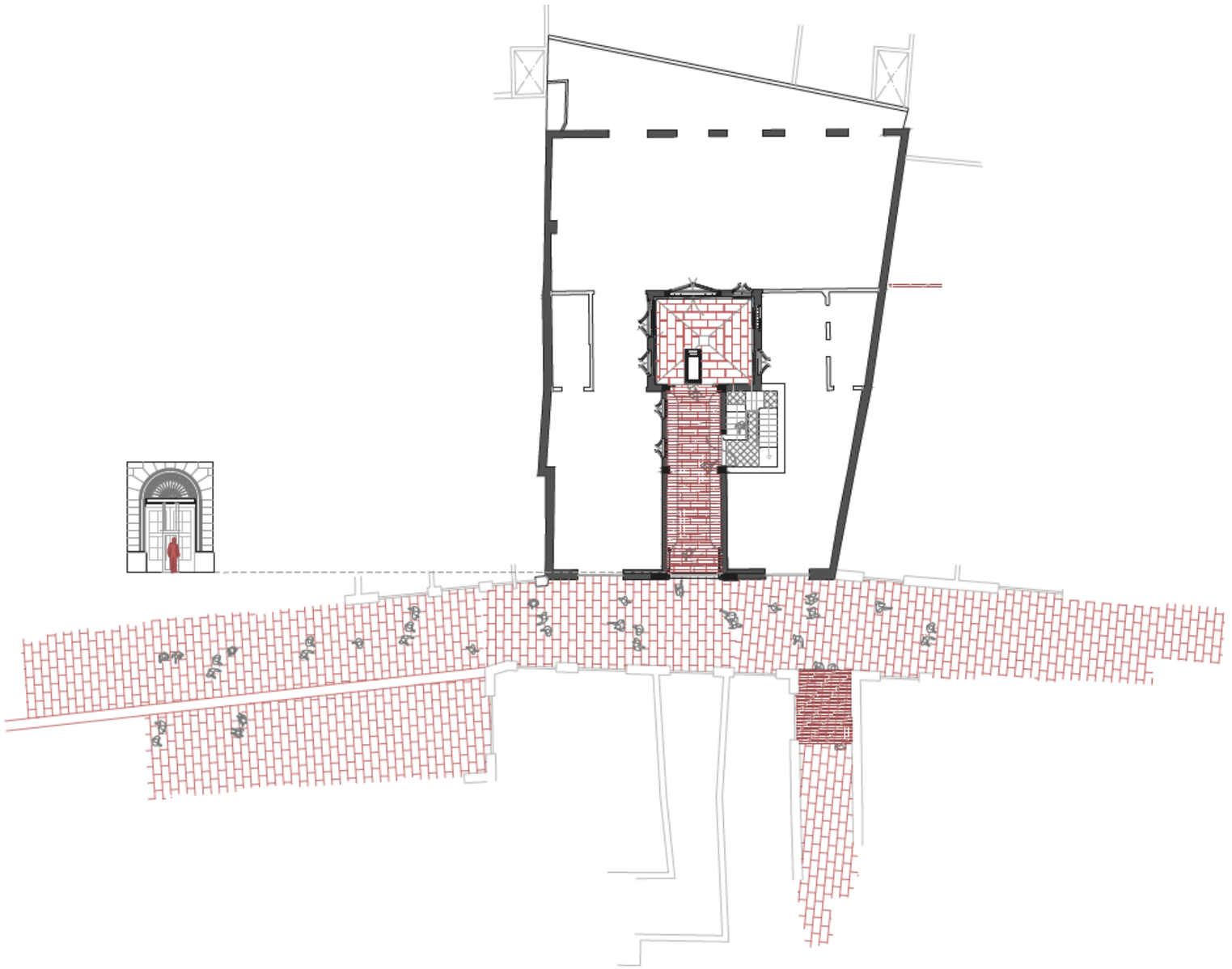

Fig.39: Ground-floor plan, highlighting the concept of the streets flowing to the inside of the building.

