

L'archipel, VINCI's future head office



“We wanted a head office that assembles us and resembles us.”

Xavier Huillard, Chairman and Chief Executive Officer of VINCI

In 2021, nearly 4,000 VINCI employees will move into l'archipel, which will bring together the central functions of all Group business lines.

The design by VIGUIER Architecture in association with Marc Mimram Architecture & Associés won the competition. It will blend the project seamlessly into its urban environment to help create a new neighbourhood. Architecturally, the complex is both pluralistic and homogeneous, reflecting the highly diverse business activities and collective spirit that make up VINCI's DNA. The complex symbolises the Group's transformation, serves as a demonstrator of its expertise and innovations, and sets an example for quality of life at work and energy performance.

Key figures

5

buildings

74,000 m²

of office space

1,500 m²

of retail space

4,000

workstations

3

years of construction works

850

employees at peak construction activity



Agreement between Epadesa*, the City of Nanterre, SNCF and RFF**

Agreement between Epadesa* and SNCF covering the sale of SNCF land

2007

September 2015

* Now Paris La Défense
** Now SNCF Réseau

July 2015

Agreement between the French government and the City of Nanterre covering the development of the Groues district

Project participants:

Investor: VINCI

Developer: VINCI Immobilier

Project manager and lead architect: VIGUIER

Associate architect: Marc Mimram Architecture & Associés

Joint programme manager: SNCF Réseau

Building shell and core and architectural works packages: VINCI Construction France

Fluids works package: VINCI Energies

New RER E station in Nanterre: Eole project

Urban planning: Paris la Défense City of Nanterre



Building permit filed by VINCI and SNCF Réseau

Completion of structural work on l'archipel

Start of train service on RER Line E

March 2017

October 2020

December 2022

March 2016

January 2018

July 2021

Property agreement between Epadesa* and VINCI Immobilier

Start of structural work on l'archipel

Start of VINCI employee move into l'archipel

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L'archipel, VINCI's future head office

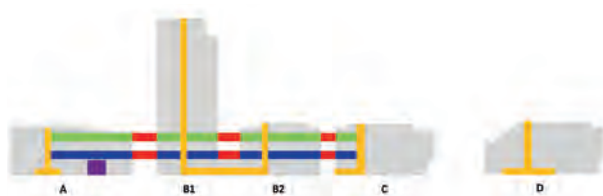
A name, a place, a project

Reflecting the VINCI model, which builds on a balanced range of diverse and complementary business activities, l'archipel will exemplify the "one and many" principle as a complex in which the Group's various entities will both express their distinctive features and come together in a coherent whole. Designed as a series of interconnecting, independent islands linked by footbridges, the new VINCI head office will foster a variety of traffic flows and connections both within the buildings, to reinforce the spirit of synergy that drives the Group's various business activities, and with their exterior surroundings, to create porosity with the surrounding city.

"This archipelago, made up of a series of buildings, expresses a form of diversity, which is the very essence of VINCI."

JEAN-PAUL VIGUIER, ARCHITECT

While pursuing its own development momentum, VINCI is also an integral part of the urban renewal project covering the area where it has chosen to locate its head office. From the start, the complex has been a central part of the urban project and has set ambitious goals: to limit urban sprawl, control its environmental footprint and add value to the site by integrating new functions. This inclusive approach to embedding private spaces within a volume designed for public use epitomises the Group's determination to reach out to the city and contribute to the equilibrium of its new environment. The integrative focus is in keeping with the history of the Groues district (*see insert*) and the railway that has put its stamp on it.



L'archipel traffic flow and connections

- Access halls and vertical traffic flows
- Footbridges
- "Semi-public" street serving the business centre, accessible to visitors
- Private street, accessible to VINCI employees only
- Passage to the station

Development of a new district

The urban renewal under way in the Groues district, where l'archipel and the new Nanterre station are located, is a good illustration of the far-reaching urban transformation taking place west of the Grande Arche. The Groues district, long an enclave, is an atypical 65 hectare area with outstanding development potential. The transformation undertaken by Paris La Défense and the City of Nanterre is designed to create a mixed-use area just steps away from the business district that will offer housing, shops, public facilities, transport, office space and cultural spaces.

