OS 110 years of global expertise

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Areas of Expertise

Thanks to its expertise and in-house engineering know-how, BESIX is always ready to come up with high-quality and cost-efficient solutions across its many activities.



Concessions & Assets

BESIX Concessions & Assets devises tailor-made solutions takes pride in being able to form collaborative partnerships client, and community has a unique set of challenges and over the complete infrastructure life cycle.

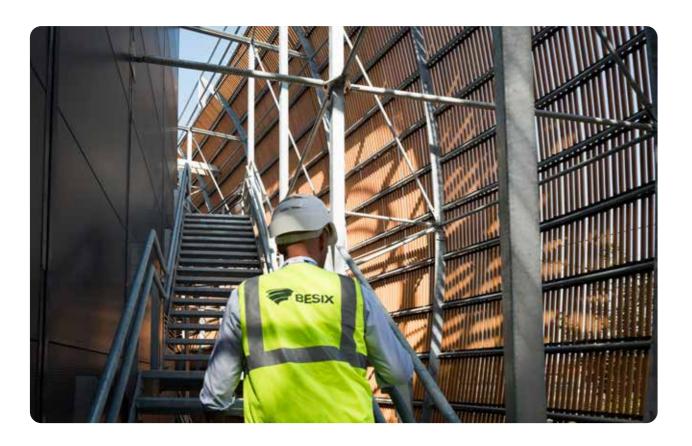
covering the complete infrastructure life cycle. With its to deliver on their aspirations. Together with its Client-Partbroad experience in European and Middle Eastern Public ners and applying its range of financing options, BESIX Private Partnerships, BESIX recognises that each project, devises a pragmatic approach to achieve a shared interest



Real Estate Development

BESIX RED has proven itself a responsible player in revitalising cities and acquiring prime locations across the Benelux, France, and Portugal. It covers three lines of addition to its 30 years of experience, BESIX RED relies environmental, economic, and technical factors.

on a team of great talents, whether it be architects, engineers, or entrepreneurs. They serve the specific interests of clients with high-performance developments: maximactivities: Offices, Residential, and Retail & Services. In ising convenience of occupancy and optimisation of the



Contracting



Buildings

From world-famous skyscrapers to low-impact housing developments, BESIX's impressive track record speaks for its professionalism and mastery. Today, BESIX continues to design, develop, and deliver fully integrated buildings and real-estate properties with a unique architecture, cutting-edge technology and performance, complex logistical and environmental requirements, and extreme construction deadlines. BESIX is especially known for its sound experience in carrying out sophisticated large-scale projects, such as high-rise buildings, shopping malls, hotels, hospitals, schools...



Infrastructure

BESIX takes on the most challenging and large-scale civil construction plans for both public and private clients. Building on its engineering skills and its powerful implementation resources, BESIX constructs complex public works such as tunnels, bridges, railways, dams...



Marine Works

The market for modern port infrastructure is one of the most dynamic in which BESIX operates. Benefiting from its in-house engineers' know-how, BESIX carries out projects mostly on a Design & Build basis, and owns and operates its specialised marine construction equipment. This comprehensive design and equipment approach yields considerable cost savings. BESIX executes coastal marine works all around the world: breakwaters, ietties, quay walls, locks. marinas, water intakes, shore protection and refurbishment.



Environment

BESIX has established itself as a key player in environmental contracting. BESIX provides innovative and tailor-made integrated solutions for today's growing water and waste challenges, and energy needs. It includes the design, engineering, execution, start-up, and commissioning of wastewater and drinking water treatment plants, pumping stations and hydroelectric installations, treatment capacity upgrades, sludge drying and valorisation (digestion, biogas re-use...), and the polishing of treated effluent to near potable water standards (ultrafiltration, reverse osmosis...). BESIX also focuses on the creation of by-products from waste, such as biogas, biofuel, biosolids or heat recovery. Recoverable resources and energy optimisation are a must in times of rapid demographic changes and a global transition to green



Industry

In the niche market of industrial structures, BESIX designs and builds logistic and handling centres, warehouses and processing plants, as well as infrastructure for power



🛱 Sports & Leisure

BESIX builds places that turn people into participants. Worldclass football stadiums, multipurpose arenas, theme parks, and swimming pools are some of the iconic examples of outstanding infrastructure for entertainment and sporting events BESIX has built over the years, over the continents.



Roads

BESIX provides construction, renovation, and maintenance services for roads and road infrastructure. Works range from motorways to the construction of interchanges. Maintenance services are also provided through long-term public-private partnerships. In addition, several specialised entities owned by BESIX Group are active in this field, particularly in the Benelux. This is the case of BESIX Infra in Belgium and in the Netherlands, and Socogetra in Belgium, both figuring among their region's leading roadwork companies.



Utilities

The group is active in the utilities sector, both through BESIX and through some of its specialised entities such as BESIX United in Belgium. This field comprises a variety of competences, such as the laying of underground infrastructure, including sewage, cable, fibre optic and duct networks. In the field of technical installations, the group offers services for the construction of high and low voltage infrastructures. Several companies in the group also offer specific expertise in the railway sector, including signalling systems.



Foundations

From deep foundations to retaining walls. BESIX provides foundations for infrastructures and buildings of all types, including the most demanding ones such as skyscrapers. BESIX Group's subsidiary Franki Foundations is itself specialised in deep foundation techniques and is a European leader in this field.



Construction Materials

Several companies in the group represent a vertical integration that is extremely valuable for the quality and reliability of their work. This is the case of gravel quarries, asphalt plants, and asphalt binder production for companies active in the road construction sector in Europe. The group also has ready-mix concrete plants and recycled products, notably in Belgium and the Middle East.



A Saint's Inspired Inner City University

The Australian Catholic University's (ACU) state-of-the-art Fitzroy campus breathes new life into tertiary education. Be it through its innovative technological features or the unmissable façade inscriptions, this 12-storey tower will offer a divine environment to its students and staff alike.





Project details

ACU Saint Teresa of Kolkata Building

Location

Fitzroy, Melbourne (Australia)

Contract type
Design & Construct

Contract value

225 million Australian dollars (approx. 136 million euros)

Construction period
December 2018 - April 2023

1. 2. Australian Catholic University, topping out ceremony in April 2022, Melbourne (Australia)

The building is part of ACU's plan to accommodate mounting student and staff growth within the inner-city suburb of Fitzroy, Melbourne. Through meticulous design, the 18,000m² tower encourages lateral learning opportunities through centralised teaching facilities and informal study spaces. Despite being surrounded by tall buildings, bustling cafes, and busy shops, the campus provides a pocket of peacefulness and connection within its varied facilities. These include a full library, congregational hub, elevated garden spaces with city views, a rooftop multi-sports court, and underground car and bicycle parking.

Uniquely, this university campus has a remarkable seven level basement structure. The complexity of geotechnical conditions challenged the design teams to develop a system of a grout curtain construction methodology to allow construction to proceed within the highly permeable and clay-filled geology. Modelling has predicted that without the grout curtain installed, the water inflow to site could have been as high as 120 litre/second during excavation. This is the first time a grout curtain on a project of this size and complexity has been installed in Victoria. Other noteworthy coordinations included the bespoke delivery of an advanced timber auditorium and the heritage listed, three level overbuild above the iconic Mary Glowrey Building. This once Note and Stamp Printing Department will now serve as a private research and office hub for campus staff.

BESIX Watpac has significant experience delivering work within and around heritage listed buildings. This expertise is maintained through a high level of consultation with a variety of stakeholders during delivery to protect building integrity through restoration and enrichment.

Much like the historic-meets-contemporary landscape that surrounds the university, ACU's campus epitomises the marriage of old and new. Paying homage to its namesake, philanthropist Saint Teresa of Kolkata, the building is fully clad with a GRC serrated edge that is inscribed in her memory. Having topped out in April last year, the project is nearing formal completion and will soon be full of inspired students ready to make their own mark on the world.





A whole new integrated public interface is achieved for the Campus by creating a more porous and transparent street presence, whilst highly contemporary teaching and learning facilities focused on well-being through emphasis on comfort, natural light, and gardens will energise the ACU student and staff community.

Adrian Stanic, Director of Lyons (Project Architect)





If you wish to know more about this project, please scan this QR code. 66 - BESIX Activity Report 2022 BESIX at a glance Creating Value Sustainability People Governance & Structure BESIX Finance 66 - BESIX Finance 66 - BESIX Activity Report 2022 BESIX at a glance Creating Value Sustainability People



Atlantis The Royal, Dubai skyline's newest ultra-luxurious addition

In early 2023, the much-anticipated Atlantis The Royal resort was delivered to the client, Atlantis the Palm 2 LLC. This extraordinary project of almost 400,000 m² is one of Dubai's most unique buildings, both in terms of its architecture and the quality and sophistication of its interior design. From the first day to the last, it has been a particularly demanding project, which BESIX Group's subsidiary Six Construct and its South Korean partner Ssangyong brilliantly carried out. This is reflected in the stunning quality of the building, as well as the attention that has clearly been paid to every detail at each stage of the construction, both inside and out.

Project details

Atlantis The Royal

Location Dubai (UAE)

Client

Atlantis the Palm 2 LLC

Partner

Ssangyong

Architect

Kohn Pedersen Fox Associates

Contract type Build

Construction period 2016-2023





A new icon for Dubai

Located on the outer crescent of the Palm Jumeirah, Atlantis The Royal offers spectacular views wherever the eye falls. The waters of the Arabian Gulf on one side, the Dubai coastline and skyline on the other. No building has ever better borne the name of Atlantis, the mythical island of grandeur mentioned by Plato and dedicated to Poseidon.

The architecture was designed by the prestigious New York firm Kohn Pedersen Fox Associates. The building, marked by a curvilinear design and cantilevered structures, is 500 metres long from end to end. At the western end, the hotel tower reaches a height of 185 metres and has 43 floors that house 795 rooms and suites. At the east end, the 37-storey residential tower rises to 165 metres and includes 231 luxury residences, ranging from two to five bedrooms. These east and west wings both comprise three sub-towers and are connected by a 45-metre-long suspension bridge. At a height of 95 metres, it includes an infinity pool and relaxation areas. In addition, many of the residences and hotel suites have their own outdoor areas with private pool. Together with Atlantis The Palm, the original Atlantis hotel, the resort boasts the largest private beach in Dubai of 2 kilometres.

Among the many services, Atlantis The Royal offers its visitors 12 swimming pools, a beach and night club, a 3,000 m² wellness haven, and 17 restaurants and bars, including 8 celebrity chef restaurants. Topping it off is the magnificent rooftop featuring a 90-metre infinity sky pool with breathtaking views of the Arabian Gulf and Dubai's skyline.

