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Reconciling Existing Architecture With Contemporary Living: An Inhabitant-centered Approach for the Renewal of Modern Housing

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Abstract: One of the challenges of the present is to understand how to update a large housing stock inherited from the Modern. Imagined as a genre of production, Modern movement design research was focused exclusively on housing determined by economic and regulatory parameters. The inhabitant was pushed aside. The modification of domestic living models due to contemporary social changes made it necessary to define new paradigms centered on comfort and on the respect for the needs of the inhabitants. Looking at two European examples, this contribution aims to define a new design approach in which the inhabitant is at the center. Reflecting on the interaction between inhabitant and domestic space, leads the contemporary architect to understand the importance of the performance of the inhabitants who continuously adapt living space according to their own aspirations. This almost daily action can be an important tool for contemporary architects to redevelop and renovate the existing residential heritage.

Key words: modern housing renovation, inhabitants' performance, new ways of inhabiting

1. Introduction

The present is characterised by major crises [1], but also by major innovations: the economic crisis, the climate crisis and not least the pandemic crisis, together with technological breakthroughs, define the contemporary condition in which change is needed, as the French sociologist Jean-Louis Violeau pointed out: "the question of the [present ed.] time is not: what kind of architecture do we want to build? but rather: how, with whom and for whom do we want to build?" [2]. Violeau's questions about the role of architecture are a warning about the need to define new paradigms [3] through which it is possible to act on space and transform it: we're living in a historical moment where architecture is defined by technical (or technological) solutions generated through virtual model in order to control dimensional, climatic or economic parameters aimed at reaching certain thresholds imposed by the regulatory framework for the renewal of the obsolete existing building stock as demonstrated by the recently-published *EU Renovation Wave Strategy* that concentrates only on technical, material and economic questions of reuse, with no mention of the social and cultural aspects [4].

Working on single problems may not be the answer to the complexity of the present time: one should not look for a single innovative technology or prodigious remedy, but for a change in the relationships between objects [5]. This contribution aims to probe the possibility of reconciling social and technical aspects in the regeneration of the existing built environment. To do so, we must acknowledge those architectural practices that react to the contemporary challenges by placing the inhabitants with their movements, daily routine and needs at the center of the design process[1]. After all, "living is acting" [6], "it is to organise one's own wellbeing, to mark space with one's own imprint,

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[1] The generation of designers defined by Zaera Polo "of post-capitalism" in his essay *Well into the 21st Century*, which appeared in El Croquis magazine No. 187 in 2016.

to adapt it, to make it an expression of ourselves and of those who live with us." [7]; in fact, "when people act in their habitat, they transform it, modify it, and finally make it better, because they create a syntony between their life project and the built object" [7]. This syntony that Christophe Hutin speaks of occurs as an autonomous and unconscious action of the inhabitants that develops, above all, when they try to adapt the existing living spaces; a way of acting by transforming that Hutin himself studies and from which he learns the real needs of those who inhabit the building in order to seek a possible meeting between the architect's skills and the "performance of the inhabitant" [6].

Several years earlier Giancarlo De Carlo, who hoped for an awareness on the part of the actors of the decision-making and design processes, stated the idea that the construction of space had always been a "common heritage" [8] as "there is an extremely intense relationship between physical space and those who inhabit it" [8]. However, as De Carlo himself points out, considering the needs of those who live there does not mean transcribing them; operating in this way is a trait of those designers who do not believe in architecture or compensate for not being able to produce it [9]. This approach may prove useful in facing one of today's greatest challenges: the regeneration of the existing building stock. The present "has only one building material: the existing" [10]. The redevelopment and reuse of the built heritage are issues on which much attention has been focused in the last decade, especially in European countries: a study conducted by the European Commission revealed that in Europe more than 88 million housing units were built before the 1960s [4] before the most advanced standards on energy efficiency and seismic risk and, above all, made to outdated comfort standards. In addition, there are more than 114 million residences by 2020, of which almost 41 million were built between 1945 and 1980 [11], a heritage that today needs to be taken care of.

