



Rhabillé

Lacaton & Vassal, with Frédéric Druot Architecture and Christophe Hutin Architecture, won the 2019 Mies van der Rohe Award with their renovation of three blocks of a 1960s slab estate in Bordeaux with the addition of an outer skin of winter gardens



The project involved the renovation and transformation of three fully occupied Modernist social housing blocks as part of the first phase of the Cité du Grand-Parc estate renovation programme in Bordeaux. Built in the early 60s, this urban housing scheme provides nearly 4,000 dwellings. Those renovated by Lacaton & Vassal – blocks G (Gounod), H (Haendel) and I (Ingres) account for 530 dwellings over 15 storeys. Lacaton & Vassal has added extended winter gardens and balconies to each apartment, bringing in more natural light and panoramic views.

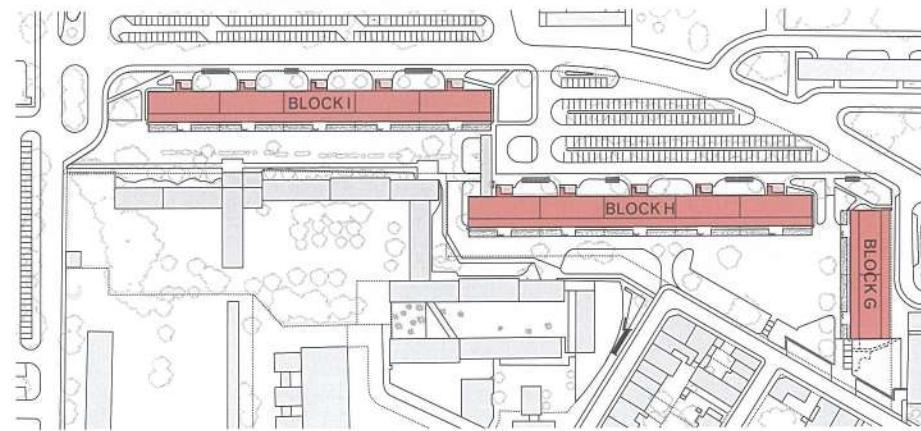
Words Catherine Slessor
Photography Philippe Ruault

Underscored by the conviction that architecture is a socially responsive process, the work of French architects Anne Lacaton and Jean-Philippe Vassal explores often radical ideas around use and inhabitation. 'In French, *habiter* means the state of being somewhere: space is whatever its use is,' says Lacaton. 'All our projects propose generosity of space, freedom of use, and the possibility of appropriation.'

Beyond the narrow compass of energy use, their work also poses fundamental questions about the nature of sustainability. In particular, according to Vassal, 'how to make sustainable that which already exists'. In France, city peripheries are populated by

huge tracts of post-war Modernist *grands ensembles*, so the question of what to do with an unwieldy legacy of ageing slabs and towers is a growing preoccupation. Demolition is often seen as politically expedient – few things play better with the public than the spectacle of Modernist housing blocks being unceremoniously flattened. But it is also extraordinarily wasteful of energy, materials, labour and capital, to say nothing of the upheaval and dislocation inflicted on people and communities.

In 2004, Lacaton & Vassal, together with architect Frédéric Druot, produced the PLUS manifesto, challenging an initiative by the French government to bulldoze a significant



portion of its vilified post-war social housing stock and build new, smaller dwellings at greater expense. Their basic proposition was 'never demolish, never remove or replace, always add, transform and reuse'. The manifesto advocated ways of enlarging existing units, reorganising circulation and access points, introducing a greater degree of transparency and adding winter gardens to reduce energy use. The architects understood that, to stand a chance against the forces of consumerism and ideological hostility, this kind of architecture had to be true to its modernity: it had to evolve.

Since then, Lacaton & Vassal has put theory into practice, recasting Modernist housing



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developments in Paris, Saint-Nazaire and now Bordeaux. Ten minutes by tram from the city centre brings you to the housing estate of Grand-Parc, an array of hulking apartment blocks set in parkland. Constructed in the 1960s, the architecture is functional and repetitive, but the atmosphere is far from irredeemably grim, as in many French banlieues. Now starting to show its age, Grand-Parc was an attempt to create decent mass housing for working-class families, incoming immigrant communities and those displaced from Bordeaux's city centre as a result of slum clearance. Originally designed to accommodate 13,000 people, it currently has a population of 8,800, with an increasing proportion of older residents.