A challenging construction

The project was extremely demanding from start to finish, but BESIX and its partners executed the project with brilliance, which is reflected in the stunning quality of the building. The end product is exactly in line with the client's objective to bring to market a truly high-end hotel and residences, a new generation of luxury in Dubai. "Many of BESIX's departments have demonstrated the full extent of their expertise on this challenging site. This is true for the operational teams, but also for the technical office, procurement and certainly the quality control teams", explains Jean-Pol Bouharmont, Managing Director BU Middle East and Australia. "Achievements in 2022 included completion of MEP works, the addition of furniture, supplies and equipment and final touches to the stunning landscaping. Final delivery took place early 2023."

Lifting the sky bridge

A major milestone in the project was the lifting of the 1,260 tonnes, 45-metre sky bridge by strand jacking. This was an extremely precise operation. It was first built on the roof of the main lobby, between the 4th and 8th floors, and then gradually lifted to its final position at a height of 93.5 metres. It then took another month of work to finally fix it to the existing structure and make all the connections!

0/100

0 lost-time incidents,100 million safe working hours

500 metres long

185/175

the height of the East and West end towers in metres

45,000 tonnes of steel rebar

5,500 tonnes of structural steel

150,000 m² of marble

130,000 m² of glass reinforced concrete

One of the great successes of the project is safety. The construction site has not experienced any lost time incidents, which represents over 100 million safe working hours!

Valery Paquier, Project Director at BESIX Middle East



Mediavaert, a landmark project in Amsterdam

The media heart of the Netherlands is soon to beat in one of the largest hybrid-timber office buildings in the world. An incredible feat in terms of sustainability and innovation.







Project details

Mediavaert

Location

Amsterdam-Duivendrecht (The Netherlands)

Client

DPG Media Nederland

Partners

Being, Team V Architectuur, Drees & Sommer Netherlands, Arup, DGMR, DELVA Landscape Architecture / Urbanism

Architect

Do Janne Vermeulen, Team V Architecture

Developer Being

Contract type Engineering & Build

Construction period
From the end of 2021 to the start of 2024 (25 months)

1. Installation of glass panels at Mediavaert, Amsterdam (The Netherlands)

The idea

In an innovative media landscape, people, activities, and functions at DPG Media are constantly changing. Flexibility, healthy working environment, and creativity are leading factors for the new accommodation. The answer is a sustainable and iconic building in a green setting where creativity and collaboration thrive.

Ways of creating impact

The 44,500 m² main office of DPG Media in the Netherlands will become one of the largest hybrid-timber buildings in the world. By using hybrid-timber building methods, the new building strongly focuses on the relationship between nature and technology.

Working and spending time in and around the new accommodation of DPG Media will mean becoming inspired by a healthy and welcoming setting. It's a tailored work environment promoting synergy between users, functions, and activities. Besides office spaces, newsrooms and recording studios, the building also features test labs, meeting rooms, sports facilities, restaurants, and an event location at the waterfront. Open spaces, voids, and outdoor areas will enhance spatial perception and encourage user interaction. Greenery in, on and around the building will offer an inspiring work environment and will add to a sense of connection with nature.

Situated next to the existing printing business of DPG Media, the new building connects the past and present. Employees of Het Parool, Volkskrant, Trouw, Qmusic, NU.nl, Tweakers, vtwonen, Libelle, HR and Marketing, among others, will be able to take full advantage of these state-of-the-art facilities in Mediavaert.

6,500 m³

1,800 tonnes of structural steel

44,500 m² total area

Aquifer thermal energy storage

BREEAM Excellent certification

Sustainability

Flexibility, healthy working environment, innovation, and creativity are at the forefront of Mediavaert. The creative wooden structure and the office's green landscape add to the design's characteristics. A wood-hybrid office of this size has never been built in Europe. BESIX Nederland started building the upper timber structure in mid-August 2022. The construction required 6,500 m³ of timber.

While this was challenging, it will add many benefits. Compared to traditional construction methods such as concrete construction, wood production produces significantly less CO_2 and nitrogen. Trees also absorb CO_2 during their growth, which remains stored in the material. This means Mediavaert's wood construction limits additional emissions and potentially has a positive carbon balance.

The building will also be very energy efficient and use aquifer thermal energy storage, including underground heat and cold storage with a heat pump, as well as solar panels on the roof. The building has been designed to reach the BREEAM Excellent certification.

Next to its unparalleled ambitions in sustainability and greenery, Mediavaert also features an impressive mosaic of glass panels. The first of the 1,530 panels were installed at the beginning of December 2022.

Our client DPG connects people in the fictional, virtual, and real world. The office we are building will connect all those images, sounds and newsprint in one central place. The successful combination of steel, concrete, and wood in the construction has been the work of various teams who worked together very well from start to finish. This would never have been possible without the effort and teamwork by the client, consultants, subcontractors, and suppliers, and I would like to thank everyone on behalf of BESIX.

Nic De Roeck, General Manager at BESIX Nederland



Deloitte University EMEA, an ambitious project, just steps away from Paris

On behalf of Nexity, France's leading real estate group, BESIX France and its partner Dalkia Smart Building are completing the construction of the new Deloitte University EMEA building, the audit and consulting firm's new training centre in Bailly-Romainvilliers, near Marne-la-Vallée. Located about thirty kilometres to the East of Paris and at a stone's throw from the famous Disneyland Paris theme park, this project is extremely ambitious in terms of energy performance and biodiversity and has been designed to obtain five top-class environmental certifications, among others the 'Biodiversity Excellent' and 'BREEAM Excellent' validation.







Project details

Deloitte University EMEA

Location

Bailly-Romainvilliers (Paris), France

Client Nexity

Construction period 2020-2023

Contract type Build

Contract value 73.8 million euros

artner

Dalkia Smart Building

rchitect

Dubuisson Architecture

This stunning complex is meant to become a training centre where Deloitte's staff, active in Europe, in Africa and in the Middle East, will come together to learn and network. Designed by Dubuisson Architecture, the buildings will cover an area of 22,000 m², surrounded by green spaces and by a man-made lake, the whole complex reaching a total surface of 13.5 hectares. The campus will include a big multifunctional auditorium, 43 flexible classrooms, 12 meeting rooms and multifunction boxes, a restaurant, a fitness, and 265 bedrooms. BESIX was selected to undertake this project owing to its operational and planning commitment and to a prior positive experience by a senior member of the Client's team with the Dexia tower project in Paris.

Full-service execution at a spectacular speed

BESIX was in charge of all construction works, which include earthworks, foundation works, the structural, and the finishing works, allowing BESIX to show its capability of providing clients with a full-service solution. The construction works started in 2020 and will be finished in 2023, after a challenging period of 37 months only, during which works progressed at a spectacular speed, in spite of the Covid-19 pandemic, the war in Ukraine and its impact on costs, and the scarce availability and long lead time of wooden material. The structural works began in the summer of 2020 and were completed at the end of 2021. BESIX made several technical proposals to meet the stringent architectural requirements, searched for alternatives and applied value engineering to meet the client's requirements, both from a technical as an environmental point of view. Substantial completion of roofing and facade works (windows and curtain walls), making the building air- and watertight, was achieved by the summer of 2022 and remaining wall cladding (wood, tile, zinc, sunshades) was completed by the end of 2022.

"

This project allows us to show our execution capacities, from the foundations to the finishing touches. BESIX has looked for solutions and alternatives to meet the high expectations from the client and to respect the stringent architectural requirements, both on the technical and the sustainability sides.

Guillaume Cornille, Project Manager

Low-carbon footprint and green spaces

The Deloitte University EMEA will be a reference building in terms of energy performance and biodiversity by meeting the most demanding certifications and norms thanks to cutting-edge solutions to fulfil Deloitte's expectations. The building was built using mostly low-emission green concrete and designed to obtain five first-class certifications: 'BREEAM Excellent', 'Energie+ Carbone-', 'Biodiversity Excellent', 'Well Building Institute Gold' and 'Cradle to Cradle' referencing. The building will be powered to more than 40 % by local green energy, provided by 1,100 m² of solar panels.

Additionally, BESIX has taken care of the landscaping of the site, the gardens and the development of a wooded park and an artificial lake. These will host a wide variety of local water and land plants. Once operational, this area should not require external water supply, nor drilling operations as it will be fed by rainwater.

The Deloitte University EMEA has won a MIPIM award in the category 'Best alternative project' out of 43 finalists. These awards celebrate the most useful, sustainable, and innovative projects in the real estate sector worldwide.

135,000 m² of total plot area

800 m³ of laminated timber frame

500 tonnes of steel structure

6,000 m² of façade wood cladding

4,500 m² of windows and curtain walls

18,000 m³ of concrete, of which a large part is green

4,000 trees and shrubs for the park



New Exhibition Centre in Abidjan to boost tourism and economy

Strategically located next to the Ivory Coast's Félix Houphouët Boigny International Airport, the new Exhibition Centre in Abidjan is set to host its first visitors in the second guarter of 2023. BESIX was commissioned by PFO Africa, the leading construction company in Ivory Coast, and started works in 2021. BESIX's participation includes the design, manufacture, transport, and installation of a three-dimensional 37-metre-high metal structure. BESIX has also carried out the concrete shell and the installation of the roof.



Project details

Abidian **Exhibition Centre**

Location

Abidjan (Ivory Coast)

Client

PFO Africa Côte d'Ivoire SA

Architect

Pierre Fakhoury

Contract type Design & Build

Contract value 37 million euros

Construction period 2021 - 2023



800 tonnes of spaceframe (20,000 bars

and 6,000 nodes)

325 tonnes of sheet metal

500 tonnes of sound and thermal insulation

217 tonnes of waterproofing

7,000 m³ of concrete

48 water drains with a capacity of 48 litres per second

A major project for the country

An ambitious structure designed by the architect Pierre Fakhoury, the convention centre will have a surface area of 12,000 m² and a seating capacity of 5,200 people, and up to 10,000 thanks to modular spaces. Close to the airport, the complex is intended to host first-class economic activities, trade fairs, cultural and sporting events and international conferences, easily accessible to foreign visitors, without disrupting Abidjan's traffic.

The construction is part of the Eco-Aérocité project developed by the Ivorian Ministry of Trade and Industry. In addition to the exhibition centre, the Eco-Aérocité will house offices, hotels, shops and housing, all located in the heart of a wooded environment that respects the local flora.

Amazing structure

This building features an impressive three-dimensional metal structure, which is the first spaceframe in West Africa. Building it was particularly delicate as it required to lift a 38-tonne dome element at an altitude of 37 metres, install it in its exact location and connect it to the rest of the structure already installed. This impressive operation took no less than ten hours. The impressive spaceframe was finished in June 2022 and is made of 6,000 nodes and 20,000 bars, each of them being different. It will be painted in gold and visible from the inside.