2. The Need for A New Approach to Modern Housing Renovation

2.1 From Modern Housing to the Contemporary Inhabiting

The standardization of living spaces and functions was laboriously developed by Modern architecture in the first half of the 20th century. Architects attempted to model both housing and its inhabitants: the architectural translation of the taylorist logic envisaged a first and foremost social normalization of the body, which presupposed a normality from which descended a very precise vision of the relationship between body and space. This relationship determined a certain typology almost like the result of a mathematical formula. With the Modern Movement the architectural debate focused more on the dwelling than on the inhabitant. Therefore, the production of those years celebrated the *existenzminimum* as the result of an exasperated productivism that reduced the dwelling to a commodity, defining a priori what needs it should accommodate basing the decisons almost exclusively on economic parameters. In 1972 Habraken lashed out against mass housing, arguing that it was impossible to consider inhabitants and dwellings separately, calling for a vision that overcame the functionalism that had guided the construction of suburban neighbourhoods for much of the 20th century [12]. The Italian philosopher Maurizio Vitta, in writing an entry for the Encyclopaedia Treccani on "Nuovi modelli di abiatare" [New ways of inhabiting], makes an appeal starting from the research evolution in this field:

"It is necessary to go from the functional concept of dwelling to the cultural concept of inhabiting thus placing the figure of the dweller the centre of the analysis, understood in his corporeity, his behavioural patterns, and the liveliness of his social interaction. It is the inhabitant, in fact, who is responsible for the definitive project of living from which the dwelling will take shape, from time to time, to which the architectural project can only provide the tools for

elaboration, the spheres, the basic instrumentation from which to start development." [13]. A change in fact occurred. Having surpassed the precepts inherited from *existenzminimum* in defining the spaces of the home, current production seems to prefer the principle of *existenzmedium* where *medietas*, first and foremost dimensional, proposes organizational arrangements capable of giving life to freer and more articulated aggregations. The collective housing is nowadays designed with extensive use of interstitial spaces, unordered sequences of rooms and with great attention to relational spaces which result in almost no repetitive plans. These features challenge the convictions that have characterized the production of Modern social housing in favour of the awareness of a parallel evolution of the social context in which contemporary designers find themselves operating, characterized by the so-called "liquid society" [14, 15] that is generating new nuclei in continuous change. Young couples, singles with or without children, the elderly, immigrant workers or work colleagues sharing expenses constitute new domestic groups, different from the traditional family, to which new increasingly unstable and changeable typological arrangements begin to correspond, so that the end of social housing as a typology is being hinted at.

2.2 Overcoming Socio-Cultural Obsolescence in the Transformation of the Domestic Space

Starting from these reflections, it is also necessary to shift attention to intervention strategies regarding the existing building. If Cedric Price in his *Six strategies for existing buildings* [16] proposed an approach in which the pre-existence is subject to operations of an essentially compositional nature (reduction, addition, insertion, connection, demolition, expansion), the German pavilion at the Venice Biennale in 2012 updated the debate, suggesting eleven categories of intervention that espouse the need for an attribution of meaning that prescinds from the architectural image: "Perception", "Maintenance", "Behaviour" (use), "Renovation", "Conversion", "Infill", "Redesign", "Subtraction", "Addition", "Material recycling" and "Gestalt recycling" (recycling of form) are possible actions that can guide the future life of existing architecture. The idea of looking at buildings not as objects unchangeable, but as bodies inexorably subject to change, was introduced into the architectural debate by Stewart Brand in *How Buildings Learn*. In particular, he breaks down the building into six layers, indicating for each its longevity [17]. The first layer is the "Site" — the geographical scope, the urban location and the plot — which is eternal; the second, the "Structure" (the foundations and load-bearing elements), constitutes the building and has a life span of 30 to 300 years depending on the case. The others are: "Skin" is the envelope which is changed every 20 years or so, to keep up with aesthetic taste or technology; "Services" (the systems) deteriorate or become obsolete every 7 to 15 years; the "Space Plan" indicates the layout of the building's interior spaces (walls, ceilings, floors and doors) and has a lifespan that depends on the function that the building houses (commercial spaces can change every 3 years, while houses can wait up to 30 years); finally, the "Stuff" level groups together the furniture and all those objects and elements drawn from the sphere of the domestic, which move daily or monthly. Recently, Jeffry Burchard revised this model by defining a further layer that he calls "SocioCultural" [18]. With it, he intends to describe a further process of progressive obsolescence to which the architectural organism is subjected that concerns changes in the needs and values of the people who inhabit the building. Today it is therefore necessary to understand not only how to replace technologically obsolete and materially degraded functional layers, but also how to reconcile architecture with its inhabitants.

