

TOOLKIT



W1555

Location Rotterdam, Netherlands

Key Words Cooperative, circular construction, low environmental impact, design for disassembly, adaptive reuse



GRANBY FOUR STREET

Location Liverpool, UK

Key Words Community-led, CLT, local empowerment, self build, adaptive reuse

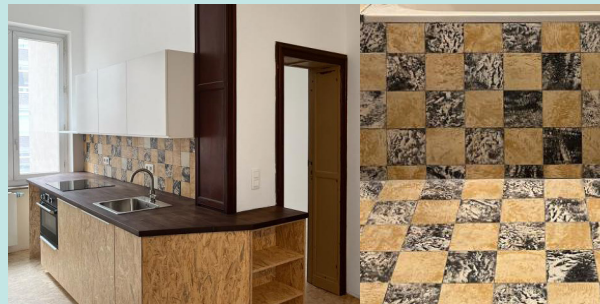
INSPIRATIONAL



BELLEVUE DI MONACO

Location Munich, Germany

Key Words Community-led, sustainable urban development, inclusivity, diversity, adaptive reuse

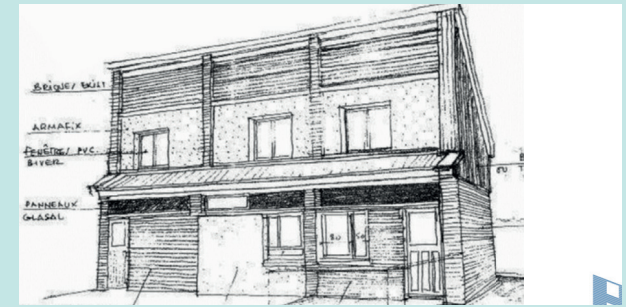


APPARTEMENT DE JULIE

Location Brussels, Belgium

Key Words Private residential, circular construction, refurbishment

PARTNERS FOCUS



META PLATEAU PROJECT

Location Tergnier, France

Key Words Multidisciplinary, mass renovation, circular construction



TOUR CÉZEMBRE

Location Rennes, France

Key Words Community-led, BRS, urban renewal, refurbishment

W1555



46

NETWORK (INITIATIVE)

Woonstad Rotterdam
Superuse Studio
BIK Bouw

PROJECT DURATION

2015 - 2022

TYPOLGY



DEGREE OF RENOVATION

Significant (remodelling of rear facade and external access, remodelling of residential interiors)

COMMUNITY-LED RENOVATION?

Yes No

CIRCULAR CONSTRUCTION METHODS?

Yes No

MIXED USE?

Yes No



Source: Superuse Studio



ABSTRACT

W1555 is a residents' association managing a cooperative complex of 46 housing units and 5 social project spaces. The initiative champions affordable housing, diversity, environmental sustainability, and access to education and culture.

With a strong emphasis on community, the project fosters mutual support among residents and actively contributes to the neighbourhood and cultural life around Wolphaertstraat.

STAKEHOLDERS

Building ownership : The cooperative model enables residents to collectively own the building while benefiting from long-term affordability. After the renovations, the W1555 residents' cooperative took over the management of the complex, leasing it to Woonstad Rotterdam and its members. The cooperative is also responsible for managing both the housing units and the shared community facilities. The residents' self-management is formalised through a structured management plan that outlines their actions and demonstrates the feasibility of collective administration.

Project Contracting Authority : The renovation plan was developed collaboratively by Woonstad Rotterdam, Superuse Studios, and Van der Ree & Vermeulen architects. The plan was then approved by the residents and members of the W1555 cooperative.

FINANCIAL ASPECTS

Location and price of market : In 2001, the houses on Wolphaertstraat were vacant and derelict, located on a street avoided by many Rotterdam residents. However, this did not deter a group of individuals, primarily young artists, who began occupying some of the empty houses, initially through squatting.

Price of the land : The land is owned by the municipality of Rotterdam and leased to residents under the city's common land lease system (erfpachten). This arrangement discourages land speculation and allows the local government to benefit from rising land values over time.

TARGETED PUBLIC

The W1555 housing cooperative is designed for individuals seeking affordable housing within a supportive community. The majority of residents work in artistic fields, including crafts, music, cinema, and fashion. In the early stages of the project, artists engaged actively with the neighbourhood, forming friendships with long-term residents. This collaboration eventually led to the idea of the residents themselves managing the Wolphaertstraat flats.

PROJECT PHASES

2004: Initial Squatting and Founding

2010: Collaboration with Superuse Studios

2015: First discussions about a sustainable transformation of the housing block and creation the new residents cooperative

July 2022: works completed

BRIEF FORMULATION & DESIGN PROCESS

In 2003, initial discussions began regarding the future of a terrace of brick pre-war houses in Rotterdam, which were earmarked for demolition. These houses belonged to the Nieuwe Unie (dNU), now known as Woonstad Rotterdam. In 2015, conversations began about making the housing block more sustainable. To support this initiative, a new residents' group called W1555 was formed. Through a process of participatory collaboration between Superuse

Studio, the W1555 residents, and the property owner, Woonstad, a design and renovation plan was developed for 46 homes and 6 shared spaces, including a studio, workshop area, and communal kitchen. With a total contract sum of €8.5m, specialist contractors BIK Bouw were appointed as well as specialist kitchen supplier TheNewMakers (Housing Cooperative W1555, 2024).

ARCHITECTURAL INTERVENTION

Completed in 2022, the W1555 project represents an intensive remodeling and refurbishment of a terrace of brick pre-war houses, from numbers 15 to 55 Wolphaertstraat in Rotterdam.

The primary architectural intervention reimagined the original pre-war Dutch typology into interconnected «gallery houses.» External walkways, or galleries, were installed at the rear of the terrace, enabling the reconfiguration of the original individual housing units into a mix of single-story and two-story apartments to suit diverse occupancy needs, while preserving the unaltered appearance of the street-facing façades. These galleries were organized into groups of three, each served by a sheltered vertical circulation core. The wide galleries provided dual functionality: accommodating horizontal circulation and creating individual, southwest-facing external terrace and garden spaces for the residents.

The secondary intervention focused on the interior remodeling of the housing units. While the structural removal and reconfiguration of the rear façade marked a significant alteration, it facilitated the installation of new windows and doors that improved external access, escape routes, and significantly enhanced natural light and ventilation within the homes. The redesign also allowed for the development of diverse housing typologies, ranging from single-story apartments to interlocking two-story configurations, offering flexibility and variety in residential layouts (Housing Cooperative W1555, 2024).



Source: Superuse Studio



Source: Superuse Studio

CONSTRUCTION STRATEGY

Superuse Studio employed a range of signature construction strategies to maximize circularity, disassembly, and reuse potential throughout the W1555 project. These strategies included the repair and reuse of the original building fabric, harvesting materials locally and regionally, and integrating biodegradable, demountable, and reusable materials before specifying conventional building products.

A key component of this approach was «harvest mapping,» a process for identifying and spatializing available waste construction materials for reuse. This method utilized the online platform oogstkaart.nl, developed by Superuse Studio in 2012, to source materials from construction, demolition, and manufacturing waste, as well as unsold «deadstock.» Several materials incorporated into the project exemplify this approach:

Fibre cement façade panels: Used in the rear façade, these panels were classified as «deadstock» due to cosmetic defects, though they met all regulatory standards.