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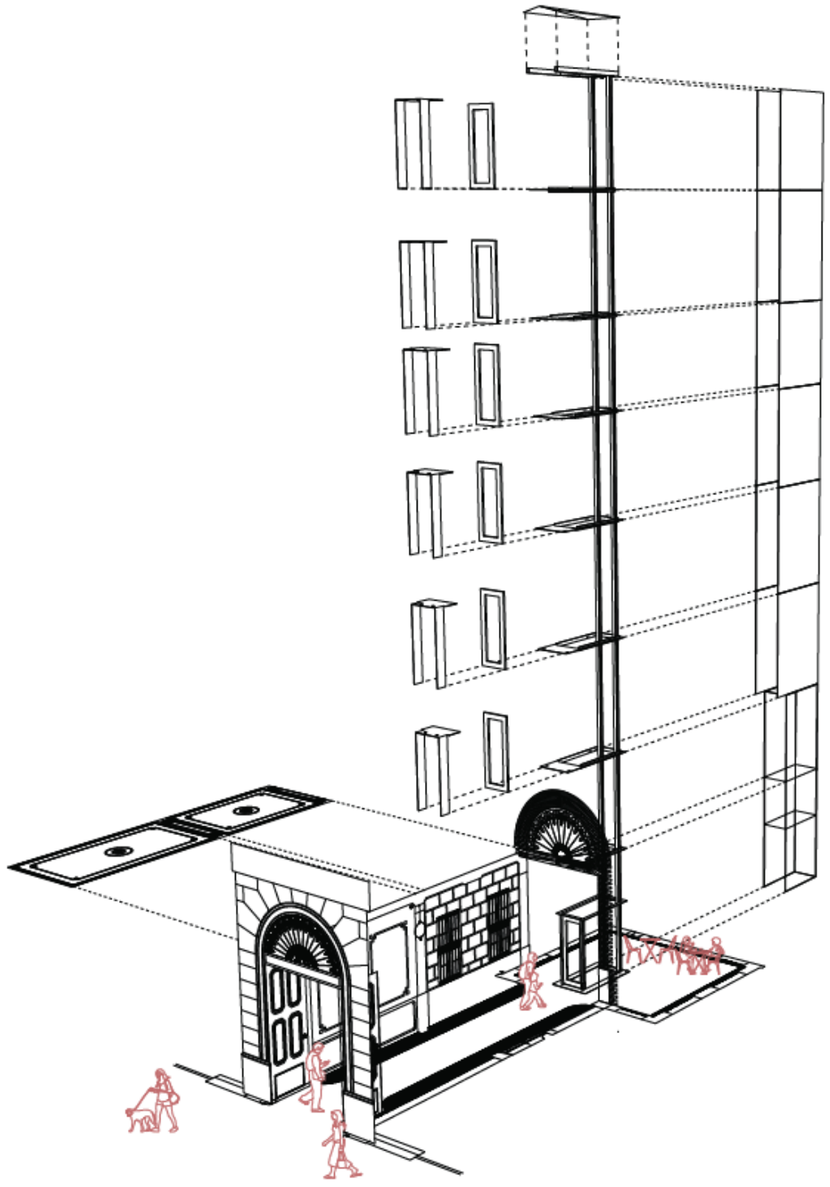

Fig.40: Axonometric diagram of the new elevator structure and connection with the existing building.