The worksite: the main challenges

The site on which VINCI has elected to build its head office – a 300 metre strip alongside the Boulevard de la Défense and adjacent to the railway yards – has a number of distinctive features that determine its design and the phasing and method of its construction. The interlinked design of l'archipel and the railway station adds value to the project and is the primary source of its complexity.

The unusual configuration has entailed “reverse” construction phasing: instead of building first the infrastructure and then the superstructure, the construction teams had to carry out the civil engineering for the overhang adjacent to the tracks simultaneously with the earthworks. In addition to managing this simultaneous activity, unusual at this stage of a construction project, the teams had to tackle a major technical challenge: the overhang of Buildings B1 and B2 supports a very large load and rests on only 13 dual inverted V shaped posts (*see page 10*).

These slender cast-in-place reinforced concrete structures are supported by piles that are deeply anchored in the subsoil.

Logistics is another challenge on this project.

Work on l'archipel is proceeding alongside several adjacent active worksites, all supplied via the Boulevard de la Défense. In keeping with its work integration* policy, VINCI has called on Liva**, a specialist work integration company set up at the instigation of the Fondation VINCI pour la Cité, to provide worksite logistics services.

For VINCI, l'archipel is also an excellence challenge, since the new head office will serve to showcase the expertise and innovations developed within the Group (*see page 7*).

* By 30 November 2019, the worksite had provided 39,937.49 hours of work integration, out of a target 117,000 hours.

** Liva is a social joint venture in which VINCI Construction France has a 49% holding and Ares 51%.



A place where people live and work

Those working at the head office will have a large number of terraces (nearly 90) where they can gather to eat, meet, work and rest. Some of the roof terraces will be green and/or equipped with solar panels.

At street level, pocket parks open to the public (*pictured opposite*), alternating with shops in the ground level of buildings, will set a vibrant pace. The project has ambitious environmental goals and is designed to accommodate evolution of the buildings and mobility of their occupants. L'archipel will offer its users up-to-date, comfortable spaces that encourage collaborative work.

In addition, the full range of indicators tracking the environment, employee well-being, interior arrangement and CSR will be covered by OsmoZ certification, which relates to the quality of the work environment.

A showcase for the Group's innovations

L'archipel is designed as a demonstrator of VINCI's expertise, with special attention to sustainable development and new technologies. Its design also anticipates the new RT2020 thermal regulations.

The property complex will receive two general certifications, HQE Exceptional and BREEAM Excellent. In addition, the project aims for specific certifications to cover a number of narrower topics such as energy performance (E+C-), recyclability and circular economy (C2C, Cradle 2 Cradle) and connectivity (R2S, Ready to Services), in a move to achieve performance above and beyond applicable regulations.

Label and certification goals

GENERAL

HQE Exceptional certification
BREEAM Excellent certification

ADDITIONAL

Materials, circular economy
- C2C, Cradle 2 Cradle programme
- Bâtiment biosourcé – level 1 (Bldg. B)

Energy (excl. high-rise)

- Effinergie label
- E+C- label, E2C1

Quality of the work environment

- OsmoZ

Digital, connected building

- R2S, Ready 2 Services (Bldg. D)





Recycled and ultra-low carbon concrete

In a virtuous circular economy approach, l'archipel is VINCI's first demonstrator of the use of recycled and ultra-low carbon concrete structural elements. Recycled concrete, the result of joint work carried out by VINCI Construction France and Eurovia, is made with 50% aggregate from demolition of concrete structures, twice the percentage required by the applicable regulations. In ultra-low carbon concrete, cement is virtually entirely replaced with blast furnace slag* and the material's hardness and strength are similar to those of conventional concrete formulations. These properties make it suitable for use in structural works. The innovative material reduces greenhouse gas emissions by more than 60% compared to conventional concrete. Ultra-low carbon concrete marks a major step forward in sustainable construction.

