

Métal 57's green rooftop

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Year of commitment : 2022

Water cycle : Containment

Biodiversity & Ecosystems : / Urban agriculture, Urban ecosystem, Roof Agriculture, Vertical Farm, Green roof, Green and blue corridor, Environment education /



6 500 000 €

GENERAL INFORMATION

Biodiversity is, along with climate change, one of the major environmental challenges we face. [...] By promoting

“ buildings that radiate out into their natural and human environments, they act as a relay for the area's biodiversity while enhancing the value of use for occupants. ”

— Catherine Papillon, CSR Director of BNP Paribas Real Estate

This **green rooftop** project, located on the roof of the new BNP PARIBAS Real Estate (BNPP RE) headquarters, is not only a place to relax and stroll, but also a real demonstrator of the group's know-how and commitment to biodiversity. In addition to hosting the company's activities, this building aims to show BNPP RE's business lines and clients the best practices in terms of greening a building.

Right from the design phase of the building, the **major issues related to biodiversity** were taken into account:

- Restoring the essential link between human beings and nature in order to promote biodiversity and the well-being of future users
- Sharing and valorization of culture and know-how
- Creation of a construction designed not to have a negative impact

For several years now, BNPP RE has been implementing a positive and concrete approach in all its projects, which aims to re-establish a balanced and harmonious relationship with urban ecosystems.

A place of experimentation on culture in the city

This infrastructure is ideally located in the heart of the **rich natural environment** of the banks of the Seine and the **wooded areas** of the Meudon forest and the Bois de Boulogne, but also in a **network of parks and private gardens**. This strategic location, surrounded by green areas, offers a **framework conducive to the propagation of life and biodiversity**, in which the rooftop must fit and play a role.

This green roof is an opportunity to **test new urban agriculture practices**. Indeed, the spaces and cultures planned are very diversified. They are composed of productive spaces (with notably perpetual vegetables), fruit production and beehives. Finding new crop associations can be interesting. It is also an opportunity to try to grow some forgotten vegetables, to cultivate urban waste and, finally, it will allow to **measure the impacts of rooftop agriculture**.

The latter has **multiple benefits**. First, the environment is preserved, but that's not all. This installation captures particles in the air and reduces heat islands, as well as retaining rainwater, which greatly improves the comfort of city dwellers.

Preserving biodiversity in the building

A sanctuary zone

Of the 3500 m² dedicated to the rooftop, nearly 2500 m² will be covered by a central interior zone. This zone has been **designed as a biodiversity reservoir**. The surrounding fauna, as well as insects and birds, will be able to use this space for nesting and feeding. This refuge zone has been designed to function naturally, and will not be accessible to employees. The plant palette will be adapted to the soil and climate of the Ile-de-France region, and will be composed mainly of local, resistant and persistent species.

An infrastructure for the well-being of wildlife

In addition to the spaces created, the building's rooftop has been **designed with the preservation of animal species in mind**. Thus, specific devices have been put in place to reduce the risk of avian collision with the building's glass facades. For example, the rooftop railing is equipped with a special film that is visible to birds but virtually undetectable to the human eye. In addition, the positioning of the light sources, their programming and the choice of devices limiting light pollution minimize the impact on wildlife:

- **the orientation of the luminaires and the height of the masts**: the project is equipped with mini spotlights on poles reflecting the light downwards;
- **the number of luminaires**: the luminaires are positioned only along the pathways and on the terraces, optimizing the space between the luminaires;
- **the duration of lighting**: all lighting is controlled with a clock or twilight detector;
- **the lit exterior flooring is non-reflective** (wood decking, planted concrete paving and Japanese steps).

Urban agriculture based on ecological principles

In the continuity of the former BNPP RE headquarters located in Issy-les-Moulineaux, where an urban farm was installed, this roof terrace leaves a significant place to urban agriculture. It will not only have a **vegetable garden**, but also a **flower meadow**, an **orchard** and an **aromatic garden**.

The vertical vegetable garden

This garden is easily accessible to encourage contact and exchange. All the crops are planted on raised metal trays called voliges, which keep the soil in place and facilitate maintenance. The latter will be **cultivated according to the principles of rotation and association of crops**, which limit the risks of disease and

proliferation of pests. But that's not all: to reinforce the diversity within the garden, it will be split in two. It will be composed of a gourmet garden and a garden of old and perpetual vegetables, in which more unknown varieties will be planted. Everyone will be able to participate in the cultivation of the vegetables during animations. **The annual production should reach 1300 kilos of vegetables** on the 235 m² that constitute these plots.