In some ways, the field of redevelopment of the existing represents a privileged field of architectural practice. Again Vitta [19], making his own a thought expressed by the French writer Maurice Blanchot — who reflected on the solitude of the work and the

distance between the author and the reader — describes the distance between "the space to be inhabited" and "the inhabited space". The architectural design for residence inexorably comes up against the problem of not knowing in concrete terms who will inhabit the work. When it comes to existing buildings, however, the "space to be designed" and the "inhabited space" coincide. This convergence makes the existing housing redevelopment project the right place in which to practice new design methods centred on the figure of the inhabitant.

3. Case Studies

3.2 Densification and Re-Appropriation as Synergistic Strategies

The research conducted by the French architects Anne Lacaton and Jean Philippe Vassal, with the collaboration of Frédéric Druot, represents a possible manifesto of such an approach: *Plus-Les grands ensembles de logements-Territoires d'exception* focuses on the quality that can be found in Modern residential production (Parisian *Grand ensembles*), and then defines a catalogue of operational solutions for adapting existing spaces to the needs of its inhabitants, by showing the possibility to continue the design of the Modern. For the French architects addition becomes the necessary design action (Fig. 1). Densifying, however, does not only mean increasing the built volume, but also increasing the variety of situations in which the inhabitant can find himself, increasing the collective space without reducing the individual one; in their words "instead of defining banal space, without any attributes, it is far more interesting to create situations; a range of them" [20] and it is possible to do this with the existing building, transforming the spaces "with different depths, transparencies and relations with the outside, providing intermediate spaces and connections with other floors, with the ground and the sky. Movement through space can allow freedom but also surprises and adds spatial variety." [20].

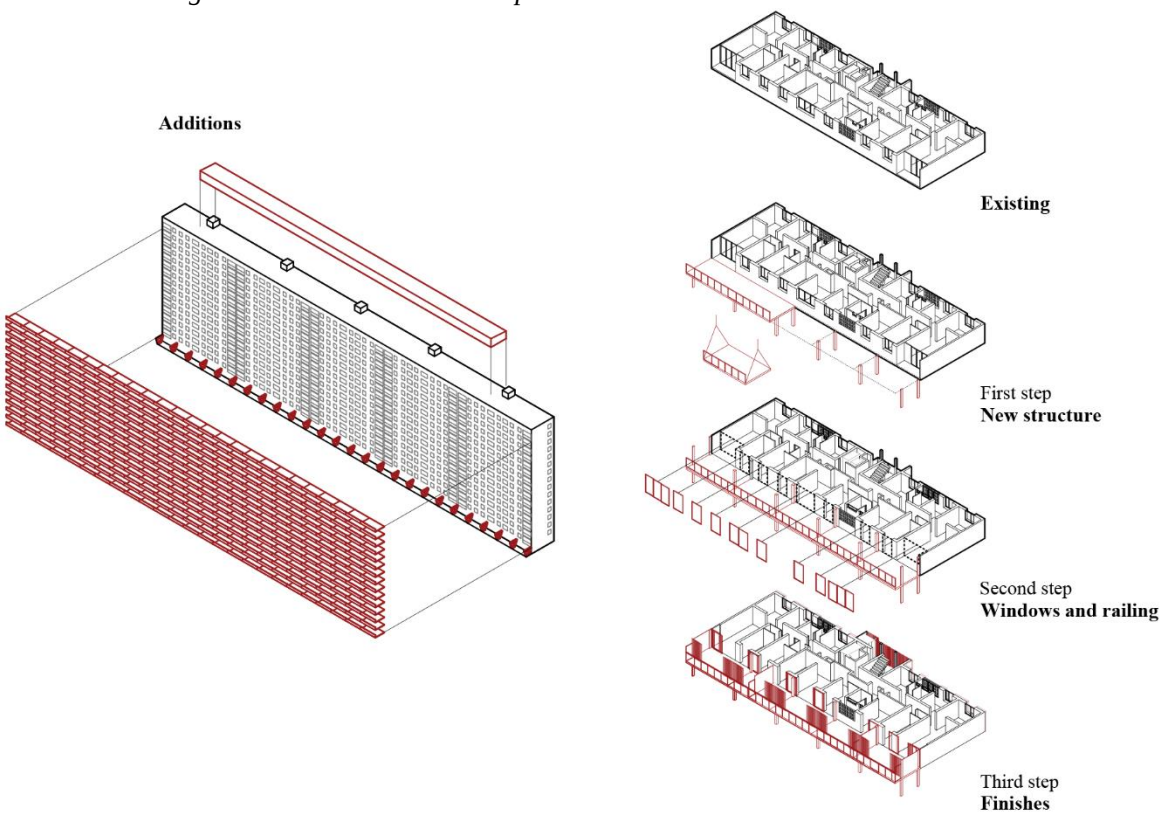


Fig. 1 Axonometric view of the addition process in the Lacaton &Vassal's renovation project for the 530 flats of Grand Parc in Bordeaux, France (2017).