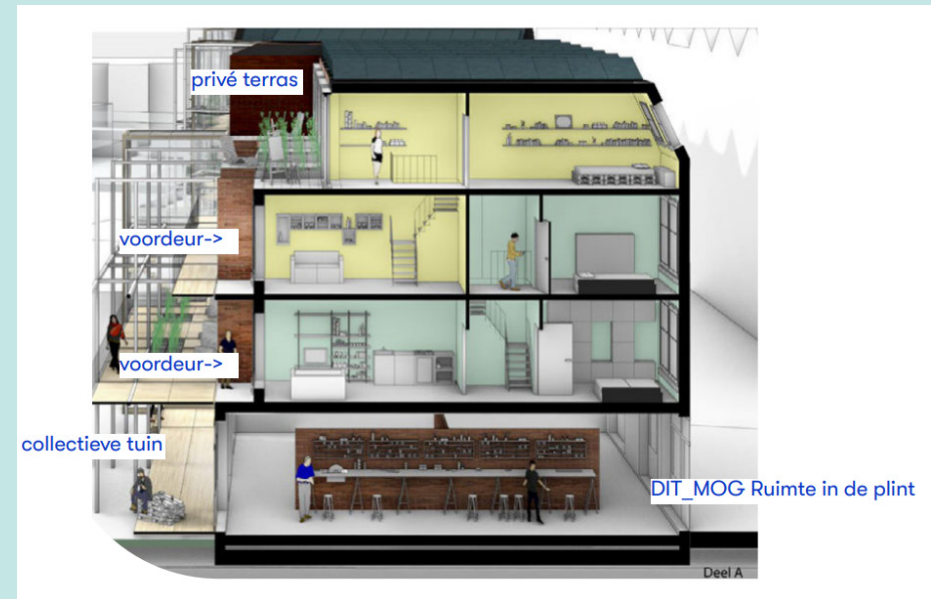
Floor tiles: Installed in the apartment hallways, these tiles were salvaged from a bankrupt supplier's unsold inventory.

External timber decking: Sourced from upcycled mooring posts.

External glass balustrades: Upcycled components incorporated into the galleries.

External timber cladding: Also classified as «deadstock» and repurposed for the project.

The spatial efficiencies introduced by the rear galleries were further enhanced by their material composition, which utilised the harvested and upcycled materials described above. This approach not only reduced environmental impact but also celebrated visible reuse, aligning with the project's ethos of sustainable innovation.



Source: Superuse Studio



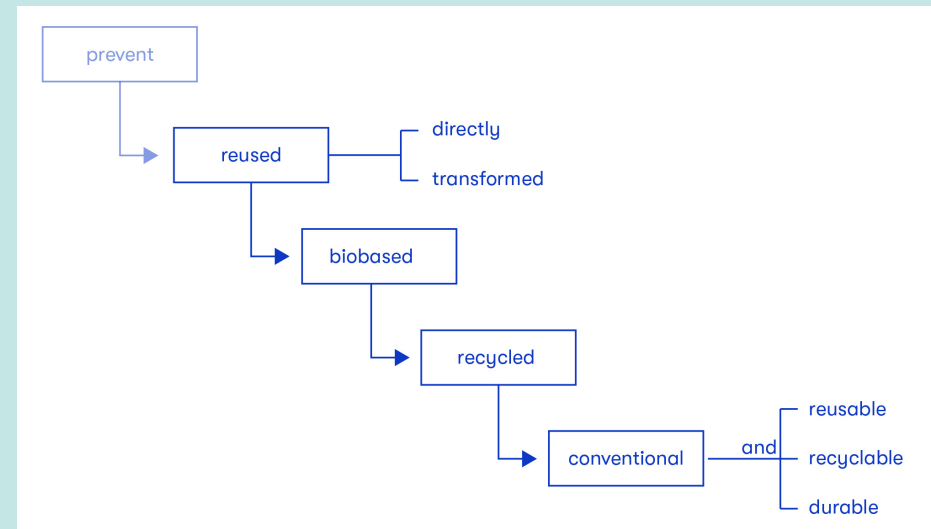
Source: Superuse Studio

In total, 60% of the additional materials used were recycled, with two-thirds sourced from the site itself, further reducing material transport and waste.

Superuse Studio's commitment to circularity extended to innovative, demountable construction techniques. Collaborating with TheNewMakers, the kitchen fit-outs followed a «design for disassembly» methodology. Materials were chosen for sustainability and manufactured without chemical adhesives, enabling straightforward disassembly and future reuse. This approach empowered residents to install their kitchens independently while ensuring long-term adaptability. In addition, all mechanical and electrical installations were designed to be demountable, facilitating easy maintenance and future upgrades without major interventions.

By embedding circularity and reusability into every stage of design and construction, Superuse Studio demonstrated the potential for transforming waste into architectural value while supporting a participatory, community-driven ethos.

(Harvest! Collect! Re-use!, 2024) (Housing Cooperative W1555, 2024) (Renovation Wolphaertstraat, 2024)



Source: Superuse Studio



Source: Superuse Studio



RESOURCES

WEBSITES

Erfpacht , Gemeente Rotterdam. Available at: <https://www.rotterdam.nl/erfpacht>(Accessed: 13 December 2024).

Harvest! Collect! Re-use!. Available at: <https://www.superuse-studios.com/publication/harvest-collect-re-use/>.

Housing Cooperative W1555 (2022) superuse-studios.com. Available at: <https://www.superuse-studios.com/projectplus/housing-cooperative-wolphaertstraat/>

OVER ONS, W1555. Available at: <https://www.w1555.org/about-1>(Accessed: 30 December 2024).

Renovation Wolphaertstraat bikbouw.nl. Available at:<https://www.bikbouw.nl/index.php/projecten/11-projecten/73-projectdetails-366-wolphaertstraat>.

Strauss, T. Housing cooperative W1555, Superuse Studios. Available at:<https://www.superuse-studios.com/projectplus/housing-cooperative-wolphaertstraat/> (Accessed:30 December 2024).

W1555 | ABOUT US. Available at: <https://www.w1555.org/en/about-1>(Accessed: 30 December 2024).

GRANBY FOUR STREET



NETWORK (INITIATIVE)

Granby Four Streets CLT
Assemble
Granby Workshop

PROJECT DURATION

2011 - 2019

TYPOLGY



DEGREE OF RENOVATION

Substantial (remodelling of residential interiors, structural remediation, adaptive reuse)

COMMUNITY-LED RENOVATION?

Yes / No

CIRCULAR CONSTRUCTION METHODS?

Yes / ~~No~~

MIXED USE?

Yes / No



Source: Assemble

ABSTRACT

Granby Four Streets is a neighborhood marked by both decline and community resilience. Over the years, many of the Victorian terraces in Granby were demolished as part of failed regeneration schemes. However, the remaining four streets have become a symbol of community-driven renewal, with local people, supported by the Granby Four Streets CLT, coming together to protect the area.

The project aims to refurbish 10 derelict houses in the Toxteth area of Liverpool, developing homes for affordable rent and ownership. Central to this initiative is the celebration of the area's architectural and cultural heritage, specifically the historic Victorian brick terraces.

The project is centred around equally important objectives such as:

Partnership Working: Collaboration with local organizations, stakeholders, and residents to ensure a community-led regeneration.

Local Training & Employment: Providing local training and employment opportunities.

Community Focus: Renovating the properties while maintaining and strengthening the already existing sense of community in the area.

Reclaiming Space: Restoring and revitalizing the streets while preserving the DIY spirit that has been central to the community's resilience (10 House Project) (Granby Four Streets - Assemble).

For more information please refer to the WP2 - A.2.1 - D.2.1.1 Inspiring governance frameworks and methodologies of capacity building, community building and community-led renovation in Europe and abroad.

STAKEHOLDERS

Owner and contracting authority: CLT Granby Four Streets

Project Manager: CLT Granby Four Streets

Architects: Assemble

Advocacy and support: Steve Biko Housing Association

Ceramics manufacturing: Granby Workshop

For more information please refer to the WP2 - A.2.1 - D.2.1.1 Inspiring governance frameworks and methodologies of capacity building, community building and community-led renovation in Europe and abroad.

FINANCIAL ASPECTS

For more information please refer to the WP2 - A.2.1 - D.2.1.1 Inspiring governance frameworks and methodologies of capacity building, community building and community-led renovation in Europe and abroad.

