

Chapelle Charbon

Paris 18th



P&Ma | Paris & Métropole
aménagement

VILLE DE
PARIS

Urban pilot project



Chapelle Charbon: from the park to the city

The upcoming Paris 2024 Games has accelerated the transformation of the 18th arrondissement, with the North-East of Paris hosting many exciting projects. A former logistics and railway site, Chapelle Charbon has high potential. It is located between Porte de la Chapelle and Porte d'Aubervilliers, both of which are destined to become major metropolitan squares.

The first phase of its incorporation into the urban fabric began with the creation of the initial three hectares of a large park which will eventually cover a total of 6.5 hectares. The Chapelle Charbon operation continues the site's transformation and connection to the existing neighbourhood by building a residential complex opposite this park. This exceptional location was a significant source of inspiration for the architectural design of the complex and in motivating the pursuit of quality.

The project “completes” the Évangile district and brings its focus to the park by creating multiple nearby connections with existing adjacent spaces.

The programme also includes a multi-purpose public facility – school complex, local kitchen, municipal premises and an urban farm – designed to optimise land use by creating multi-use spaces.

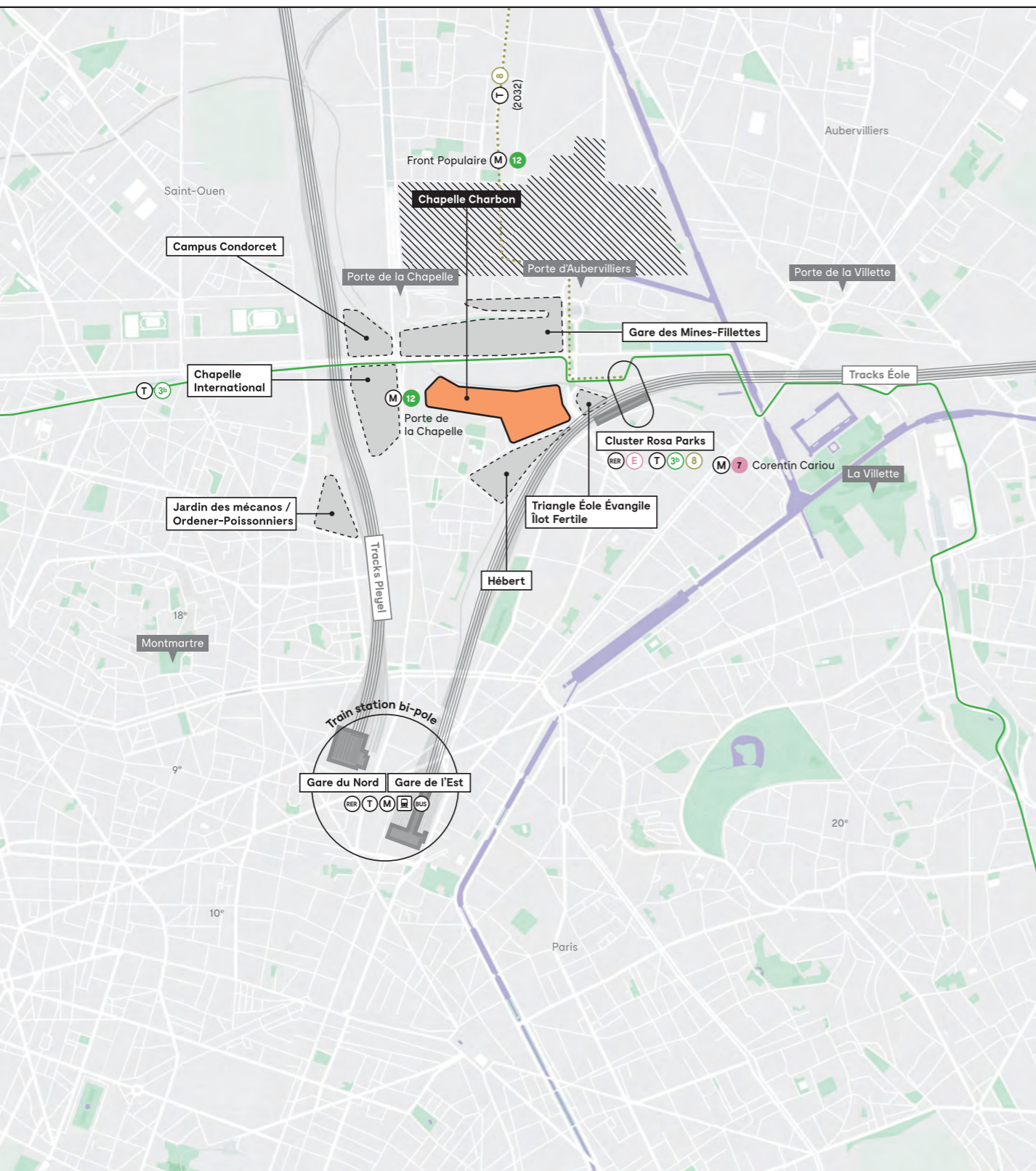
The project designers worked together to achieve very ambitious goals in terms of quality of life. The district's high level of vegetation and very low carbon footprint points to the ambitions of the Paris local urban plan to make the city more bioclimatic, with particular attention paid to the comfort of housing.

↑ The work will transform a former industrial and rail logistics site located behind the Ney warehouse and adjacent to the Évangile district. A subsequent phase is planned as part of the expected redevelopment of the CAP 18 business park.

↓ A first section of the park was delivered in 2020 by landscape agency Thierry Laverne and project managed by the City of Paris.



Transformation at the heart of the 18th arrondissement



Other ongoing projects

Sud Plaine (areas under study)

Opérations d'aménagement

MacDonald and Rosa Parks

Conversion/extension of the former MacDonald logistics warehouse into a neighbourhood of housing units, offices, facilities and shops, and creation of the Rosa Parks intermodal transport hub, with the RER suburban train line E, Tramway T3b, and the extension of Tramway T8 (design phase).

ZAC Canal-Porte d'Aubervilliers

Development of the banks of the Saint-Denis canal and gardens into a neighbourhood of housing units, offices, facilities and shops, including the Millénaire shopping centre.

Triangle Éole Évangile-îlot Fertile

Mixed-use housing and commercial development programme built on a 1.3 ha former business park.