The project for the transformation of 530 flats of Grand Parc in Bordeaux (2017) shows this kind of awareness of the subject. The building, built in the 60s, was originally supposed to be demolished, but "any demolition destroys a great deal of information, knowledge, layers, materials and memories" [21]. The designers therefore propose an alternative solution. In the preliminary stages of studying the project, the two architects have met people and families, who were attached to their housing, even if the situation was not the best. They then proceeded to focus "on daily life, on what the inhabitant produces, and to invent from these sensible variations" [22]. The small living space and the exaggerated use of rooms suggest to designers the need to expand the flats through a façade addition. This had the effect of doubling the initial area with a much lower financial and environmental cost than would otherwise have been incurred by the demolition and reconstruction of the building. The addition consists of winter gardens that have been imagined as spaces for creativity or appropriation (Fig. 2), deliberately undefined spaces that residents can adapt to their own living style. Depending on the needs, the inhabitants reappropriate the added space, leaving it to them the task to complete the project. The intervention also has energy implications: the winter gardens improve the microclimate of the flats and reduce energy consumption for heating in winter and cooling in summer. Depending on the season, the inhabitant uses the winter garden space differently, defining an interesting dynamic between available space and possible use (Fig. 3). Built using a prefabricated system of reinforced concrete and glass, the addition is a tangible translation of the principle dear to the two architects of "Cheap is More": the cost of renovating three flats is equivalent to the cost of demolishing and rebuilding one. The work of Lacaton&Vassal shows the effectiveness of "placing people, and not just technology, at the centre of a project […] whether you like it or not the people living inside give these buildings value" [22]. In the words of the two architects: "We begin by building a relationship with the people, and what we learn from them changes our design for the better" [23] realizing what they call the "Architecture with empathy" [23].

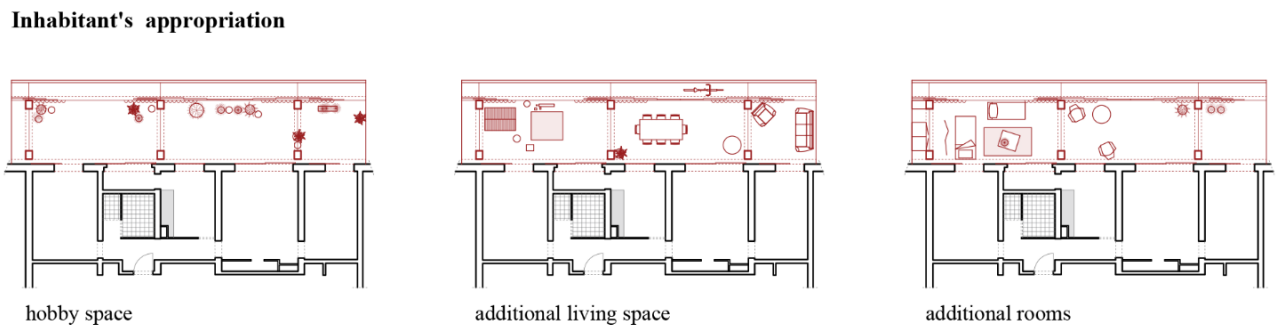


Fig. 2 Space appropriation plans elaborated through the help of photos taken over the years since 2017.