TARGETED PUBLIC

By working with Steve Biko Housing Association (who work with black and racial minorities) the CLT chose to prioritise tenants for the new homes but it was also a way to encourage previous Granby residents to return to the community.

PROJECT PHASES

2011: establishment of Granby Four Streets CLT

2015: phase one project completion refurbishment of 10 houses

2019: completion of community winter garden

BRIEF FORMULATION & DESIGN PROCESS

Assemble were appointed by Granby Four Streets CLT as the architects for the project. Although originally coined as the «10 House Project,» the brief was to refurbish 10 derelict two-bedroom, mid-terrace, two-storey Victorian brick houses, though this ultimately expanded to include 11 properties. Completed in 2019, 5 of these houses were sold, while the remaining 6 were designated as affordable rental homes, offering much-needed housing solutions within the community (10 House Project, 2019).

A secondary component to this brief, completed in a separate construction phase, involved the remodelling of the adjoining derelict terraced houses at number 37 and 39 into a 150m² communal winter garden. This space was designed to accommodate meetings, events, and artist residencies, accessible to both local residents and the wider Granby neighbourhood. Given the ruined condition of these structures, a distinct architectural, technical, functional, and environmental approach was developed, distinct from the typical residential unit design (Granby Winter Garden, 2019).

ARCHITECTURAL INTERVENTION

Two distinctive strategies for architectural intervention were adopted for the both typologies on site.



Source: Assemble



Source: EUMiesAward



Source: Granby4StreetsCLT

The primary, residential typology - the two up, two down house - was a modular one where houses were paired and mirrored one another. For this type, multiple design decisions were taken to ensure a balance between modular, repeatable solutions while maintaining a high level of DIY customisation for each resident. This strategy primarily focussed on create a framework for the repair and remodelling of these derelict homes to provide public functions such as kitchen, dining and living spaces to the ground floor with private functions such as bedrooms and bathrooms above. The ground floor entrance thresholds were partially enclosed with timber fitted furniture installations between the front entrance doors and the bay windows to create a barrier for weather, visual screening for privacy and open shelving. Below stairs storage was provided to each house with fitted timber joinery, whereas ceilings to the upper levels were removed to maximise volume to bedroom spaces with original structural elements painted with highlight accent colours. Large scale timber maquette models were created during the design process to ensure clarity of communication and unity of vision between the CLT members and architects (10 Houses on Cairns Street, 2015).

The second approach taken for the artist residency was distinct from the 11 other refurbished houses. The concept for this intervention emerged from the derelict condition of the buildings, where collapsed floors had exposed dramatic triple-height interiors with raw brick masonry. To preserve this striking spatial quality, the external walls were braced with steel structural inserts, maintaining an open, triple-height volume that could accommodate full-height trees and facilitate communal gatherings.

The preservation of the triple-height volume and the bifurcating gable wall between numbers 37 and 39 enabled the partial insertion of an insulated and dry-lined timber frame structure. This structure occupied approximately 30% of the available volume and floor area. Public functions, such as the kitchen, dining, and living areas, are located on the ground floor and are shared by both the artist in residence and the community. Private spaces, including a bathroom and bedroom, are situated on the first floor.



Source: Assemble



Source: Assemble

The remaining 70% of the volume is dedicated to the triple-height winter garden, an adjacent meeting space, and a universally accessible unisex bathroom facility.

With the exception of the bathroom, the spaces in this area can be described as uninsulated but watertight. The horizontal and vertical circulation areas are also integrated into this space. This approach can be likened to a “Russian doll” strategy employed by TAKK Architects for their «Day After House» (refer to the Appendix), where large open volumes are reprogrammed with layered architectural inserts that offer varying degrees of environmental and temperature control (Granby Winter Garden, 2019) (Englefield, 2023).

CONSTRUCTION STRATEGY

The construction procurement strategy for the 10 House Project was designed to foster public participation and nurture the existing DIY, community-led building culture among Granby residents, while also creating opportunities for local training and employment. A pivotal aspect of this strategy was the establishment of Granby Workshop in 2015, a facility located on Granby Street that allowed local community members to produce their own custom architectural ceramic features. In collaboration with artist Will Shannon, various ceramic finishes and fixtures, including tiles, fireplaces, and door handles, were manufactured for use in the 10 House Project. These products represent the initial phase of a designer-led manufacturing model, which emphasises high-quality craftsmanship while embracing an assembly line process that allows for chance and variation, ensuring that no two products are identical.

Granby Workshop continues to operate today, actively participating in the monthly community market and contributing to ongoing local renovation projects. Alongside the CLT (Community Land Trust) model, the modular design approach developed in collaboration with Assemble, and the community itself, a clear path towards architectural scalability and replicability has been charted.

This model connects and localises solutions across several key areas: land ownership, spatial intervention strategies, labour, finance, manufacturing, and constructability (Granby Workshop, 2015) (10 Houses on Cairns Street, 2015).



Source: Assemble



RESOURCES

WEBSITES

10 House Project (2019) granby4streetsclt.co.uk. Available at:

<https://www.granby4streetsclt.co.uk/housingproject>(Accessed: 23 December 2024).

10 Houses on Cairns Street (2015) assemblestudio.co.uk. Available at:

<https://assemblestudio.co.uk/projects/10-houses>(Accessed: 29 December 2024).

10 Houses on Cairns Street', Granby Workshop. Available at:

<https://granbyworkshop.co.uk/project/10-houses/>(Accessed: 30 December 2024).

10K House / Takk (2023) ArchDaily. Available at:

<https://www.archdaily.com/996346/10k-house-takk> (Accessed: 30 December 2024).

Granby 4 Streets Community Land Trust Granby 4 Streets Community Land Trust. Available at:

<https://www.granby4streetsclt.co.uk> (Accessed: 10 December 2024).

Granby Winter Garden (2019) assemblestudio.co.uk. Available at:

<https://assemblestudio.co.uk/projects/granby-winter-gardens> (Accessed: 10 December 2024).

Granby Workshop (2015) assemblestudio.co.uk. Available at:

<https://assemblestudio.co.uk/projects/granby-workshop>(Accessed: 29 December 2024).

MUNICH

BELLEVUE DI MONACO



13

NETWORK (INITIATIVE)

Bellevue di Monaco Cooperative
City of Munich
Hirner & Riehl
Community volunteers

PROJECT DURATION

2016 - 2020

TYPOLGY



DEGREE OF RENOVATION

Significant (structural remediation, refurbishment of vacant structures, remodelling of residential interiors, adaptive reuse)

COMMUNITY-LED RENOVATION?

Yes / No

CIRCULAR CONSTRUCTION METHODS?

Yes / ~~No~~

MIXED USE?

Yes / No



Source: Hirner & Riehl



ABSTRACT

The Bellevue di Monaco project in Munich showcases the successful integration of sustainability with cultural and historical preservation. Initially, local authorities planned to demolish three buildings and a nearby football pitch. However, local residents united to save them from demolition which ultimately became the foundation of the Bellevue di Monaco project. By preserving three historic buildings in the Glockenbachviertel district, the initiative not only safeguarded the area's cultural heritage but also demonstrated how sustainability and historical continuity can coexist.

Bellevue di Monaco is a landmark project in sustainable construction. It highlights that sustainability extends beyond material choices and design, it's about fostering a new sense of community. The project combines adaptive reuse, resource efficiency, and multifunctional spaces, including housing, a cultural center, educational and sports facilities, and a café. This approach minimizes environmental impact while maximizing social utility. (What is Bellevue di Monaco?).

Bellevue di Monaco also serves as an exemplary model for policymakers, offering insights into reimagining housing and integration policies for refugees.