The flower meadow and the orchard

In order to have a changing and flowering landscape as long as possible during the year, the **numerous plant species** that cover this meadow have been chosen for their different flowering periods. This provides a visual amenity coupled with a contribution to insects, which will come to pollinate these plants. One of the many advantages is that many of these flowers are edible: either in the form of infusions or in the form of dishes. A production of **14 kilos of edible flowers per year** is expected. Finally, the orchard is composed of apple trees, pear trees, but also red fruits for an **annual harvest of 360 kilos of fruits**.

The aromatic garden

Always in a **local and fresh production approach**, this garden is home to well-known aromatic herbs, such as mint, oregano, laurel or tarragon, as well as other lesser known ones. This production will be used in a **short circuit**, in the RIE (inter-company restaurant) and in some of the catering areas on the first floor. It is also planned that these herbs will be used by the restaurants on the street and by [Arpège](#) for use in their dishes. In total, a harvest of **117 kilos per year** is expected, for over 25 species of aromatics present on the rooftop.

A living space and an awareness zone

As mentioned earlier, the idea behind this infrastructure is also to share know-how, to reconnect with nature, and to raise awareness of biodiversity issues among employees. This is why **different animation offers have been set up** such as workshops led by [Peas&Love](#) or [Merci Raymond](#). Various topics will be covered: learning to cook certain vegetables, preparing herbal teas, gardening (cuttings, sowing and planting, etc.) for about **ten events per year**. In addition, to complete and reinforce the know-how, **planting workshops** of one hour, for example, should be organized at lunch time.

For those who do not wish to participate in manual activities, but are still interested, **conferences on the theme of culture/nature in the city** will be held. Finally, in order to discover the richness and exemplary nature of this rooftop, visits open to outsiders will be organized: Boulogne schools, retirement homes, but also clients and partners.

Progress Status

Delivered

Data Reliability

Self-declared

Funding Type

Private

Website Enterprise / Infrastructure

<https://metal57.realestate.bnpparibas/biodiversite/>

<https://www.realestate.bnpparibas.fr/fr/actualites-enquetes/metal-57-une-labellisation-biodiversity-construction>

Sustainable Development

Attractiveness :

In order to **ensure the project's biodiversity approach** during the operational phase, BNPP RE undertakes to **involve future stakeholders** (operations team and BNP Paribas employees, external partners) in this approach and to monitor the project's biodiversity objectives **during at least 5 years**, namely:

- the installation of spaces and furniture designed for the quality of life at work for users within the green spaces of the rooftop ;
- the choice of differentiated ecological management and regular monitoring of fauna and flora including monitoring of invasive and at-risk species ;
- the commitment to labeling the ecological management of green spaces ;
- actions such as naturalist monitoring or animations could be the subject of a long-term partnership with local actors ;
- the organization of communications and events presenting the project's biodiversity approach in order to raise awareness among various stakeholders, including future users ;
- the appointment and training of an internal biodiversity referent.

Well Being :

In line with the actions already undertaken on the Issy-Les-Moulineaux site, the future headquarters of BNP Paribas Real Estate will restore the **essential link between human beings and nature in order to promote biodiversity and the well-being of future occupants** of the building, and by extension, of the rooftop. Users can simply walk there and enjoy the surrounding wooded view, in the heart of a rich biodiversity, but also take advantage of the various activities set up.

Social Cohesion :

During the various workshops and events, employees will be able to **discuss and forge links**. In addition, since the relaxation areas are open to everyone, they will be able to meet and talk more regularly. These efforts are part of a policy of improving work life for employees, recognizing that increased opportunities for interaction and collaboration generally lead to better results.

Preservation / Environmental Improvement :

The central area

To briefly review this area, here are some of the details that were taken into account in its design to ensure its success. Special attention was paid to various elements in its design:

- **The topography** : the refuge area is not uniformly flat, the height of the substrate varies, with in some points up to 80 centimeters of soil intended to accommodate a variety of vegetation ;
- **The vegetation programming** : three vegetation strata have been planted, namely herbaceous, bushy and arboreal, i.e. about fifty different tree species in addition to a large number of ground plant species ;
- **Places to welcome wildlife** : birdhouses, drilled tree trunks, piles of dead wood, wetlands and sandpits are intended to encourage biodiversity in the city.

Beehives should also be installed there, but they will not be the ones that were present on the roof of the Issy-les-Moulineaux building, because it is too close.

Indeed, bees forage within a 3 km radius of their habitat and would therefore return there.

The flower meadow and the orchard

The details of this flower meadow and orchard have been specified above. However, it is important to note that the structure of the building was the object of a particular effort in order to support the substrate necessary to anchor the roots of the trees.