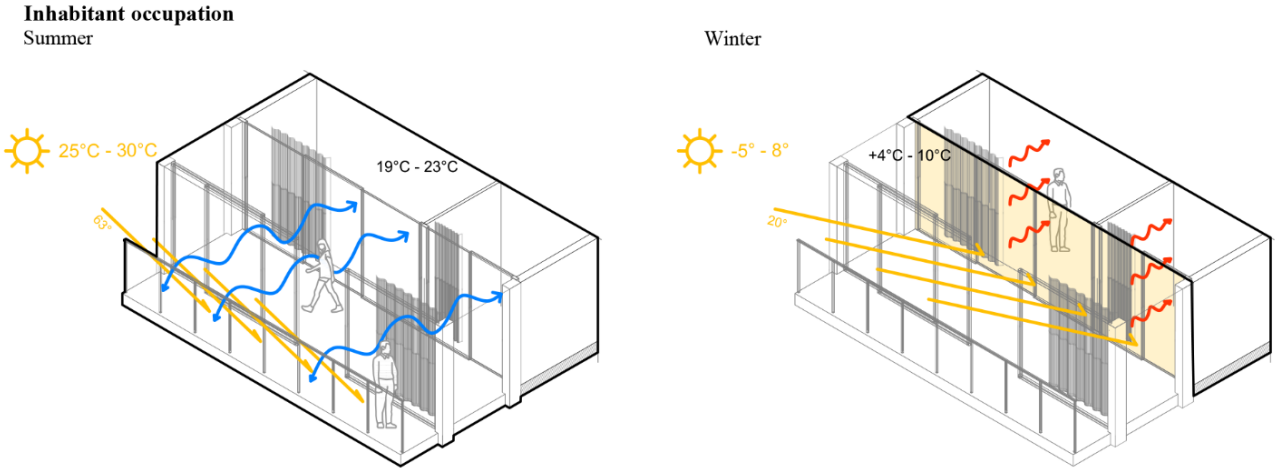


Fig. 3 Axonometric view highlighting the relationship between the climatic performance of the winter garden and the inhabitants' use of the space.

3.2 Giving Inhabitants the Freedom to Change Flats Layout

The architects of the Modern Movement expressed a firm criticism of ornate architecture tailored to the taste and needs of the bourgeoisie. To this the architects of the Modern opposed a new architecture coherent with the profile of an active man with standardised needs. Thus, it was that Le Corbusier began to travel the world with his *Plan Voisin* proposing uniform housing solutions, independent of the social, environmental, historical and cultural characteristics of the city because he made a *tabula rasa* of them. Like many other planners of the time, the solutions he proposed represented a social project but were not necessarily concerned with society: they were in fact ideas far from the ways of living of the inhabitants. Later the interest of postmodernism in a form detached from a social burden has only exacerbated this gap. However, alongside this architecture, a parallel architecture "without architects" [24] developed over time, in which only the needs of the inhabitants emerged. A condition common to the entire population is the constant search for improvement in their living conditions. This search is reflected above all in domestic space: inhabitants often adapt existing spaces according to their own measure of well-being and comfort. These solutions are very often as simple and effective as they are economical, demonstrating that "the inhabitant instinctively possesses [...] a sense of the measure of habitability, of bonhomie, of affability with the neighbourhood [...] that architects no longer possess" [25]. This action of the inhabitant conforms the space in a very recognisable way: lack of regularity and repetitiveness of solutions, presence of internal/external connection spaces, minute and differentiated functions. Self-building has, today, become a language practiced by many architects. With it, architects define technical and operational solutions that can be used directly by the inhabitants. It represents a way of limiting costs, responding to the needs of the inhabitants and satisfying tastes and desires as far as possible. Three types of self-construction can be identified: providing prefabricated building systems that can be assembled by the inhabitants; providing a structure that can be completed by the inhabitants; and assisting the community with guided self-construction. These modes can also be used in the redevelopment of existing buildings as the case of the "De Flat" project by NL Architects with XVW Architectuur shows (Fig. 4).

"De Flat" is an innovative renovation of one of the biggest residential buildings in Bijlmermeer, a CIAM inspired residential expansion of Amsterdam, called Kleiburg, a bend slab with 500 apartments, 400 meter long, 11 stories high. The name derived from

"Consortium De FLAT" who rescued the building from the demolition by turning it into a *Klusflat*, meaning that the inhabitants are free to renovate their apartments by themselves to meet their own needs. The project aims to humanise the architecture, which in the past has been much criticised for its size and repetitiveness. The block's *Klusflats*, or *DIY flats* (Fig. 5), come without any internal fittings, so residents complete the homes themselves. This makes them far cheaper than finished apartments, making it easier for people to get on the property ladder.