BESIX is immensely proud to participate in the construction of the Abidjan Exhibition Centre, a project which will further strengthen the central position of Ivory Coast in the heart of West Africa. This convention centre is an exceptional project, not only by its architectural design, but also by its engineering and construction challenge, which we are looking forward to completing and which will make a significant contribution to the influence of Ivory Coast.

Guillaume Bracq, Project Manager

A roof like a puzzle

The convention centre is covered by a spectacular roof, made of 8,000 unique-size panels. These aluminium composite tiles are approx. 2.5 m² each and are fixed with stainless steel brackets on an aluminium sub-structure. Every tile has a different size to accommodate the shape drawn by the architect, so building this roof was like making a huge puzzle. The first cladding panels were installed on the roof in September 2022.

Safety first

Covering the roof was an incredible exercise in working at height. Workers, professionally trained and certified for this type of work, were equipped with a safety harness and a lifeline for abseiling. They also had to watch their step and walk on the joints between the tiles, so as to not damage the tiles, as the supporting understructure lies beneath these joints. Thanks to stringent safety measures no severe incidents were registered for the project.

Perfect acoustics

As the building will be hosting major conferences, the client required for it to have perfect acoustic insulation. In April 2022 BESIX started installing the acoustic complex on the roof, as well as the thermal equipment, to offer outstanding comfort to visitors.

Water drainage

In this part of the world, a roof like that must not fear snow loads, but the massive strain that can come from heavy tropical rainfall. Engineers designed the water drains so that they could each take 48 litres per second, enough to fill a bathtub in four seconds. The roof is equipped with forty-eight of them.

Strong partnership

This is BESIX's fourth project in the country at the initiative of PFO Africa, the leading construction company in Ivory Coast. BESIX is also building the F Tower in Abidjan, also designed by Pierre Fakhoury, which will be Africa's tallest tower, and the Abobo tunnel, as part of the Abobo Town Hall roundabout project to improve the accessibility of the Abidjan metropolitan area.. And in 2021, BESIX delivered the largest drinking water treatment plant in La Mé, to serve the greater Abidjan area. The Exhibition Centre is set to be completed by April



A fascinating museum in Abu Dhabi to celebrate Sheikh Zayed's legacy and love of nature

Saadiyat Island is poised to become the United Arab Emirates' cultural hub, and more widely of the Middle East. The ambition of Abu Dhabi leaves little doubt about this. The Louvre Abu Dhabi, inaugurated in 2017 with French President Emmanuel Macron, will soon be joined by two brand-new museums of exceptional architecture. The Guggenheim Abu Dhabi, the largest of the four Guggenheim museums, and the Zayed National Museum. These two stunning buildings have in common that they are both constructed by Six Construct, BESIX Group's subsidiary in the Middle East. Let us take a closer look at the Zayed National Museum.

The project is composed of 3 parts

- The Museum with 5 wings and 4 pods harbouring the galleries
- The Mound with the main atrium and no less than 2 km of walkways
- The Timeline Garden with 40,250 m² of landscaping with fountains and kiosks





Project details

Museum

Location

Saadiyat Island, Abu Dhabi (UAE)

Abu Dhabi Department of **Culture and Tourism**

Construction period



Zaved National

Trojan General Contracting LLC

Contract type

2021 - 2023

The Zayed National Museum is being developed by the Abu Dhabi Tourism and Culture Authority and is a tribute to the country's founding father, Sheikh Zayed bin Sultan Al Nahyan. It will showcase the life and legacy of Sheikh Zayed and the history of the United Arab Emirates. The museum will feature interactive and immersive exhibits, multimedia presentations, and historical artifacts that illustrate the cultural, social, and political transformation of the country over the past several decades. The building will also serve as a cultural and educational hub, hosting events, workshops, and programmes that promote Emirati culture and heritage.

Unique design

Its breathtaking design is a reflection of the heritage and cultural identity of the United Arab Emirates, and incorporates elements of traditional Emirati architecture. Designed by Pritzker Prize-winning architect Lord Norman Foster, of Foster + Partners, the museum combines a highly efficient, contemporary form with elements of traditional Arabic design and hospitality to create a museum that is sustainable, welcoming and culturally of its place.

The narrow glass atriums evoke the wing tips of the falcon, a national symbol and emblem of Emirati heritage. The galleries are inspired by Sheikh Zayed bin Sultan Al Nahyan's values and beliefs in education, conservation, the environment, sustainability, heritage and culture, as well as his humanitarianism and strong faith. The galleries are nested within a mound, whose form is an abstraction of the topography of the Emirates. Above this rise the five lightweight steel structures, sculpted aerodynamically to act as solar thermal towers. Balancing the lightweight steel structures with a more monumental interior experience, the four pod-shaped galleries are suspended over a central lobby, which give the impression of being dug into the earth to exploit its thermal properties and brings together shops, cafes and informal venues for performances.

Highly complex works

The teams from Six Construct and their local partner Trojan General Contracting took over works from the previous contractor in March 2021.

"We at Six Construct and BESIX have been very honoured by the trust placed in us by the Abu Dhabi Department of Culture and Tourism. The Sheikh Zayed Museum will be a world-class museum and we are proud to take over the construction process from the previous situation. The Emirate of Abu Dhabi can count on our extensive engineering and construction expertise, combined with Trojan's knowledge, to successfully complete this extraordinary museum, which will further enhance the Emirates' global standing", explains David De Visscher, Project Director.

"Taking over this project was a challenge, adding to the already intrinsic complexity of such a unique building. But our design office experts and operational teams have excelled in conducting exceptional preparatory work, in methods and engineering, which have enabled us to best address the construction challenges", says Santanu Chattopadhyay, Technical Director.

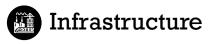
The achievements of the operations team since then are indeed remarkable. Works have progressed immensely in 2022. At museum level, all five wings steel structure are rising up and the full steel arch of wing five (culminating at 123 metres) is in place. At the end of the year, close to 30 % of the cladding of the pods (which contain the galleries) had been realised, and the final concrete of the conical wall over the main lobby was finished. Last but not least, the first trees have been planted in the Timeline Garden!

Norman Foster and BESIX

Norman Foster is amongst the 'starchitects' who have shaped architecture in recent decades. The National Zayed Museum is not the only work by Foster + Partners, built by BESIX Group. The Group has recently delivered the Icône office building in Luxembourg and is currently winding up the Lusail Plaza towers in Qatar. It is unlikely that any construction company has ever worked on three Norman Foster projects simultaneously. Except for BESIX, of course!

More about Saadiyat Island

Saadiyat Island is a man-made island located off the coast of Abu Dhabi, UAE. It is one of the largest cultural, residential, and tourism projects in the world and is being developed as a premier destination for arts, culture, and tourism. The island is home to a number of major cultural institutions, including the Louvre Abu Dhabi, Zayed National Museum, and the Guggenheim Abu Dhabi Museum. The island is a symbol of the country's commitment to cultural development and exchange and is destined to play a major role in shaping the cultural landscape of the region for generations to come.



Towards a liveable Antwerp

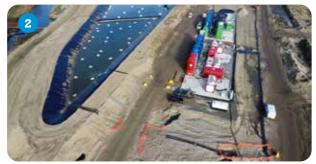
BESIX Group leaves its mark on the Oosterweel junction works

Anyone going to Antwerp will notice: the works on the Oosterweel junction are in full swing. What started out as an idea to reorganise the Antwerp Ring Road with a viaduct, has transformed over the years from an infrastructure project to a mobility project, to a quality-of-life project. A referendum, countless debates, a project consultant, and unparalleled levels of citizen participation later have resulted in a widely supported Oosterweel project that will make Antwerp an accessible, healthy and above all liveable city. BESIX Group is enormously proud to help build this site of the future.

Three contracts, one goal

Of the five sub-projects that make up the Oosterweel junction, three are co-managed by BESIX Group. BESIX, united in the JV COTU with Stadsbader Contractors, DEME, and Jan De Nul, is building the Scheldt Tunnel, which will link the Left Bank to the Right Bank. Via the Oosterweel link, the Scheldt tunnel flows over into the Channel Tunnels and the sunken ring road, a sub-project being carried out by JV ROCO, consisting of BESIX, BESIX Infra, Cordeel, DEME Infra, Dredging International, Denys, Franki Construct, Jan De Nul, Van Laere, and Willemen Infra. Finally, BESIX Unitec also plays a significant role through a third contract for traffic and tunnel technical installations. To realise this, client Lantis relies on JV Ocotech, consisting of BESIX Unitec, Equans, Jacops, and Deckx Elektromechanica. Most of their work is still taking place behind the scenes during this design phase.











2022 brought first challenges

2022 marked the real beginning of both the Scheldt Tunnel and the Channel Tunnels. The 1.8 km long Scheldt Tunnel is being built using the «immersed tunnel» method. This involves building 8 tunnel elements in Zeebrugge and then towing them afloat to Antwerp. There, they are immersed in a previously dredged trench in the Scheldt. This technique is one of the most ingenious construction methods in concrete and marine engineering. The Zeebrugge construction dock immediately presented the teams with their first challenge, when in early 2022 it turned out that the soil layer of the construction dock contained unexpected leaks which meant that the groundwater levels outside of the construction pit were lowering too quickly. To solve this as efficiently as possible, JV COTU called on Franki Foundations, which quickly installed a cement-bentonite wall no less than 28 meters deep down to the watertight soil layer, so that in the fall of 2022 the final drainage of the construction dock could begin. Thanks to the efficient teamwork between the client Lantis and the COTU teams, construction of the first two tunnel elements in the construction dock could begin in 2023. Back in Antwerp, the teams started to work on the entryway of the tunnel. However, the area on the Left Bank where the tunnel ramp is to be constructed was heavily contaminated with PFAS. To purify the groundwater that will be pumped up during the drainage works, a water purification plant with activated carbon was built next to the site. Thanks to this treatment, purified water can now be discharged into the Scheldt and the adjacent Blokkersdijk nature reserve. Interventions such as these make Oosterweel a real liveability project.

Channel tunnels and a transformed R1

Improved liveability and mobility are also at stake in the next sub-project BESIX is involved in: the Channel Tunnels and the sunken Ring Road. This double-deck tunnel goes partly under land but mostly under the Albert Canal to flow into the existing Ring Road, both to the north and east. That Ring will look completely different, however, which is precisely why this section is known as the biggest metamorphosis of the Oosterweel project. Groenendaallaan, where the Ring lies at ground level, will be fully deepened and covered. Eastward, the Merksem viaduct will disappear, and the Ring will once again go under the Albert Canal and then disappear to underground level at Schijnpoort until the junction with the E313. The covered parts of the Ring provide breathing room for parks and pedestrian or bicycle crossings.