Chapelle International

Transformation of a railway site into a 150,000 sqm neighbourhood featuring housing, offices and facilities, including logistics activities, an urban farm, and a data centre.

Gare des Mines-Fillettes (2019 → 2030)

Aréna sports stadium (2024 Olympic Games), mixed-use neighbourhood featuring 150,000 sqm of housing, facilities, businesses, offices and redevelopment of Cité Charles Hermite.

Porte de la Chapelle (2022 → 2024)

Redevelopment of Rue de la Chapelle and Porte de la Chapelle to create a new promenade and a square.

Hébert (2019 → 2032)

Transformation of a vast railway site into a 103,000 sqm mixed-use neighbourhood.

Jardin des mécanos (2019 → 2029)

Transformation of an abandoned railyard into a neighbourhood featuring 72,000 sqm of housing, offices and facilities, including 4,000 sqm of redeveloped historic sites and more than 2.1 ha of green spaces, including a 1.5 ha garden.

Sud Plaine (in planning)

Plaine Commune will soon further the development of Entrepôts et Magasins Généraux Paris, the former public warehouses of Paris. Operational studies are ongoing.

Porte d'Aubervilliers (2024 → 2030)

Opening 19M-Maison des Métiers d'Arts de Chanel in 2022 and transitional urban planning in view of the transformation of Porte d'Aubervilliers into the Grand Paris square.

Travel links

In addition to the metro stations at Porte de la Chapelle (M12), the Chapelle Charbon ZAC is served by the tramway T3b (aka "Tramway des Maréchaux") and RER line E (Rosa Parks).

By 2032, tramway line T8 will be extended from Saint-Denis-Porte de Paris to Rosa Parks via Porte d'Aubervilliers.



Today a park, tomorrow a neighbourhood

Extending the Chapelle Charbon park

The 18th arrondissement's largest park

The City of Paris created a 9 ha ZAC in 2018 and delivered the first part of a large park in 2020. It is set to eventually cover 6.5 ha up to rue d'Aubervilliers and extends the green and blue corridor that is being gradually developed between the Canal Saint-Denis, the "linear forest" in the Paris Nord-Est Master Plan, and the former Paris inner ring railway.

Six new routes

The project creates a new east-west road that runs along the park and connects Rue Moussorgski to Rue du Pré. The existing south-north pedestrian cul-de-sacs are connected to it. In total, six new access points to the park are being developed. A pedestrian link crossing the railway to join Boulevard Ney is being studied.

Meeting area

The public space is primarily dedicated to pedestrians and all forms of active transportation; it provides extensive freedom of movement, a dedicated area for walking and social interaction and is conceived as a multi-use public space.

The new and densely planted route is intended for local access rather than through traffic. It is treated in a one-way "meeting area" meaning that bicycles and cars are not separated, and the speed is limited to 20 km/h.



Extending the Évangile district

365 new dwellings

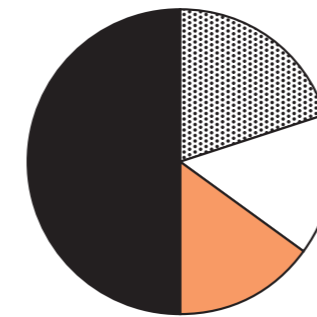
This new development will extend the Évangile district delivered in 1992, with the creation of six residential lots representing about 365 dwellings for 800 inhabitants. The offer is diversified, ranging from affordable purchase properties to social housing as well as housing under long-term lease for low-income households and capped-rent housing.

Active and lively ground-floor premises

The ground floors of the buildings will have a vibrant presence facing the public space adjacent to the park and will offer local shops, services and amenities, as well as space for community groups or activities.

Multi-purpose facility at the forefront of the park

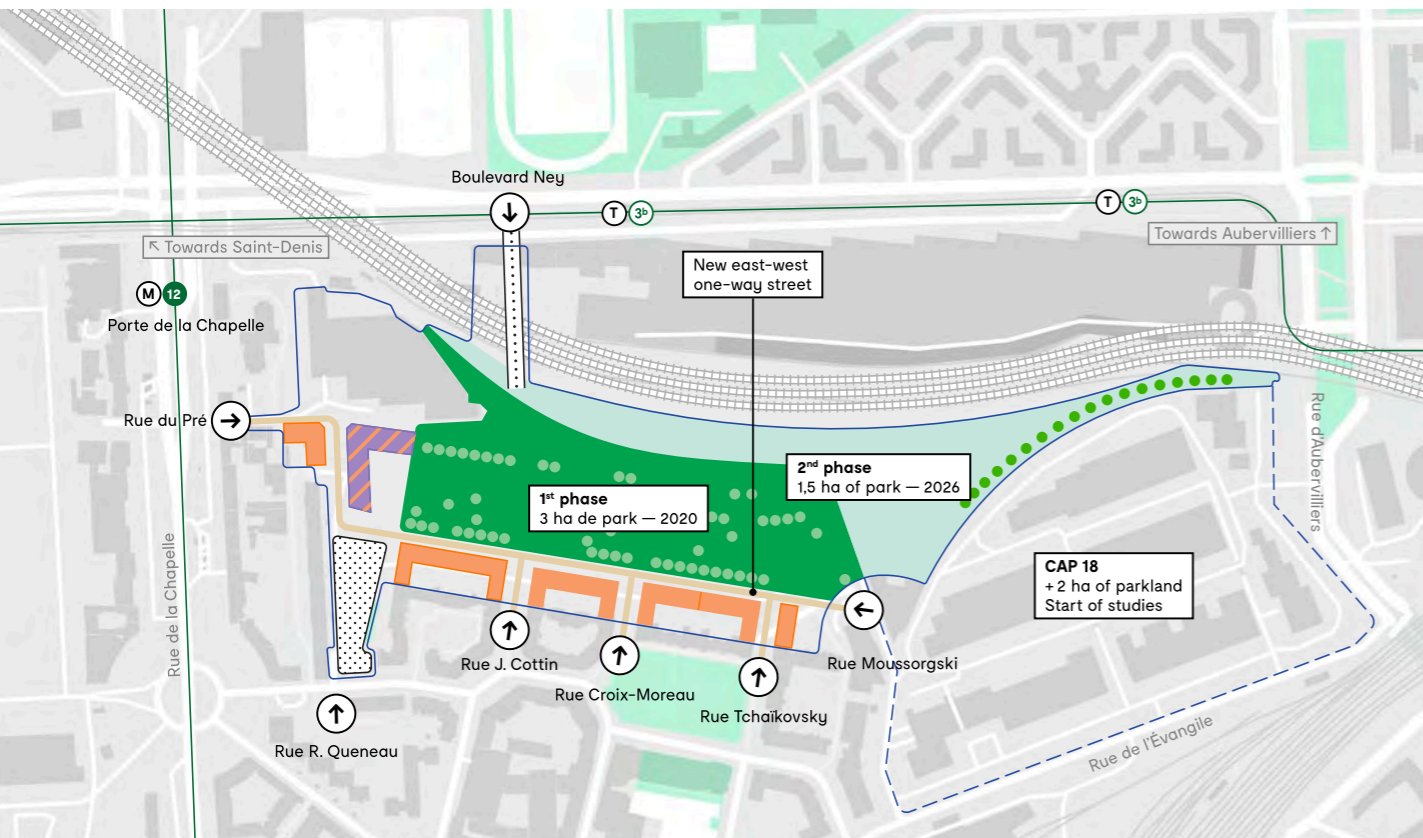
At the western entrance of the district, the multi-purpose facility that houses the new school complex is located in a unique building with balconies overlooking the park rather than on the ground floor of the residential buildings. The scale of the building warrants the creation of a large forecourt. The Oasis courtyard of the school is open to residents outside school times, improving the availability of public spaces in the neighbourhood.