While not a conspicuously problematic estate, there was a sense of slow decline and quiet languishing on the periphery. Yet, rather than being razed and rebuilt, with the concomitant waste of resources and baleful impact on the environment, three blocks have been refurbished by the simple expedient of adding an external layer of winter gardens and balconies. Original façades have been stripped away and flats opened up to light, air and views. A new armature is created for activities and residents are free to furnish and use the extra space in any way they choose.

A succession of transparent and translucent layers choreographs how the winter gardens connect with and relate to the existing flats. The balcony parapet is glass, while the outer membrane of the winter garden is a sliding partition composed of two thirds translucent polycarbonate panels and one third glass. The innermost partition, where the old cladding was removed, is a full-height sliding partition of glass. At the outer membrane, the degree of exposure or privacy is controlled by voluminous metallic silver curtains. At the inner membrane is another curtain, with a reflective Mylar side facing out to the winter garden and a fabric side facing in to the interior.

Acting as a visual and thermal barrier, this series of layers allows the winter garden to be open and exposed, or closed and intimate, with intermediate options. The system is robust, easy to use and non-proscriptive, allowing residents to decide what suits them both functionally and experientially.

Modulated by the shifting planes of curtains and glazing, the façades and the buildings are transformed. The huge slab blocks are curiously dematerialised, elevated into shimmering, fine-grained bas-reliefs of polycarbonate, glass, corrugated metal and silver solar curtains. Against this, the random colours and forms of plants and other

domestic minutiae assume an unusual and delightful intensity.

New elements took the form of prefabricated modules, clipped like scaffolding to the existing building. Precast concrete slabs and columns were transported to site and craned into position to form a freestanding structure, extending flats by a depth of 3.8m, in some cases almost doubling their size. Other parts then slotted into place, including new external lifts, which perform a mesmerising *ballet mécanique*, gliding up and down translucent shafts. Crucially, residents were able to stay in their homes during the work, avoiding the need for disruptive decanting, and each of the 530 flats was refurbished in about 12-16 days.

At about €50,000 per unit, the renovation has cost roughly half as much as a new build scheme. And only half of the budget was spent on the façades; the rest was dedicated to more general upgrading. The scheme aims

to reduce energy use by about 60 per cent and, though this is clearly important, it is only one factor in a broader architectural and social ambition. 'There are so many better, smarter ways than insulation to make a building more energy-efficient and sustainable,' says Lacaton. 'Sustainability is also about the way that money is spent on doing something that lasts longer and is of greater use.'

The 16-storey blocks have some of the most enviably expansive views in Bordeaux, which would have been lost if they had been demolished, as planning regulations now confine new development to a height of five storeys. Equally importantly, rents have remained stable and residents have not been displaced, an all-too-common pattern in estate refurbishment, especially in London.

Could it be made to work in the UK? Clearly, the winter garden concept is a cost-effective and replicable template that employs simple materials and technologies. Moreover,



Bordeaux's mild, damp Atlantic climate is similar to southern England's, so in theory the potential is there. But it's not just a question of tacking a bit of polycarbonate onto some failing apartment blocks. The project must operate convincingly on two very different yet intertwined scales. On the one hand, it has to respond to the intimate, human scale of the inhabitants, who appropriate and transform the newly created spaces; on the other, it must confront the larger, more impersonal agendas of housing agencies, local authorities and national government. Though there is an evident need for similarly enlightened remodelling strategies here, British local authorities are confounded by, at best, a lack of resources; at worst, the kind of institutionally ingrained prejudices about social housing and its users that contributed to the Grenfell Tower disaster.

Lacaton & Vassal's embrace of economy – of aesthetic means, of materials, of capital and of energy – is especially pertinent, precisely because it is not an argument for austerity, but for investment, expansion and even luxury. 'We like the idea of luxury in simplicity,' says Vassal. 'Our goal is to employ economy in order to do the maximum, to increase freedom and living possibilities for families who don't necessarily have much money.' 'For us it's very important to give people this ease of space,' affirms Lacaton. 'You cannot hope for a sustainable city if you impose compression on the lives of people.'



Architects' view

Cité du Grand-Parc is spread over an area of about 60 ha. Its urban layout follows the typical Modernist principles: blocks and towers up to 22 storeys high surround a 10ha urban park and are in turn surrounded by 20 ha of green spaces, parking lots and traffic routes.