BRIEF FORMULATION & DESIGN PROCESS

The concept of creating a residential and cultural centre for refugees emerged from close collaboration between the appointed architect, Hirner und Riehl, the Bellevue di Monaco Cooperative, and the users, as their cooperative was in the process of being established. This collaborative approach led to the formulation of an architectural brief for the renovation of a cluster of three structures located on a single site at the corner of Müllerstraße and Corneliusstraße in central Munich, which were under leasehold agreement with the city council. The primary objective was to



Source: Bellevue Di Monaco



Source: Hirner & Riehl

prevent the buildings from demolition, preserve their existing qualities, and enhance their future potential.

Although the budget was limited, an ambitious brief was developed which aimed to repurpose the existing brick terrace 13 housing units alongside mixed-use spaces. These included a café, event centre, and a sunken external amphitheatre, as well as a basketball court in the first construction phase. A rooftop sports court was planned for the later phase of the project.

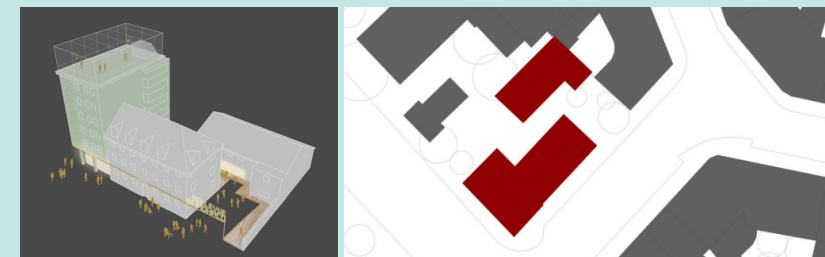
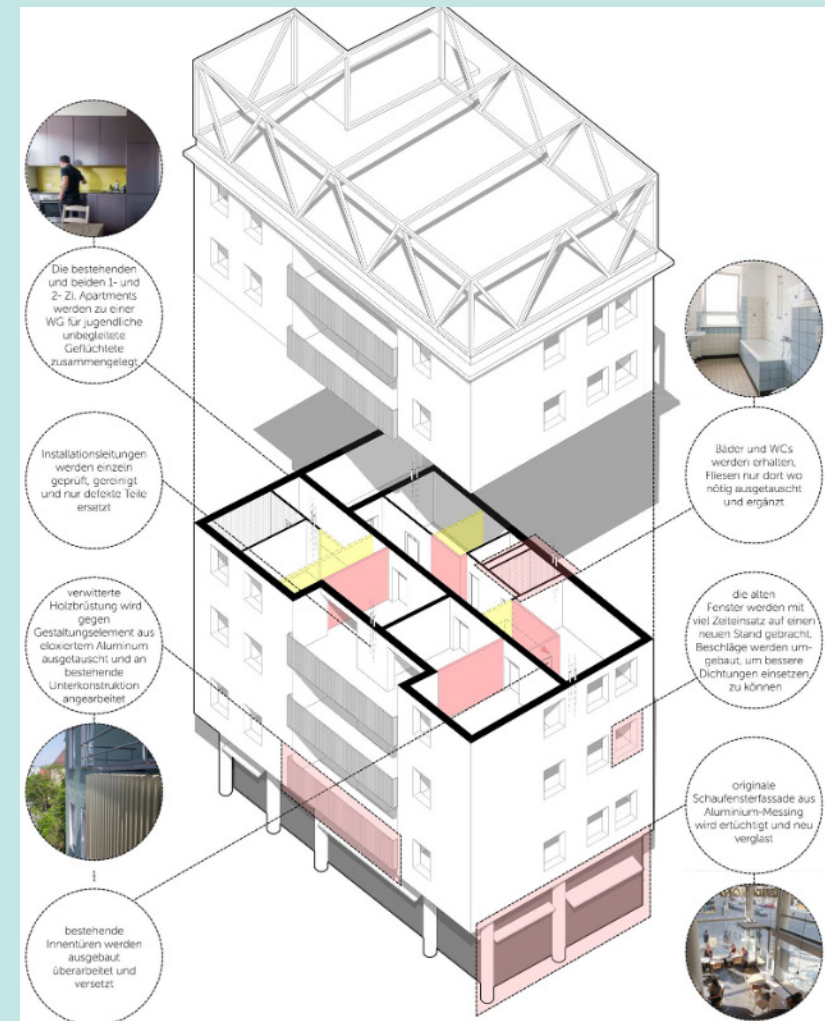
The scale and complexity of the architectural intervention was significant as the primary challenge was to link this series of structures of varying typology, period and construction type as well as the external spaces between them into a coherent, mixed use campus.

The brief primarily consisted of the refurbishment of the three existing buildings - a six storey apartment block on the corner of Müllerstraße and Corneliusstraße, an adjacent four storey terrace of houses to Müllerstraße and a two storey block to the rear corner of the site, away from the street (Bellevue di Monaco Munich, 2020) (Topping it Off: Bellevue di Monaco by Hirner & Riehl Architekten, 2021).

ARCHITECTURAL INTERVENTION

Each building typology was carefully examined and repurposed to suit its new function.

The six-storey tower was reprogrammed to accommodate a glazed ground-floor café at the corner of Müllerstraße and Corneliusstraße. The integration of the tower with the adjoining terrace of houses into a single site allowed for openings to be made in their shared gable wall, enabling the back-of-house service spaces for the café to be recessed into the footprint of the terrace. This configuration maximised the functional and occupancy potential of the café, transforming it into a generous communal meeting point for both



Source: Hirner & Riehl

the inhabitants, co-operative members, and local residents. The remaining five floors above were developed into a series of four-bedroom apartments, one per floor, each with shared kitchen and bathroom spaces, as well as three external balconies. The original hipped roof of the tower was removed and replaced with a flat concrete slab, which provided the foundation for the addition of a steel-framed external rooftop sports court. Completed in the later construction phase, this 20-capacity public amenity serves as a lit beacon for the project by night, offering panoramic views of the Munich skyline.

The adjoining four-storey terrace was divided at each level into two three-bedroom apartments, accessed via a central staircase and hall.

The two-storey building at the rear corner of the site was repurposed to house the cultural centre and event space as its existing long-span roof structure and large open volume made it particularly well-suited for gatherings and performances.

Finally, the external spaces between the buildings were reprogrammed into a series of landscaped areas, including a shared entrance courtyard on Müllerstraße, an enclosed basketball court on Corneliusstraße, and a central, sunken tiered amphitheatre staircase and event space connecting with the external access level to the Müllerstraße terrace

CONSTRUCTION STRATEGY

The construction strategy employed for the Bellevue di Monaco project can be characterised by a bifold approach, shaped by the limitations of the project budget.

The first approach prioritised the repair and reuse of the existing building fabric over demolition or substitution with new materials. Matthias Marschner of Hirner & Riehl Architekten devoted three years to the meticulous renovation of the buildings, focusing on a



Source: *Hirner & Riehl*



Source: *DETAIL Magazine*



Source: *Hirner & Riehl*

«centimetre by centimetre» approach. Windows and installations were only replaced when necessary, ensuring that as much of the original structure as possible was preserved (Topping it Off: Bellevue di Monaco by Hirner & Riehl Architekten, 2021). A more significant intervention was required to repair and reinforce the timber truss long-span roof structure of the cultural centre. In this instance, the trusses were braced with additional glulam timber structural components where necessary, ensuring both structural stability and the preservation of the building's original form.

The second aspect of the strategy involved the sourcing of voluntary labour. In response to the limited budget, a procurement strategy was developed for a volunteer-led construction process. Local contractors were enlisted to train refugees in construction techniques, fostering a collaborative and inclusive approach to the project (Hirner Und Riehl Architekten, 2020). Numerous local craft companies participated in the construction, embracing the opportunity to offer training to refugees and further reinforcing the project's social sustainability (Bellevue di Monaco Munich, 2020).

