



Further metamorphosis of Tour & Taxis

TOWARDS VINCENT CALLEBAUT'S MIXED-USE ECO-NEIGHBOURHOOD CONCEPT

Upon request from Extensa, for the future metamorphosis and development of the 40 ha Tour & Taxis site, Vincent Callebaut is sharing with us his concept for rehabilitating the historical 'Maritime Station' involving 40,000 m² of offices, meeting and exhibition facilities, and further developing on the site 85,000 m² of dwellings across three green residential towers, each 100 meters high and surrounded by 'vertical forests'.



Vincent Callebaut

By 2020, it is expected that 70% of the population in Europe will be living in cities. This constant growth requires new thinking, in order to bring greenery back into the city, decrease carbon emissions, produce renewable energy, ensure a social and functional mix within districts, encourage 'soft' and multi-modal mobility and the use of public transport... The challenges are numerous for cities which wish to be worthy of the name 'Smart Cities' in the future.

For this, it is necessary to think out of the box. And this is exactly what Architect Vincent Callebaut did when imagining and drawing up the concept for the future metamorphosis and development of the Tour & Taxis site. Vincent Callebaut explains his approach: "Most European cities have a water element. Brussels has got rid of this water element in the past by covering over the River Senne, for what were believed to be hygienic reasons. Brussels has to once again live alongside water!" And this is the reason why between the redevelopment of the 'Maritime Station' and the Sky-villas – three green residential towers each 100 meters high surrounded by 'vertical forests', lies a large marsh pond with a giant lily-pad offering exhibition and event space, as well as an open-air rooftop auditorium.

Vincent Callebaut is also very much in favour of a mixed-use district for reasons of energy efficiency and of mobility. "A combination of living and working is essential in order to create a balanced environment in the city. Through working and living close together, the amount of energy required is cut in half! We also have to take mobility needs into account, which can be done by putting working and living close together, with the additional benefit of integrating nature and leisure".

Think out of the box for the rebirth of the 'Maritime Station'

FROM HISTORY TO MODERNITY

Minimal energy use always has a part to play in Vincent Callebaut's visions, within which he seeks to improve the relationship between technical elements and nature.

The ecological circuit based on knowing and respecting the 'triple R' theory: Reduce, Re-use, Recycle, forms an essential part of his developments. These principles are uppermost in giving a new life to the 4 hectares of the Maritime Station, a veritable Biocampus in which it will be pleasant to both work and relax. The Biocampus establishes an individual architectural identity for each of the five Marine Station naves – enhancing the industrial heritage while guaranteeing visual permeability between the large three main naves.

All the planned co-working spaces can be allocated to multiple long-term businesses, or be turned into a start-up cluster. For their construction, only bio-sourced materials are used that are recycled and/or recyclable according to 'cradle to cradle' standards.

Wrapped in waterproof and airtight façades with high thermal inertia, the revamped Maritime Station forms a micro-climatic space that reduces energy needs. It also incorporates the concepts of passive bio-climatics and cutting-edge renewable energies, such as: rainwater harvesting; earth-air heat exchangers for natural ventilation; evapo-transpiration gardens; biomass cogeneration; geothermal stations. There will also be a wind farm with 88 magnetic levitation vertical axis wind turbines located on the cornices, solar and heat energy roofs and southern façades made of silicon cells. All of these contribute to the development of a BEPOS (energy-plus building) that generates 186% of its annual needs. Self-sufficient, the Marine Station is set to provide 86% in value-added energy that can be redistributed in real time to the neighbouring historic buildings and future sustainable housing units across from it.



The historic façades of the Marine Station on the Rue Picard are equipped with solar captors directly integrated into the glazing.



The different plazas and buildings will be linked by ground-level bicycle paths, while over 6.6 meters above, tree-perched footbridges are set to offer unique perspective views.



The 'Geodesic domes' conceived by Vincent Callebaut to be erected in the median nave of the Maritime Station, incorporate restaurants and bars, along with sports and leisure areas.

During its construction at the beginning of the 1900's, the Maritime Station was one of the largest stations in Europe. Frédéric Brunel, the railways' chief engineer, decorated it like an Art Nouveau masterpiece, with wrought iron and stylized vegetal forms that still adorn the pillars and arches today. It was therefore absolutely necessary to preserve this architectural heritage. In the concept designed by Vincent Callebaut, all the new architectural entities are to be completely detached from the existing historical structure and façades, highlighting them while ensuring the reversibility of the project.

Sky-villas @ Tour & Taxis

85,000 M² OF ECO-HOUSING, ALL UNITS WITH SKY VIEWS AND GREEN SURROUNDINGS

According to Vincent Callebaut, for smart cities the only option is vertical building. Having for such a long time desired to have our own place in green surroundings as a status symbol, in Belgium we have lost too much green space. The ground is used for individual houses. Horizontal development is no longer sustainable. Vertical construction is therefore the solution for cities to remain liveable in an age of worldwide population growth. By building vertically we make room for green space in the city. For Vincent Callebaut, vertical building has nothing to do with the 'apartment barracks' of the past. He sees a typical piece of land in a city as though it were vertical, and makes this self-supporting in energy terms.

Vertical development has to go hand in hand with an ecological reflection, scheduling as much own energy as possible, and through planning ahead own food production too, in order to reduce CO₂ emissions.

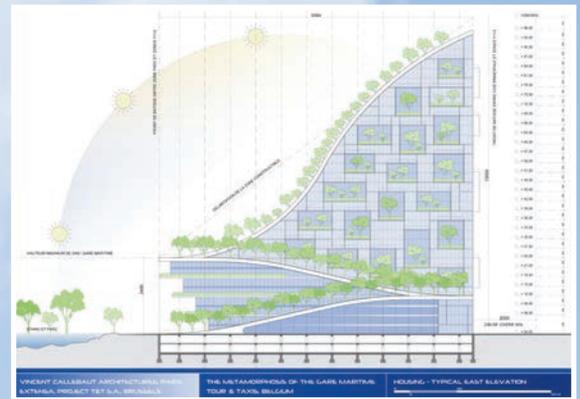
It is thus within this spirit that Vincent Callebaut, with regard to the masterplan which schedules the construction of 85,000m² of residential accommodation, proposes the construction of 3 Sky-villas, three green residential towers, each 100 meters high and surrounded by 'vertical forests', three buildings of roughly 32,500 m², 28,000 m², and 24,500 m², aligning with the ridges of the Maritime station's three large naves and separated from each other by gardens.

Although Vincent Callebaut is recognised as a visionary architect, he pays great attention to making sure his concepts are feasible in concrete terms. This results in his exceptional interest in new techniques and in knowledge in general. He merges together architecture, bio-techniques – with a special consideration for the re-use of materials and energy production which does not harm the environment – and high tech.

Eduard CODDE

Photos © Vincent Callebaut Architecture, Paris

The façades reveal the social diversity of the project, like a giant Tetris, using inclined ramps that shelter the ground-level orchards and common areas. The Tour & Taxis park extends over green roofs, offering strolls overlooking the large central pond.



To the south, the height of the towers does not exceed 24 meters, thus aligning with the ridges of the Maritime Station's three large naves. To the north, along the future Avenue Tour & Taxis, their height reaches 100 meters on more than 30 floors, with panoramic views of Molenbeek, Laeken, and the Atomium a little further away.