The Gounod, Haendel and Ingres (G, H and I) blocks comprise 530 units divided as follows: 225 units over 15 floors and five entrances in both H and I; and 80 units over 10 floors with two entrances in G. Apartment types range from one to four-bedrooms, with cellars and storage rooms at the ground floor.

The project has been incredibly economical, due to the choice of refurbishment over new build. No major interventions have been made on the existing building, such as the structure, stairs or floors, so the strategy has allowed for project resources to be focused on more generous extensions that are, for us, the key to improving the quality and space of existing dwellings in a more significant and sustainable way.

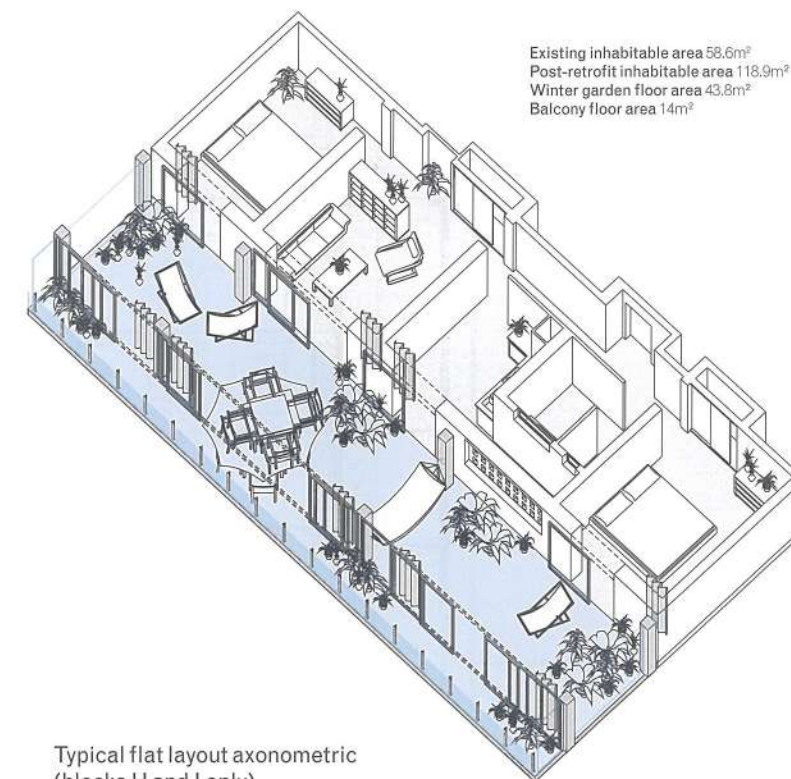
These extensions both increase the space inside the dwellings and afford the opportunity for residents to have a private outdoor space, as they would in a house. So the refurbished apartments open onto large winter gardens and balconies, offering pleasant outdoor spaces large enough to be fully used: 3.8m deep on the south façades for buildings H and I. Existing windows have been replaced with large, sliding glass doors, connecting every room of the dwelling to its new winter garden.

As well as interior renovation works in every apartment, for every core accessing 45 flats, the existing two lifts have been replaced by larger ones, supplemented by an additional new lift. In the common spaces, entrance halls were also renovated, and staircases and landings enclosed. In blocks H and I, additional elevators were installed. At ground floor level, a bicycle store and stroller rooms were created.

On the top floors of H and I, eight new penthouses of 93m² were built. Almost entirely glazed, with decked terraces and polycarbonate-clad wintergardens, they offer exceptional living conditions. From there, the views over a city whose buildings rarely exceed four storeys are stunning.

Through this project, social housing, often criticised, has set an example: making a relevant and economical transformation that produces much more generous, pleasant and environmentally better-performing dwellings. The project renews and reformulates the building type and improves the living conditions and comfort of its residents, at the same time improving the image and attractiveness of this type of urban housing.