An example of this volunteer-led, participatory ethos can be found in the design, procurement, and manufacture of the loose furniture for the Bellevue Café. Fifteen students from the Faculty of Design at Munich University of Applied Sciences, together with refugees, collaborated with Architect Matthias Marschner, industrial designer Michael Gelmacher, and the furniture manufacturer GO IN. Participatory design workshops facilitated collaboration between the students and refugees, with Maurus Reisentel, Art Director at GO IN, offering guidance from the initial concept through technical development to fabrication. The outcome of these workshops was a series of plywood and steel tube chairs and modular tables. Following the completion of the project, the furniture was made available for purchase, with 100% of the proceeds benefiting the Bellevue di Monaco Co-Operative (Furniture for Bellevue di Monaco, 2020).



Source: Hirner & Riehl



RESOURCES

WEBSITES

Bellevue di Monaco München – Hirner Riehl Architekten,. Available at:

<https://hirnerundriehl.de/project/bellevue-di-monaco/> (Accessed: 10 December 2024).

Bellevue di Monaco Munich (2020) hirnerundriehl.de

Furniture for Bellevue di Monaco (2020) hirnerundriehl.de. Available at:

<https://hirnerundriehl.de/project/moeblierung-bellevue-di-monaco/> (Accessed: 13 December 2024).

Hirner Und Riehl Architekten (2020) hirnerundriehl.de. Available at:

<https://hirnerundriehl.de/presse/bellevue-di-monaco/>.

The Story – Bellevue di Monaco (2020) hirnerundriehl.de. Available at:

<https://hirnerundriehl.de/project/die-geschichte-bellevue-di-monaco/>(Accessed: 29 December 2024).

What is Bellevue di Monaco? bellevuedimonaco.de. Available at:

<https://bellevuedimonaco.de/english/>.

ARTICLES AND REPORTS

Topping it Off: Bellevue di Monaco by Hirner & Riehl Architekten (2021) [detail.de](https://www.detail.de). Available at:

https://www.detail.de/de_en/topping-it-off-bellevue-di-monaco-by-hirner-riehl-architekten?srsItd

=AfmBOoriPFg8_pY9UzjnJdUDtEA8LD_6PNdTGN9LRN1xKAffVwZ-w3ug(Accessed: 29 December 2024).

BRUSSELS

APPARTEMENT DE JULIE



NETWORK (INITIATIVE)

Rotor
IdealHome Development

PROJECT DURATION

2012

TYPOLGY



DEGREE OF RENOVATION

Minor (refurbishment, remodelling of service spaces, repurposing of finishes and fixtures)

COMMUNITY-LED RENOVATION?

Yes / ~~No~~

CIRCULAR CONSTRUCTION METHODS?

Yes / ~~No~~

MIXED USE?

Yes / ~~No~~



Source: Rotor

ABSTRACT

Circularity of materials is a pressing challenge in the construction industry. Reducing ecological impact is possible on various scales, whether by avoiding the destruction of buildings or using eco-designed materials. While much focus is placed on preserving existing structures, the equipment and components within a home are often overlooked.

For centuries, the standardization and mass production of building materials symbolized progress. However, this has come at a significant cost to natural resources, ecosystems, and waste management, as well as contributing to greenhouse gas emissions.

Against this backdrop, the Rotor architects' collective emerged. Specializing in the reuse of building materials, Rotor established a cooperative that focuses on deconstruction, refurbishment, and resale of second-hand materials. This approach aligns with initiatives like the Upcycling Trust, which promote low-carbon, local economies by extending the circularity principle to finer details of housing production.

This case study highlights how Rotor's approach incorporates sustainable renovation practices, particularly within the context of CLT/BRS projects. Through their methods, Rotor demonstrates the integration of reused materials into renovation projects, showcasing how sustainable design principles can be applied at all levels of construction.

FINANCIAL ASPECTS

Saint-Josse-ten-Noode, located in the Brussels-Capital Region, is the most densely populated and diverse municipality in the area, both in terms of nationalities and demographic categories. Historically, it has been characterized by socio-economic challenges, with a significant proportion of its population facing underprivileged conditions.

In recent years, the municipality has experienced a shift in its real estate market. Buildings are increasingly being purchased by upper social classes seeking proximity to the European Quarter, resulting in changes to the local socio-economic landscape.

In 2023, the median price for flat sales in Saint-Josse stood at €235,000, slightly lower than the €255,100 median in the Brussels-Capital Region.

This low-budget renovation aligns with economic models focused on reducing costs through salvaged materials while fostering sustainability, since it's a private apartment (Saint-Josse-ten-Noode | IBSA).

TARGETED PUBLIC

In this project, we see only part of Rotor's field of action, which here is responsible only for the design part of the renovation. They also offer a design assistance service. This means that a private individual can call on their services for a renovation in the same way as a public company. Rotor is also competent in the field of research and also produces publications and exhibitions.

Plus, by launching Rotor Deconstruction, a self-sustaining spin-off project from Rotor, they are promoting and facilitating the re-use of building components. The shop is based in Brussels and open to all.

BRIEF FORMULATION & DESIGN PROCESS

The reuse of building materials has seen a resurgence in contemporary design due to its potential to reduce environmental impact. Rotor has been at the forefront of this movement. Known for their innovative approaches to sustainable renovation, Rotor advocates for extending the life cycle of materials and equipment. This project exemplifies their mission by exploring the creative use

of salvaged components within a circular renovation framework.

The transformation of this apartment, originally designed by Julien Roggen in 1937, on achieving a cost-effective renovation guided by a dual approach: maximising the reuse of existing elements and incorporating primarily bio-based materials where new additions were necessary. Through this lens, the project aimed to address the environmental challenges posed by the construction industry, one of the largest contributors to global pollution and waste production.

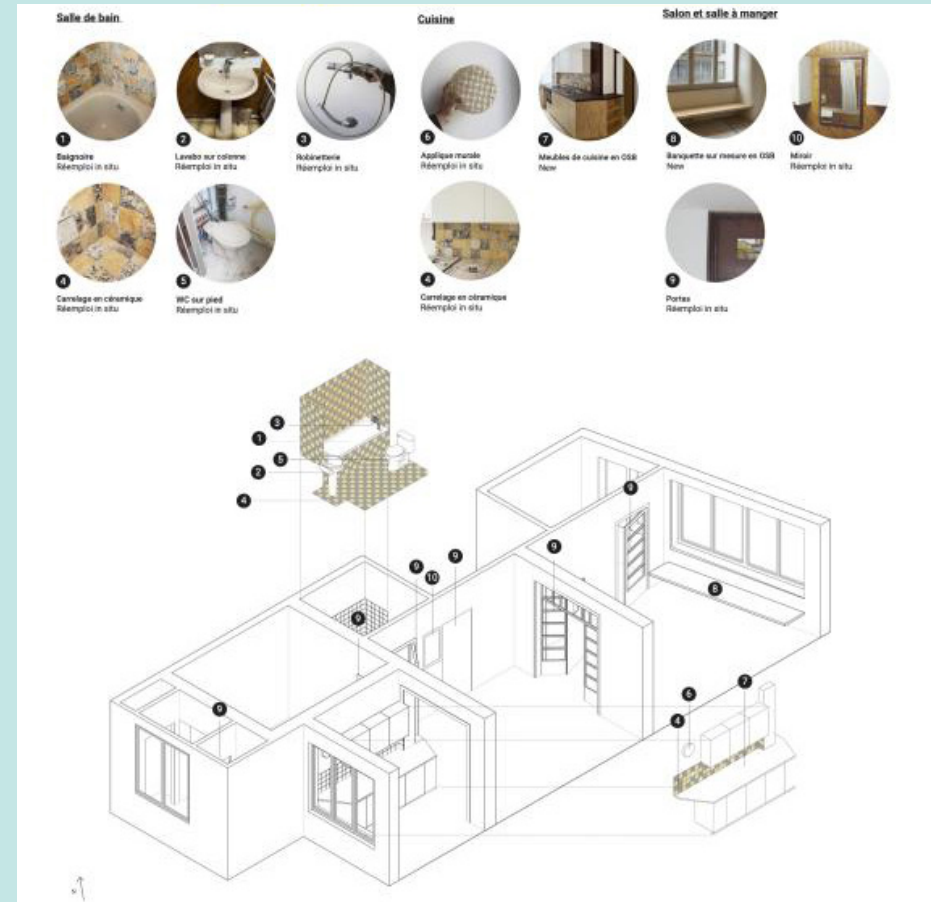
The design process of reusing existing elements commenced with a detailed survey of the apartment, aimed at assessing the condition and dimensions of components that could be incorporated into the final design. Existing doors, architraves, and light fixtures were carefully evaluated and integrated from the outset, ensuring continuity within the space and minimising the need for new materials.