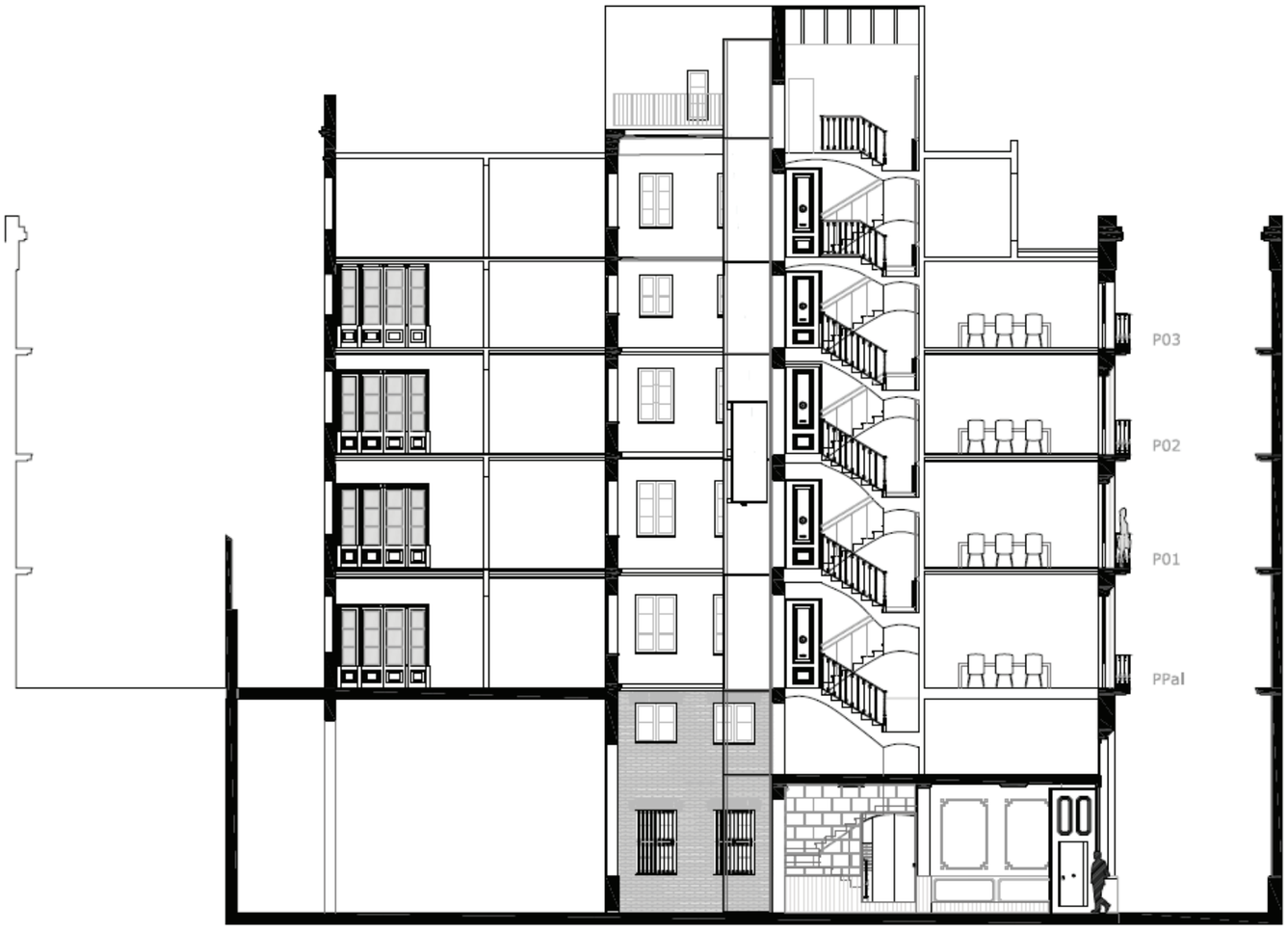

Fig.41: Longitudinal section of the building.

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Fig.42: Drawings of the proposed interventions on the façades.