An innovative contract type

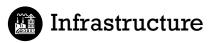
It should come as no surprise that JV ROCO is working amid challenging circumstances. The subproject is complex, and the scope is also volatile, as ongoing changes are made to maximise the project's viability. To work as sustainably as possible in such a reality, an innovative collaboration model was needed. It was therefore decided to work with a NEC-4 contract, a form of contract brought over from the UK, based on cooperation, mutual trust, and risk sharing. Moreover, it offers the necessary flexibility. In 2022 the JV could start the preparatory works: the rerouting of the many utility lines and sewers, as well as the installation of silt walls in the sandy area. The next step is the construction of the bypass to divert traffic from the Merksem viaduct, so that its demolition can begin in 2024.

Together as one

BESIX Group's strength as a one-stop shop contractor comes into its own on huge projects such as the Oosterweel link, where different areas of expertise must apply innovative methods in ever-changing conditions. Both for the Scheldt tunnel as well as for the Channel tunnels and the sunken ring road, different entities join forces: BESIX as civil contractor and main partner in JV ROCO and JV COTU, Franki Foundations for the foundation works, the iron braiding plant supplies the reinforcing steel, Belasco delivers the asphalt and BESIX Infra handles the road works both in Antwerp and Zeebrugge, as well as supplies the concrete. Besides the tunnel technical installations as part of JV Ocotech, BESIX Unitec is also responsible for the automation of the Royers lock. All BESIX Group entities involved are working as one to deliver this site of the future and to improve Antwerp's liveability.

All BESIX Group entities involved are working as one to deliver this site of the future and to improve Antwerp's liveability.

- 1. Construction dock Zeebrugge (JV COTU) (Belgium)
- 2. Water treatment plant, Left Bank, Antwerp (JV COTU) (Belgium)
- 3. Construction of temporary jetty, Right Bank, Antwerp (JV COTU) (Belgium)
- 4. Excavation works for diaphragm walls, Right Bank, Antwerp (JV COTU) (Belgium)
- 5. Lifting of rebar for diaphragm walls, Right Bank, Antwerp (JV COTU) (Belgium)



Rail infrastructure project making positive impact

Located in the heart of Sydney, Sydney Metro Barangaroo Station will be one of the flagship destinations of the city's new metro line and is part of Australia's biggest public transport project. BESIX Watpac is responsible for the construction, fit-out and testing and commissioning of the new underground station including the platforms, lifts and escalators, the northern entrance and public domain works.

Project details

Sydney Metro Barangaroo Station

Location

Sydney, New South Wales (Australia)

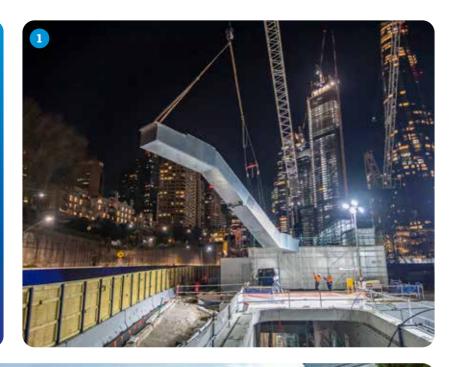
Client

Sydney Metro

Contract type Build Only

Contract value

260 million Australian dollars (approx. 157 million euros)





- 1. Delivery and installation of escalators at ground level of Sydney Metro Barangaroo Station (Australia)
- 2. Sydney Metro Barangaroo Station northern entrance looking southeast (Australia)
- 3. Sydney Metro Barangaroo Station northern entrance looking west (Australia)



BESIX Watpac commenced construction in October 2021 and have been fully mobilised on site since November 2021. This is a major infrastructure project with a large footprint at 350 metres long and 25 metres underground over six levels.

Collaboration with the client and key project stakeholders is central to the project's successful delivery. BESIX Watpac is leading the complex interface with the two main corridor contracting parties (Systems Connect Line-wide Works and MTR TSOM) to complete the fit-out and commissioning of the new station. Regular executive meetings, working group meetings, collaboration workshops, interface meetings and technical workshops are being implemented to ensure alignment between all parties.

Close working and stakeholder relationships was also one of the key factors, along with a high level of planning and delivery, that enabled the track area being handed over four weeks early in April 2022.

Social impact

Creating lasting legacies throughout project delivery and beyond is central to BESIX Watpac's shared mission with BESIX: to create sustainable solutions for a better world.

BESIX Watpac has implemented various initiatives on the Barangaroo Station project to increase diversity, create pathways for Indigenous businesses and workers, and to encourage women to consider a career in the construction industry.

Creating employment, training and business opportunities for Australia's First Nations People is a BESIX Watpac priority. Currently 98 Indigenous workers and 13 recognised Indigenous businesses are engaged on the Barangaroo Station project.

Engagement with Indigenous businesses kicked off with an Indigenous Business Forum early in the project. This was instrumental in connecting not only BESIX Watpac with these businesses, but it also opened pathways to opportunities with BESIX Watpac's subcontractors. Held in close cooperation with the New South Wales Indigenous Business and Employment Hub, YARPA, the forum was attended by senior BESIX Watpac and Sydney Metro staff.

Barangaroo Station has also been part of BESIX Watpac's greater commitment to building career pathways for women in construction. The team hosted a group of young female engineering students from the University of Sydney in August 2022. Attendees participated in a site tour as well as a panel discussion about women in construction. The panel was led by five BESIX Watpac women.

The project has also run a successful pre-employment programme to attract new people to the industry.

Our collaborative model guides our approach to working with a large number of contractors to ensure the best possible outcome for this landmark project in the heart of Sydney.

Bram Gruwez, BESIX Watpac General Manager, Operational Support

76 women

in technical roles (traditionally more male-dominated roles)

112

apprentices and trainees

372

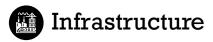
people aged under 24

98

Indigenous workers

13

recognised Indigenous businesses



A16 De Groene Boog: the perfect sustainable and innovative fit in the environment

In northern Rotterdam, BESIX is participating in the A16 project as part of the 'De Groene Boog' consortium. It includes connecting the existing A16 and A13 by constructing a new motorway. This new 11-kilometre-long A16 will be the world's first energy-neutral motorway with a tunnel and will significantly improve the accessibility of Rotterdam. Sustainable, innovative and a perfect fit in the environment, that's what A16 is about.

Consortium De Groene Boog

To improve quality of life and access to the Rotterdam region, Rijkswaterstaat (RWS) decided to construct a new motorway, the A16, along the northeast periphery of Rotterdam. A joint venture composed of BESIX, Dura Vermeer, Van Oord, Croonwolter&dros and Mobilis named 'De Groene Boog' is responsible for designing, building and financing the project as well as managing a twenty-year maintenance period.

The project includes several infrastructural elements, such as a semi-sunken energy-neutral tunnel and a 400-metre-long viaduct across several important traffic axes. In November 2021, the construction of the viaduct was officially launched and by the end of 2022, the first part had all but reached the other side of the Terbregseplein. The tunnel also progressed well, with the last underwater concrete having been poured in September 2022. The entire A16 will be ready in 2025.

Project details

A16 De Groene Boog

Location

Rotterdam (The Netherlands)

Client

Rijkswaterstaat

Mobilis, Croonwolter&dros. Dura Vermeer, Van Oord

Contract type

Design, Build, Finance & Maintenance

Construction period 2019 - 2025

Maintenance period 20 years

Sustainable fit

The project sets the bar high to be as sustainable as possible to deliver an energy-neutral A16. To achieve this, solar panels (20,000 m²) are installed to naturally generate all the energy needed for the roads and the tunnel. In addition, the latter includes energy-efficient LED lighting and smart solutions for the electricity, heating and lighting. Natural light is maximised by the use of grilles and fibre-glass panels. At the entrances, the lanes and walls are painted in a light colour to maximise reflection and residual heat will be stored in the ground and released when required.

Elsewhere on the project as well and already during construction, measures are being taken to keep the CO. emissions as low as possible. For example, Hydrotreated Vegetable Oil (HVO) fuel, which has 90 % fewer emissions than diesel, is used on a large scale on the

In November 2022, the teams successfully tested an electrical crawler crane which can operate unplugged for 10 hours. It is the first time in the world that heavy equipment like this operates on a jobsite with such a high level of autonomy. The successful test led BESIX to the decision to invest in this top-notch equipment, the Sennebogen 653E.



The essential role of BESIX Engineering in the A16 project

Playing an essential role in the project is BESIX Group's in-house engineering department, BESIX Engineering. Their indispensable contribution to the project is thus worth a more detailed look in this activity report.

The Incremental Launching Method across the Terbregseplein



One of the engineering masterpieces is the viaduct across the Terbregseplein that passes over a railway line and motorway interchange. As closing these busy traffic lines was out of question, the consortium opted for the Incremental Launching Method, which includes gradually pulling the structure across the Terbregseplein, enabling traffic at



A temporary production line was set up behind the northern abutment. There. each segment – about 30 metres long - is cast in relation to the previous one and gradually pulled over the Terbreaseplein, until the whole structure reaches the southern abutment. This happens at a low pace, i.e. 4 m/h, and cannot be observed by the vehicles driving ensuring a safe operation. under the viaduct.



This imposing blue steel structure is the launching nose of the flyover. It was installed at the front of the first segment to balance out the weight equally and covers the distance between the different piers. In addition, it limits the internal stresses as the structure cantilevers over the existing infrastructure,

The energy-neutral Rottemeren tunnel



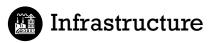
The project uses underwater concrete to minimise disturbance for the environment and to reduce to automatically generate drawings. and concreting of the floor are TWIN-16, which includes the carried out underwater. Then, the water is pumped out to create a dry construction pit in which the rest is built. Less concrete is required, thus reducing CO₂ emissions.



A BIM model was created which integrates all elements and is used functional behaviour of the installations, enabling virtual testing of all system behaviours. This creates trust towards compliance of requirements in an early phase, which saves time and money for long-term maintenance.



Parametric design involves automating digital design processes through algorithms and computer programming. Thanks to this, the design of a single segment could be automatically reproduced along the entire length of the tunnel, which reduced the risk of errors and saved the engineers time to study alternative design solutions.