Anne Lacaton and Jean-Philippe Vassal



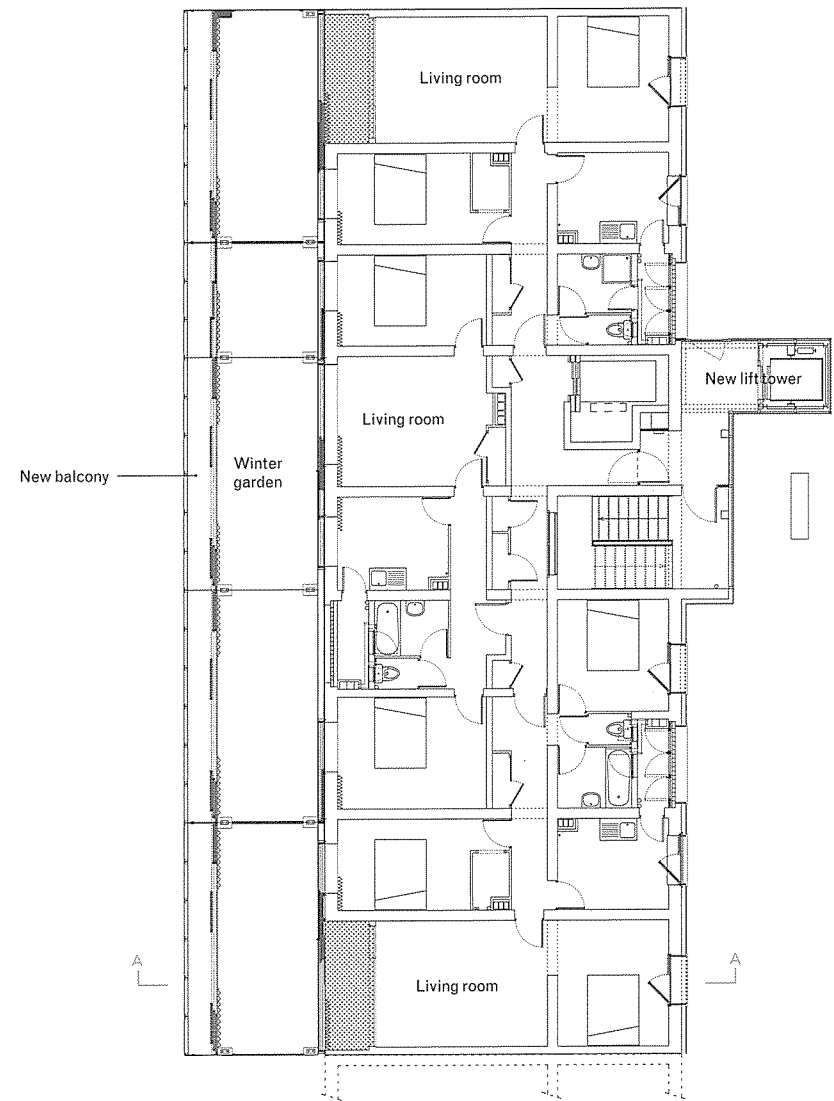
Existing inhabitable area 58.6m²
 Post-retrofit inhabitable area 118.9m²
 Winter garden floor area 43.8m²
 Balcony floor area 14m²

Typical flat layout axonometric (blocks H and I only)