ARCHITECTURAL INTERVENTION

The kitchen, which was not part of the original layout, was relocated to the courtyard side, effectively extending the living areas and fostering a more cohesive spatial flow. Similarly, the bathroom was repositioned to occupy the former entrance hall, optimising the overall functionality and spatial distribution of the apartment. In keeping with the project's sustainable design principles, bespoke furniture was also created, including custom kitchen base units, an OSB bench for the living room, and a specially crafted medicine cabinet for the bathroom.

CONSTRUCTION STRATEGY

Rotor collaborated closely with the client and IdealHome Development, the contractor, to ensure the successful execution of the renovation project.



Source: Rotor



Source: IdealHome Development

A significant number of existing elements on-site were reused, reinforcing the sustainable design approach. Skilled carpentry was employed to relocate and reinstall all the doors throughout the apartment. The sanitary ware, comprising the washbasin, bath, toilet, and shower head, was carefully removed and repurposed for the new bathroom configuration. Similarly, the ceramic floor tiles were salvaged not only from the old hall and bathroom but also from other flats in the building that were being renovated concurrently. These tiles were meticulously cleaned by the owner before being re-laid in a new arrangement, where they were utilised to form a backsplash in the kitchen and to tile both the floor and walls of the new bathroom.

The only additional materials introduced into the project were insulation, OSB sheeting for floor coverings and fitted furniture, as well as the mechanical and electrical systems, which included water supply, drainage, and heating (Appartement de Julie Poster, 2024) (Charite - Transformation of a 1930s Apartment, 2024) (Rénovation Respectueuse à Saint-Josse, 2024).

TO FIND OUT MORE

Presenting this project is a way to showcase the movement as an incentive way to force people to look into the local dynamics if actors like this exist in their areas - or substitute.

Rotor has published a online inventory of the professional sector in salvaged building materials in Belgium, France, Luxembourg and Netherlands: <https://opalis.eu/en>

For the UK: <https://www.salvoweb.com/>

Reuse tool kit - from a European project: <https://vb.nweurope.eu/projects/project-search/fcrbe-facilitating-the-circulation-of-reclaimed-building-elements-in-northwestern-europe/news/reuse-toolkit-material-sheets/>

You can also follow the Interreg North Sea project - Circular Trust Building, promoting the transition to a circular, resource-efficient economy in the building sector.



RESOURCES

WEBSITES

Charite - Transformation of a 1930s Apartment rotordb.org. Available at:

<https://rotordb.org/en/projects/charite-transformation-1930s-apartment>(Accessed: 29 December 2024).

Low-tech Lab – [ENQUÊTE #9] À la rencontre de ROTOR. Available at:

<https://lowtechlab.org/fr/actualites-blog/enquete-9-a-la-rencontre-de-rotor>(Accessed: 30 December 2024).

Rénovation Respectueuse à Saint-Josse [idealhomedevlopment.be](https://www.idealhomedevlopment.be). Available at:

<https://www.idealhomedevlopment.be/en/chantiers/renovation-respectueuse-a-saint-josse/>
(Accessed: 13 December 2024).

Rénovations intérieures, IdealHome. Available at:

<https://www.idealhomedevlopment.be/renovations-interieures> (Accessed: 30 December 2024).

ARTICLES AND REPORTS

Appartement de Julie Poster. Available at:

https://rotordb.org/sites/default/files/2024-07/240612_Communication%20Appt%20Julie.pdf

(Accessed: 29 December 2024).

Les émissions du secteur mondial du bâtiment restent élevées et continuent d'augmenter

(2024). Available at:

<https://www.unep.org/fr/actualites-et-recits/communique-de-presse/les-emissions-du-secteur-mo>

[ndial-du-batiment-restent](https://www.unep.org/fr/actualites-et-recits/communique-de-presse/les-emissions-du-secteur-mondial-du-batiment-restent) (Accessed: 13 December 2024).

Reuse and Low-Tech | Rotor. Available at: <https://rotordb.org/en/stories/reuse-and-low-tech>

(Accessed: 30 December 2024).

Reuse toolkit: Material sheets | Rotor . Available at:

<https://rotordb.org/en/projects/reuse-toolkit-material-sheets>(Accessed: 30 December 2024).

META PLATEAU PROJECT



NETWORK (INITIATIVE)

Habiter 2030
European Metropolis of Lille
City of Lille
Social landlords

PROJECT DURATION

2022 - 2023 (unbuilt)

TYPOLGY



DEGREE OF RENOVATION

Substantial (proposed refurbishment, extensions and remodelling of ground floors, landscaping)

COMMUNITY-LED RENOVATION?

Yes / ~~No~~

CIRCULAR CONSTRUCTION METHODS?

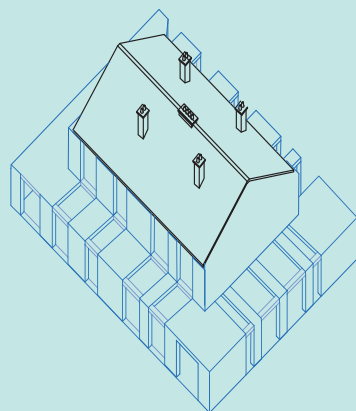
Yes / No

MIXED USE?

Yes / ~~No~~



Source: Habiter2030



ABSTRACT

Founded in 2016, the Habiter 2030 association was established to support the eponymous team participating in the Solar Decathlon Europe 2019 (SDE) competition, which focused on the renovation of 1930s houses. The association aims to unite diverse perspectives, including academic, urban planning, architecture, construction, and local governance. Following their victory in July 2019, the Habiter 2030 team expanded its mission beyond the competition, addressing broader challenges of sustainable renovation.

In particular by setting up the Meta Plateau Project (MPP) which was developed as a demonstrative initiative with two editions held at the Petit Maroc site in Lille and Tergnier both in the north of France. Aiming to connect students from various disciplines involved in urban development and construction. The focus is to highlight the economic and technical challenges of mass renovation in the Hauts-de-France region, a key area for improving energy performance in older housing stock.

The second edition of the MPP, which is the focus here, emphasizes on-site, concrete actions and explores the proposals developed by participating student teams. The Petit Maroc site was also designated as the demonstrator for the Upcycling Trust, showcasing innovative renovation practices. The challenge extends beyond technical upgrades, as these homes are occupied. Renovation without displacing residents is rare, highlighting the innovative and socially inclusive approach of Habiter 2030.

The urgency of the project is amplified by new French government regulations banning the rental of 'energy flats' (homes classified as F or G in terms of energy performance) starting in 2023. In the study area, entire housing estates fall into this category, rendering them unfit for habitation under the new standards. The implications are significant, with potential economic repercussions for both residents and landlords.

The model demonstrated by Habiter 2030 and the MPP has

potential for replication, especially in regions with aging housing stock requiring energy upgrades. However, in France, only 1% of BRS (Bail Réel Solidaire) projects are renovation-based, and it is unclear if this figure includes projects involving occupied housing. The project's emphasis on renovating occupied spaces further distinguishes it, addressing a gap in the current BRS implementation and offering a template for socially inclusive, sustainable housing solutions.