Rail Baltica: the Baltic States' rail connection to Europe

Rail Baltica is a significant infrastructure project that aims to develop a high-speed rail network linking the Baltic States of Estonia, Latvia and Lithuania with the European Union for both passenger and freight transportation purposes. This initiative is being implemented as a joint venture between the three countries and is receiving support from the European Union. Specifically, the Rail Baltica project entails the construction of an 870-kilometre-long railway line that will run from Tallinn in Estonia through Riga in Latvia to Kaunas in Lithuania. It will then connect with the existing European rail network. The new railway line will comprise both high-speed and conventional rail, allowing trains to travel at speeds of up to 240 km/h. The advantages of the Rail Baltica initiative include improved connectivity between the Baltic States and the rest of Europe, heightened trade and economic development, and reduced reliance on road transport. This project will generate thousands of employment opportunities during the construction stage and contribute to economic progress in the region.

Project details

Rail Baltica

Location

Riga (Latvia)

Client

Eiropas Dzelzceļa līnijas (Executive agency of the Latvian Ministry of Transport)

Partners

SIA RERE BŪVE, Rizzani de Eccher

Contract type Design & Build

Construction period 2019 - 2027







BESIX's scope

The BERERIX consortium, comprising of BESIX from Belgium, Rizzani de Eccher from Italy and SIA RERE BŪVE from Latvia, was granted the contract to design and construct the Rail Baltica Central Station project located in Riga, Latvia. The scope of the project includes the creation of the new Central Station building, a significant railway bridge spanning the Daugava River, railway embankments and track works.

The Central Station building features a 12,600 m² area, designed as a long-span steel structure with a 2,100 m² glazed roof. The project also involves the construction of passenger platforms, the refurbishment of the existing station building, pedestrian tunnels, the junction between the Timoteja and Elizabetes streets, and the associated demolition works.

Additionally, the consortium is tasked with installing a new railway bridge that spans 1,056 metres alongside the existing one over the Daugava River, connecting Maskavas to Jelgavas Street. The bridge has a slender design that complements the city's architectural style.

The consortium is also responsible for installing new rails and a new catenary system over a 2.5-kilometre stretch within the city of Riga. The installation of the new rails involves the reconstruction of the 1,520 millimetre gauge track and the construction of 1,435 millimetre gauge infrastructure to comply with the European rail network standard.

Community engagement

Along the way, the consortium has regularly involved the local community, international stakeholders and future users of the project. "All suggestions from the public and NGOs in the context of functionality and accessibility solutions have been discussed and considered and more than 80 % have been incorporated into our design. We can therefore proceed with the construction of the station with confidence and certainty. The new station will be modern, compliant with international requirements, safe, sustainable and, last but not least, successfully integrated into Riga's skyline", says Guntis Āboltiņš- Āboliņš, Managing Director of BERERIX. "We insist on this important aspect of cooperation with society at large, because only by respecting the interests of future users and international professionals of high calibre can a good result be achieved", he adds.

Did you know? Relocation of a 57 years old oak tree

In the winter of 2022, a 50-tonnes, 15 metre-high oak tree planted in 1964 next to the bus station in central Riga was moved and replanted away from the construction site. An unusual operation, deemed necessary as the oak tree is the national symbol of Latvia.

Piling and concreting works in full swing

The consortium has made stable progress all along the year.

In July 2022, BERERIX began demolishing the Titāniks shopping centre and parking complex to create a new square on Prāgas Street. The site was cleared of debris in September 2022 and preparation works for the construction of the railway embankment retaining wall and landscaping began.

BERERIX started active surface works in the Central Station area in October 2022 and the new station building's location is becoming more visible. The team has completed several works since then, including the piles on the southern side of the track and the excavation of 45,000 m³ of railway embankment. In addition, 43 kilometres of new telecommunications and power cable networks and more than 100 kilometres of railway signalling cable network have been installed.

By the end of 2022, most piling works and all temporary retaining walls had been completed and deck construction of three different viaducts and bridges had started. The bridge over Lāčplēša street will be the first completed overpass in the entire Rail Baltica project.

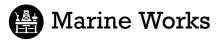


This modern railway link connecting the Baltic States to Western Europe is of particular significance in current times. Events in the region are invigorating our determination to see it through.

Xavier Debruche, BESIX Project Director

Leaving a legacy for future generations

In the summer of 2022, all parties involved in the Rail Baltica project - the European Commission, representatives of all 3 Baltic States, railway operators and contractors - buried a time capsule in the foundation of the new station building grounds, to leave a message for future generations. "We inserted a copy of the day's newspaper and two pieces of artwork from the children's drawing competition we organised, visualising today's children's predictions of what the future Rail Baltica train in Riga would look like", tells Xavier Debruche.



A sustainable future for marine infrastructure

BESIX Middle East via MIC Construct is conducting important marine works in the world's largest LNG operations centre located in Ras Laffan Petrochemical Industrial City, about 80 kilometres from Doha, Qatar. As a company with extensive expertise in constructing near-shore facilities and port installations, MIC Construct has been selected to carry out the construction of four LNG loading berths and repairs on five dolphins at the Port of Ras Laffan.

Project details

Ras Laffan Construction Package

Location

Ras Laffan Petrochemical Industrial City (Qatar)

Client

Samsung C&T Engineering and Construction

Contract type

Engineering, Procurement & Construction (EPC)

Contract value

240 million US dollars

Construction period 2021 - 2024

Ras Laffan Rehabilitation Package

Location

Ras Laffan Petrochemical Industrial City (Qatar)

Client Qatargas

Contract type

Engineering, Procurement & Construction (EPC)

Contract value

29.5 million US dollars

Construction period 2022 - 2024









- 1. 2. Ras Laffan Construction Package (Qatar)
- 3. 4. Ras Laffan Rehabilitation Package (Qatar)

The project will provide vital support for maritime and industrial activities in the region, strengthen the country's infrastructure and logistics capabilities and increase its liquefied gas (LNG) production capacity from 77 million tonnes per annum (Mtpa) to 110 Mtpa by 2025, with an expected total production of 1.4 million barrels of oil equivalent per day. The works will result in an expanded port capacity that can accommodate different LNG vessel types, from conventional carriers to Q-Max.

Construction and rehabilitation

Construction efforts, commissioned by Samsung C&T and which began in March 2021, have a contract value of over 240 million US dollars (approx. 217 million euros) and are slated for completion by the end of 2024. This project package includes three 187,000 m³ LNG storage tanks, four loading facilities and transport pipes. To facilitate construction, MIC Construct has established a precast factory in the Industrial City that utilises 450 m³ of concrete daily to produce the structure blocks.

In addition to the new structures, the port also necessitates heavy repairs to the existing concrete structures and marine furniture, above and below water. Rehabilitation work, commissioned by Qatargas and which began in April 2022, is scheduled to run for 23 months and valued at over 29 million US dollars (approx. 26 million euros). This project package includes expanding the port's foundation with underwater rock works and rehabilitating the concrete dolphins, which have suffered irreparable damage from delayed ettringite formation (DEF).

At MIC Construct, we're proud to contribute to the country's infrastructure and logistics capabilities. Our expertise in marine works, innovative solutions and practical project management has been vital in achieving our milestones safely and efficiently. We look forward to delivering a high-quality project that meets our client's expectations and supports Qatar's economic development.

Benoit Vallée, Project Manager for the Construction Package



MIC Construct's proven track record in marine construction and previous successful project delivery for this client positions us well to undertake this challenging endeavour with confidence. Our team is dedicated to leveraging our expertise and experience to ensure that this project is completed to the highest standards of quality, safety and client satisfaction.

Joao Ferreira, Project Manager for the Rehabilitation Package

Innovative and practical solutions

While various DEF mitigation techniques are available, steel jacket encapsulation and rubble stabilisation using stainless steel nets is the preferred method in this situation to guarantee the dolphins' structural stability until 2035. The steel jackets were constructed locally to reduce underwater labour, reduce transport time and increase efficiency. Following completion, the jackets will be launched into the water, towed approximately 7 kilometres across the port, ballasted, and shifted into their final position. MIC Construct was selected to undertake these projects owing to its vast expertise in marine construction and prior successful completion of a comparable undertaking for the same client a decade ago.

MIC Construct has also taken proactive steps to enhance the efficiency of the construction package by redesigning the block sizes. This modification has resulted in safer and more efficient transportation and installation, reducing the probability of delays and improving the project's progress.

Safety and quality assurance

MIC Construct has examined all concrete mix designs in detail to prevent delayed ettringites formation and improve manoeuvrability and strength during precast and near-shore installation. All documentation and works undergo thorough inspection by several entities to ensure safety and quality throughout the project.

The construction package has reached a significant milestone of crossing one million man-hours without any lost-time incident (LTI), a testament to the company's commitment to safety.

Delivering the next generation of biopharmaceuticals

BESIX Watpac commenced construction works in 2022 following an extensive Early Contractor Involvement phase. Once complete, Project Banksia will deliver a state-of-the-art facility that uses innovative cell-based technology to produce influenza vaccines for use in both influenza pandemics and seasonal vaccination programmes. This centre represents a renewed commitment towards public health in the wake of the Covid-19 pandemic.





Project details

Banksia

Location

Tullamarine, Victoria (Australia)

Client

Segirus Pty Ltd

Contract type

Construction Management

Contract value

365 million Australian dollars (approx. 220 million euros)

CSL Seqirus is a wholly owned subsidiary of CSL Limited and is the world's second largest influenza vaccine provider. Project Banksia will see the delivery of a new world-class biotech manufacturing facility, built in Tullamarine, Australia.

The state-of-the-art facility will use innovative cell-based technology to produce influenza vaccines for use in both influenza pandemics and seasonal vaccination programmes – and will be the only cell-based influenza vaccine manufacturing facility in the Southern Hemisphere.

The facility will also manufacture CSL Seqirus's proprietary adjuvant MF59® - a substance added to some vaccines to improve immune response and to reduce the amount of antigen needed for each vaccine, enabling more doses to be manufactured more rapidly.

In addition, the facility will produce unique products important to Australia's public health needs – including antivenom for Australian snakes, spiders and marine creatures, and the world's only human vaccine for Q-Fever.

The centre will include PC2 and PC3 laboratories, black and clean utilities, warehousing, administration offices, an on-site cafeteria and quality control facilities.

The product manufactured at this facility will support domestic and export markets and create a supply chain worth estimated to be worth more than 300 million Australian dollars (approx. 180 million euros) annually.

Working as a graduate on Project Banksia has seen a huge learning curve in my career development. I've been able to improve my planning, coordination and communication skills to overcome hurdles and really value the relationships I've built on site.

Rachel David, Site Engineer BESIX Watpac

Construction works underway

In 2020, BESIX Watpac was engaged by CSL Seqirus under an ECI partnership to identify and evaluate value engineering opportunities across multiple disciplines to bring the project in line with its allocated budget.