** A by-product of the steel industry, blast furnace slag is an innovative binder.*



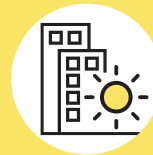
Active thermal regulation slabs

The active slab, similar to radiant flooring, is based on the flow of cold or hot water (fluids) within the concrete slab. The slab itself stores large quantities of cold or heat, depending on the season, and releases them gradually thanks to the material's inertia. The system steadily regulates heat/cooling within the building. The Green Floor® process developed by VINCI Energies operates according to the same principle, but channels air (rather than water) within the concrete slab. This ventilated active slab technology provides heating, ventilation and air conditioning in Building D.



Wooden biosourced building

The B2 building aims to obtain the Bâtiment biosourcé – level 1 label, which highlights the environmental quality of new (or partly new) buildings that contain a significant proportion (minimum 18 kg/m²) of biosourced materials in their construction. In l'archipel, the biosourced material is wood. The goal is to create a wooden lining within the building shell as a full component of the façade. It will be installed by VINCI Construction France subsidiary Arbonis.



Smart and photovoltaic facades

The ActivSkeen business unit set up by VINCI Construction is developing a range of building-integrated photovoltaic technologies. The southern façade of Building D is "electrochromic", meaning that its opacity is automatically increased or decreased according to the amount of sunlight impinging on it. The goal here is to produce active, attractive and efficient facades that meet comfort and energy savings targets. Overall, the project pays special attention to energy optimisation of the materials used – joinery, glazing, and insulation – in order to maximise the efficiency of the external shell.



Full BIM

The l'archipel project uses Full BIM. The term Building Information Modelling designates a structured, ordered database covering the structure being built and is used to produce graphics and data spreadsheets. Full BIM is the highest BIM standard, which is used to both design and operate buildings and involves all project participants in a collaborative process.



Building Operating System

Building data will also be used to provide in new services. The BOS transforms the relationship between the building and its users and makes it possible to improve the building by using accumulated knowledge on the use to which it is put, based on the BIM system. The 4,000 employees working at the site will be central to the project as the first users of this building operating system.

“Forming a city” the architectural project

The l'archipel project is part of a broader property programme comprising office space, a hotel and shops, which is being developed over two lots along the Boulevard de la Défense in Nanterre. Its design reflects the image of a head office that is both operationally and organisationally open, fosters interaction and communication between the various Group entities, and blends seamlessly into its surroundings. The VINCI head office is consistent with what Jean-Paul Viguier calls “the urbanisation of the work space,” in other words the porous connection between the office building and the city via shared functions. The VIGUIER firm consistently applies this approach in its work, as lead architect, to design the building, its interior spaces and its landscaping.

“In building its head office, VINCI is demonstrating its cutting-edge approach to building the city of the future – a city that is aggregated rather than aligned, in which functions and buildings are embedded in each other.”

JEAN-PAUL VIGUIER, ARCHITECT

The 75,500 m² complex comprises five buildings of variable height, including a 100 metre “emergence”, which form a series of interconnected islands. An interior elevated street will weave an overarching communications network linking the buildings and providing terraces and gardens. At ground level, a set of glass walls giving onto the streets perpendicular to the Boulevard de la Défense open l'archipel to the city and provide access to shared functions.



This glass base opening the buildings to the urban space is equipped with south-facing solar protection in the upper part of the façade, in the form of a 50 cm thick overhang fitted with etched glass blinds. The transparent shell displays a calm interior of light-coloured wood and curved lines that connect with the thick green foliage at the top of the buildings and support the successive volumes.

The building's architectural consistency lies in its architectural superimpositions and correlations:

- a transparent base displaying the vibrant life of the project open to the city and its porous connections, where possible, with urban functions;
- a set of differentiated levels reveals the rhythm of the solid and glazed elements;
- at the top, a set of gardens and terraces runs the length of the project.