"The Klusflat approach gives room for everyone with an idea; a lot of energy is unleashed," [26] said NL Architects co-founder Kamiel Klaasse during the presentation of the project. "People can create their dream apartment. Or keep it banal and cheap. It's totally up to them." [26] The future residents can buy the shell for an extremely low price and then renovate it entirely according to their own wishes. In fact, the project aims to open up new ways to live and to offer new typologies. For example, flats could be combined into one making both horizontal and vertical connections (duplex solution). Another problem faced by the architects was the relation between inside and outside, originally designed to be closed and not very welcoming. The project replaces opaque parts of the façade with double glass. By opening up, the façade becomes a personal carrier of identity. In addition, a catalogue of façade modules was created from which the future inhabitants could choose a set of window frames that would match the customized layout of their flats: openable parts, sliding doors, double doors, and a set-back that creates space for plants or people and define a more personal interface.

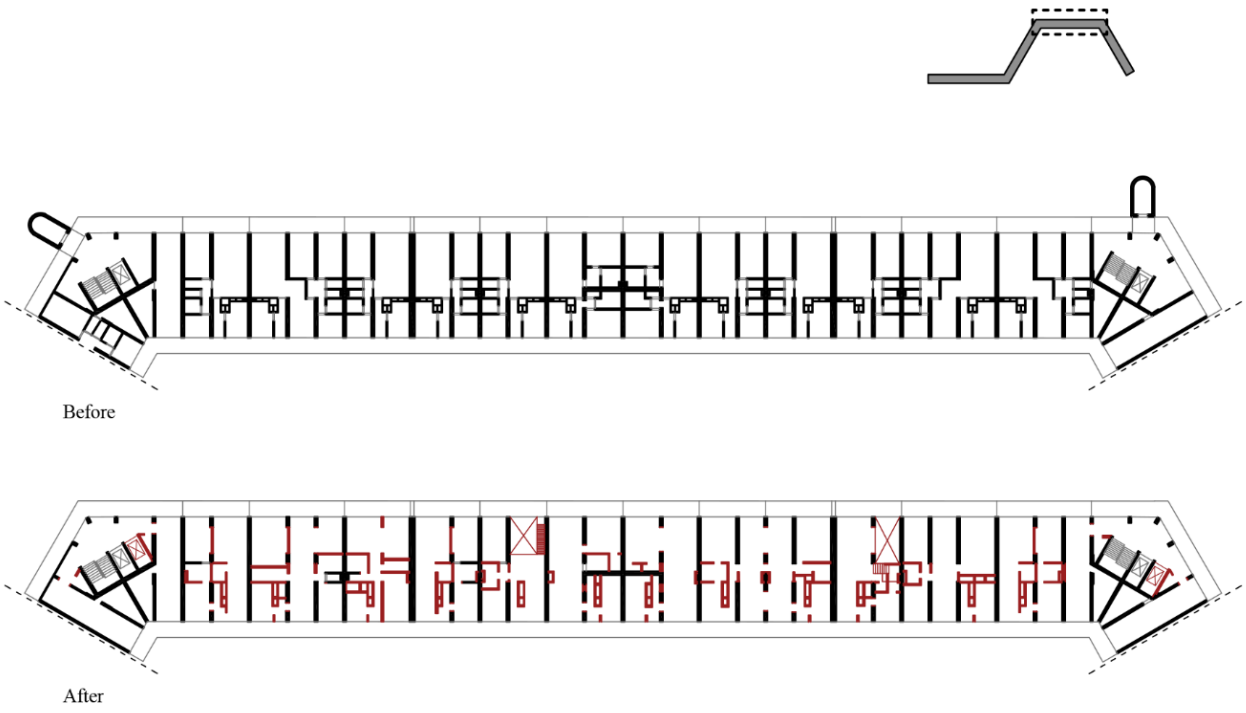
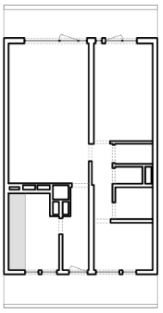
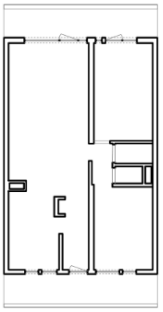


Fig. 4 Comparison of Kleiburg plan before and after the NL Architects and XVW Architecture's project (2016).