Construction is well underway on the facility, which is located within the Melbourne Airport Business Park for maximum security and freight logistics. This brings it under federal jurisdiction and requires an extra layer of design and stakeholder management with Melbourne Airport Authority.

The BESIX Watpac team is managing several project challenges. This includes the management of complex intersecting trade packages and a peak workforce of 1,500 people. As a 'Greenfields' site, surrounding infrastructure, roads and services need to be upgraded. The delivery team is also working to a zero clash construction model. This model coordinates complex client procured manufacturing process equipment with ground works and hazards to reduce risks and delays, as well ensuring overseas sourced equipment and specialty equipment arrive on time.

A collaborative contract model has led to an early decision to co-locate the more than one hundred BESIX Watpac staff and Seqirus teams in a dedicated project management office where client and builder work closely to achieve the project goals.

The project is currently tracking to achieve Green Star targets and has a 3 % Indigenous workforce target. The project has engaged with several social procurement providers and hosts an Indigenous Business Forum to connect First Nations business locally in partnership with Kinaway Indigenous Chamber of Commerce.





If you wish to know more about this project, please scan this QR code.

Modernising a wastewater treatment plant with BIM in Luxembourg

In the Grand Duchy of Luxembourg, BESIX Environment and LuxTP are currently modernising the electromechanical installations of the Mamer wastewater treatment plant. By implementing modern technologies, the plant's capacity and efficiency are significantly improved. In addition, a biogas production unit is installed that will produce green electricity and heat from the plant's sewage sludge. With the plant remaining operational during the works, a precise phasing and good coordination are essential.









Project details

Mamer wastewater treatment plant

Location

Mamer (Grand Duchy of Luxembourg)

Client **SIDERO**

Partner Tralux

Consultant Holinger

Contract type Engineering & Build

Contract value 19.2 million euros

Construction period 2020 - 2025

Double capacity

The project consists of equipping the wastewater treatment plant of Mamer with modern technologies to increase its capacity and improve its efficiency, both in terms of energy and treatment. "Thanks to the works we are carrying out, the plant's capacity will be more than doubled. This means that it will be able to treat the wastewater of 50,000 population equivalents", explains Adrien Theunissen, Senior Manager of BESIX Environment. The contract, worth 19 million euros, was awarded in July 2020 by SIDERO, the inter-municipal water depollution company of Luxembourg that covers 26 municipalities and 80,000 inhabitants in the west of the country. Project delivery is expected for 2025.

Together, LuxTP and BESIX Environment are responsible for the project's subcontractor management, the integration of the detailed design, the engineering and procurement, as well as the coordination of the electrical subcontractors and suppliers. Mabilux, an entity of LuxTP, is also involved and is in charge of the installation works of the pipes and equipment, which they are currently executing with a remarkable level of quality and efficiency.

Precise phasing

Throughout the modernisation works, the plant remains operational and maintains its current performance, both in terms of quantity and quality of treated water. Because of this, a particularly precise phasing is required. Works, which started in August 2020, are carried out in a total of 9 phases over 5 years. In 2022, the joint venture successfully commissioned the first phase, which included the electrical substation works, to the client. In the meantime, installation works of the biological treatment equipment, the Sequencing Batch Reactor (SBR), commenced in July 2022 and are now ahead of schedule. The engineering and procurement activities as well are, despite the crisis, well ahead of schedule, which allows most of the

Our successes in implementing wastewater treatment technologies demonstrate that we can enter new markets effectively by combining expertise within the Group.

Adrien Theunissen, Senior Manager at **BESIX Environment**

longer-term contracts to be concluded. As a result, risks regarding future price escalation and the availability of materials

BIM model helps coordination

BESIX Environment and LuxTP are also responsible for coordinating the parties involved on-site, in particular the civil engineering works contractor, Tralux, and the design office, Holinger. To support the good coordination of the different parties throughout the various phases, the BESIX Environment and LuxTP teams have produced a BIM model of the plant. For this, the original 2D plans were transformed into a dynamic virtual 3D model before construction started, which allows for an optimal management of the station's modernisation, as well as its maintenance once the station is completed.

New biogas production unit

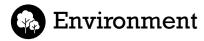
In addition to the modernisation works, the joint venture is installing a biogas production unit, which will allow the plant to produce green electricity and heat from sewage sludge, which is its own waste. This green electricity will then be used to meet part of the energy needs of the plant itself.

"BESIX is carrying out similar projects elsewhere in the world. In the Netherlands, BESIX Environment and BESIX NL have built two of the first energy-neutral wastewater treatment plants in the Benelux. Our colleagues at Six Construct have also built a biogas production unit for Ajman Sewerage, which was designed in coordination between the Brussels and Dubai teams and successfully completed in 2022", says Adrien. "This is a technology that we now master and that BESIX and its entities can offer worldwide: our success demonstrates that we can enter new markets effectively by combining expertise within the Group."

One-stop shop success story

It is not the first time that BESIX Environment and LuxTP join forces. Since 2018, they have worked together on several other wastewater treatment plants in Luxembourg. Over the years, the combination of the two companies has become a true one-stop shop success story. LuxTP and Mabilux bring their in-depth knowledge of the Luxembourg market and their strong local roots, whereas BESIX Environment provides the necessary technological expertise in the environmental field. Together, they have established themselves among the main players in the sector, with contracts of growing importance.

In addition to the Mamer project, the companies are close to complete the site execution of five other projects in the Grand Duchy of Luxembourg, namely in Consdorf, Wiltz, Nachtsmanderscheid, Bous, and Putscheid-Weiler-Stolzemburg.



A pioneering green energy solution for Ajman

BESIX Middle East is proud to announce that in the spring of 2022, its flagship Sludge-to-Energy project in the Emirate of Ajman has successfully passed performance and reliability tests. Designed and built by BESIX Middle East for Ajman Sewerage (Private) Company Limited (ASPCL), the facility transforms what was previously considered a waste stream – sewage sludge – into a valuable source of sustainable energy.



Project details

Ajman Sludgeto-Energy

LocationEmirate of Ajman (UAE)

Client ASPCL

Contract type Design & Build

Construction period 2019 - 2022





The facility, the first of its kind in the UAE, allows for the on-site production of green energy covering up to 72 % of the electricity consumption of the ASPCL wastewater treatment plant in Al Jurf. The facility comprises two power generators with a combined capacity of 2.4 MW, which is equivalent to the energy consumption of 2,000 households in the United Arab Emirates.

A circular, ecological and cost-saving solution

Sewage sludge is a residual organic by-product of biological wastewater treatment, which sewage treatment plants have historically disposed of in conventional landfills. Instead, the Ajman Sludge-to-Energy facility digests the sludge to produce biogas, which is then used to generate heat and electricity that is used in the wastewater treatment plant itself.

This solution has environmental advantages. In addition to reducing the wastewater treatment plant's reliance on the public power grid and providing a circular solution, the digestion process allows for a significant reduction of the sludge quantities, whilst avoiding the uncontrolled fermentation of unstabilised sludge which releases large quantities of greenhouse gases, generates odorous nuisance and poses a potential risk to public health.

In addition, the facility paves the way for further environmental upgrades such as the development of other by-products to recycle the sewage sludge into, such as organic fertilisers and alternative fuel for cement plants.

By utilising sludge to generate energy, ASPCL can reduce its energy costs and its carbon footprint, while also helping to reduce the volume of sludge that needs to be disposed of. This is an example of a sustainable and environmentally friendly approach to wastewater treatment.

Elias Sfeir, General Manager ASPCL

Design, construction, commissioning

The contract for designing and building the Sludge-to-Energy facility was awarded to BESIX Group by ASPCL in 2019 and construction continued throughout the Covid-19 period. This required a high level of creativity and flexibility from the project team and seamless cooperation between all stakeholders, including the local government electricity provider EWA (Etihad Water & Electricity).

This is the third Sludge-to-Energy project that BESIX has successfully commissioned in just five years. In the Netherlands, BESIX has successfully implemented similar biogas production and energy recovery schemes, including 100 % energy-neutral facilities.

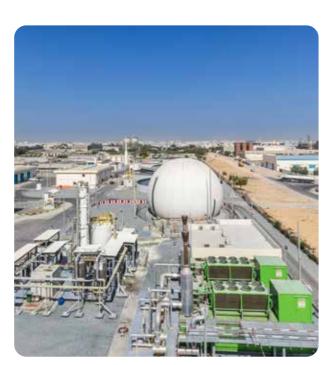
Compliant with UAE strategy and European standards

The Ajman Sludge-to-Energy facility is fully aligned with the UAE Federal Government's strategic environmental and energy objectives, in particular the UAE Green Agenda 2015-2030 and the UAE Net Zero programme, a strategic initiative led by the Ministry of Climate Change and Environment to drastically reduce the country's dependence on fossil fuels through the development of green energies.



Through the unwavering dedication and resilience of our team, we have successfully completed a project despite the challenges posed by Covid-19. This accomplishment has enabled ASPCL to not only generate clean energy but also effectively manage their waste, contributing to sustainable development. It's an honour to have played a role in this achievement. and I'm proud of our team's outstanding performance.

Khaled Abdallah, Project Manager BESIX Middle East (EPC)





Our O&M teams were involved in all stages of the project, from design to testing and commissioning, and received hands-on training provided by the construction team to ensure a smooth transition between construction and operations. The plant is easy to operate and maintain, and the use of predictive maintenance technologies ensures reliability and availability of the plant.

Mohammed Issa, Plant Operations & Maintenance Manager BESIX Middle East

Sludge-to-Energy in a nutshell

Sludge-to-energy refers to the process of generating energy from the organic material that is left over after wastewater treatment, known as sludge. The sludge is composed of bacteria, organic matter and other solids that have been removed from the wastewater during the treatment process.

The basic process to produce energy from sludge typically involves several steps. First, the sludge is stabilised through anaerobic digestion to break down the organic matter and reduce its volume. During the stabilisation process, methane gas is produced as a by-product. This gas, which is often referred to as biogas, is then captured and treated to remove impurities such as sulphur compounds. In the ASPCL plant, the biogas is consequently used to power two state-of-the-art Combined Heat Power Generators which in turn allow to cover up to 50 % of the plant's energy needs.