STAKEHOLDERS

Students from:

Institut National des Sciences Appliquées Hauts-de-France (INSA) – Engineering, Valenciennes

École Nationale Supérieure des Arts et Métiers (ENSAM) – Engineering, Lille

École Nationale Supérieure d'Architecture et de Paysage de Lille (ENSAPL) – Architecture, Lille

Faculté des Sciences Appliquées (FSA), Université d'Artois – Civil Engineering, Béthune

Professionals from:

Métropole Européenne de Lille (MEL): The governing body overseeing urban and regional development in the Lille metropolitan area.

Lille Métropole Habitat (LMH): The primary social housing provider for the European Metropolis of Lille.

Maisons & Cités: A social housing company operating in the Hauts-de-France region.

ICF Habitat: A subsidiary of SNCF, the French national railway company, focused on the development and management of social and affordable housing projects.

City of Lille: Supporting urban regeneration and community development initiatives.

Les Compagnons du Devoir et du Tour de France: A renowned French organisation specialising in the training of craftsmen through apprenticeships, combining practical experience and travel across France to master their trades.

FINANCIAL ASPECTS

Situated at the edge of the Fives district in Lille, the Petit-Maroc sector is an enclave featuring diverse housing typologies, including grouped, semi-detached, courtyard houses, and low-cost housing.

The focus of the MPP2 study is on the small, single-storey dwellings known as “Abbé Pierre dwellings.” These homes, owned by the social landlord Lille Métropole Habitat (LMH), are part of a vacant and dilapidated housing stock.

Renovations, especially on occupied sites, must keep costs down. By concentrating on strategic interventions and massification techniques, it will be possible to improve the overall energy approach over the long term and preserve the architectural identity of the district.

BRIEF FORMULATION & DESIGN PROCESS

To develop a comprehensive framework for the ecological transformation of buildings, considering the variety of urban scales, architectural styles, and spatial configurations in Cité Jardin, Tergnier.

AT NEIGHBOURHOOD SCALE



ALL URBAN PROJECTS COMBINED

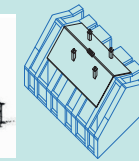
‘Densification’

Densifying a network of human connections, training, skills, and economic activities. Expanding gardens and transport systems webs. Increasing opportunities for people to meet and interact.

‘Massification’

Scaling up through a network of knowledge, expertise, and capabilities, as well as through energy production strategies aimed at achieving neighbourhood self-sufficiency. Massifying by sharing spaces, knowledge, an energy. Sustainable urban renovation is deeply aligned with the desires of residents.

‘PELLÉE’ THROUGH-TYPE



The ‘Pellée traversant’ through type offers single-storey homes with a bioclimatic glasshouse oriented the south, allowing the living rooms to be enlarged. To the north, a communal area accommodates vertical circulation and acts as a buffer space.

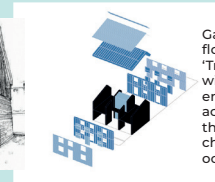


‘PELLÉE’ DUAL ORIENTATION TYPE



The ‘Pellée dual orientation’ type, with its dual orientation, allows for larger homes with an extra bedroom on the ground floor. The living spaces are bigger and brighter.

‘TRANSITORY’ TYPE



Gaining almost 45% more floor space, the new ‘Transitory’ type house, with its new sustainable envelope, is now able to accommodate a volume that can adapt to the changing needs of its occupants and their uses.



Source: Habiter2030

ARCHITECTURAL INTERVENTION

A number of existing residential typologies were identified, with specific solutions developed for each scenario:

“Pelée” Through Type: this typology proposes an extension of the Pelée housing type to create a bioclimatic glasshouse facing south, expanding the area of ground floor living spaces, and a shared area to the north, providing vertical circulation and additional functions.

“Pelée” Dual Orientation Type: this typology proposes an alternative extension strategy for the Pelée housing type which creates a glasshouse to allow for dual solar orientation, maximising daylight, enlarging the existing living spaces and providing further space for an additional ground floor bedroom.

“Transitory” Type: this typology proposes an extensions and retrofit strategy for existing brick terrace houses which includes wrapping the existing structure in a new sustainable envelope and providing 45% more floor space to allow these houses the flexibility to adapt to the changing of their occupants.

Each proposal uses a straw-based insulation system throughout - an environmentally friendly option that reduces costs and time by maximising efficiency in labour and material usage.

Furthermore, the waste materials from buildings scheduled for demolition within Cité Jardin are earmarked for reuse to create a community hall housing a neighbourhood resource centre.



RESOURCES

WEBSITES

Notre association - HABITER2030 . Available at:

<https://www.habiter2030.com/notre-association/> (Accessed: 29 December 2024).

ARTICLES AND REPORTS

FR, R. (2023) 'MPP #2 : Jeunes pousses et ramifications de solutions', HABITER2030, 12 July.

Available at:

<https://www.habiter2030.com/2023/07/12/mpp-2-jeunes-pousses-et-ramifications-de-solutions/>

(Accessed: 24 December 2024).

Les maisons de l'Abbé Pierre du Petit Maroc (2024). Available at:

<https://www.youtube.com/watch?v=a0FsyaUmBF4> (Accessed: 29 December 2024).

The Garden City: A Mixed Architectural Model in Transition' (2024). Habiter2030. Available at:

<https://www.habiter2030.com/wp-content/uploads/2024/10/2024-09-Habiter2030-Poster-Tergnier-EXE-MAJ-CTB-EN.pdf>(Accessed: 23 December 2024).

RENNES

TOUR CÉZEMBRE



84

NETWORK (INITIATIVE)

Archipel Habitat
Rennes Metropolis
RVA architects
City of Rennes

PROJECT DURATION

2022 - 2026 (ongoing)

TYPOLGY



DEGREE OF RENOVATION

Significant (energy retrofit, remodelling of apartments throughout, provision of new public spaces)

COMMUNITY-LED RENOVATION?

Yes / No

CIRCULAR CONSTRUCTION METHODS?

Yes / ~~No~~

MIXED USE?

Yes / No



Source: Archipel Habitat



Source: Archipel Habitat

ABSTRACT

The Tour Cézembre project is part of a broader initiative to revitalize Rennes' Maurepas district. This urban renewal effort focuses on refurbishing several tower blocks to support the Bail Réel Solidaire (BRS) scheme, which helps low-income households purchase homes by separating land ownership from buildings. This reduces acquisition costs and promotes social diversity within the district. By prioritizing refurbishment over demolition, the project also contributes to housing stock renewal while enhancing the neighborhood's appeal for current and future residents.

With an investment of €20 million, the refurbishment of Tour Cézembre aims to renovate 84 homes, including 21 BRS units and 63 social rental flats. The project focuses on enhancing the building's functionality and performance while introducing high-quality communal spaces to foster a stronger sense of community.

To minimize disruption, the renovation will be carried out on an occupied site, with tenants relocated to transitional housing for only 6–8 weeks during construction.

(Rennes Métropole, 2024)

STAKEHOLDERS

Project owner : Archipel Habitat , as a social landlord, Archipel Habitat is also responsible for refurbishing the towers and managing the accommodation.

Project Manager : The architectural firm RVA has been commissioned to design and supervise the works to refurbish the Brocéliande and Cézembre towers.

Funding bodies: The City of Rennes and Rennes Métropole are supporting the project with funding, but are also acting as facilitators for the administrative procedures.

Civil society: residents of the towers and neighbourhood

associations are heavily involved in the consultation process, contributing to the design of the developments and the direct improvement of their living environment.

FINANCIAL ASPECTS

The Maurepas district, in the north of Rennes, is undergoing significant urban renewal, with a focus on improving existing facilities and adding new ones. The area has a high proportion of social housing (93.7%). To ensure affordability, Rennes Métropole has capped land prices, keeping the average housing sale price at €2,055 per m² (excluding parking) and €2,000 per m² in ANRU-designated sectors, such as Maurepas.