- 50% Subsidised rented housing
- 20% Long-term lease for low-income households
- 15% Capped-rent housing
- 15% Affordable housing for purchase

↑ The local frontage road along the park, meeting area 20 km/h, abundantly planted. The ground treatment, characterised by a continuous surface without footpaths, diverges from the conventional road infrastructure and the landscaping elements encourage a slower pace.

↓ View of the school's Oasis courtyard.



- Creation of a 45,000 sqm public park in 2 phases
- Redevelopment of Square Raymond Queneau
- Construction of a school complex for 12 classes
- Development of 28,200 sqm of mixed housing
- Creation of travel links:
 - Pedestrian/cycle bridge
 - Roads and networks
- ⊙ Pedestrian and cycling access



A new parkside residential facade

Focusing the city on the park

Extend the Évangile urban development zone (ZAC)

At the time of its construction, the Évangile ZAC backed onto what was then a huge railway warehouse. Even today, its alleyways form cul-de-sacs by the wall that encloses the ZAC Chapelle Charbon site.

In future, new buildings set against existing buildings will form an urban facade on the edge of the park, and cul-de-sacs will open up to connect the Évangile district to a new urban and landscaped area.

Drawing on the existing to give the park an urban facade

Building a neighbourhood facing a park is an exceptional privilege, which in turn calls for excellent urban and architectural quality. The new buildings are set against the old ones, creating centrally located, densely vegetated gardens, while the upper floors are tiered to preserve light within the inner courtyards. Their dimensions and internal layout are specifically designed to enhance the quality of life for residents and foster positive relationships among neighbours.

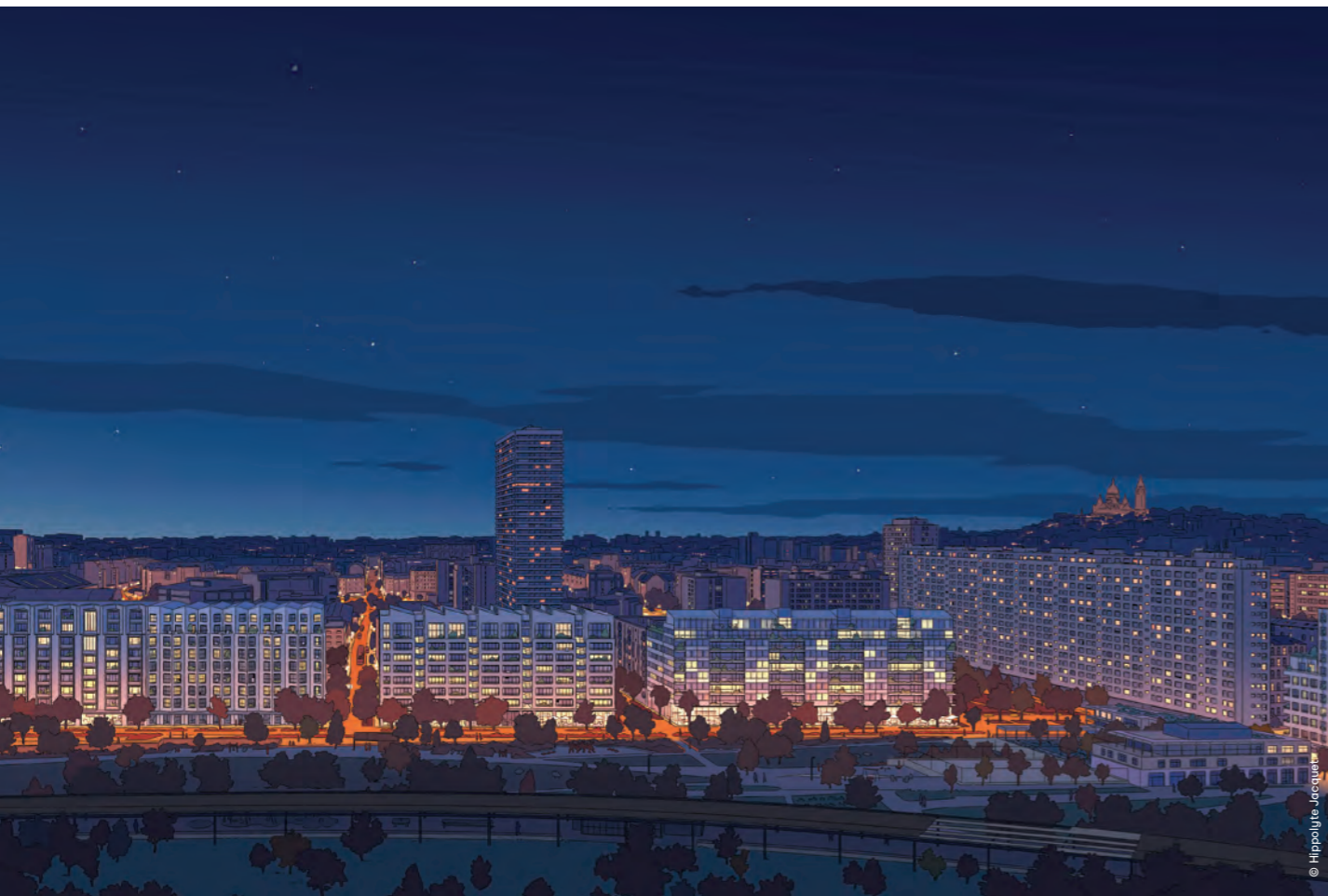
On the park side, the facade combines overall unity and a variety of architectural styles, with an active ground floor that opens onto the public space. It forms a well-frequented and lively “urban stage”, which integrates the new residential complex into the city.