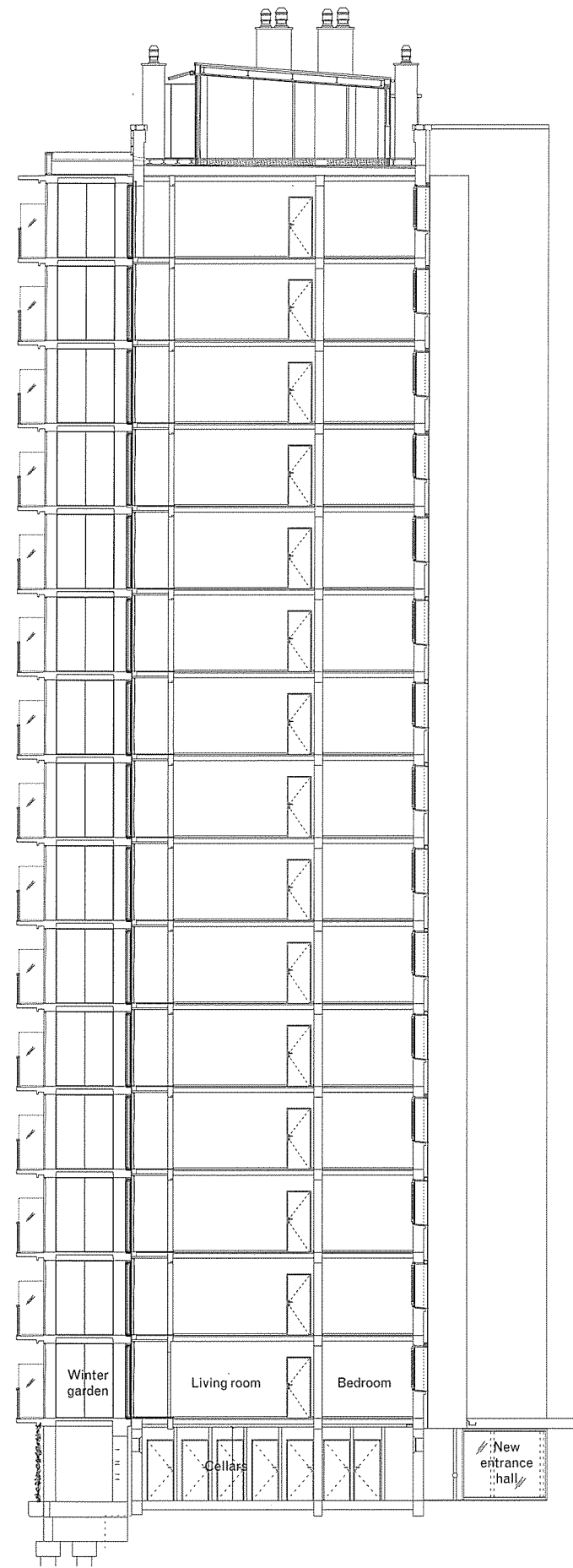


Project data

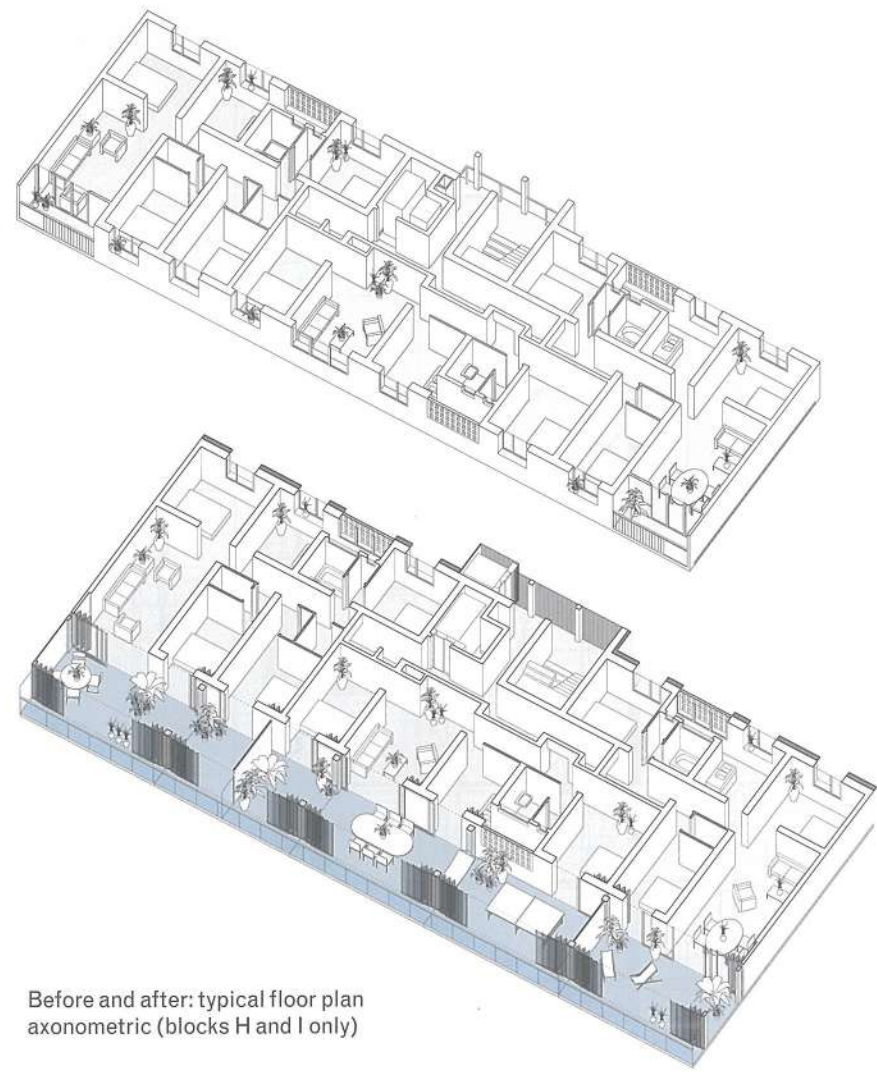
Start on site March 2014
 Completion January 2016
 Gross internal floor area Existing 44,210m², extension 23,500m²
 Construction cost €29.6 million
 Construction cost per m² €437
 Architects Lacaton & Vassal, Frédéric Druot and Christophe Hutin Architecture
 Client Aquitanis, Office Public de l'Habitat de Bordeaux Métropole (Communauté Urbaine de Bordeaux)
 Structural engineer SECOTRAP Ingénierie International (concrete and technical installations); CESMA (metallic structure)
 M&E consultant CARDONNEL Ingénierie
 Cost consultant Vincent-Pourtau Economie et Associés
 Main contractor BATSCOP
 Landscape architect Cyrille Marlin PER
 Airtightness n₅₀ 1.7h⁻¹ m³/(m².h)
 Energy consumption 61.6-190 kWh/m²/yr