Two architects: the project's value added

Jean-Paul Viguier takes an urban planning approach to the design of l'archipel, integrating the building with its surroundings, retaining the historic legacy and footprint of the original site, and reflecting the city inside the structures. Marc Mimran's dual expertise as both an architect and a civil engineer covers the technical complexity of the transport infrastructure located underneath the building.



For the north façade on the railway side of the building, the volume principle retains the same features above a support line of structural architecture. The line is formed by the relationship between the project's vertical elements and their transformation as they intersect with the station platforms. The structures penetrate the railway spaces, organise the operation of the station and the flow of passengers, transmit forces and ensure overall compatibility with the presence of an office building.



High-rise building

The "emergence" is built primarily on elastic foundations and constitutes one of the project's most technically complex elements. Vibration generated by passing trains is absorbed by the underground structures.



“The special feature of the new head office is its location at the intersection of a variety of communication systems, and more particularly above the station that lies at its base. It is a hub – a nerve centre – of the Grand Paris programme, extending the infrastructure of the public space that runs under and through it.”

MARC MIMRAM, ARCHITECT

Dialogue with the railway infrastructure

At Building A, the ground floor and the first upper level form a base housing shops associated with the station and above all the entrance to the station through an outsized passage giving access to all four station platforms. The office levels, designed in a more linear approach, seem to flow through the passage and slide along the base. The building thus forms the leading edge of a continuous urban system, with the boulevard flowing on one side and the railway on the other.

The future Nanterre station, the third new station on RER Line E, and the new VINCI head office are two comprehensively interlaced, cohesive projects. In addition to Building A, which contains the entrance to the station, l’archipel extends above the tracks over a length of 160 metres and a width of 18.5 metres, protecting platforms 3 and 4. The supports for this part of the project, which overhangs the tracks, illustrate the way in which the station and the office buildings are interwoven. The supports, two inverted, articulated “V” shaped structures set in the lower ground floor, serve to identify VINCI, connect the structure with the street and the public space, and identify the station. The V-shaped posts that form an integral part of the building façade on the station side concentrate the vertical forces and limit the support points to free up the platforms as much as possible. Lastly, the supports straddle the future access points to the underground passageway that will link RER Line E with the Grand Paris Express in the run-up to the arrival of Line 15 West, while offering a large and protective space in which platform facilities such as seating, ticket machines and shelters will be housed.

13

inverted V shaped posts (“spurs”) on which part of the tower and Building B2 rest.





Jean-Paul Viguier

VIGUIER Architecture Urbanisme Paysage is an international architecture and urban planning firm based in Paris. Its 150 employees from 17 different countries are overseen by Jean-Paul Viguier and 12 associates. The multi-faceted, multi-disciplinary firm designs and builds projects in a comprehensive, integrated approach that ranges from urban planning documents to interior design and landscaping and covers offices, housing, facilities and shops for both public and private use. In keeping with its philosophy based on an overarching vision of the project and its harmonisation, the VIGUIER firm comprises several building trades working together in a cross-cutting, concerted fashion. Its architects, interior designers, engineers and landscape architects work with our BIM managers, infographics specialists, graphic designers and modelling specialists to design and manage the full range of project processes. Their practice is supported and extended by our communication, development and legal support functions. Together, they form a single entity that ensures the relevance and cohesion required by its clients and partners.

VIGUIER's international reputation is notably based on the Coeur Défense and Majunga towers in Paris; the Sofitel Water Tower hotel in Chicago; the Maroc Telecom tower in Rabat; and current projects such as the Europea district in Brussels, in which the site of the 1958 World's Fair is being redeveloped around the Atomium; the VINCI head office in Nanterre; the Orange head office in Issy les Moulineaux; the Attijariwafa tower in Casablanca; and the world's tallest (57 metre) wooden apartment building in Bordeaux.