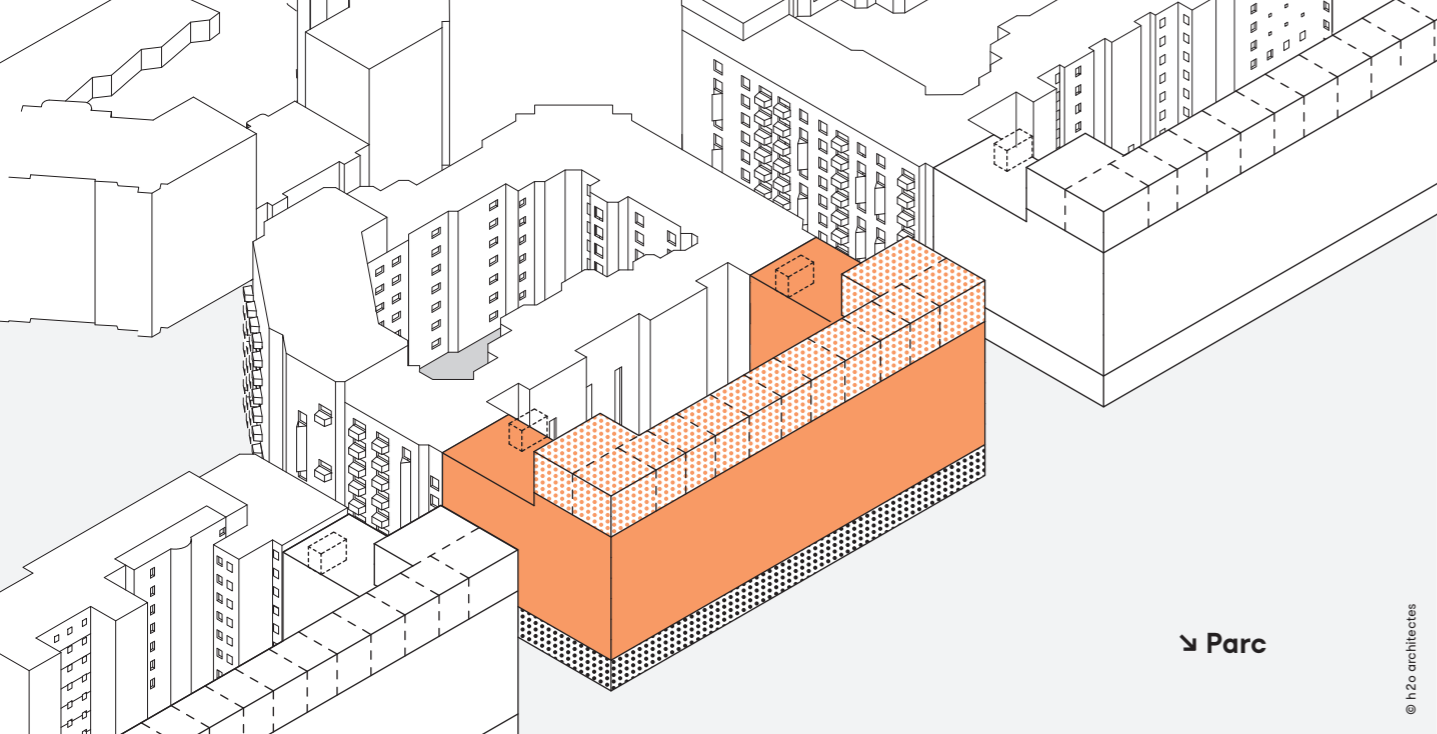


↓ West/East view of the new neighbourhood. Projects under design subject to change until the final building permit application is submitted.

↑ Chapelle Charbon site in 2022.

↓ Drawing of the urban view at night over the park. Projects in Preliminary Design Phase.





Three levels

⊕ **Solidarity-oriented ground floor**
maximising the flow through effect

● **A mid-level core**
composed of floors 1 to 6, consisting of "park apartments"

⊙ **A tiered upper level**
- floors 7 and 8 -
metropolitan scale

Overall coherence

Common rules and collective work

To ensure the architectural coherence of this "large facade", the seven teams of designers based their work on the ZAC architect's guidelines, defining a set of rules common to all the buildings: rule of three levels, materials and colours, use of projections and bow windows, canopy highlighting the ground floors etc. Shared design workshops between lead contractors then made it possible to ensure that each team's proposals aligned with the overall coherence and quality standards of the development.

Combining unity and variety

The style of the facades features variations around a common theme. This evokes the streets of Paris, where buildings with similarities in structure and architectural style stand side by side, yet showcase distinct facades. All buildings are designed with a consistent structure which is evident from the facade, while each building boasts unique architectural features that help give them an individual identity. The many staircases, predominantly illuminated by natural light, contribute to the building's rhythm, while the penthouses serve as distinctive elements that define a unique skyline.

A dynamic public space

Shops, services, and activities are located in the ground-floor areas of the buildings, designed to be as transparent as possible in order to visually connect the park, public space and inner courtyards: significant height, large open spaces without load-bearing walls, rooms with windows on both sides and minimised storage areas.

↓ Lot D: Ground floors with views through to landscaped inner courtyards from the park and the new street.



Architectural design driven by functionality

Through housing design

The slim profile of the buildings enables the dwellings to be through units, oriented north-south or east-west depending on the facades, which is advantageous in terms of both views and natural ventilation. In buildings with a north-south orientation, the dwellings largely have generous private outdoor spaces facing south toward the inner courtyards. North side, facing the park, protrusions (bow windows, balconies, etc.) capture light and views to the east or west. They also create additional surface areas that can be used as offices, winter gardens, storage etc.