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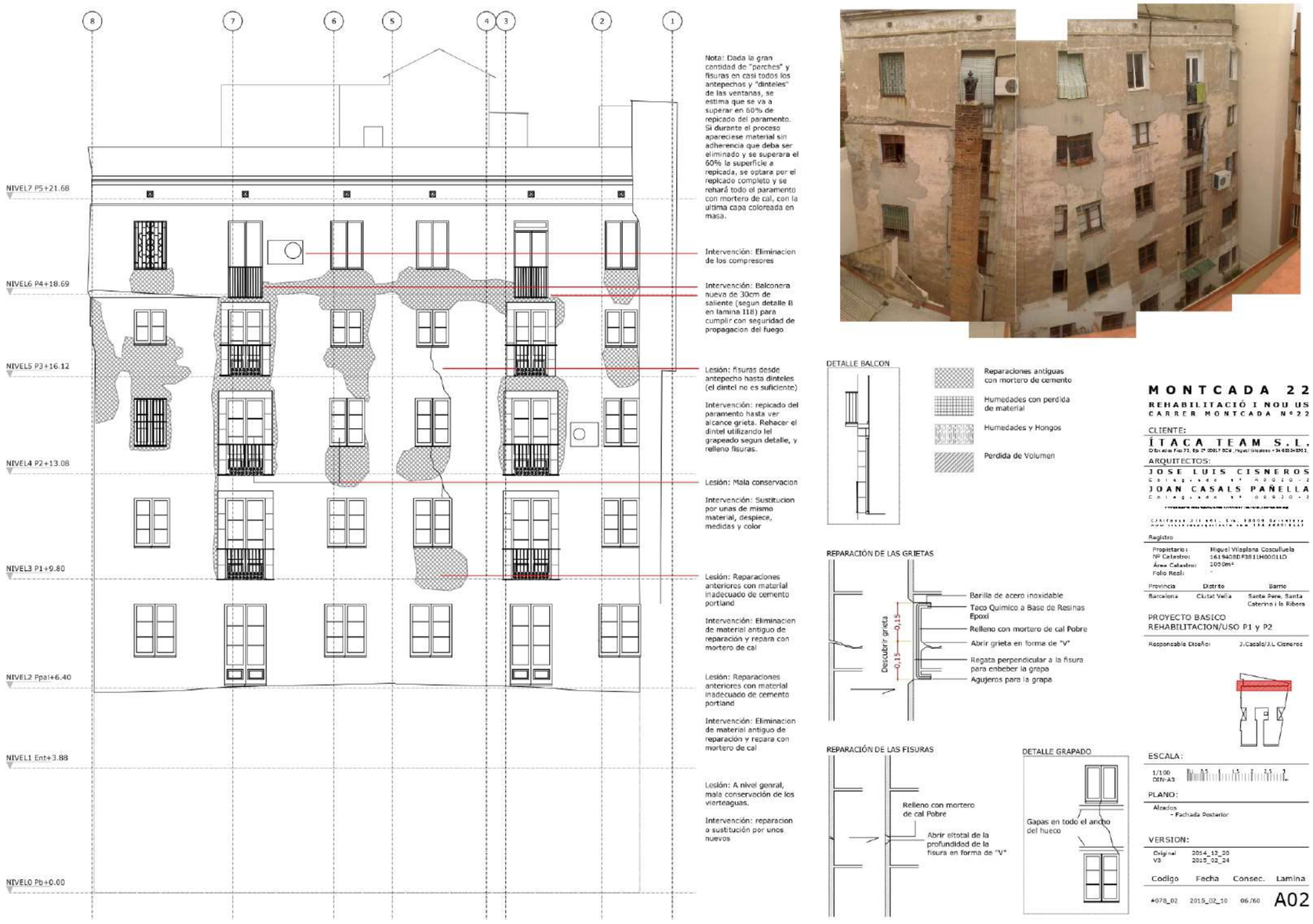

Fig.43: Drawing of the repairs to be made on the rear façade.