Marc Mimram

Marc Mimram Architecture & Ingénierie consists of an architecture firm (Marc Mimram Architecture & Associates) and a structural engineering office (Marc Mimram Ingénierie). Together, they develop iconic projects and handle a wide variety of construction trades in France and abroad. Their work covers both architecture and structural design. This attention to engineering is particularly focused on project execution. Materials, construction and methodology are essential parts of the design process. The architectural project is seen as a broad process of resource transformation. The firm applies an environmental programme that strives to optimise the use of resources, including materials. In addition to this frugal approach to building, we undertake to select materials and to design spaces that produce sustainable, robust and reversible architecture.

Founded in 1992 and located in the 11th arrondissement of Paris in buildings formerly used by craftsmen, the firm now employs about 40 people. In 2016, three project managers – architects Guillaume André and Martin Fougeras Lavergnolle and engineer Razvan Ionica – were named associates to ensure the continuity and expansion of the firm.

A mixed-use project to step up the pace of transformation

As a leading-edge expression of the mixed-use approach to Nanterre's 11th district, l'archipel is embedded in a flagship public transport project, the future RER Line E (Eole project) station.

Designed as an urban station connected with the city, the third new RER E station will be located outdoors in the heart of the new Groues district.

The flow of passengers is designed to facilitate and simplify connections with public spaces. The main entrance to the station is an outsized 8 metre high, 16 metre wide passage running through one of the VINCI head office buildings. This design modifies the codes applying to buildings dedicated to public transport users and enables the new RER Line E to dovetail with the new urban spaces.

The new Nanterre station will be opened in 2022.

It will serve as the terminus of the eastern leg of the RER E (Chelles/Tournan - Nanterre) line that will notably serve two other new stations, La Défense and Porte Maillot.

In 2024, the line will be complete, linking the Greater Paris region east to west from Chelles/Tournan to Mantes la Jolie. Users will have 22 trains per hour, i.e. one train every two minutes, in the central section between Rosa Parks and Nanterre.





The station entrance

The monumental passage with a height of 8 metres and a width of 16 metres on the Boulevard de la Défense side runs through Building A of l'archipel and leads to the footbridge giving access to the platforms and to all passenger and information services. Three shops directly connected to the public space will be set around the passage.

In addition, SNCF premises will be created within Building A. Located inside the building's infrastructure but with a facade on the platform (northern) side, these premises will be used to operate the station and will provide workspace for several SNCF teams.



The Eole project

The Eole project (the French abbreviation stands for east-west express link), carried out for client SNCF, will extend the RER E regional express line to the west and transform mobility in the Greater Paris area. RER Line E currently originates in Chelles-Gournay and Tournan to the east of Paris and ends at the Haussmann Saint Lazare railway station in central Paris. Eole will extend it 55 km to serve the Porte Maillot and La Défense and connect Nanterre in 2022 and Mantes la Jolie in 2024. The extended line will save users a substantial amount of time.

Every day,

650,000

passengers will use the new line's double-decker trains.

Updated equipment, faster service

With its new 8 km underground infrastructure equipped with NExTEO (an ultra-modern operating system) and new-generation RER-NG rolling stock, trains will reach a speed of 120 km/h below Paris, making the central section of Line E the region's fastest.

The Eole project will benefit the two million daily commuters using the Paris area transport network.

The line will decongest the Paris sections of RER Lines A, B and D and the Saint Lazare station. As the Paris region's most interconnected line, it will also facilitate overall transport flows, providing connections with all RER lines, 10 metro lines, seven railway lines and ultimately the Grand Paris Express network.

The full range of partners (French government, Île-de-France region, Société du Grand Paris, City of Paris, Hauts de Seine department, Yvelines department, Île-de-France Mobilités and SNCF Réseau) are investing €3.8 billion to serve passengers and develop the region, in addition to the €1.8 billion that Île-de-France Mobilités is investing in new rolling stock.





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