Small collective units

The desire to use through housing design, which excludes a central service corridor, involves increasing the number stairwells and elevators. This has the advantage of creating small groups of about 20 to 30 dwellings around a common vertical service area that promotes neighbourly relations.

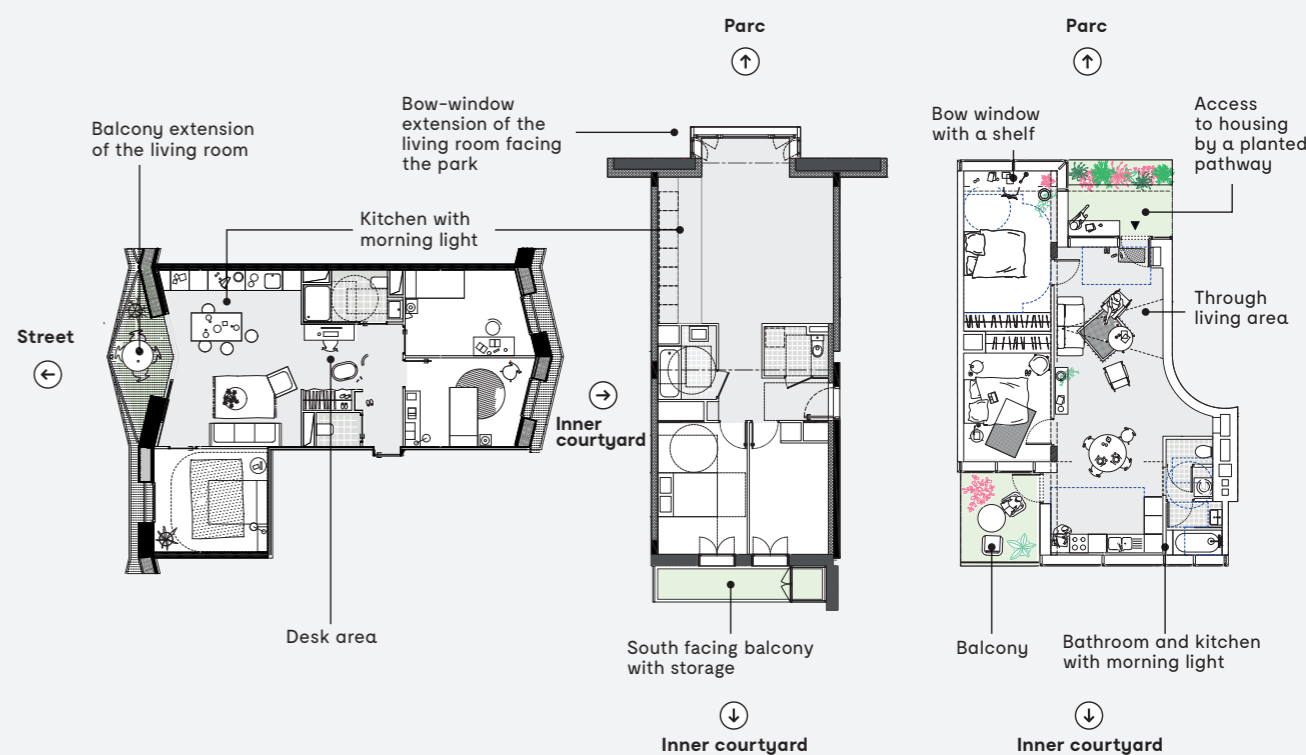
↓ Apartments designed to allow a diversity of layout and all equipped with outdoor living spaces. From left to right, lot A (RIVP for FDVP: Palast + GrandHuit) lot B1 (I3F: Architectures Raphael Gabrion), lot D (Paris Habitat: Bruther + Comte/Meuwly Palast + GrandHuit).



↑ Lot B2: Through living room/kitchen. To the north the folding of the facade and the generous openings capture the light and views.

More than apartments

In each building, communal areas for residents have been designed to enlarge the living space, enrich relationships and ensure collective "community watch". This common thread of architectural design is evident in the quality of the communal spaces (e.g. stairwells), as well as in their abundance and variety: walkways, gardens, rooftop terraces with adjacent communal areas, and shared ground floor spaces. The fact that all these spaces are also connected to the outside promotes integration into the neighbourhood.



↓ Drawing of the urban facade along the Chapelle Charbon park - daytime view.



Teams selected and permit applications submitted



A RIVP for La Foncière de la Ville de Paris: Palast + GrandHuit
 → 2,386 sqm of housing under long-term lease scheme for low-income households
 → 126 sqm of activities/shops
 Facade: Wood frame facade with chopped straw + render



Bi I3F: Architectures Raphaël Gabrion
 → 4,035 sqm of subsidised rented housing (53 dwellings)
 → 277 sqm of activities/shops
 Facade: Self-supporting stone



B2 Pitch Immobilier & Giboire: Clément Vergély architectes
 → 4,464 sqm of affordable housing for purchase (62 dwellings)
 → 241 sqm activities/shops
 Facade: self-supporting stone



C RIVP: Atelier Villemard Associés + Heros Architecture
 → 6,234 sqm of housing (78 dwellings including 56 subsidised rented and 22 capped-rent)
 → 352 sqm activities/shops
 Facade: self-supporting stone