Segment of typical floor plan (three apartments, blocks H and I only)



Section A-A



Before and after: typical floor plan axonometric (blocks H and I only)

Client's view

Since 2008, Aquitanis has embarked on an ambitious reinvestment policy in its existing housing stock following a decade of urban renewal projects in the Hauts de Garonne region. Beginning in 2012, the Grand-Parc was the second great emblematic 1960s estate in Bordeaux to be fully renovated as part of its Génération d'Habitat Innovant (GHI) project.

This project has seen the radical transformation of the whole estate, showing clearly how it's possible to reinvent contemporary social housing from existing stock. The programme allows tenants to benefit from fully renovated housing without

having to leave their homes during the work. It's a reinvestment in society to show how high-rise housing can once again meet the needs of our citizens at very low rent.

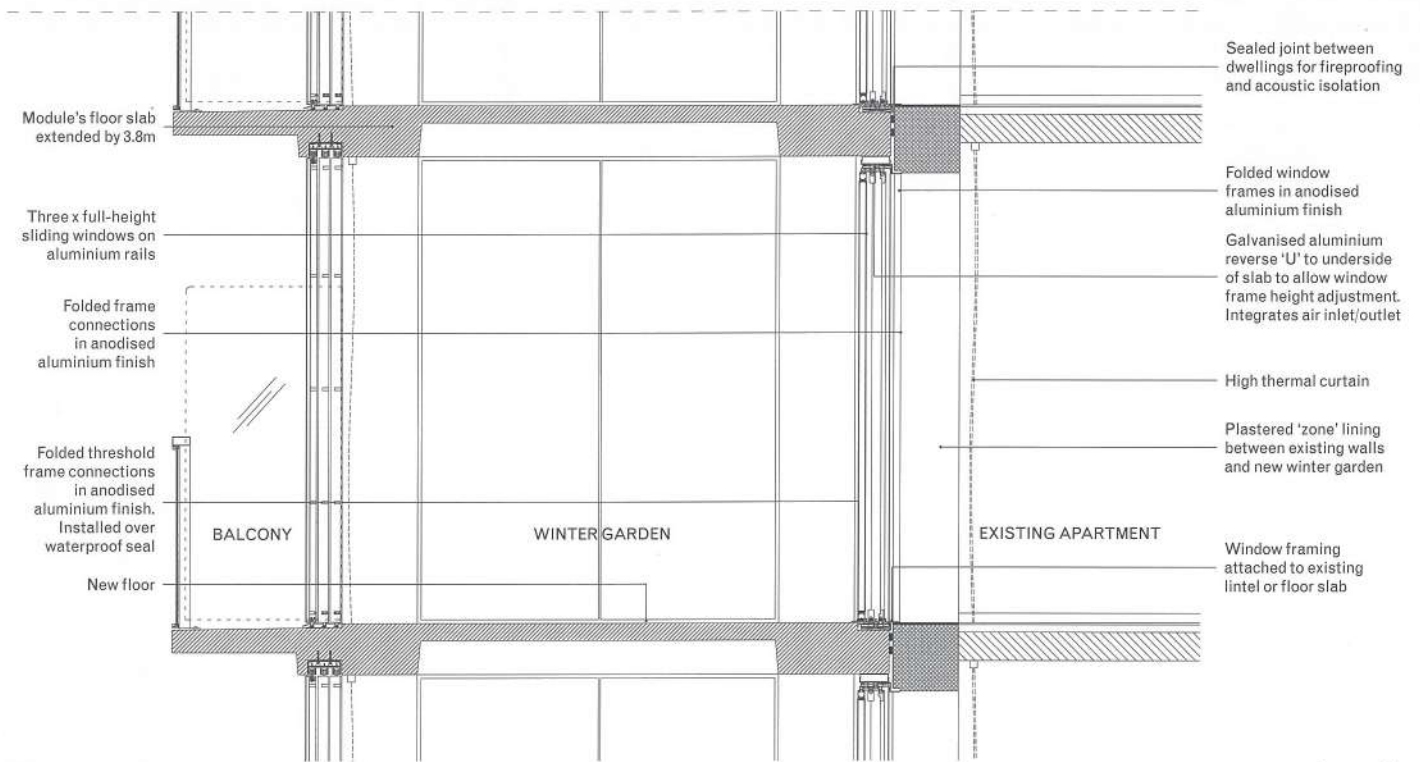
Beyond the architectural, the human is at the heart of this project. These urban living spaces have been redesigned to improve the quality of urban life for residents offering increased space, more comfort and cheaper running costs. Consider the advantages of a flat with more than 110m² of floor space and incredible views of the city.