For comparison:

Median price for a house in Rennes: €4,794 per m²

Median price for a flat in Rennes: €4,713 per m²

(Prix m² vente Maison à Rennes (35000) : OuestFrance-Immo, Prix m² vente Appartement à Rennes (35000) : OuestFrance-Immo)

The BRS model, similar to the Community Land Trust (CLT), promotes affordable housing by separating land and construction costs. While both models prioritize affordability, the BRS is state-led, with less emphasis on community governance compared to the CLT, which focuses on broader community participation and benefits (L'ADN du projet urbain | Rennes Maurepas). Please refer to the table on the following page for a comparative analysis.

BRIEF FORMULATION & DESIGN PROCESS

The brief for the refurbishment of the Tour Cézembre was centred on a €20 million investment, with the goal of renovating 84 homes, including 21 social housing units (BRS) and 63 social rental flats. The project aimed to revitalise both the private and public functions of the apartment block, with a focus on improving the quality of living for residents. The renovation was designed to enhance the existing building's performance and functionality while integrating new, high-quality communal spaces to foster a stronger sense of community among the inhabitants.

ARCHITECTURAL INTERVENTION

For the private functions, the primary objective was the renovation of apartment interiors and external loggia balconies across four distinct apartment types:

Type T2: A one-bedroom apartment

Types T3 and T3bis: Two variations of two-bedroom apartments

Type T4: A three-bedroom apartment

In terms of public functions, the renovation of the ground floor was key to creating fully glazed, high-quality communal and working spaces, making these areas visible from the street. Additionally, new shared public spaces were introduced on the top floor for the residents, further enhancing the community-oriented atmosphere of the building. This strategy sought to balance privacy and communal living while revitalizing both the internal and external aspects of the building (Requalification des Tours allée de Brno, Maurepas à Rennes, 2024) (Tour Cézembre).

Aspect	Bail Réel Solidaire (BRS)	Community Land Trust (CLT)
Origin	France	United States (spread to other countries, like England, Scotland and Ireland)
Main purpose	Affordable homeownership by separating land and building	Affordable housing, community empowerment, land stewardship
Land ownership	Non-profit or public entity owns the land	Community-based non-profit or trust owns the land
Building ownership	Individuals or families own the building	Individuals or families own the building
Land Lease duration	Up to 99 years	Long-term up to 99 years or longer
Price of land	Homeowners lease the land	Homeowners lease the land
Community involvement	Limited involvement in governance	Strong involvement in governance and decision-making
Use of land	Primarily for residential purposes	Can include residential, commercial and community spaces
Governance	By public or non profit housing entities	By a board that includes residents, community members and broader stakeholders
Focus on Housing Supply	Focus on increasing affordable housing	Focus on long-term community sustainability, housing and green spaces
Location	Urban areas in France	Urban and rural areas in the U.S, UK and more
Key benefit	Reduces housing cost, especially in high demand areas, minimising the effect of gentrification	Ensure long-term affordability and community control, preventing gentrification

Source: Author

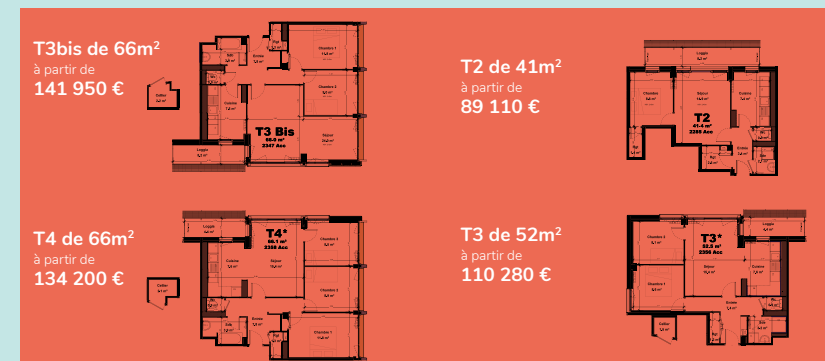
For more information:

<https://rennes-maurepas.fr/decouvrir-le-projet-urbain/la-carte-interactive/>

<https://rennes-maurepas.fr/explorer-le-quartier/loffre-de-logements/>



Source: Archipel Habitat



Source: Archipel Habitat



RESOURCES

WEBSITES

L'offre de logements, Rennes Maurepas. Available at:

<https://rennes-maurepas.fr/explorer-le-quartier/loffre-de-logements/>
(Accessed: 30 December 2024).

Nouvelle opportunité d'accession sociale | Archipel habitat . Available at:

<https://www.archipel-habitat.fr/mieux-nous-connaître/actualités/nouvelle-opportunité-daccession-sociale> (Accessed: 10 December 2024).

ARTICLES AND REPORTS

RENAUD, D. et al. (2024) Renouvellement urbain – Maurepas Gros-Chêne - Rennes, Dossier

de presse. https://www.archipel-habitat.fr/sites/default/files/2024-05/DP_BRNO_150524.pdf.

Requalification des Tours allée de Brno, Maurepas à Rennes (2024). Available at:

<https://www.youtube.com/watch?v=r5ZF380quY4> (Accessed: 30 December 2024).

Tour Cézembre | Archipel habitat . Available at:

<https://www.archipel-habitat.fr/trouver-un-logement/acheter-un-logement/programmes-en-cours/tour-cezembre>(Accessed: 30 December 2024).

Un chantier de rénovation urbaine dans le quartier de Maurepas à Rennes (2024). Available at:

<https://www.youtube.com/watch?v=r22BOlqxDaQ>(Accessed: 30 December 2024).

APPENDIX



530 LOGEMENTS

Location	Grand Parc Neighbourhood, Bordeaux, France
Key Words	Social housing, mass renovation, renovation on occupied site
Resources	https://miesarch.com/work/3889 https://www.lacatonvassal.com/index.php?idp=80



THE DAY AFTER HOUSE

Location	Madrid, Spain
Key Words	Circular construction, adaptive reuse, private house
Resources	https://takksarchive.cargo.site/the-day-after-house



NEKKERSPUT

Location	Ghent, Belgium
Key Words	Social housing, mass renovation, extension
Resources	https://divisare.com/projects/461892-dblv-dierendonck-



HOUSE ROT ELLEN BERG

Location	Oudenaarde, Belgium
Key Words	Renovation, private house
Resources	https://miesarch.com/work/2409 https://architectenjdvv.com/projects/rot-ellen-berg/



DEFLAT, KLEIBURG - BIJLMEER

Location	Amsterdam, Netherlands
Key Words	Renovation, remodelling
Resources	https://www.xvwarchitectuur.nl/kleiburg



VENIZÉLOS

Location	Brussels, Belgium
Key Words	Assisted self-renovation, extensive renovation
Resources	https://cltb.be/projet/venizelos/

UPCYCLING TRUST

A NEW MODEL OF AFFORDABLE HOUSING THAT CENTERS DECARBONIZATION AND DECOMMODIFICATION

As the housing crisis grips cities across the region the production of affordable housing is more important than ever. However, building new homes is often in conflict with cities' sustainability goals. In parallel, the housing stock across the NWE region needs to be renovated to meet climate targets.

The Upcycling Trust project aims to address these issues through modifying the already wildly successful Community Land Trust (CLT). CLTs in Cork, Ghent, Lille, Rennes, and Brussels want to test this new upcycling strategy and use a circular approach to renovation.

Through the Upcycling Trust project these CLTs will set up pilots where legal, organizational, technical, financial, and community engagement strategies will be developed. The lessons learned from this work will then be shared through demonstrator homes and written material so that the findings can be used to structurally change urban policy surrounding affordable housing in the pilot cities and beyond.

More info:

upcyclingtrust.nweurope.eu



Upcycling Trust

BEST PRACTISES AND
INSPIRING EXAMPLES

LUCIE CAMBIANICA
EOGHAN HORGAN
(HABITER2030)