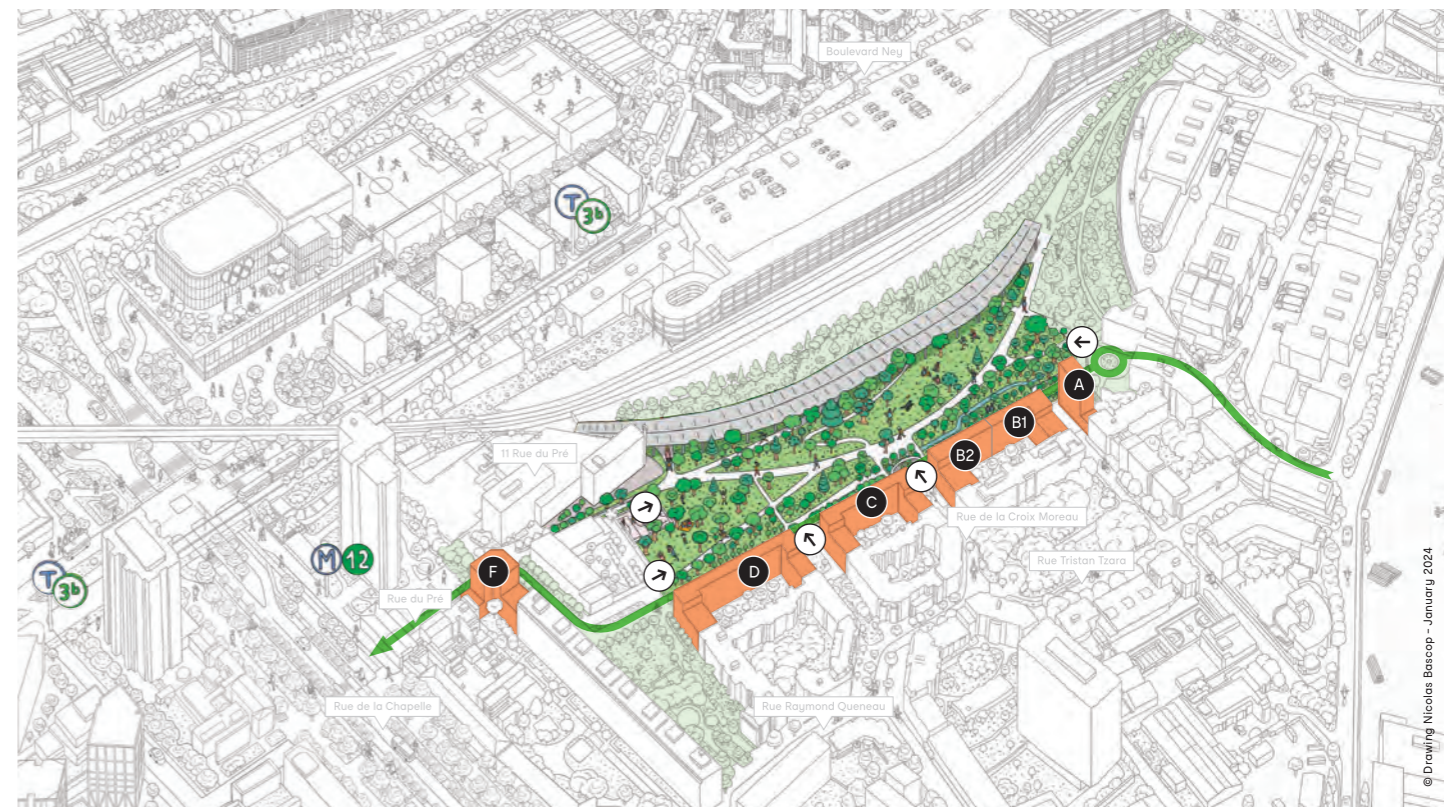
D Paris Habitat: Bruther + Comte / Meuwly
 → 7,779 SQM of housing (98 dwellings including 72 subsidised - rented and 26 capped-rent)
 → 774 sqm activities/shops
 Facade: Wood-aluminium curtain wall construction + Fermacell



F Élogie-Siemp pour La Foncière de la Ville de Paris: Nicolas Lombardi Architecture + Hub
 → 3 231 m² de logements BRS (41 logements)
 → 191 m² d'activités / commerces
 Façade: façade ossature bois (FOB) paille hachée + enduit

↓ On the south side of the park, lots B, C and D are U-shaped to create shared courtyard gardens integrated with the adjacent buildings, rising slightly above them in terraced levels (R+8).

At both ends of the new complex, lots A and F are backed by blind gables and rise to R+10, functioning as "signal" buildings at the entrance of the neighbourhood. The staggered sections of lot F form a smooth transition with the buildings on Rue du Pré.



28 200 sqm of mixed housing
 Future green spaces

Future entrances to Chapelle Charbon Park

Project lots
 Future one-way street in Zone 20

A highly landscaped neighbourhood

Omnipresent vegetation

Parks, squares and gardens

The simple and durable design of Chapelle Charbon park and its biodiversity-friendly approach, provides a landscape that seamlessly blends natural and cultivated elements. It features numerous spaces for sports or recreational activities, catering to diverse interests. Residents will also be able to once again enjoy Square Queneau which has been closed for years due to misuse; it will be enlarged by half. A small garden on Rue du Pré will also be built to increase the planted areas.

Positive shade and coolness

The north orientation of the buildings creates beneficial shade on the main east-west thoroughfare, making it a cooler place to walk during hot summer months. Especially as the greenery within the park extends beyond to the surrounding neighbourhood. The public spaces in the area benefit from a continuous tree canopy, which provides shade and a refreshing atmosphere to light-coloured mineral surfaces. In order to bring light in winter, the species will preferably be deciduous, with fine and serrated foliage.

To the heart of the buildings

The school yard, landscaped according to the principle of the Oasis courtyards, expands the park visually while maintaining its privacy due to its elevated position (3 m). The presence of the park also extends into the private spaces of housing lots. The central spaces, as well as some of the roofs, are gardens that collect rainwater and add freshness and a landscaped quality, enhancing the use of the existing buildings.

Soil care, biodiversity support

Open ground and fertility

In addition to the park, the landscaped space reserves more than a third of open ground – including for each built plot – for plantations in public spaces and inner courtyard gardens. The soil will be fertilised naturally as much as possible using refined methods for adding organic material in order to avoid importing topsoil (from agricultural regions of Île-de-France) and exporting (far) the backfill that makes up the current soil. Large planting pits provide good conditions for the trees that share them and their ecosystems.



↑ Abundant precipitation is conserved at surface level by "rain gardens" to prevent erosion of underground gypsum.

Keeping rainwater on site

"Normal" rains infiltrate the soil, including under grass block pavers. Only rainfall of exceptional intensity (ten-yearly) will be collected and its flow regulated by a pipe placed under the street used for vehicle circulation.

Promoting and maintaining biodiversity

The soil, enriched and naturally irrigated, supports a diverse range of plants across multiple layers, including various-sized trees and shrubs. These plants are well-suited to the changing climate conditions, requiring minimal water and

maintenance. The diversity of the mostly local species and the large number of individuals collectively enhance the resilience of the whole.