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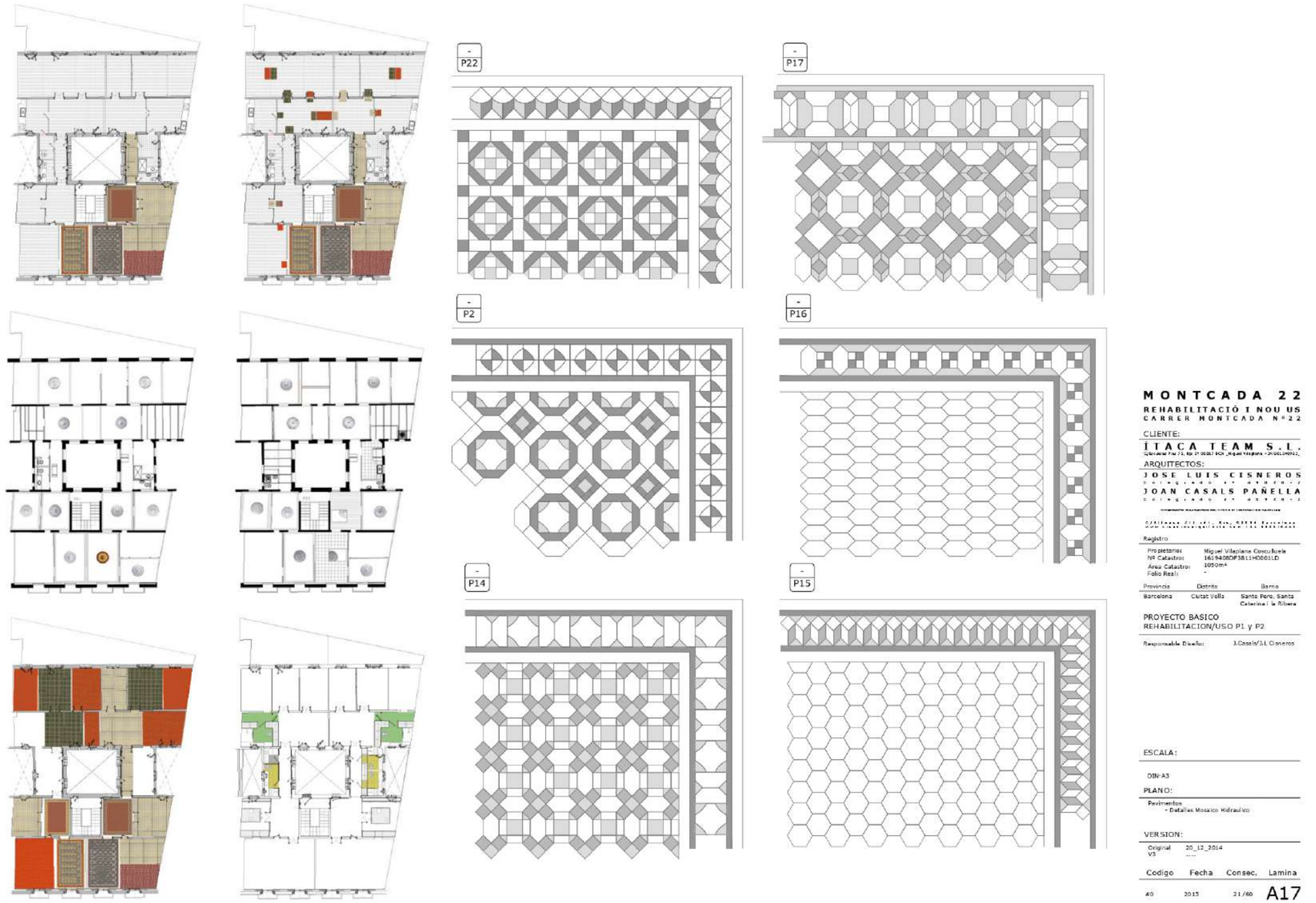

Fig.45: Drawing of the original ceramic tiles pavements to be restored and their respective location inside the building.

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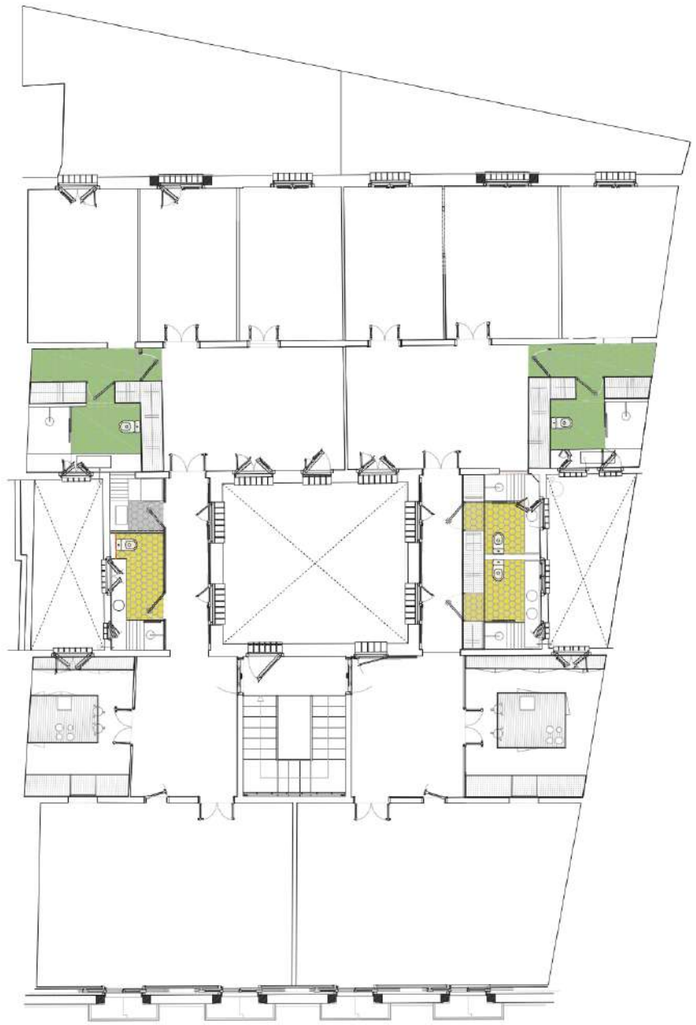