More about Ajman Sewerage

Since 2006, Ajman Sewerage (ASPCL) has played a central role in managing the wastewater of the Emirate of Ajman. The company brings together BESIX, which owns 40 %, the Government of Ajman (40 %) and Veolia (20 %). ASPCL, the first PPP in the Middle East in this field, built Ajman's entire wastewater collection network and treatment facilities, which were previously non-existent. ASPCL operates this infrastructure and continues to expand them by integrating new technologies. The plant has capacity to treat 148,000 m³ of wastewater a day and services a population of 550,000 people. As operator, BESIX also contributes to collection services, customer support and billing. This ensures continuous improvement of the plant to achieve optimal performance, thus reducing operating expenses. The plant operates 24/7 with an advanced management system, including preventive maintenance.

A pioneering environmental PPP in the Middle East

In Dubai, BESIX and Hitachi Zosen Inova (HZI) are currently realising one of the world's largest and technically most advanced waste-to-energy facilities. With a capacity of producing up to 200 MW of electricity from municipal waste, the project plays a key role in both Dubai's 2050 Clean Energy Strategy and its goal of zero waste to landfill by 2030. In addition to the construction, BESIX and HZI participated in the conceptualisation, design and financing of the plant and will co-manage its operations and maintenance for 35 years when operational. With this PPP, BESIX successfully demonstrates its ability to support public authorities from A to Z in the realisation of their strategic ambitions.



A growing portfolio of PPPs

The Waste-to-Energy project adds to BESIX's rapidly growing portfolio of environmental PPPs in the Middle East, including Ajman Sewerage and SAFI in Ajman and the ISTP2 venture in Abu Dhabi. The company has also started tendering for social infrastructure PPP projects in the region (e.g. schools, hospitals...). In this area, it won the contract for Zayed City Schools in May 2022.



Involvement from A to Z

The plant is designed to process 1.9 million tonnes of municipal waste per year, producing approximately 200 MW of electricity through incineration. This electricity will be fed into the national grid. The project started in 2017 as a tender from Dubai Municipality for the design and construction of a waste-to-energy plant. "As BESIX and HZI accompanied Dubai Municipality in the conceptualisation of the whole project, we could tailor it to the exact needs of our client. This has been an extremely effective collaborative effort, which has ultimately led to this major concession contract", explains Benoit Vadani, Vice President Business Development for BESIX Middle East.

BESIX and HZI have not only conceptualised and designed the installation. They are currently building it as well and are in charge of a 35-years operations and maintenance period, combining their proven track record in managing state-of the-art industrial facilities.

A positive impact on construction

BESIX started construction in July 2020 and has continued it at a steady pace ever since. At the end of 2022, all concrete works were substantially completed and the support buildings had entered the de-snagging and handing-over stage. In addition, the water treatment plant is fully operational, producing the demineralised and soft water required for the water steam cycle of the plant's heat recovery. On the façade as well, great progress was made with the building's final shape and outlook slowly being revealed.

The main challenge for 2023 is the execution of the remaining MEP works, although various areas have been powered-on permanently already. Partial deliveries are progressively taking place in the coming two years and the plant is expected to be fully operational in 2024.

Sustainability and first-class technologies

The Waste-to-Energy project plays a key role in both Dubai's 2050 Clean Energy Strategy and its goal of zero waste to landfill by 2030. Over its lifetime, the project will result in a total net reduction in emissions of 64.9 million tonnes of CO_2 equivalent compared to a scenario of continued landfill disposal and equivalent electricity generation from fossil fuel sources. In total, the project will initially divert 50 % of Dubai's municipal waste from landfill to generate electricity.

In addition, the facility implements several advanced and innovative technologies. For example, the plant is a zero-liquid project, which means that it will not produce industrial water effluent. Its water supply will come from a nearby wastewater treatment plant, which avoids the use of fresh water, while discharged water will be recycled within the plant itself. Metals will also be recovered from the incineration process, and residues from the flue gas treatment process will be recovered and safely disposed of.

Being involved at all stages of the project, in its design, but also in the development of how it will be operated in the long term, has a direct impact on the efficiency of construction. We are now benefiting from this full involvement and the resulting overall coherence, which has also enabled us to prepare the work in particular depth.

Peter Lembrechts, General Manager BESIX Middle East

4 years

35 years

O&M contract duration

1.9 million tonnes of municipal waste processed/year

200 MW electricity generation

64.9 million tonnes

net reduction in CO₂ equivalent landfill emissions

50 % of reduction of waste disposal in landfills

BESIX contributes to new state-of-the-art school campuses as part of Abu Dhabi's PPP programme

In May 2022, the Abu Dhabi Investment Office (ADIO), in collaboration with the Abu Dhabi Department of Education and Knowledge (ADEK), has awarded the contract for the Zayed City Schools public-private partnership (PPP) project to a consortium led by BESIX and Plenary Group, and subsequently achieved the commercial close. In July, the parties together with the lending banks reached the financial close. This project is the UAE's first public-private partnership in the field of school infrastructure, a pioneering project confirming BESIX's trusted status as industrial equity provider in the Middle East.

The Zayed City Schools PPP project covers the design, procurement, construction, financing, commissioning and 20-year operations, and maintenance of three new school campuses with an aggregate capacity of 5,360 students in Abu Dhabi's Zayed City. As a pathfinder project developed from origination to award under Abu Dhabi's new PPP regulatory framework, it will pave the way for increased private sector participation in delivering public infrastructure.

Best of both worlds

This unique, integrated PPP solution will be the first-of-its-kind vertically integrated PPP education solution for the MENA region and will maximise operational efficiencies by bringing together high-calibre education and building service providers under a single PPP project framework.

Mohamed Al Dhaheri, Acting Executive Director Business Enterprise, ADIO, said: "ADIO is proud to have delivered this procurement on time which has taken 17 months from the commencement of the business case to the commercial close. This is a record for the MENA region and, together with the quality of the tender documentation, has been considered a standout success. We want to be considered the gold-standard and to offer a PPP programme that local and international investors can participate in, safe in the knowledge that we will offer a high-quality and efficient procurement process that is central to Abu Dhabi's long-term vision for the future."

The campuses, catering to students from kindergarten to grade 12, will provide students access to high-quality learning environments and modern facilities, enhancing the attractiveness of Zayed City and Abu Dhabi. "We focus our efforts on enhancing education sector infrastructure to cater for students and parents throughout Abu Dhabi regions", said Dr Tareq Al Ameri, Executive Director Licensing Sector at ADEK. "With its world-class standards, the three new schools will empower more students to access quality education opportunities, to learn and thrive in a healthy and safe environment."

The education service at each campus will be provided separately by a Chartered School Operator.

Strong partners

For this project, BESIX in the Middle East has partnered with Australian Plenary Group, one of the world's leading investors, developers and asset managers of public-private partnership infrastructure projects, who has a solid track record of delivering projects across the world. Peter Lembrechts, General Manager, BESIX Middle East: "We are extremely proud to partner with the Abu Dhabi Government to develop and implement this pathfinder PPP project, providing our expertise in terms of financing, engineering, construction, and long-term maintenance. In Plenary Group we have found a world-class partner to develop and deliver this project. In this project, BESIX demonstrates how technical and operational know-how can be combined with specific development skills. As industrial equity provider, BESIX is ready to contribute to the delivery of an impressive programme of infrastructure development for social and economic growth in the GCC."

World-class school campuses

The campus buildings have a dual priority of academic excellence and high environmental performance and will feature state-of-the-art facilities and equipment, allowing for world-class, high-end education. The buildings have been designed and will be built with high sustainability objectives, complying with the Estidama Pearl 2. As low-energy buildings, they will focus on usage and consumptions efficiency. The partners will give priority to the use of locally produced building materials.

Construction on site has started during the third quarter of 2022 and will be completed in August 2024, with schools opening in September 2024.









Project details

Zayed City Schools

Location

Zayed City, Abu Dhabi (UAE)

lient

Abu Dhabi Investment Office (ADIO), in collaboration with the Abu Dhabi Department of Education and Knowledge (ADEK)

Contract type DBFMO

Total project value (funding needs)

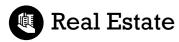
670 million Emirati dirhams (approx. 165 million euros)

Equity percentage 20 %

Construction period 2022 - 2024

Operations &
Maintenance period
20 years

The buildings will be low-energy buildings with a focus on usage and consumptions efficiency and the partners will give priority to the use of locally produced building materials.



Sluishuis, an iconic, sustainable, and stylish landmark where reality surpasses fiction

In 2022, BESIX RED's iconic project Sluishuis was delivered. Sluishuis is a 39,500 m² zero-energy residential building located on the IJ-lake, known as Amsterdam's waterfront. Commissioned by the Municipality of Amsterdam as part of a tender process, Sluishuis has been co-developed by BESIX RED and Dutch partner VORM and designed by the Danish Architects Bjarke Ingels Group and Dutch BARCODE Architects. The complex construction was entrusted to BESIX Nederland and VORM Bouw. A one-of-a-kind living experience.

Project details

Sluishuis

Category

New development

Project type

Residential

Location

Amsterdam (The Netherlands)

Total area

39,500 m² residential + 1,000 m² of catering facilities + 112 m² of retail space

Client

Municipality of Amsterdam

Investors

Bouwinvest and private owners

Developers

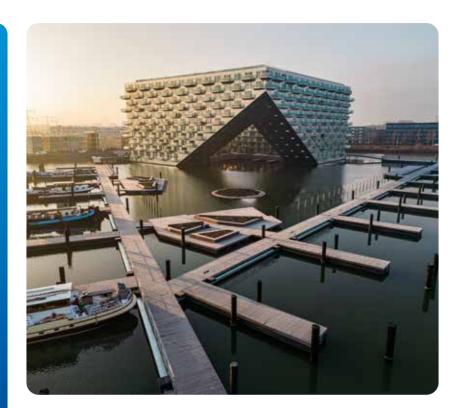
BESIX RED and VORM

Contractors

BESIX Nederland and VORM Bouw

Architects

Bjarke Ingels Group and BARCODE Architects







Sluishuis offers Amsterdam a new sustainable living experience, completely built on water. Sluishuis comprises 442 energy-neutral owner-occupied and rental apartments, 34 houseboat lots, 54 berths for pleasure crafts, and 1,112 m² of retail and catering facilities. The residential scheme is complemented by a fully integrated water landscape programme including a 400-metre long promenade and an archipelago of four islands for recreation, water sports, fauna and flora, as well as power generation. The project is publicly accessible: residents and visitors can benefit from the inner harbour, the scenic walk on the rooftop of the building and the islands.

Leading architecture

The remarkable architecture of Sluishuis is designed by Bjarke Ingels Group and Barcode Architects. From all angles, the building seems to incline towards a different side, which translates in exceptional residential units. The architectural design of the development includes one increased angle creating a large gateway – as if opening sluice gates – from the IJ-lake towards the inner harbour of the project. On the side of the embankment, a wide, publicly accessible walkway between the greenery of the apartment terraces gradually rises towards the rooftop.