Real ecological gardens in the inner courtyards

The absence of underground parking allows at least 30% of the land area of the developed blocks to be reserved for open ground. The central spaces are lush, cool and filled with plants. They play a major role in stormwater management, heat island reduction and restoration of biodiversity and ecological connectivity.



3ha
of park

700

15,400 sqm
green public spaces
including

200

6.5ha
on completion

trees planted in the
park on completion

2,200 sqm
for the Raymond
Queneau esplanade

trees planted in
the public spaces

More than

Approximately

Terraced and green
roofs

37%

80%

undeveloped areas
within the ZAC

37.5%

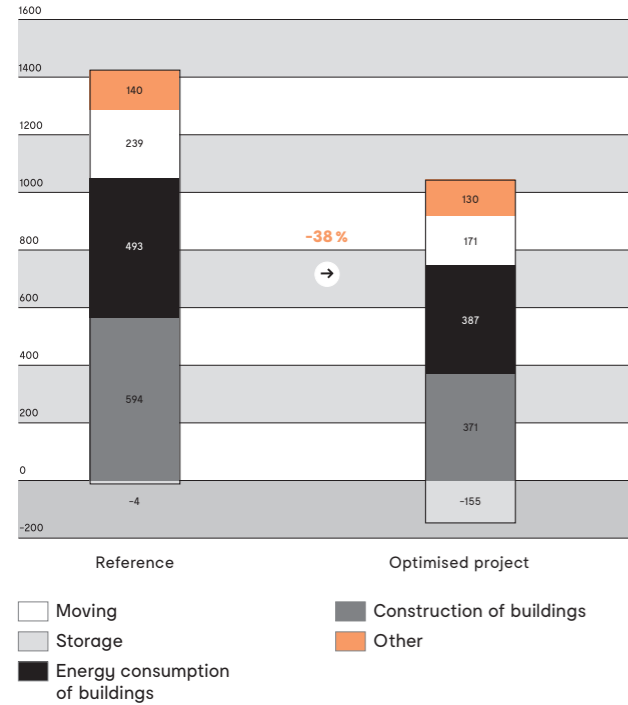
open ground
in central spaces

open ground
public spaces

A low-carbon neighbourhood

A significant reduction in carbon emissions

Carbon footprint to guide design



The carbon footprint of the project was used to optimise the design of the facilities and the specifications of the future buildings. A comprehensive carbon footprint assessment was carried out, taking into consideration all the sources of emissions the developer and builders can influence, whether they are one-off* or recurring**.

Result: -38% carbon emissions
The extensive use of wood and other biosourced or geosourced materials greatly reduces the footprint of buildings, and improves carbon storage throughout the building's life cycle

The bioclimatic design of the buildings makes them energy-efficient and the use of district heating already provides 50% renewable energy. There is no car park and infrastructure to support cycling has been built. Each construction project will have to comply with the 2025 threshold of the new environmental regulation RE2020 (construction index) and aim for the BBCA label (low carbon building) at the high-performance (housing) or excellent (school) level.

Housing must also aim for NF Habitat HQE certification or equivalent excellent level. By implementing various measures related to energy, construction, mobility, and usage, the carbon footprint of Chapelle Charbon is 38% lower compared to what it would have been if simply adhering to the regulations in place in 2012 (RT 2012).

****One-off* emissions** occur before and during the construction of infrastructure, buildings and public spaces. They are caused in particular by the production and transport of materials and demolitions and can account for up to 40% of the emissions of a typical operation over a theoretical lifespan of 50 years.

****Recurring emissions** are related to future uses of buildings and public spaces. This refers to the practices over which the developer has control, because appropriate design can mitigate them. This takes into account not only the energy needs related to buildings (thermal comfort, lighting, etc.) but also travel, because urban planning can dissuade car use and encourage active modes (walking, cycling).