Fig.46: Typical floorplan with 2 apartments per floor.

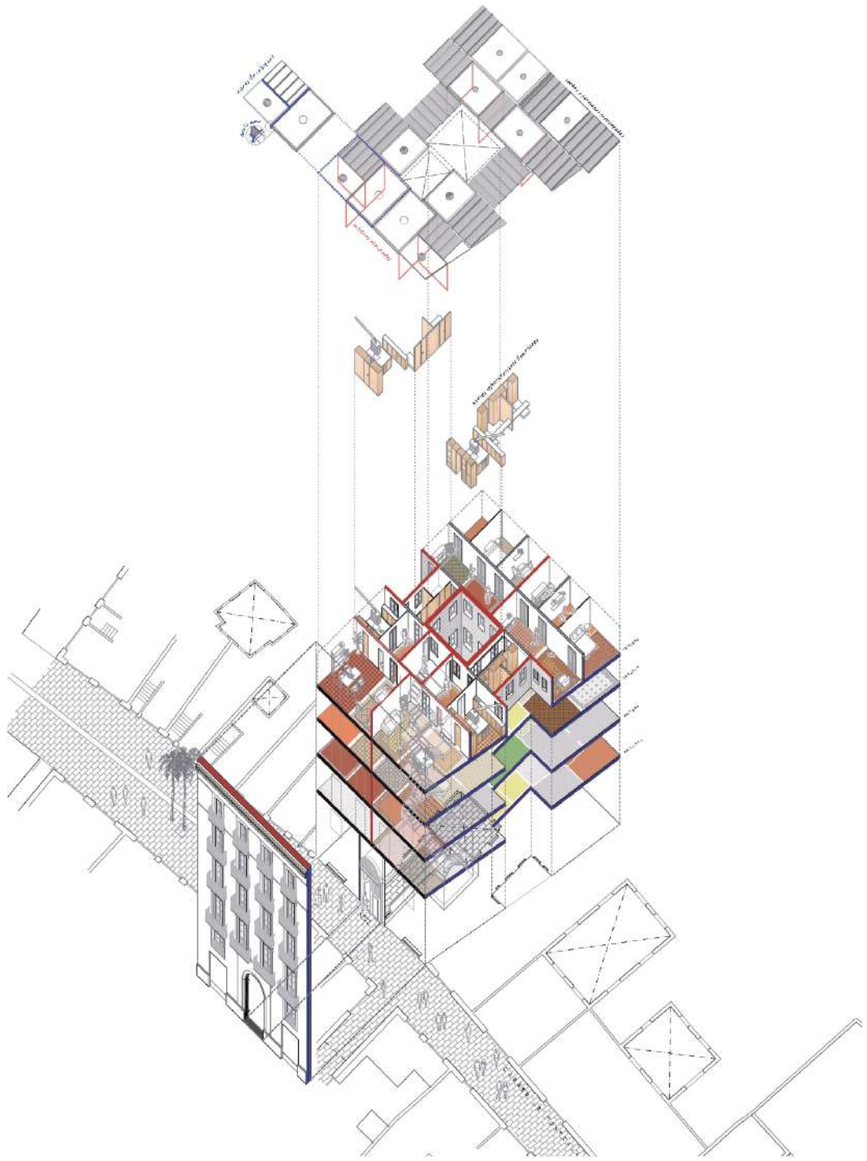

Fig.47: Exploded axonometrical drawing of the building to show the components, furniture, and ceilings of a typical floor.