The vertical vegetable garden

Echoing the roof of the former BNPP RE premises, vertical vegetable gardens, called "gabions", are again installed at Métal 57. These rather simple structures have a great interest in terms of urban agriculture. Indeed, their weight and their footprint are quite low. Each gabion of 1 m² represents 3 m² of planted surface. The annual yield is estimated between 25 and 30 kilos.

Here is the list of plants present on the roof of Métal 57, installed by LGA Aménagements :

Designation	Qty
Absinthe	10
Agastache	10
Arbousier Compact à fleur blanches	18
Armoise commune	7
Artichaud gros vert de laon	3
Artichaut	2
Aubergine black Beauty	24
Basilic Simple grand vert	4
Bettrave chioggia	90
Bettrave crapaudine	70
Canneberge rampante	15
Canneberge rampante	34
Canneberge Rampante	14
Capucine	4
Choux Kale Red Russian	60
Ciboulette	28
Coriandre	6
Courge Jack Be little	12
Courgette jaune	12
Epinard fraise	33
Estragon commun	17
Fenouil commun	15
Fraise de Paris	69
Framboisier	9
Framboisier Nain Artique	19
Framboisier Paris	15
Groseillier à grappe Lisette	7
Groseillier à Maqueraux	6
Haricots Nain Major Mangetout	400
Helicrysum	16
Hysope commun	16
Laurier sauce	2
Lavande bleue	40
Menthe du Maroc	12
Menthe poivrée	12

Mertensia maritime	7
Myrtille arbustif EMIL	33
Œillet d'inde	11
Origan	16
Petite pimprenelle	13
Poires de terre	12
Pois nain douce provence	284
Radis de 18 jours	Graine
Romarin pointe du Raz	40
Rue	10
Sariette officinale	17
Sauge ananas	17
Sauge officinale	20
Sauge pourpre	20
Tanaisie commune	10
Thym citron	11
Thym faux pouliot	40
Thym vert commun	11
Tomates black cherry	16
Verveine citronnelle	8

Resilience :

The **diversity of plant species planted** makes it possible to increase resilience in the face of climatic hazards and to avoid significant destruction of rooftop spaces in the event of an extreme event.

Responsible use of resources :

A **rainwater harvesting** system has been installed. It will be used to water the various plantations (plants, vegetable garden, etc.).

Governance

BNP PARIBAS Real Estate

Holder Type : Private Company

This space is the result of a collective work carried out since 2020 by CSR, the Promotion teams, Property Management and DET teams, the architect, an ecologist and landscapers.

Here are the different phases of the project:

1. **an ecological study** to ensure that what is installed is consistent with the environment around the building ;
2. **rooftop programming** : the plant species selected are all local, non-invasive and chosen for their ability to develop in complementarity, in order to limit watering and not to use phytosanitary products ;
3. **installation** ;
4. **operation**, in particular with service providers who will bring the rooftop to life in collaboration with property management, including [LGA](#) , which has developed the green spaces of Métal 57, [Merci Raymond](#), which will aim to maintain and manage the vegetable gardens and orchards in the ground with an ESAT specialized in garden maintenance, and finally [Peas&Love](#), for vertical vegetable gardens.

Sustainable Solutions

The vertical vegetable garden

Description :

In a **biodiversity approach**, a vertical vegetable garden has been installed on the roof. It also participates in the **social aspect** of this rooftop and feeds, literally and figuratively, the site's collaborators.

First of all, this vegetable garden represents a plurality of cultures, and these are cultivated according to different principles, in particular those of **rotation and association of cultures**. These methods consist of **alternating species grown** on the same plot. This rotation helps to **break the cycle of bioaggressors**, in particular soil pests and pathogenic fungi, by the introduction of non-host crops. Thus, the use of **phytosanitary products is lessened** in comparison with a monoculture.

Then, the crop association consists in **cultivating several different species simultaneously** on the same plot. Crop cycles are parallel or overlapping. We seek as best we can to find a **complementarity of species** so that the system is **resilient in the face of bio-aggressors**.

Beyond this approach, this vegetable garden is easily accessible in order to promote **contacts and exchanges**. It will also be the site of various organized **activities**, for example to learn how to cook certain vegetables. Finally, it will be used during **planting workshops** scheduled during the lunch break.

- Citizen-awareness
- Management of natural areas

Photo credit

Top view image: DEVISUBOX

Rooftop image: Vincent FILLON

Reasons for participating in the competition(s)

- Un havre de biodiversité en ville ;
- Des espèces sélectionnées pour leurs propriétés ;
- Un système de potager innovant qui permet de gagner en espace ;
- Une production locale et fraîche en circuit court ;
- Un espace de sensibilisation et de détente pour les usagers du site.



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