An urban heating network using mixed energy sources

100%

renewable by

2050

A shared path limited to

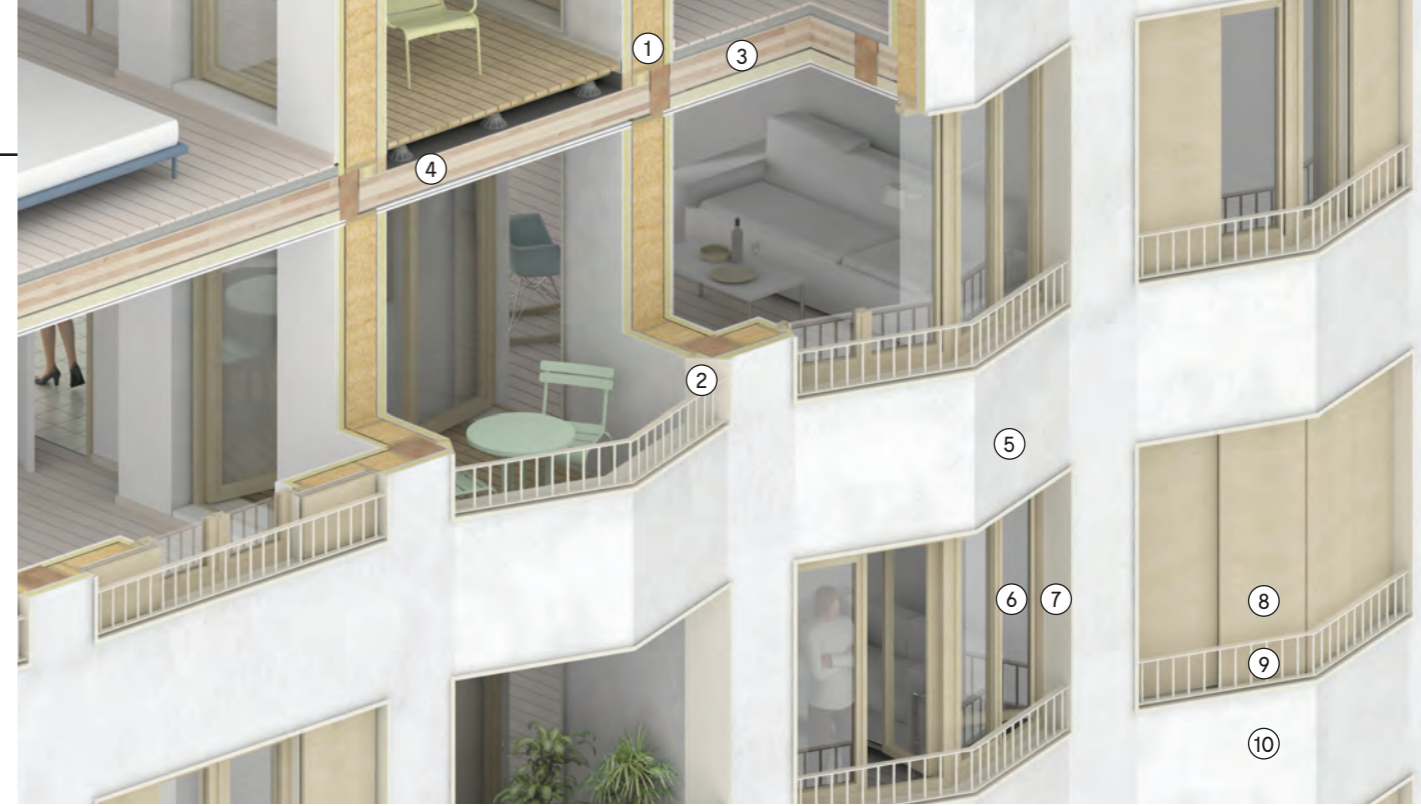
20 km/h

150 places for bicycles in the public space including

20 allocated to vélib (bike-sharing)

2

bicycle parking spaces allocated per dwelling in residential buildings



- ① **Complexe façades**
Interior facing gypsum fibre boards
A second layer of mineral wool insulation
Vapour barrier, Wood frame with closure panels, 22 cm straw bale insulation between studs, Rain barrier, Mineral wool insulation as plaster base, and Plaster and lime render
- ② **Wood structure**
AAC Posts, AAC projection reinforcement beam
- ③ **Flooring complex**
Wooden floor, fibre-reinforced concrete screed, Cross-Laminated Timber (CLT) panel forming a diaphragm. Acoustic false ceiling made of plasterboard
- ④ **Balcony**
Wood decking on supports, Cross-Laminated Timber (CLT) slab with crossed piles, False ceiling
- ⑤ **Solid folded sill**
Chopped straw in wooden frame box, Wood instead of 22 cm straw bales
- ⑥ **Casement frame**
Natural-tinted wood
- ⑦ **Canvas blind – double windows**
Integrated tracks
- ⑧ **Sliding shutters – Single windows**
Natural-tinted wood
- ⑨ **Large-frame**
Powder-coated steel bars
- ⑩ **Pre-frame**
Powder-coated steel

Bioclimatic and biosourced construction

Advance preparation to achieve lower carbon-intensive construction

P&Ma's expert team of project management assistants were asked to explore a wide range of biosourced or geosourced materials and model their use on future buildings, before the project managers were selected. Given to the project managers during consultations as a reference, this feasibility study compares different approaches to significantly reduce the carbon footprint of buildings, within an economically viable approach.

A wide variety of solutions for high environmental performance

This preparatory work has borne fruit. It is mainly stone, straw, hemp concrete and wood that have been selected and used in very diverse ways from one project to another.

Despite being faced with similar architectural constraints or guidelines, different teams have devised distinct approaches or solutions to address them.

At the building permit stage, they also demonstrated that it "pays off" to seek carbon savings through a mix of biosourced or geosourced materials suitable for various uses: structure, facade, partition walls, flooring, and is clearly demonstrated by the highly satisfactory environmental performance (RE 2020) of the buildings. The requirement to create through units and to illuminate the common areas with natural light also plays a significant role.

Supporting industries

P&Ma is committed to the wood industry association FIBois to make a major contribution to the effort of building with wood and other biosourced materials by 2025 to trigger a rapid systemic change in the construction sector.

Project stakeholders

At urban level

The **City of Paris** launched its development by delivering the first phase of the park project in 2020 with landscape agency Thierry Laverne.

The local public company **Paris & Métropole Aménagement (P&Ma)** is the developer for Chapelle Charbon urban development zone (ZAC) on behalf of the City of Paris.

The **BASE/h 2o group** is implementing the urban and landscape project management, as well as the project management of public spaces. BASE, landscape and urban planners (lead firm) h2o, architects

→ GRAU, urban designers

→ EGIS, technical consultants

→ SENNSE, consultation agency

P&Ma is also supported by:

Franck Boutté Consultants

Project management assistance for low carbon district/climate plan

Laurent Mouly Engineer

Project management assistance for biosourced and geosourced construction

At building level

- A Foncière de la Ville de Paris (OFS) RIVP (social housing and services provider)** Palast et Grand Huit architects, Nebbia landscape designer
- B1 Immobilière 3F (social lessor)** Architectures Raphael Gabrion, La Talvera landscape designer
- B2 Pitch Immobilier & Groupe Giboire (promoters)** Clément Vergély Architectes, La Talvera landscape designer
- C RIVP (social housing provider)** Atelier Villemard Associés and Heros Architecture, LS2 Landscapes designer
- D Paris Habitat (social housing provider)** Bruther et Comte/Meuwly, Taktyk landscape designer
- E Ville de Paris (school facilities)** LA Architectures and Nebbia landscape designer
- F Foncière de la Ville de Paris (OFS) Élogie Siemp (social housing and services provider)** Nicolas Lombardi Architecture and Hub Architectes, Atelier Bianchimajer landscape designer

Paris Commerces Economic Interest Group will market business premises and ground-floor shops on behalf of landlords.

Paris & Métropole Aménagement (P&Ma)

The local public company Paris & Métropole Aménagement (P&Ma), whose capital is held by the City of Paris and Métropole du Grand Paris, is the developer of the Chapelle Charbon urban development zone (ZAC) on behalf of the City of Paris. It has developed its expertise around environmental excellence and the coordination of major projects, such as the Clichy-Batignolles project (Paris 17th).

In the development operations it manages, including the Saint-Vincent-de-Paul ZAC (Paris 14th) and Gare des Mines-Fillettes (Paris 18th), P&Ma is working to renew models and techniques, especially around carbon footprint reduction and making user participation common practice. Apart from the four ZACs mentioned, P&Ma is managing the development operations for Porte Pouchet (Paris 17th). It is also providing support to the Porte de la Villette (Paris 19th) project and, for the Poudrerie Hochailles sector in Livry-Gargan (93) as part of the Métropole du Grand Paris.

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