Unit type A

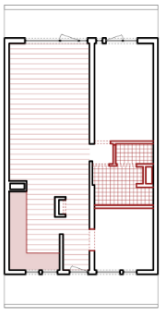
Original layout





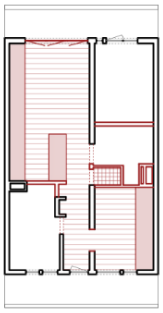
Project layout

Inhabitant's adaptation



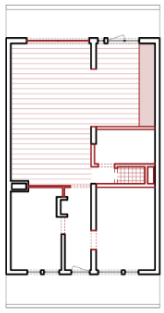
flat n. 507

day zone	45 mq
night zone	33 mq
kitchen area	10 mq
living	35 mq
n. bedrooms	2
other space	-



flat n. 311

day zone	40 mq
night zone	31 mq
kitchen area	27,50 mq
living	12 mq
n. bedrooms	2
other space	1

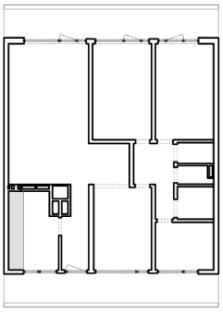


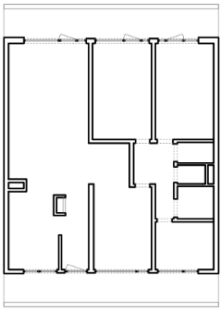
flat n. 735

day zone	41 mq
night zone	30 mq
kitchen area	12 mq
living	28 mq
n. bedrooms	3
other space	-

Unit type B

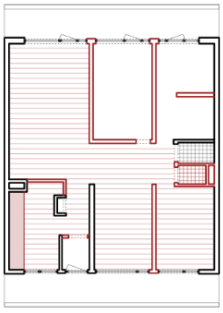
Original layout





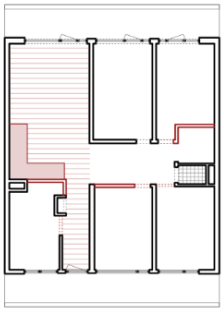
Project layout

Inhabitant's adaptation



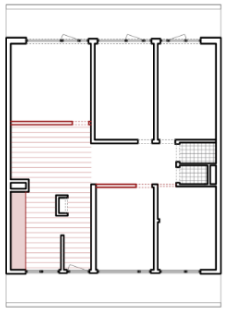
flat n. 538

day zone	71 mq
night zone	35,50 mq
kitchen area	10,50 mq
living	27 mq
n. bedrooms	1
other space	4



flat n. 526

day zone	33 mq
night zone	70,50 mq
kitchen area	10 mq
living	-
n. bedrooms	4
other space	1



flat n. 338

day zone	28,50 mq
night zone	65 mq
kitchen area	10 mq
living	11 mq
n. bedrooms	4
other space	1

Fig. 5 Flats layout adaptation by inhabitants after the end of renovation work on the exterior and common parts of the building.

4. Conclusion

One answer to the challenge of contemporaneity is to regenerate the existing starting from the inside: from people and their daily needs; and then transforming the outside, the apartment and the entire building. A process in which the interaction between inhabitants and the space they inhabit becomes a guiding tool to hold together the economic and social dimensions in the design process, ensuring the implementation of technological solutions capable of solving the problems of the existing built environment. The case studies show different strategies with which the designer can give a certain degree of freedom to the inhabitant in order to accommodate his daily performance. With the transformation of the 530 flats of Grand Parc in Bordeaux, the French architectural practice shows that through the replacement and subsequent volumetric addition on the Skin of the building, a practice now very common in Europe, one can favour the creation of undefined spaces that the inhabitant can modify and continuously adapt. The typological situationism common in many of their works becomes a spatial device capable of bridging the gap between the architect's design and the inhabitant's life project. In the second case, NL Architects decide to leave the typological definition entirely to the inhabitants, handing over to them only a catalogue of possible solutions that can be combined in different ways according to their needs. The Space Plan thus becomes the framework to accommodate the inhabitants' freedom of adaptation and appropriation which, unlike the first case in which it is the definition of use that remains undefined, allows them to act on the space with self-construction. Starting from these considerations, what awaits us is a reflection on a paradigm shift that concerns not only the transformation of existing residences, but more generally the ways in which we approach design, which must distance ourselves from the Modern tradition, now obsolete from all points of view.

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[26] Kamiel Klaasse during the lecture "Lectures on the Kleiburgflat in Amsterdam" at Amsterdam Academy of Architecture on the 4th of February 2016.