The creation of new, landscaped green spaces also better integrates the buildings

into the city and offers a more conducive living environment for residents. At the time of energy transition, these dwellings are intended to be eco-responsible, with a real improvement in energy performance.

The project is intended to demonstrate how Aquitanis is in tune with a society that questions the highly standardised production of housing. With this project, it is a living space of tomorrow that is emerging, one designed and adapted for people's wellbeing. *Béatrice de François, president, Aquitanis (Office public de l'Habitat de Bordeaux Métropole)*





Detail section through winter garden and balcony

Energy strategy

The project applies many strategies initially laid out in the PLUS manifesto, put together by Druot, Lacaton and Vassal in 2007. Rejecting demolition of the three blocks, the architects opted for working upon the estates' transformation potential.

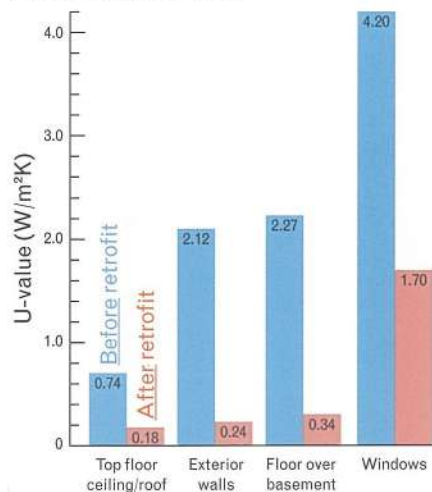
On the north façades of blocks H and I, external insulation has been fitted to the walls and new, double-glazed windows with electric shutters installed, while on the south façade of H and I and east and west façades of G, winter gardens and balconies have been added. Large enough to accommodate different uses, they extend the apartments by complementing them with a 3.8m-deep buffer zone serving multiple purposes. They increase the floor area of each apartment by approximately a third, giving the residents the opportunity to enjoy more daylight and views.

Winter gardens also improve the thermal performance of the building envelope by acting as a heat buffer – they significantly contribute to a decrease in primary energy consumption from 190 to 61.6 kWh/m²/yr.

The construction programme was made as short as possible with the use

of prefabricated modules, erected like 'scaffolding' around the building envelope. Except for the foundations, no additional concrete was poured in-situ. Precast

Building envelope U-values before and after retrofit



slabs and pillars were transported to the site and lifted into position by means of a crane moving on rails to form a freestanding structure.

On one side of the winter gardens, the original concrete walls were taken down and replaced by new floor-to-ceiling, double-glazed sliding doors. Behind these doors, thermal curtains provide extra insulation. On the other side, a lightweight façade of transparent, corrugated polycarbonate panels in aluminium frames is equipped with reflective solar curtains. Glazed balustrades run along the balconies.

Tight planning and scheduling on construction site meant each apartment was transformed in just 12-16 days: half a day for laying of the concrete slab, two days for adapting the old façade, two days for installing the new façade and eight-12 days for renovating the interiors (bathroom refurb, drying rooms converted into laundry rooms, electrical system upgrade). To aid the existing natural ventilation system, new ducts and mechanical assistance were also installed.

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