Multidisciplinary expertise and Group synergy

With BESIX RED as the developer and BESIX Nederland as the contractor of the complex, Sluishuis is a prime example of BESIX Group's synergy and multidisciplinary expertise. The result of their shared vision is an iconic development in which sustainability and the well-being of both residents and visitors are rooted.

The building's iconic architecture also came with technical challenges. Sluishuis is built in the water on piles down to 60-metre depth, while its cantilever construction spans 50 metre in length on each side. Its two-storey underground car park is located below water level. "The synergy within BESIX Group and the multidisciplinary expertise of the teams involved, allowed us to turn our vision into reality. Leveraging on our extensive in-house knowhow from our different entities - for instance, the experience of our engineering and maritime departments - enabled us to propose the Municipality of Amsterdam, residents as well as visitors an architecturally and technically challenging strong concept", explains Thomas Veys, Country Director Netherlands, BESIX RED.



Sustainability at its best

Sluishuis is a prime example in terms of sustainability. A zero-energy building scoring -0,02 in terms of Energy Performance, it generates more energy than it consumes. The building's heating requirements are minimised by combining high-performance insulation techniques, triple glazing, and heat recovery on the ventilation systems and wastewater. Energy consumption is further reduced by a heat and cold storage (CHS) system in the ground for heat and cooling in combination with a connection to the district heating system for peak times. The remaining energy consumption for heating, heat pumps, ventilation, and LED lighting is fully compensated by approximately 2,200 m² of solar panels, to which an entire floating island adjacent to the project is dedicated. The development team of Sluishuis paid particular attention to green space and water collection.

On top of the building's environmental features, Sluishuis aims to stimulate and strengthen social connections and encounters.

Success among investors and residents

"In addition to the ambitious architecture conceived by BIG and Barcode Architects, BESIX RED was convinced by the ESG commitment of the project, entirely in line with our values. This formula proved to be successful and attracted the investor, Bouwinvest, as well as individual buyers looking for a unique living experience and a solid ESG investment", adds Gabriel Uzgen, CEO of BESIX Real Estate Development. Bouwinvest, specialised in managing real estate portfolios for institutional investors, bought a major part of the project, intending to rent the apartments.

Today, the project is almost completely sold out. Awarded 'Residential Building of the Year' by architectenweb and 'Best Architecture Multiple Residence' at the European Property Awards 2022, Sluishuis has also won a MIPIM Award in the category 'Best Residential Project'. These awards celebrate the most useful, sustainable, and innovative projects in the real estate sector worldwide.

442 residential units

234 carpark spaces

34 houseboat lots

54 berths for pleasure crafts



A sustainable working and living experience at the gateway to Brussels

"Creativity takes courage", Henri Matisse used to say. That is also true for real estate development. Matisse is BESIX RED's newest large-scale mixed-use development in Brussels. With well-being, sustainability, and connectivity at its heart, the project makes a bold statement and offers a comprehensive experience where working, living, and relaxing are combined.

Visibility and connectivity

The city begins at Matisse. Standing like an entry door to Brussels, Matisse is a 41,500 m² sustainable and high-performance mixed-use development including high-quality offices and housing units which will create a true urban and lively environment. The Matisse project benefits from a prime location next to a new transportation hub. Strategically located close to NATO Headquarters, it is at the crossroads of main axes to Brussels Airport. The site is set to become the epicentre of a new exemplary urban and multimodal hub: it is already directly connected in 10 minutes to both the EU District and the airport through the train station Bordet - literally at the doorstep of the building -, which will also soon welcome the terminus of a new metro line as well as a tramway line to the airport. "Mixed-use regeneration projects close to transportation hubs fit perfectly into our ESG strategy because living, working, and shopping under one roof enable short distance, promote a sense of community, while encouraging the use of soft mobility modes. That's the philosophy behind Matisse", says Raphaël Legendre, Country Director Belgium at BESIX

A new landmark to work and live

Matisse features contemporary offices, co-housing units, apartments as well as retail space and is integrated within a fully developed landscape. Designed by the award-winning Neutelings & Riedijk Architects, the project combines high-quality architecture with stringent environmental standards, functional, modern interiors, and plenty of green outdoor spaces. Out of the two buildings, the first one of 20,000 m² spreads over 14 floors and consists of offices, two rooftop terraces, a restaurant, a large bicycle parking, a car park, and retail space. The second one features 21.500 m² of apartments, co-living spaces, and areas for public equipment. The co-living facilities, alongside the offices, will bring a dynamic and warm community life to Matisse and its neighbourhood all around the clock. The design of the offices will place the well-being and health of its users at the centre of the experience, while also ensuring that the workspace is adjustable to future needs and advancements.

The bright, spacious offices will offer an open, elegant setting filled with light, greenery and a central atrium with a glass roof at the heart of the building. Its scheme features a flexible layout, allowing for single occupancy options as well as for multiple tenants. The open-plan workspaces and flexible offices are places where creativity and collaboration are encouraged, whereas comfortable lounges and informal meeting areas as well as outdoor spaces contribute to the overall well-being of employees. With a verdant rooftop terrace on the fourth floor, space for an urban garden on the fifth floor and great diversity of trees, plants and more greenery, Matisse prioritises green spaces throughout. The building has a green roof terrace that offers views on the city as well as a restaurant with promenade terrace, a cafeteria, a fitness with showers and changing facilities.

Bringing together circularity, sustainability, and aesthetics

Designed for maximal visual effect, but minimal environmental impact, the Matisse offices include a partial renovation of an existing building dating from the 1970s. Structural columns and beams will be retained, whereas a volume will be added. This will create a visual transformation of the setting. Five heat pumps, 1,100 m² of solar panels, and a rainwater recovery and infiltration system will participate in the sustainability of the project. Matisse has been designed to obtain a BREEAM Outstanding certification, a WELL Platinum reference and follows a fossil-free approach.

With a permit expected in 2023, Matisse is set to be delivered by the end of 2025.

Project details

Matisse

Category

Partial renovation and new development

Project type

Mixed-use

Location

Evere, Brussels (Belgium)

Total area

20,000 m² of offices and 21,500 m² of residential units

DevelopersBESIX RED

Architects

Neutelings Riedijk Architects & Axent

Expected certifications

BREEAM Outstanding & WELL Platinum



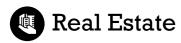






BESIX RED's mission has always been to enhance the well-being and comfort of end-users by developing sustainable and innovative spaces. Matisse testifies to our commitment to create better workplaces that not only comply with the highest ESG standards, but provide in the first place a healthy and productive environment for people and businesses to thrive in.

Gabriel Uzgen, CEO BESIX RED



PURE, an urban regeneration project in Lille Métropole

With the sustainable office project PURE in Lille, BESIX RED consolidates its position on the French real estate market. After the achievement of 'Perspective' in 2012, the real estate developer further pursues its geographical diversification in strategic and dynamic European cities. Designed by the renowned architect Coldefy and the local landscape architect LAND, PURE will feature 8,000 m² of modern offices embracing a concept rooted in the well-being of users.

Project details

PURE

Category
New development

Project type Offices

Location

La Madeleine, Lille Metropolitan Area (France)

Total area

8,000 m² and 1,000 m² garden

Developer BESIX RED

Architect

Coldefy

Landscape architect

Expected certificationsBREEAM Excellent and WELL reference







An attractive localisation with excellent connectivity

Characterised by a strong demand, particularly in large cities such as Paris and Lille, the French real estate market offers many opportunities. With a growing population and consequently a high and ever-increasing demand for sustainable and qualitative buildings, the real estate market of Lille, capital of the Hauts-de-France region in Northern France, and its metropolis offer a positive economic outlook. Lille ranked first as France's most attractive city for businesses, in the 2022 ranking from the business magazine Challenges. The city also reached the highest score for its attractiveness to families and commitment to sustainability.

"Lille's strong and diversified economy offers a stable foundation for the pursuit of our geographical diversification", explains Stéphan Leturgez, Country Director France at BESIX RED. "The fact that Lille is well-connected with other major cities in Europe and offers easy accessibility, makes it attractive for both businesses and residents. For several years, the city has been undergoing significant urban renewal, to which we want to contribute with PURE", he continues.

PURE is located on Avenue de la République in La Madeleine, at the entrance of Lille. This area is known as the 'Grands Boulevards', and famous for its accessibility, its strong functional mix, and its immediate proximity to the main European cities. PURE benefits from excellent connectivity: it is a ten-minute walk from Euralille, as well as from Lille Europe International station and has the 'Romarin' tram stop and public bicycle hire at its doorstep.

The fact that Lille is well-connected with other major cities in Europe and offers easy accessibility, makes it attractive for both businesses and residents. For several years, the city has been undergoing significant urban renewal, to which we want to contribute with PURE.

Stéphan Leturgez, Country Director France at BESIX RED

A pure architecture and wellthought-out landscaping

Designed by Coldefy architects, PURE features a sleek and refined architecture, with a strong landscaping component. The 8,000 m² offices are filled with light and greenery and foster a spirit of collaboration and co-creation, while the building's layout addresses the need for flexible and healthy working environments.

The building is arranged as two wings enclosing the central atrium, which is wrapped in a glass façade. The light-filled atrium is the heart of the building and a place where people can relax and interact. Each level features meeting cubes with views on the atrium of the building. As an extension to the workplace, several terraces will provide tenants with a large open-air space filled with plants and outdoor seating.

PURE offices are modular and can accommodate one single or multiple companies. Alongside classic offices, PURE features flex offices providing versatility and adaptability to the changing needs of businesses. The project bathes in natural light and benefits from high-quality finishes, which ensures a comfortable and aesthetically pleasant working environment. Finally, PURE is surrounded by lush greenery, including a 1,000 m² garden in its internal courtyard. The landscaping aspect of the project is entrusted to LAND.

Sustainability and well-being at core

Designed with well-being at heart, PURE is conceived as a fossil-free and smart building. It is designed to achieve BREEAM 'Excellent' and WELL-certifications. The offices are equipped with energy-efficient technologies such as solar panels and heat pumps, resulting in lower energy consumption compared to average.

Gabriel Uzgen, CEO BESIX RED says: "BESIX RED places sustainable development and performance at the centre of its strategy and values. Since 2021, BREEAM Excellent has been the minimum score we consider for all our office developments. Mobility and transport connections are an integral part of the ESG due diligence for new acquisitions. Central and well-connected locations are core criteria of our selected development opportunities. Users' well-being is also in our roots. WELL-labelling of office operations starts in the design phase where we target at least a Gold score. PURE has it all."

With the building permit obtained in September 2022, PURE's delivery is expected for Q3 2025.